

Written Submission of Evidence to the All Party Parliamentary Group (APPG) on Drones: Ethical Challenges

Dr Elke Schwarz
University of Leicester
Es304@leicester.ac.uk

December 2017

I. Premise

Concerns about the legal and ethical implications of armed Remotely Piloted Aircraft Systems (hereinafter referred to as ‘drones’) are a crucial dimension in assessing the socio-political impacts of armed drones, domestically and abroad. While the legal and ethical implications are usually assessed within the same category, often as one and the same, I stress for the purpose of this written evidence, that the legal implications and the ethical implications are connected but *distinct* considerations in assessing the ethical dimension of the use of armed drones and should be treated as such.

Where law and ethics are treated as one and the same, a more conscientious engagement with the latter is usually overlooked. Ethics is a companion to law in that it (ideally) informs new laws, allows for the assessment of fairness or just-ness of laws and shapes how we interpret laws. Where laws are inadequate, unclear or where there are no appropriate laws, the ethical dimension becomes all the more important. This, I argue, is the case for the use of armed drones by the UK. The well-known and extensively debated ethical issues concern the lowered threshold of the use of force, the potential gamification of warfare, the psychological impact on drone operators, the impact on civilians and the potential blow-back effects and the lack of transparency that mars the practice of targeted killing with drones. These important ethical issues remain unresolved, specifically the issue of lacking transparency appears to worsen recently.

However, rather than rehash the well-known ethical challenges, I highlight some of the perhaps less obvious, but highly relevant ethical dimensions that arise from an uncritical perspective vis-à-vis armed drones as a technology. These dimensions, I argue are important to recognise for a liberal democracy, specifically as greater levels of autonomy are on the immediate horizon for the use of armed drones.

The research presented here has been conducted in part for a Open Society Foundation funded project for PAX Netherlands and comes out of an interdisciplinary, transatlantic workshop of experts in academia, military organisations, NGOs and the policy making PAX organised in January 2017.

II. Introduction

Since August 2014, the UK is reported to have flown or participated in over 2,000 Reaper drone missions in Iraq and Syria, firing a total number of weapons from this platform in the fight against Daesh.¹ UK Reaper operations like these typically cannot be discussed without acknowledging the role the US plays in the practice of airstrikes with drones. Drone platforms like that of the Reaper benefit from interoperability

between UK and US drone systems and, as RAF Air Marshal Graeme Robertson noted recently, the UK continues to operate in “lockstep” with the US.²

The speed with which lethal drone acquisitions in Europe and across the globe advance continues to outpace the debates on the political, legal and ethical implications of their use in geographies of conflict. With a growing number of countries acquiring weaponisable drones platforms that increase operational alignments between U.S. and European forces, the pressing question becomes that of how their use should be regulated to ensure that core domestic as well as international principles – including standards of accountability, human rights and limitations in the use of force, among others – do not succumb to slippage.³

The longer first-mover practices set precedents for the normalisation of a possibly unethical practice, the greater the obstacles to recognise and defend existing values and principles for other liberal democratic states. This is particularly pressing as the US drone wars continue to expand its reach of airpower, turning ever widening target territories in to “zones of war”.⁴ While the previous US administration under Barak Obama at least cultivated a narrative of exercised restraint, the Trump administration has already escalated the rate of strikes to the tune of 1.6 authorised strikes a day, mostly in Yemen.⁵ Moreover, the current US administration sets expressly less stringent standards for civilian lives by relaxing the rules concerning the targeting of civilians and by shifting the strikes back into the shadows of CIA operations.⁶ It does so without much national public debate or explicit procedural standards in place.

Standards of transparency in the UK’s use of armed drones are seemingly becoming not less but more opaque,⁷ and the language to determine thresholds for lethal killing is tailored increasingly along the lines of US legal doctrine on self-defence and imminence⁸. Evidence strongly suggests that the UK is increasingly adopting US practices, including targeting individuals based on a Kill-List.⁹

A clear stance toward what is permissible and impermissible in new forms of warfare is paramount for any country using lethal drones. The first-mover practice the US sets must be examined closely to better understand what the ethical implications of an alignment with US doctrine and standards might be for the ethical values of the UK as a liberal democratic state; more so still as the development of autonomous drones and Artificially Intelligent Weapons System is surging ahead.

