BART CUSTERS, EDITOR, *THE FUTURE OF DRONE USE*, THE HAGUE, T.M.C. ASSER PRESS, 2016

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Drones have captured the current focus of our imagination. Their publicized stealth usefulness for the military combined with their ability to significantly extend our human reach has given them an aura of the hidden mixed in with a bit of voyeurism, a tempting combination. Their proponents have linked them to enhancing human values, such as freedom and education, as was publicized after Transport Canada recently curtailed their use.[1] The advocates profess that the perceived risks from drones are few and far between and that these new rules will only restrict without giving effective overarching results. Notwithstanding, it is precisely in the specifics, how they fit in with their environment, that the issues reside as stated by the editor of the book *The Future of Drone Use*, Bart Custers,[2] head of research at the Center for Law and Digital Technologies (eLaw) of Leiden University (Netherlands).[3]

He has assembled a series of articles looking into the international social, ethical, and legal effects of drones on their existing ecosystem:

> The societal effects are discussed in terms of opportunities and threats. Ethical issues are discussed in terms of which types of drone use may violate important moral issues and principles, […]. Legal issues are discussed in terms of analyses of current legal frameworks […] and envisioned legal frameworks.[4]

This offers a perspective that counterbalances the dynamics of a risk analysis approach that would be limited to the drones themselves, giving only a partial picture of the issues associated with this new and evolving technology. It also empowers an analysis that sidesteps the usual prevalent altruistic bias towards the uses of new technologies. As such, the book is divided into five parts where opportunities and threats, ethical and legal issues are covered by the three central groups of articles. These are boxed in by an introduction where definitions and effects of combining drones with other technologies are discussed and a conclusion offering potential leads that could facilitate the next steps in the social and legal maturity process for this exciting yet mistrusted technology.

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1 Josh K. Elliott, "New rules for flying recreational drones in Canada", *CTV News* (16 March 2017), online: <http://www.ctvnews.ca/politics/new-rules-for-flying-recreational-drones-in-canada-1.3327477>.

2 Bart Custers, "Drones Here, There and Everywhere – Introduction and Overview" in Bart Custers, ed, *The Future of Drone Use - Opportunities and Threats from Ethical and Legal Perspectives* (The Hague: T.M.C. Asser Press, 2016) 3 at 13 [Custers, "Introduction and Overview"].

3 He is also head of the research division on Crime, Law Enforcement and Sanctions of the Netherlands Ministry of Security and Justice Research Center (WODC).

4 Custers, "Introduction and Overview", *supra* note 2 at 7.

The book's introduction is given through three articles. The first one, "Drones Here, There and Everywhere" by Custers, offers a quick overview of the objectives and content of the book including its ambition to be available as a broad reference to further the discussion on drones. The second one, "Drone Technology: Types, Payloads, Applications, Frequency Spectrum Issues and Future Development",[5] describes not only the various physical component groups of drones and their associated issues but also how they may be integrated. This includes the potential levels of autonomy that drones currently have and those they may acquire in the near future such as autonomy from human intervention. The third, "Big Data, Drone Data: Private and Ethical Impacts of the Intersection Between Big Data and Civil Drone Deployments" authored by two data analysts,[6] gives a first glimpse at the possible reach and effects of drones when combined with other technology: Big Data in this case. As drones may produce a significant quantity of visual recorded information, combined with the ability to intersect with other technologies, analytics may generate privacy and ethical issues related to identifiability. These articles set the tone that this analysis of drone use will not only look at various configurations but also take an integrated approach with its surrounding operational environment.

The second part of the book touches on opportunities and threats, potential benefits and negative impacts generated by the introduction of drones into an existing social network that is seeing its environment significantly altered. The first of five articles, "Deliveries by Drones: Obstacles and Sociability" by researcher Sally A. Applin[7] who currently studies the impact of technology on culture, analyzes the future need for synchronization that will come with the significant increase in the number of drones that will litter the sky when a delivery capability is finally authorized for drones. This situation will require securing those drones and their delivery location against threats. The second text, "Policing From above: Drone Use by the Police" from two advisors to the Ministry of Security and Justice – The Netherlands,[8] outlines practical uses for drones assisting police work. Its usefulness can be categorized within two groups: one is linked to enhancing the sensing capability of the police (different payloads such as surveillance cameras) and the other as an extension of their human tools (combining drone data with other information). Nevertheless, two legal criteria restrict the use of drones: proportionality with respect to the task at hand (limiting use) and whether alternatives are available (authorizing use). The third article, "The Humanitarian Drone and the Borders: Unveiling the Rationales Underlying the Deployment of Drones in Border Surveillance" by Luisa Marin, Assistant Professor of European Union Law at the University of Twente, analyzes the rationale behind the humanitarian explanation for the use of drones in border

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5 Authored by Bas Vergouw (digital researcher for the Dutch Authority for Consumers and Markets – ACM), Huub Nagel and Geert Bondt (electrical engineers for the Radio Communications Agency – government of the Netherlands) and Bart Custers (see above).

