

*Civil Aviation Authority v Robert Knowles: The First Conviction in the UK for the Illegal Use of an Unmanned Aircraft and how it Can Help Improve Regulations within the European Union*

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## Abstract

Traditionally unmanned aerial systems (UAS) were used for military purposes. The market is, however, changing and UAS are becoming more relevant for governments and private entities within the civil sector. With this change, the law must also adapt to reflect the current situation, thus allowing for it to be appropriately regulated. The purpose of this paper is to examine the court case that witnessed the United Kingdom's (UK) first conviction for the illegal use of an UAS and to apply it to the current legal situation within the European Union (EU) and to the European Commission's draft regulatory proposals, with the aim of highlighting any weaknesses, which can allow for a proactive approach to be adopted towards developing the law appropriately in this emerging area. This will be achieved by firstly clarifying the terminology that is used in this area, therefore allowing the activity in question to be better understood. The second section will analyse UK Civil Aviation Authority (CAA) v Robert Knowles, as this will be the centre of analysis for this essay. The third and fourth stages will explore the current international rules under the Chicago Convention 1944 and at the EU level, with special focus given to the European Aviation Safety Agency. The purpose behind this is to illuminate the current status of the law within the EU and expose any weaknesses stemming from the analysis of CAA v Knowles. The fifth step will examine the Commission's new proposal for an all-encompassing regulation within the EU. This will be done as any weaknesses in the proposal, which may come to light through this essay, can be known prior to the proposal's transition into law. Thus, allowing for a proactive approach to be adopted towards developing the law appropriately in this emerging area.

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## 1. Introduction

The history of unmanned aerial systems (UAS) is almost as long as piloted aviation.<sup>1</sup> Their use, however, did not materialise until World War II where pilotless aircraft, such as the V-1, were used as flying bombs that were programmed to crash after a certain period of time.<sup>2</sup> Due to their history, UAS have predominantly been used for military applications with the most well-known modern example being the Predator, which has been flown by the United States (US) Air Force in the skies over Iraq, Afghanistan, Bosnia, Kosovo, and Korea.<sup>3</sup> During these operations, the Predator was used to broadcast live video footage of enemy actions; destroy enemy targets with its own weapons; and locate targets for precision weapons fired from a distance.<sup>4</sup>

The market is, however, changing and UAS are becoming more relevant for governments and private entities within the civil sector. Not only are UAS becoming more relevant, their civil application is also expanding, for example, they are being used for safety inspections of infrastructure, such as rail tracks, dams, dykes and power grids.<sup>5</sup> In addition, national authorities are utilising UAS in disaster relief actions, such as in flooded areas and for forest fires.<sup>6</sup> Private entities are also actively participating in this developing area, for instance engineers are currently developing micro-UAS which may be able to fix gas pipe leaks or imitate bees by pollinating plants.<sup>7</sup> Finally, individuals for non-commercial purposes are partaking in amateur building and flying of UAS for recreational use.

There are currently around 500 UAS manufactures in the world, in which Europe hosts approximately one third and with its continuous expansion it is predicted that this growth

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<sup>1</sup> Bone, Elizabeth and Bolkcom, Christopher, 'Unmanned Aerial Vehicles: Background and Issues for Congress', *Congress Research Service, RL31872*, 25<sup>th</sup> April, 2003, page 6.

<sup>2</sup> Degarmo, Matthew, 'Issues Concerning Integration of Unmanned Aerial Vehicles in Civil Airspace', *MP 04W0000323* (2004), pages 1 – 2.

<sup>3</sup> Lazarski, Anthony, 'Legal Implications of the Uninhabited Combat Aerial Vehicle', *16 (2) Aerospace Power Journal* 74 – 83 (2002), page 75.

<sup>4</sup> Peterson, Mark, 'The UAV and the Current and Future Regulatory Construct for Integration into the National Airspace System', *71 Journal of Air Law & Commerce* 521 (2006), page 548.

<sup>5</sup> Commission, 'Remotely Piloted Aviation Systems (RPAS): Frequently Asked Questions', Memo, Brussels, 8<sup>th</sup> April, 2014, page 1.

<sup>6</sup> *Ibid.*

<sup>7</sup> *Ibid.*

will create up to 150,000 European jobs by 2050.<sup>8</sup> The growth is further demonstrated as more than 1,000 operators have been granted operating licences in Europe. For example, in France the amount of approved operators was 86 in December, 2012 and this has since increased to 431 in February, 2014. All of this evidence has led some to estimate that in the next 10 years civil UAS could be worth 10 percent of the world's aviation market amounting to €15 billion per year.<sup>9</sup> Therefore, this emerging sector has a significant application within the European Union (EU) and it should, therefore, be taken seriously by the regulators in order to ensure that the market thrives and is properly regulated.

In light of these new developments, it is the purpose of this essay to explore whether the current EU legal regime is sufficient enough to regulate civil UAS. This essay will achieve this by firstly defining what UAS are, thus giving further clarity. Secondly, the recent and first United Kingdom (UK) conviction for the illegal use of a civil UAS will be explored in order to act as a base that may highlight lacunas in the current EU law. Thirdly, significant elements of EU aviation law, the Chicago Convention 1944 (CC44) and the current competences of the European Aviation Safety Agency (EASA) will be examined to show the current status of the law regulating UAS in the EU. It will therefore be possible to observe any shortcomings in the law that may result from the analysis of the UK case. Fourthly, the European Commission (Commission) is currently engaged in preparing a policy on civil UAS, therefore this proposal will be examined in order to see if it is sufficient enough to remedy the issues raised in this essay. Finally, the impact of the findings of this work will be evaluated.

## 2. Terminology

In order to examine the potential problems for the regulation of UAS stemming from the recent case in the UK, the practicalities of UAS must be examined, therefore allowing the activity in question to be better understood. An UAS is an 'aircraft' whereby a pilot is not located within the vehicle. ICAO, in an Annex to the CC44, provides the standard definition

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<sup>8</sup> *Ibid*, page 2.