Discussions on the ethics of lethal drones are challenging. This is in part due to the persistent shroud of secrecy indicated earlier, but they often are complicated by conceptual confusions. Often ethics and efficiency become tangled in the moral cost-benefit analysis in favour of lethal drones; legal and ethical concerns are habitually discussed under the same rubric, and the Just War categories of proportionality and discrimination are less clear in drone warfare than any other form of asymmetric war. Such confusions arise when existing legal or ethical categories are disrupted by the emergence of new technologies and practices.¹⁰ What worked hitherto as viable principles for considering the ethics of war – discrimination, proportionality, last resort, etc. - has become unmoored from their original context and seems to fall short the current practice of lethal drone warfare. I take the drone to be such a technological assemblage that inadvertently shaped decisions and justifications for the use of lethal force.

Debates focusing on the ethics of drones often centre on questions addressing their political and military efficacy or legality. These are questions of policy. They are important questions, but before they can be answered, we need to understand how the technology works on the people who use them. Specifically, I suggest, it is important to try and identify how ethical decisions are already written into policy, particularly policy that is significantly shaped by technological capacities.

We should thus look carefully at what practices and outcomes this specific technology produces, and how it exceeds and expands moral concerns of the use of force. The most obvious observation about drone technology is that they have made killing easier. Lower financial and human costs associated with drones, paired with an expanded reach into suspect geographies is what makes them such an attractive proposition for military security strategies – as an extended form of airpower, as well as a new technological assemblage with its own new practices. That this has made it considerably easier to meet potential threats with lethal military force is now widely accepted. However, as Sarah Kreps and John Kaag put it: “When it comes to war, if it’s easy, it’s probably not moral”¹¹.

The drone’s potential to discriminate between combatant and civilian does not implicitly ensure that harm to civilians is avoided or even reduced in drone warfare. Likewise, the greater volume of data gathered with the use of drones on potential targets does not indisputably ensure that drone operators have accurate information on target populations and that selected individuals are indeed morally liable to harm.¹² Nor does it render the act of surveillance implicitly moral as a tactic of war. In short, there is no intrinsic moral value in technical capabilities.¹³ Whether drones kill more or fewer people depends on executive decisions, “training of drone operators, pressures from commanders on the ground and the organizational culture in which the drone is embedded”¹⁴.

In the following, I will first unpack briefly how drone technology as a socio-political assemblage impacts on categories of ethical relevance. Following this, I will take a look at some key issues as they relate to tactical, operational and strategic levels of engagements with lethal drones. This is not a straight-forward task as ethical issues relevant for warfare rarely neatly fit into a single level of warfare. Nonetheless, I hope to highlight the some of the ethical problems that drone technology posits at each level of warfare engagement. Each one of these aspects should give a liberal democratic nation pause for thought to consider their national policy and moral outlook.

III. Technology and drone ethics

The evident incongruousness between “idealized scripts about drone targeting and actual practices”¹⁵ frustrate efforts to identify a clear factual basis for an ethical evaluation about the effects of drone technology as a tool in warfare. Hugh Gusterson suggests that the power of formal scripts may have produced a new ‘fog of war’ whereby the stark contrast between ideal and real has become unintelligible to those engaged in targeted killing with drones. This fog only thickens as processes of technical, organisational and ethical slippage.¹⁶ In order to set clear and viable benchmarks for the moral parameters in lethal drone use, I suggest that it might be helpful to try and understand what might contribute to the slippages evident in drone warfare.

A discussion of targeted killing with lethal drones must first unpick the policy (targeted killing) from the capacity (lethal drones). The former is both a strategic decision in warfare and, in principle, does not depend on lethal drone technology as such. The latter is a tool that makes this policy or military decision easier. The two are, however, deeply entangled, and serve to show how technological capacities are able to direct moral choices.

Targeted killings conducted by the U.S. today appear as the materialisation of efforts by Reagan's hawkish counter-terrorism hardliners to reintroduce the pre-emptive 'neutralisation' of individual terrorists (via NSDD 138) in the mid 80s.¹⁷ What was then met with both strict moral indignation and severe logistical and operational limitations has now been rolled out on a larger scale with the technological capacities of lethal drones. The ideal for the 1980s CTC was to have eyes on terrorist targets in safe havens, while simultaneously being able to "send a message" to the target (i.e. kill the target) with "minimal loss for the recipients and none to the delivery personnel."¹⁸

This ideal has now been actualised and given rise to a new set of practices in counter-terrorism. Whether the advent of lethal drones was born out of a specific counter-terrorism desire for targeted killings in the 80s, or whether the existence of drone technology that produced altered "calculations for exercising force within the territory of other states",¹⁹ it is clear that the technology and the practice are procedurally fused and, in this fusion, give rise to new practices, hitherto not envisioned. One worry is, in policing as in warfare that remotely administered technological force opens up a vacuum in law and policy, which "has the potential to lead to overuse of machines that can be used to injure or kill suspects".²⁰ Another worry is that the technological capacities that facilitate the current practice of targeted killing remain unquestioned as a quasi-moral authority on the matter.