6 Rachel Finn (practice Manager) and Anna Donavan (research Analyst) from the Data Science Practice of Trilateral Research Ltd.

7 Ph.D. from Kent University working with the Center for Social Anthropology and Computing – CSAC.

8 Bart Engberts (policy and legal advisor) and Edo Gillissen (senior policy advisor).

surveillance within the European Union. Though search and rescue capability may be enhanced by the use of drones, she concludes that border surveillance and intelligence consolidation are the main reasons for their use. In the fourth text, "The Humanitarian Use of Drones as an Emerging Technology for Emerging Needs",[9] drones are acknowledged as the next tool with the highest potential to meet the criteria for strengthening resilience within communities requiring emergency assistance. Digital tools enable receiving communities to have a say on their required needs in support of efforts to give them ownership and engagement with respect to recovery. In the last article of this part, "Terrorism and National Security" from Sofia Michaelides-Mateou, Associate Professor of Aviation at the College of Engineering of Abu Dhabi University in the United Arab Emirates, the possibilities surrounding drone use to commit terrorist acts are analyzed. There have been reported occurrences and the potential should be acknowledged as countermeasures are few notably because of drone size, their ease of use and their availability. The anonymity they confer and the difficulty in identifying users reduce deterrence against malevolent use. These articles illustrate that opportunities are quickly identified but threat analysis seems secondary or pushed off into the future. Altruistic bias with respect to the new is ever present.

The next part, through four articles, looks into ethical issues surrounding the use and deployment of drones by the military. The first two cover the issues from the operations side of their use, the military, and the last two from the receiving end, the victims. The first text, "The Humanization of Drones: Psychological Implications on the Use of Lethal Autonomous Weapon Systems",[10] argues that many ethical issues surrounding drones are related to their humanization and, in consequence, the victimization of their pilots which is contrary to field situations where a soldier is always responsible for his actions. The morality of using drones must start with the analysis of the human decision to use them and how they use them. On the legal side, he offers three perspectives:

> The first is whether the legal problem is generic or specific for the use of drones? […] The second question is whether the existing legal framework is sufficient to regulate the use of drones? [… And thirdly:] The laws of armed conflict were created to control warfare between two equal parties, not one nation's one-sided operations against another party.[11]

The issues surrounding the segregation of drone warfare are also covered from a different point of view in the second article: "Unmanned? The Bodily Harms and Moral Valor of Drone Warfare" from Nicholas R. Brown, Visiting Professor at Loyola Marymount University's Bioethics Institute. Here, the nature of drone warfare

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9 Authored by Tomas Martini (advisor to the Red Cross board on public, political and government issues), Michele Lynch (manager on Google's public policy team focused on international relations), Abi Weaver (director within the international division of the American Red Cross) and Tamieck van Vuuren (policy officer Migration and Asylum at the Dutch Permanent Representation to the EU).

10 Authored by David Bergman, a graduate of the Swedish Military Academy and founding member of its 10th Psychological Operations Unit.

11 David Bergman, "The Humanization of Drones: Psychological Implications on the Use of Lethal Autonomous Weapon Systems" in Bart Custers, ed, *The Future of Drone Use - Opportunities and Threats from Ethical and Legal Perspectives* (The Hague: T.M.C. Asser Press, 2016) 173 at 183-185.

and the definition of courage generated a rift regarding the award of medals for drone pilots. The author contends that physical and non-physical harm cannot be separated, the body and the mind being linked and conjoined. He concludes with a new question regarding drone use: "As such the proper question to be considered is not whether the advent of drones heralds an age of unmanned warfare, but rather what kind of men and women does this kind of warfare require."[12] Does the added level of remoteness between combatants afforded by drones change the required skill sets to thrive in this new environment?

The third text, which gives a perspective from the receiving end of drones, "Victims of Drone Warfare: Stretching the Boundaries of Conflict; Ethics and Remote Control Warfare",[13] analyzes the surgical precision of drone strikes indicating that many innocent civilians are killed in order to attain objectives. The authors add that the targets are condemned to death without trial or a possible defense which is contrary to the rule of law and due process, central elements of our democracies. They also question the ethical label given to drones because of their precision. In the same vein, within the fourth and last article for the Ethical Issues part, "Drones, Morality, and Vulnerability: Two Arguments Against Automated Killing" from Mark Coeckelbergh, Professor of Philosophy of Media and Technology at the University of Vienna, the issue of automated killing is analyzed. In making his argument, he starts by questioning whether just war and targeted killing, or assassination, can be reconciled and he rejects the ethical justification of killing from a distance. With respect to automated killing, without human intervention, he indicates that machines lack morality and mortality to be able to decide whether to kill or not. Interestingly, both sides of the ethical debate, from the four articles, end their analysis with the human's accountability for the conduct of drone military actions. Lack of debate on such accountability, because of a lack of transparency, generates the ambiguity which seems to prevail.