<sup>9</sup> *Ibid*, page 2.

of an 'aircraft'<sup>10</sup> and as both winged and helicopter UAS's operate in the same manner as conventional aircraft, it follows that they satisfy this definition.<sup>11</sup> Support for this reasoning is found within Article 8 of the CC44 as it clearly demonstrates the possibility of UAS as aircraft.<sup>12</sup> Additionally, UAS must be unmanned, either being remotely or autonomously controlled, which is demonstrable by factual observation. Therefore, UAS currently do not pose any new definitional problems.<sup>13</sup>

UAS have been identified throughout their history under several different titles and this can lead to some confusion and because of this the terminology will be clarified. The term 'drone' was often used in pre-Gulf War times, but this term is becoming politically unpopular, so governmental and non-governmental entities often avoid this term.<sup>14</sup> The US Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) have often referred to them as 'Remotely Operated Aircraft (ROAs)'.<sup>15</sup> However, there has been a recent shift in the terminology which has seen 'Unmanned Aircraft (UA)' and 'UAS' being used within the US.<sup>16</sup> In addition to this, the EU, EASA<sup>17</sup> and ICAO<sup>18</sup> widely refer to 'UAS'. Finally, the term 'unmanned aerial vehicle (UAV)' is often popularly used.<sup>19</sup> Due to the general consensus among the international community and because all of the terms refer to the same type of vehicle, this paper will adopt the term 'UAS'.

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<sup>10</sup> "Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface." International Civil Aviation Organisation, Annex 2, 6 & 8 to the Convention on International Civil Aviation, 61 Stat. 1180, 15 U.N.T.S. 295 (1944). [Herein: CC44]

<sup>11</sup> It may be possible with the advancement of technology that not all forms of UAS may fall under the definition of 'aircraft' so caution must be given when categorising these developing vehicles.

<sup>12</sup> CC44, Article 8.

<sup>13</sup> Issues may arise with the emergence of hybrid drones, those which utilise both aircraft and rocket technology, as well those that simply rely on rocket technology. This has been the case in the emerging area of suborbital activities. See, Scott, Benjamyn, 'The Regulation of Personal Injuries in International Carriage by Suborbital Vehicles under Air Law', *15 Aviation and Space Journal 2* (2014).

<sup>14</sup> Peterson, Mark, 'The UAV and the Current and Future Regulatory Construct for Integration into the National Airspace System', *71 Journal of Air Law & Commerce 521* (2006), page 528.

<sup>15</sup> *Ibid.*

<sup>16</sup> See, FAA, 'Unmanned Aircraft (UAS): Questions and Answers' – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.faa.gov/about/initiatives/uas/uas\\_faq/#Qn3](http://www.faa.gov/about/initiatives/uas/uas_faq/#Qn3).

<sup>17</sup> See, EASA, 'Policy Statement – Airworthiness Certification of Unmanned Aircraft Systems (UAS)', *E.Y013-01* (2009).

<sup>18</sup> See, ICAO, Unmanned Aircraft Systems (UAS), *Cir 328 AN/190* (2011).

<sup>19</sup> Kaiser, Stefan, 'UAVs and Their Integration into Non-segregated Airspace', *36(2) Air and Space Law 161–172* (2011).

There is, however, a distinction made by the Commission within UASs and this needs to be briefly addressed.<sup>20</sup> Firstly, the Commission refers to Remotely Piloted Aviation Systems (RPAS) which are UAS that are controlled by a human pilot from a remote location. Secondly, there are unmanned drones which are vehicles that are autonomously operated rather than piloted, of which have just entered the private commercial market.<sup>21</sup> The latter is not yet authorised for use by ICAO or under EU rules,<sup>22</sup> but in order to make this essay more inclusive and because unmanned drones may be authorised in the future, this distinction will not be made in this essay, thus following the same position of Joint Authorities for Rulemaking on Unmanned Systems (JARUS).<sup>23</sup>

### 3. The United Kingdom Civil Aviation Authority v Robert Knowles

In recent years there has been a proliferation of EU Member States adopting legislation to regulate the operations of UAS.<sup>24</sup> As a result of this, the UK in 2014 saw the first successful prosecution for the dangerous and illegal flying of an UAS under its national law.<sup>25</sup> Whilst this is a UK case, the regulations in this area, both nationally and internationally, are fragmented and in their infancy, and because of this the case may prove influential and beneficial in the development of UAS regulation within the EU.

On the 25<sup>th</sup> August, 2013 an UAS was recovered by a BEA Systems employee from the waters located near to a nuclear submarine testing facility operated by the public limited defence company BAE Systems in Barrow-in-Furness, UK.<sup>26</sup> BEA Systems then handed the UAS to the police. The UAS was a £2,000 delta-wing which had a wingspan of 1.35m and

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<sup>20</sup> Commission, 'Remotely Piloted Aviation Systems (RPAS)', Memo, Brussels, 8<sup>th</sup> April, 2014. ICAO also makes this distinction.

<sup>21</sup> See, Pocket-Lint, 'Hexo+ drone will follow you, filming with your GoPro, being less creepy than it sounds' – (Viewed: 21<sup>st</sup> June, 2014) – Sourced: [www.pocket-lint.com/news/129449-hexo-drone-will-follow-you-filming-with-your-gopro-being-less-creepy-than-it-sounds](http://www.pocket-lint.com/news/129449-hexo-drone-will-follow-you-filming-with-your-gopro-being-less-creepy-than-it-sounds).

<sup>22</sup> See, Commission, 'Remotely Piloted Aviation Systems (RPAS): Frequently Asked Questions', Memo, Brussels, 8<sup>th</sup> April, 2014.

<sup>23</sup> Joint Authorities for Rulemaking on Unmanned Systems, 'Home' – (Viewed: 21<sup>st</sup> June, 2014) – Sourced: <http://jarus-rpas.org/>.

<sup>24</sup> The EU Member States include: Sweden, France, Denmark, Belgium, Italy, Germany, Czech Republic, Lithuania and the UK. Commission, 'Remotely Piloted Aviation Systems (RPAS): Frequently Asked Questions', Memo, Brussels, 8<sup>th</sup> April, 2014.

<sup>25</sup> The United Kingdom Civil Aviation Authority v Robert Knowles (unreported) (2014).

<sup>26</sup> BAE Systems, 'Home' – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.baesystems.com/home](http://www.baesystems.com/home).

weighed 1.86kg.<sup>27</sup> Attached to the vehicle was a camera<sup>28</sup> and analysis of the video footage by the police “revealed that during its flight it had skimmed over the busy Jubilee Bridge over [the] Walney Chanel.”<sup>29</sup> In addition to this, the footage revealed that it “had also flown through restricted airspace around the nuclear submarine facility before it inadvertently landed in the water.”<sup>30</sup> The police then traced the UAS back to Mr Robert Knowles who admitted building and then operating it on the day in question.

The relevant UK law relating to this subject is contained within CAP393 Air Navigation: The Order and the Regulations 2009.<sup>31</sup> CAP393 makes a distinction between UAS depending on weight and because Knowles’ UAS weighed less than 20kg, it is classified as a ‘small unmanned aircraft’ pursuant to Article 255.<sup>32</sup> Knowles was convicted of two offences relating to the unlawful operations of a small unmanned aircraft. The first offence was for flying a small unmanned surveillance aircraft within 50 metres of a structure pursuant to Article 167(2)(c) of the Air Navigation Order.<sup>33</sup> This Article was satisfied as the UAS was flown over the Jubilee Bridge.<sup>34</sup> The second conviction was for flying the UAS in restricted airspace over a nuclear installation pursuant to Regulation 3(2) of the Air Navigation

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<sup>27</sup> Drone Makers, ‘First UK Prosecution for Dangerous Usage of a Drone’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: <http://www.dronemakers.com/uk-prosecution-dangerous-usage-drone/>.

<sup>28</sup> The retrieved footage is accessible on YouTube. See, YouTube, ‘Walney Channel, Robert Knowles Prosecution Flight’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.youtube.com/watch?v=hriyv8WRHg4](http://www.youtube.com/watch?v=hriyv8WRHg4).

<sup>29</sup> Civil Aviation Authority, ‘First Conviction for Illegal Use of an Unmanned Aircraft’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.caa.co.uk/application.aspx?catid=14&pagetype=65&appid=7&mode=detail&nid=2348](http://www.caa.co.uk/application.aspx?catid=14&pagetype=65&appid=7&mode=detail&nid=2348).

<sup>30</sup> *Ibid.*

<sup>31</sup> The overriding Article within the legislation is Article 138, which covers the subject of endangerment and applies to all aviation activity at all times: “A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property.” CAP393 Air Navigation: The Order and the Regulations (ANO 2009), Article 138. [Herein: CAP393]

<sup>32</sup> “‘Small unmanned aircraft’ means any unmanned aircraft, other than a balloon or a kite, having a mass of not more than 20kg without its fuel but including any articles or equipment installed in or attached to the aircraft at the commencement of its flight.” CAP393, Article 255.

<sup>33</sup> “(1) The person in charge of a small unmanned surveillance aircraft must not fly the aircraft in any of the circumstances described in paragraph (2) except in accordance with a permission issued by the CAA. (2) The circumstances referred to in paragraph (1) are:(c) within 50 metres of any vessel, vehicle or structure which is not under the control of the person in charge of the aircraft.” CAP 393, Article 167(2)(c).

<sup>34</sup> The flight path and the location of the crash took the UAS within close proximity of several vessels. This would result in further breaches of Article 167(2)(c). In addition, the offences could have been more as the bridge is used by pedestrians which could have resulted in a violation of Article 167(2)(d) if any persons were in the vicinity. Furthermore, the UAS landed near vessels, of which were inhabited at the time would breach Article 167(3). CAP 393, Article 167(3).



(Restriction of Flying)(Nuclear Installations) Regulations 2007.<sup>35</sup> As Knowles' acts breached the UK's Air Law and as the UK CAA deemed the incident to be of 'sufficient seriousness' to warrant prosecution,<sup>36</sup> the case was then brought in front of District Judge Gerald Chalk<sup>37</sup> at Furness and District Magistrates' Court. Knowles was found guilty on 1<sup>st</sup> April, 2014 and fined £800 plus costs of £3,500.<sup>38</sup> The UK CAA is currently investigating several other possible violations.<sup>39</sup>

#### 4. Chicago Convention 1944

The CC44 is directly applicable to civil aircraft pursuant to Article 3(a). As stated above, UAS are aircraft as prescribed under the Annexes to the CC44.<sup>40</sup> Furthermore, the emerging market for UAS is within the context of civil use, so the CC44 is applicable to the current analysis. In addition to this, Amendment 43 of Annex 2 specifically modifies the Annex to cover UAS<sup>41</sup> and ICAO is currently working on Annex 20 which will focus upon UAS.<sup>42</sup> Thus, the ICAO rules are applicable to UAS and as every EU State is a Party to the CC44, it may provide some relevant regulations for UAS within the EU.

The CC44 under Article 8 makes specific reference to UAS.<sup>43</sup> Therefore, there is a clear obligation for the operators of UAS not to conduct their activities above the territory of

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<sup>35</sup> "Subject to regulations 4 to 13, no aircraft is to fly over a nuclear installation to which this regulation applies below the height above mean sea level specified in Column 4 of the Second Schedule opposite its name." The Air Navigation (Restriction of Flying)(Nuclear Installations) Regulations 2007, Regulation 3(2).