The next part, with four articles, looks into the legal issues surrounding the use of drones by the military as well as the civilian point of view. In the first article, "Key Provisions in Current Aviation Law",[14] seven areas from aviation law are discussed: terminology, the 1944 *Chicago Convention of International Civil Aviation*, sovereignty, safety, liability, insurance, criminal law, and international law. The authors express that most aviation laws are difficult to apply to drones. In the second text, "Civilian Use of Drones as a Test Case for the Right to Privacy: An Israeli Perspective",[15] the tension between privacy rights and freedom of expression (use of drones) is discussed as the crossroad for legal issues. These are dependent on societal values and the technology variables which differ from one state to another. This is

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12 Nicholas R. Brown, "Unmanned? The Bodily Harms and Moral Valor of Drone Warfare" in Bart Custers, ed, *The Future of Drone Use - Opportunities and Threats from Ethical and Legal Perspectives* (The Hague: T.M.C. Asser Press, 2016) 189 at 205.

13 Authored by Wim Zwijnenburg (humanitarian disarmament project leader for the Dutch peace organization PAX) and Zorah Blok (historian and criminologist who previously worked for the international human rights organization Reprieve).

14 From Benjamyn Scott, a legal advisor specializing in European and international aviation law.

15 Authored by Uri Volovelsky, a lawyer and researcher on technology and privacy laws.

illustrated by the inconsistency of laws and regulations across borders globally. As an example, the author gives an in-depth review of Israel's approach to solving legal issues surrounding drone use and associated concerns such as the collection of data and storage. The third article, "Access to an Effective Remedy and Reparations for Civilian Victims of Armed Drone Strikes",[16] contends that international human rights law and international humanitarian law offer protection and remedy from drone strikes. Unfortunately, enacting these is a nearly impossible task. Notwithstanding, moving forward is necessary as the next step, autonomous strikes, will render the exercise even more difficult. The last text, "A Comparative Global Analysis of Drone Laws: Best Practices and Policies" from Timothy Ravich, assistant professor at the University of Central Florida and a specialist on aviation law, briefly describes the various drone laws and regulations from around the world and their tendency to err on the conservative side. Though some countries have developed detailed pro-active legislation on drone use, this article as well as the previous three, illustrates that drone laws and regulations enactment is still being reactive and going through growing pains.

The conclusion, through three articles, presents solutions to deal with the ethical and legal issues raised by the emerging civilian use of drones. The first text, "Making Drones More Acceptable with Privacy Impact Assessments"[17] describes the process to produce and document a Privacy Impact Assessment. Emphasis is given to stakeholder involvement and with respect to drones, a wider analysis is required. The second text, "The Public acceptance Challenge and Its Implications for the Developing Civil Drone Industry",[18] highlights the importance of public acceptance with respect to the future development of the drone industry. This is dependent on understanding the issues and the need for confidence in the enforceability of the resulting regulatory and legal framework. Finally, to close out this extensive review of drone use, Bart Custers gives an overview of future issues to be tackled in "Flying to New Destinations: The Future of Drones". Most are legal as the enactment of integrated regulations and safeguards, and their enforcement represents the next task at hand. Custers gives an analogy to the evolution of automobiles within society: time and effort are required but our society's accelerated pace doesn't have the same patience as before.

Though the book's flow between articles is a bit sketchy, an attempt is made to cover as many issues as possible knowing that, in some cases, only an introductory overview is given. The ethical issues are covered more extensively than the legal issues. This is expected as countries are still reacting to the rise of recreational use of drones. Conversely, similar ethical issues have been discussed previously with other

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16 From Quirine Eijkman (Ph.D. and head of the Political Affairs & Press Office of Amnesty International Dutch section and senior researcher at the Center for Terrorism and Counterterrorism of Leiden University) and Marlieke Bakker (volunteer at the Political Affairs Office of Amnesty International Dutch section).

17 Authored by David Wright (Director) and Rachel Finn (Data Science Practice Manager) of Trilateral Research Ltd.

18 From Alan McKenna, Associate Lecturer at Kent University. His research interests include the social and regulatory issues surrounding new and existing technologies.

technology such as CCTV, cellular phones, and the Internet. For being a reference on the subject, the breath is wide but limited on details. These will have to be sought, in most cases, elsewhere such as in the references given within each text. With respect to the quality of the content, language is occasionally faulty, but the structure is clear and sequential. If an understanding of the concerns prevalent with drones is sought, I recommend the book. It will give you an understanding of the social and legal issues.