<sup>36</sup> Private Communications with Richard Taylor, Corporate Communications at the United Kingdom's Civil Aviation Authority, 22<sup>nd</sup> April, 2014. See, Civil Aviation Authority, 'Conduct of Prosecutions by the CAA as a Prosecutor', – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.caa.co.uk/docs/503/CAAProsecutionsPolicyV2\\_16092009.pdf](http://www.caa.co.uk/docs/503/CAAProsecutionsPolicyV2_16092009.pdf).

<sup>37</sup> Justices of the Peace are locally sourced volunteers with no required formal legal qualifications and these usually preside over cases at the Magistrates' Court. However, in more complex or sensitive cases District judges, which are legally qualified, paid and full-time professionals, may hear the case.

<sup>38</sup> Most cases held at a Magistrates' Court are brought to Court by the Crown Prosecution Service (CPS), but due to the content of the case, the UK CAA prosecuted.

<sup>39</sup> The UK CAA was unable to discuss pending cases.

<sup>40</sup> See, Chapter 2.

<sup>41</sup> Adoption of Amendment 43 to Annex 2 AN 13/1.1-12/19, 10<sup>th</sup> April, 2014.

<sup>42</sup> See, ICAO, 'UAS Documents' – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.icao.int/Meetings/UAS/Pages/UAS\\_Documents.aspx](http://www.icao.int/Meetings/UAS/Pages/UAS_Documents.aspx).

<sup>43</sup> "No aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a contracting State without special authorization by that State and in accordance with the terms of such authorization. Each contracting State undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft." CC44, Article 8.

another contracting State without prior consent.<sup>44</sup> This poses few problems within the context of *CAA v Knowles* as the UK does not share any land borders with other States. Furthermore, small unmanned aerial vehicles under UK law are required to be flown with unaided visual contact.<sup>45</sup> The likelihood of infringing Article 8 within the UK is minimal. However, this may be a point of concern for States that share land borders, especially those with non-EU States, such as Russia, Belarus, Ukraine and Turkey. Thus, this must be taken into consideration when drafting the new EU regulations.

UAS should also follow other applicable obligations set forth in the CC44, such as Article 20 which declares that “[e]very aircraft engaged in international air navigation shall bear its appropriate nationality and registration marks.” Thus, UAS must be registered and those involved in international air navigation must bear certain marks that indicate the nationality and such registration.

It has been shown above that UAS satisfy the definition of ‘aircraft’ set forth in the CC44’s Annexes. Under this definition, there are many kinds of aircraft, such as balloons, gliders, aeroplanes and rotorcraft, and each of these may potentially have unmanned versions in the future.<sup>46</sup> However, ICAO has noted that “[i]n the broadest sense, the introduction of UAS does not change any existing distinctions between model aircraft and aircraft.”<sup>47</sup> ICAO has defined ‘model aircraft’ as those generally recognised as intended for recreational purposes only, such as that used by Knowles. Therefore, Knowles’ activities fall outside the scope of the CC44 and are exclusively the subject of the relevant national regulations.<sup>48</sup> In the absence of any national laws regulating this activity, it may be possible to enter the territorial sovereignty of a State with a model UAS in contradiction of a fundamental

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<sup>44</sup> Article 8 CC44 makes reference to aircraft that are “capable of being flown without a pilot”. This can be interpreted to mean that the pilot is not physically on board the aircraft. Alternatively, it can also be interpreted as to include only pre-programmed autonomous aircraft, whereby there is a complete absence of a pilot on board and outside of the aircraft. It is unclear which interpretation prevails from the text of the Article. However, ICAO appears to favour the first interpretation. See, ICAO, *Unmanned Aircraft Systems (UAS)*, Cir 328 AN/190 (2011).

<sup>45</sup> “The person in charge of a small unmanned aircraft must maintain direct, unaided visual contact with the aircraft sufficient to monitor its flight path in relation to other aircraft, persons, vehicles, vessels and structures for the purpose of avoiding collisions.” CAP393, Article 166(3).

<sup>46</sup> *Unmanned Aircraft Systems (UAS) - Cir 328 AN/190* (2011), page 4.

<sup>47</sup> *Ibid*, page 3.

<sup>48</sup> *Ibid*.

principle of air law<sup>49</sup> without fear of prosecution. In addition, such vehicles will not have to comply with the other provisions on safety and security.

## 5. European Union

The EU Member States have divested some of their aviation competencies to the EU pursuant to Article 100(2) of the Treaty of the Functioning of the European Union (TFEU) (ex-Article 80 TEC),<sup>50</sup> therefore EU law must be examined in order to assess the legal status of UAS. Whilst there is currently a lack of regulation that specifically encompasses UAS, the EU has however extensively regulated aviation,<sup>51</sup> of which UAS fall under its scope.

Regulation (EC) No 1008/2008, one of the main building blocks of air law within the EU, regulates “the licensing of Community air carriers, the right of Community air carriers to operate intra-Community air services and the pricing of intra-Community air services.”<sup>52</sup> Within the context of UAS, it is important to examine the meaning of both ‘Community air carriers’ and ‘air services’ in order to assess whether UAS come under the scope of the Regulation. Firstly, a ‘Community air carrier’ as defined under Article 2 is “an air carrier with a valid operating licence granted by a competent licensing authority in accordance with Chapter II.” Chapter II Article 3(3)(a) declares that the Regulation shall not apply to “ultralight power-driven aircraft”. Whilst the Regulation does not quantify ‘ultralight’, it is possible that Knowles’ 1.86kg model UAS would be exempt as its weight falls well below that of traditional aircraft. Secondly, ‘air service’ is defined under Article 2 as “a flight or a series of flights carrying passengers, cargo and/or mail for remuneration and/or hire.”

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<sup>49</sup> The Convention Relating to the Regulation of Aerial Navigation, 11 L.N.T.S. 173 (1919) (Paris Convention) “cemented the prevailing customary principle of State sovereignty over air space.” Milde, Michael, *International Law and ICAO*, First Edition (Eleven International Publishing, 2008), page 11. The matter was raised again in 1944 which resulted in the Article 1 of the CC44 which declared that “[t]he contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory.” Therefore, the territorial sovereignty of a State is a fundamental element of air law.

<sup>50</sup> “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.” Consolidated Version of the Treaty on the Functioning of the European Union, O.J. C 115/47 (2008), Article 100(2).

<sup>51</sup> British Government, ‘Key EU transport legislation’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/204589/legislation-table.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204589/legislation-table.pdf).

<sup>52</sup> Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24<sup>th</sup> September, 2008 on Common Rules for the Operation of Air Services in the Community (Recast), Article 1.

Factual observations of UAS show that they do not carry passengers and the carriage of cargo and mail is very limited. Thus, it is clear that a fundamental component of EU air law, Regulation 1008/2008, does not apply to UAS.

These activities are also likely to fall outside the context of the current air service agreements negotiated by the Commission.<sup>53</sup> This can be highlighted by one of the most liberal air service agreements; US – EU Open Skies Agreement.<sup>54</sup> If an EU aircraft wishes to exercise transit and/or traffic rights with the US, then this is permitted pursuant to Article 3. However, such rights will only be granted to ‘air transportation’. Under the current Agreement this refers to “carriage by aircraft of passengers, baggage, cargo, and mail, separately or in combination, held out to the public for remuneration or hire.”<sup>55</sup> It is clear that UAS do not facilitate such a service and subsequently, they do not have such rights.

Therefore, an important body of EU law pertaining to aviation has a very limited or no application to UAS.

## 6. European Aviation Safety Agency

EASA’s competencies are set out in Regulation 216/2008 (the Regulation)<sup>56</sup> which sets forth EASA’s role in establishing and maintaining a high uniform level of civil aviation safety in Europe.<sup>57</sup> Consequently, “[o]n this basis, save where otherwise provided, the design and

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<sup>53</sup> This is also likely for those which pre-date the Commission’s involvement in air service agreement negotiation; 1992. However, this would need to be analysed on a case-by-case basis, of which falls out of the scope of this essay.

<sup>54</sup> US – EU Air Transport Agreement, 04/30/07 (2007).

<sup>55</sup> *Ibid.*

<sup>56</sup> Regulation 216/2008 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, Amended by Commission Regulation (EC) No 690/2009 of 30 July 2009; Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009; and Commission Regulation (EU) No 6/2013 of 8 January 2013.

<sup>57</sup> “Drafting aviation safety legislation and providing technical advice to the European Commission and to the Member States; Inspections and training to ensure uniform implementation of European aviation safety legislation in all Member States; Airworthiness and environmental type-certification of aeronautical products, parts and appliances; Approval of aircraft design organisations world-wide and of production and maintenance organisations outside the EU; Coordination of the European Community SAFA (Safety Assessment of Foreign Aircraft) programme; [and] Coordination of safety programmes, data collection, analysis and research to

manufacture of the UAS must be in accordance with the relevant certification specifications similar to manned aircraft and they must be issued with a Certificate of Airworthiness.”<sup>58</sup> Due to this, the Commission has envisaged that EASA is best placed to develop a set of common rules that will bring UAS in line with ICAO standards.<sup>59</sup> However, when the Regulation is applied to the facts of *CAA v Knowles*, there may be certain limitations which could have a profound impact on the regulation of UAS in the EU.

Article 1(2) of the Regulation declares that it does not apply to those UAS “engaged in military, customs, police or similar services.” Whilst this does not pose an issue under *CAA v Knowles*, it is a point that should be considered in the Commission’s new proposal. This is because, firstly, the inclusion of “similar services” leaves the situation open to wide interpretation. Secondly, the design of UAS, especially those fitted with surveillance equipment, means that they may already be capable of non-civil uses without modification. Therefore, this may result in many UAS falling outside the scope of EASA’s competencies. Whilst, in a recent unreported case, the UK CAA has demonstrated that it is observing the use of UAS, as a Mr Lawrence Clift received a caution for selling photographs obtained from an UAS as this is in violation of UK aviation law.<sup>60</sup> However, this may not be the case in other jurisdictions.

Under Annex II(b) of the Regulation, an aircraft of any mass that is “specifically designed or modified for research, experimental or scientific purposes, and likely to be produced in very limited numbers” falls outside the scope of EASA’s competencies. Knowles admitted to

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improve aviation safety.” EASA, ‘What We Do’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: <http://easa.europa.eu/the-agency/easa-explained/what-we-do>.

<sup>58</sup> Schellinck, Melchior and Macara, Peter, ‘European Union: Next Generation Civil Aviation: Unmanned Air Vehicles - Applicable Legislation and Shortcomings’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.mondaq.com/x/164228/Aviation/Next+Generation+Civil+Aviation+Unmanned+Air+Vehicles+Applicable+Legislation+And+Shortcomings](http://www.mondaq.com/x/164228/Aviation/Next+Generation+Civil+Aviation+Unmanned+Air+Vehicles+Applicable+Legislation+And+Shortcomings). See, EASA, ‘Policy Statement – Airworthiness Certification of Unmanned Aircraft Systems (UAS)’, *E.Y013-01* (2009). Within Regulation 216/2008, such as the definitions provided under Article 3, there appears to be an insufficient definition of ‘aircraft’. There is no specific mention to UAS within the definitions and this may suggest that they are excluded from EASA’s competencies. However, Annex II declares that “unmanned air vehicles having an operating mass below 150kg” which could lead to the conclusion that those weighting 150kg or more must comply with the essential airworthiness rules that the EU Agency will have to establish.” Therefore, UAS above 150kg must be included in the regulation. Masutti, Anna, ‘Proposals for the Regulation of Unmanned Air Vehicle Use in Common Airspace’, *34(1) Air and Space Law 1 – 12* (2009), page 3.

<sup>59</sup> Commission, ‘Remotely Piloted Aviation Systems (RPAS)’, Memo, Brussels, 8<sup>th</sup> April, 2014, page 4.

<sup>60</sup> Civil Aviation Authority, ‘First Conviction for Illegal Use of an Unmanned Aircraft’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.caa.co.uk/application.aspx?catid=14&pagetype=65&appid=7&mode=detail&nid=2348](http://www.caa.co.uk/application.aspx?catid=14&pagetype=65&appid=7&mode=detail&nid=2348).

building his own UAS, thus demonstrating that constructing “specifically designed or modified” technologies is within the capacities of members of the public. Furthermore, due to the nature of UAS, they are often used for surveillance, which may bring them into line with “research, experimental or scientific purposes”. Thus, a significant portion of UAS may be exempt from the Regulation.

Annex II(c) of the Regulation declares that “aircraft of which at least 51 % is built by an amateur, or a non-profit making association of amateurs, for their own purposes and without any commercial objective” are exempt. Therefore, it is clear that Knowles’ personally built UAS falls within the scope of this provision and outside the scope of EASA.

Aircraft that have been used in the service of military forces is exempt pursuant to Annex II(d) of the Regulation. Those aircraft, however, which are “of a type for which a design standard has been adopted by the Agency” will fall under the scope of the Regulation. The initial UAS had a military application, thus it is possible that certain models or technologies from the military have or will flow into the civil market and this could result in them being exempt from the EU law.

Finally, Annex II(i) of the Regulation declares that “unmanned aircraft with an operating mass of no more than 150kg” are exempt. There is a clear division in the competencies of EASA between aircraft above and below 150kg as aircraft lighter than 150kg have been left to national legislators to regulate. Whilst the UK has been active in filling the gaps, as it has constructed its law to cover aircraft of all weights, this contradicts the Commission’s goal of comprising a comprehensive set of rules governing UAS across Europe as this has led to further fragmentation. Thus, the new regulations should take all weights into consideration. This is important as the weight does not affect security concerns, as a 1.86kg UAS is equally competent in carrying a surveillance camera as compared with a 500kg Predator.<sup>61</sup> Secondly, the weight does not necessarily relate to the amount of damage that can result

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<sup>61</sup> Military Factory, ‘The MQ-1 Predator Unmanned Aerial Vehicle has Found Success as an Unarmed Reconnaissance Platform and as a Missile-Armed Hunter’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.militaryfactory.com/aircraft/detail.asp?aircraft\\_id=46](http://www.militaryfactory.com/aircraft/detail.asp?aircraft_id=46).

from a crash as demonstrated by the *Smethwick Chinese Lantern Fire* in the UK in 2013.<sup>62</sup> Finally, UAS pose a problem to other aviation activities. They are capable of operating in both the segregated and non-segregated airspace, just as manned aircraft, and as an object as small as a bird or volcanic ash can cause an aircraft to crash, the potential damage caused by a UAS collision is significant due to mid-air and ground collisions.

It is therefore apparent that EASA's competencies are significantly limited in the context of UAS. Therefore, the Commission would have to broaden the applicability of its rules, by modifying the Regulation, in order to encompass this emerging UAS market. Additionally, in order for the Commission's proposal to become a comprehensive set of rules, the Commission must take the gaps of EASA's rules into consideration.

## 7. European Commission's Proposal

The Commission has observed that there is a "lack of a European regulatory framework encompassing civil and military unmanned aircraft [which] prevents the development of legally authorized unmanned aircraft operations."<sup>63</sup> As a result, the Commission has concluded that this is significant as the current legal situation does not permit the UAS industry to build pertinent business plans and to develop new products adapted to their clients.<sup>64</sup> Therefore, the Commission has begun to assess its potential role in the support of this emerging sector via its six action proposal. Prudent steps are being taking as "[b]efore launching concrete actions, it is necessary to fully understand the potential European industry baseline, the potentialities and benefits offered by UAS to the European citizens, and the existing obstacles to the market emergence."<sup>65</sup> In order to achieve this, the Commission has opened up a Communication whereby it has invited all of the "stakeholders to build together a policy framework for the development of a competitive drones market

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<sup>62</sup> A 7kg UAS with fuel has the potential to cause fires. A Chinese lantern, a lighter than air object, caused a fire involving 100,000 tonnes of plastic recycling material which caused produced a 6,000ft smoke plume and £6m worth of damage in 30<sup>th</sup> June, 2013. BBC, 'Smethwick fire: Chinese lantern 'caused largest blaze'' – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: [www.bbc.com/news/uk-england-birmingham-23123549](http://www.bbc.com/news/uk-england-birmingham-23123549).

<sup>63</sup> Commission, 'Hearing on Light Unmanned Aircraft Systems (UAS)', *TREN F2/LT/GF/GC D* (2009), page 2.

<sup>64</sup> *Ibid.*

<sup>65</sup> *Ibid*, page 3.

as well as rules that will tackle all citizens' concerns."<sup>66</sup> Therefore, in light of the lack of EU regulation, the Commission aims to construct a policy framework that will concern civil and commercial operations, in line with EU competence.<sup>67</sup>

### Common certification processes and standards

As safety is paramount to the objectives of the EU aviation policy, the Commission under Action 1<sup>68</sup> of its proposal has suggested a common certification process and standards for UAS. This is deemed necessary as "in many States, the grant of an aerial work license to a UAS operator is almost impossible, as no appropriate framework for certification of the unmanned aircraft systems exist."<sup>69</sup> Therefore, this is required to ensure that UAS "will have an equivalent level of safety in comparison to regular, manned, aviation."<sup>70</sup>

The proposal has pre-empted the weight problem observed in *CAA v Knowles*. The Commission recognises that the "UAS sector below 150kg is composed of aerial vehicles of very different types, capabilities, size and weight" therefore regulation should encompass this wide scope.<sup>71</sup> Therefore, "in this respect, the restricted scope of EASA competence to unmanned aircraft above 150kg on the basis of traditional airworthiness considerations is an arbitrary cut off point and should be reconsidered."<sup>72</sup> Such a change could increase safety and help reduce accidents, for example, Knowles' UAS was built with a failsafe return to home function which, when engaged, did not work. Higher levels of safety standards may have resulted in the UAS returning to the operator and not crashing.

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<sup>66</sup> Commission, 'Remotely Piloted Aviation Systems (RPAS)', Memo, Brussels, 8<sup>th</sup> April, 2014, page 3.

<sup>67</sup> It is currently not clear whether the policy will be finalised in the form of a Decision, Regulation, Directive, Opinion or Recommendation.

<sup>68</sup> Action 1: "The Commission will examine the regulatory preconditions to integrate RPAS into the European airspace from 2016 onwards, covering the necessary basic regulatory issues to ensure a coherent and effective policy, including on the appropriate scope of EASA competence. Any possible legislative action will be preceded by an impact assessment. The Commission will request EASA to develop the necessary Opinions which could lead to adopting implementing rules, based where possible on international processes, proportionate to risk and subject to effective consultation. The Commission will ensure that potential manufacturers, operators and other involved organisations have an easy and up to date access to the applicable regulatory initiatives, including through the notification system of Directive 1998/34/EC."

<sup>69</sup> Commission, 'Hearing on Light Unmanned Aircraft Systems (UAS)', TREN F2/LT/GF/GC D (2009), page 8.

<sup>70</sup> Communication from the Commission to the European Parliament and the Council, 'A New Era for Aviation Opening the Aviation Market to the Civil Use of Remotely Piloted Aircraft Systems in a Safe and Sustainable Manner', *COM. 207 Final* (2014), page 5. [Herein: *COM. 207 Final* (2014)]

<sup>71</sup> Commission, 'Hearing on Light Unmanned Aircraft Systems (UAS)', TREN F2/LT/GF/GC D (2009), page 8.

<sup>72</sup> *COM. 207 Final* (2014), page 5.



## Support market development and European industries

Proposal Articles 2<sup>73</sup> and 6<sup>74</sup> have the aim of supporting and encouraging the emergence of the UAS market by promoting the development of UAS “applications and the related technologies, stimulate user-driven innovation, and foster the creation of cross sectorial industrial value chains, appropriate support infrastructures and clusters.”<sup>75</sup> Whilst this has beneficial implications for people like Knowles as it will make the market grow and potentially lower costs, it may increase the number of participants, so increasing the potential for further violations. Additionally, the creation of new laws may leave many unaware of the changes, so increasing the chances of further violations. Knowles was flying in a popular UAS site which was close to restricted air space. If the law is made clearer and more accessible, then such sites may not develop and members of the public are less likely to violate the law. The proposal should thus encourage the dissemination of information on the status of the law in the EU with the aim at mitigating violations.

## Tough controls to ensure Security

Action 3 of the Commission’s proposal covers security aspects.<sup>76</sup> The Commission holds the view that UAS are not immune to potential unlawful actions, for example, they “could be used as weapons, the navigation or communication system signals of other RPAS could be jammed or ground control stations hijacked.”<sup>77</sup> It has been proposed by Alan McKenna that Knowles may have been exposed to “malicious hacking of a drones control system, and in such a situation Knowles could be just an innocent victim.”<sup>78</sup> This may be possible as Knowles was “flying his drone in a popular location for drone enthusiasts, and there is the

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<sup>73</sup> Action 2: “The Commission will ensure, within the limits of available resources, that identified R&D needs for the integration of RPAS in the ATM Master Plan are taken into account in the SESAR2020 Programme as necessary.”

<sup>74</sup> “The Commission will define specific actions under Horizon 2020 and COSME to support the development of the RPAS market and will ensure that the actors involved, in particular SMEs, have a comprehensive view of these tools. It will establish the necessary cooperation mechanisms with the work undertaken by the SESAR Joint Undertaking to avoid overlapping and leverage on the available resources.” *COM. 207 Final* (2014), page 9.

<sup>75</sup> *Ibid*, page 8.

<sup>76</sup> “The Commission will ensure that security aspects are covered in the operations of RPAS to avoid unlawful interference, so that manufacturers and operators can take the appropriate security mitigating measures.”

<sup>77</sup> *COM. 207 Final* (2014), page 7.

<sup>78</sup> McKenna, Alan, ‘First UK Drone Conviction’ – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: <http://alanmacblog.wordpress.com/2014/04/03/first-uk-drone-conviction/>.

risk that the radio frequency they use runs the risk of them interfering with each other's ability to control their aircraft."<sup>79</sup> Knowles said that he was unsure how he lost control of the UAS and that 'outside influence' could not be ruled out.<sup>80</sup> However, this point was not raised in Court.<sup>81</sup> Thus, to stop unwanted interference from happening and to limit false claims of outside influence as a defence for illegal use of a UAS, tight rules on security are required.

### Protect citizens' fundamental rights

One of the main functions of UAS in civil use is to remotely record information with information recording equipment installed onto the vehicle.<sup>82</sup> This is commonplace with recreational UAS, as demonstrated by *CAA v Knowles*.<sup>83</sup> Consequently, this has resulted in the Commission proposing Action 4 which aims to protect citizens' fundamental rights including the respect for the right to private and family life, and the protection of personal data.<sup>84</sup> This has led the Commission to cite Directive 95/46/EC<sup>85</sup> and the Framework Decision 2008/977<sup>86</sup> which determine that any processing of personal data will need to be based on legitimate grounds.<sup>87</sup> The Commission has thus concluded that the "privacy situation would need continuous monitoring by the competent authorities including the national data protection supervisory authorities"<sup>88</sup> in order to ensure that the data is recorded for legitimate grounds. However, as shown by *CAA v Knowles*, this will not be an

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<sup>79</sup> *Ibid.*

<sup>80</sup> Drone Makers, 'First UK Prosecution for Dangerous Usage of a Drone' – (Viewed: 18<sup>th</sup> April, 2014) – Sourced: <http://www.dronemakers.com/uk-prosecution-dangerous-usage-drone/>.

<sup>81</sup> Private Communications with David Kendrick, Airline Licensing & Consumer Issues: Consumer Protection Group at the United Kingdom's Civil Aviation Authority, 22<sup>nd</sup> April, 2014.

<sup>82</sup> "Amongst the wide range of potential civil RPAS applications a number may involve collection of personal data and raise ethical, privacy or data protection concerns, in particular in the area of surveillance, monitoring, mapping or video recording." *COM. 207 Final* (2014), page 7.

<sup>83</sup> See, Roma, Alfredo, 'Remotely Piloted Aircraft Systems: Privacy and Data Protection Implications', *13 Aviation & Space Journal* 22 – 34 (2014).

<sup>84</sup> Action 4: "The Commission will assess how to make RPAS applications compliant with data protection rules. It intends to consult experts and relevant stakeholders; to address the measures in its field of competence, possibly including awareness raising actions, to protect fundamental rights; and to promote measures under national competence."

<sup>85</sup> European Parliament and Council Directive 95/46/EC On the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data.

<sup>86</sup> Council Framework Decision 2008/977/JHA On the Protection of Personal Data Processed in the Framework of Police and Judicial Cooperation in Criminal Matters.

<sup>87</sup> Roma, 'Remotely Piloted Aircraft Systems', *13 Aviation & Space Journal* 22 – 34 (2014), page 28.

<sup>88</sup> *COM. 207 Final* (2014), page 8.

easy goal to achieve as the current case only came to light once the crashed drone was recovered by the BAE employee and analysed by the police. Whilst this is a legitimate goal, more needs to be done at a national and EU level in order to ensure compliance.

### Liability/Insurance

Under Action 5 of the proposal, the Commission has tried to address third party liability and insurance.<sup>89</sup> This is viewed as an important element of the Commission's proposal, because whilst the aviation industry has high safety standards, accidents still happen, therefore victims of these accidents should be compensated for any injury or death and such a regime would ensure the parties can meet their financial obligations.<sup>90</sup> *CAA v Knowles* demonstrates the importance of this as Knowles has claimed that he may face bankruptcy as he is unable to afford the fine and costs. If this is the case, then the UK taxpayer will have to bear the cost.

The current third-party insurance regime within the EU was constructed with manned aircraft in mind and because of this Regulation (EC) 785/2004 declares that the starting weight for determining the minimum amount of insurance is 500kg.<sup>91</sup> This is not in line with the factual situation of UAS as the majority of civil UAS weigh below 500kg. This point is exacerbated as Article 2(b) of Regulation 785/2004 declares that this Regulation shall not apply to model aircraft that weigh less than 20kg.<sup>92</sup> Therefore, Knowles' UAS would not come under the scope of the Regulation and he would not be required to get insurance, so still leaving the UK CAA potentially unable to recover damages.<sup>93</sup>

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<sup>89</sup> 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."

<sup>90</sup> *COM. 207 Final* (2014), page 8.

<sup>91</sup> Regulation (EC) 785/2004 On Insurance Requirements for Air Carriers and Aircraft Operators.

<sup>92</sup> *Ibid*, Article 2(b).

<sup>93</sup> Second-party liability and insurance is not an issue as the very nature of UAS means that there are no second-parties involved.

## 8. Conclusion

In conclusion, it has been shown that UAS are no longer used only for military applications and are beginning to be used for civil purposes. This transition is predicted to have a significant impact on aviation within Europe and because of this, it should be taken seriously. However, despite this, there is currently no overarching EU law regulating UAS. In light of this, the purpose of this work is to highlight the first ever conviction in the UK for the illegal use of a UAS and how its conclusions can be utilised as a tool to help construct a comprehensive set of rules to regulate the law in the EU.

It has been shown that the CC44 is applicable to UAS within Europe. However, ICAO has stated that the CC44 does not apply to 'model aircraft', so the CC44 would not apply to Knowles' situation. Thus, there is a lacuna between the law and the factual situation. Consequently, such a distinction between aircraft and model aircraft must be rethought in order to encompass such activities. It has also been shown that there are numerous EU laws pertaining to UAS under the EU's comprehensive aviation rules, however due to terminological and substantive issues, UAS are exempt from these rules. However, as EASA is central to the EU's aviation policy and is highly active in UAS regulation, it has been given special consideration. It has been shown that in light of *CAA v Knowles*, there are limitations to EASA's competencies and consequently, these must be considered when revising Regulation 216/2008 and by the Commission in their proposal. The most notable limitation is the weight requirement, as it is highly unlikely that this new recreational UAS market will include vehicles as heavy as 150kg.

Finally, the Commission's proposal was examined in order to show any strengths or weaknesses that may have come to light following the analysis of *CAA v Knowles*. It has been shown that the Commission's work is a large step in the right direction, but it may fall short of being as encompassing as the Commission may desire. For example, it wants to include a liability and insurance system for UAS. This would have proven valuable to Knowles as the fines, costs and loss of his £2,000 UAS may bankrupt him. However, the Commission is looking at pre-existing rules on insurance and this would result in a significant portion of civil UAS being excluded due to weight restrictions.

Therefore, in overall conclusion, the Commission has noted that there are gaps in the law that regulates UAS within the EU and that these gaps need to be filled in order to sufficiently govern the growing civil UAS market. However, through an analysis of CAA v Knowles, it has also shown that the Commission's proposals are not comprehensive enough to sufficiently regulate UAS in the EU. The UK CAA is currently reviewing other cases that may lead to prosecutions and these must also be considered as they may highlight other gaps in the Commission's proposal. Therefore, further steps need to be taken in order to ensure that the Commission's proposals are appropriate.

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