An important point, in my view, is thus to avoid the trap of thinking about drones as a simple extension of conventional airpower. The practice suggests, they are more than that, if not very different to that. Instead, I argue, we should situate drones within a broader assemblage of technologies, paying particular attention to the sometimes-unintended practices and outcomes that this 'assemblage' enables. Such technologies are embedded in and work upon a wider socio-political body as *actants*. This means that rather than being mere instruments, they have qualities that exceed those of "passive tools in the hands of those that use them" and are able to produce new and unique contexts and conditions.²¹ Specifically, technology can "authorise, make possible, encourage, make available, allow, suggest, influence, hinder, prohibit and so on".²² This is true specifically for technologies of harm, and the drone is a clear case in point, as they have shown to make moral deliberations more complex and vexing than other new technologies hitherto have. I have argued elsewhere that the specific attributes of the drone as a technological assemblage serves as a mechanism and rationale for limiting the possibilities for ethical debate on drones by shifting ethical discussions into a zone of scientific neutrality.²³ This is one way, an important way, in which drone technology shapes and affects debates on the ethics of drones in important ways. There are others. The danger is always that everything looks like a nail when you have a hammer.

Drones offer a technological system that enables the collection of data, facilitates diagnostic analysis, and is able to administer a course of action in specific situations of conflict with minimal risk to the operators overseeing the use of the technology. The drone as an assemblage comprises the actual vehicle, the data collection capacities (raw data production), the algorithmic production of information, or knowledge, from raw data, the visual/communications interface, the operator and the weapons charge. In this, the drone offers a comprehensive setting in which information flows, operations and the production of knowledge adhere primarily to scientific and computational logics. Perhaps unlike any other weapons system to date, the drone constitutes a wider technological framework, which shapes logics of warfare, legal justifications²⁴ and ethical frameworks.²⁵ It does so, I suggest, through a combination of interlinked frames of technological authority, including visual authority, algorithmic authority and interface authority, which help shape and direct moral logics at the strategic level. At the tactical and operational level the drone operator is embedded in an 'interface environment' that represents a digitalised version of specific action worlds in war. The human body here serves as a component for the hardware of the technology, which otherwise augments and replaces the capacities of the physical body. As a form of 'liveware', the drone operators' "eyes and operational skills [are] privileged in this assemblage".²⁶ This technologically shaped labour of surveillance and killing in lethal UAV operations puts unique stresses on drone operators, as they find themselves enmeshed in a human-machine assemblage that produces "complex forms of human-machine subjectivity", which are often in tension with the cognitive, emotional, and moral capacities of humans.²⁷

The technological capacities of lethal unmanned systems challenge the sensory and evaluative authority of the human 'in the loop'. This is not exclusive to drone technology but is characteristic of new technological systems in war across the board. The agentic mechanism at work here fits the human into the visual and computational logics of the drone system, whereby the technology offers its human operators 'super human' capacities. It produces an enhanced, improved, extended, sober, and ostensibly neutral version of human vision. With superior sensory capacities, drones exceed human capabilities in a number of ways— from endurance (drones don't blink, neither do they need to consider pilot fatigue), to data collection and analysis (vast scopes of data can be captured and processed). This, paired with the ostensible capacity for greater precision, renders the drone not an instrument but a sanitised *guide* in the practice of killing. Set against a background where the instrument is characterised as inherently wise, the technology gives an air of dispassionate professionalism and a sense of moral certainty to the messy business of war. The essence of this techno-authority resides in the interconnected systems of technological professionalism and morality. The drone operator is wired into a technical ethical universe; a universe that relies predominantly on scientific processes and algorithmic logics to identify correct ethical solutions. Take, for example, the ongoing practice of signature strikes. Signature strikes target unknown persons based on an algorithmic identification of behavioural patterns and other markers, such as age and gender, mobile phone activity and associations. Targets for elimination are selected by way of algorithmic risk profiling on the basis of preconceived ideas of what is perceived to be a likely threat in the future. Again, the superior capacities of the drone system (surveillance, extended visuals, extensive data capture) summon the perception that patterns of normality (benign) and abnormality (malign) can be clearly identified. This is then fortified with other algorithmic data analysis programmes

(SKYNET, for example), which in turn serve as a justification for the ‘legitimate’ killing of persons who have, quite possibly, done nothing to make themselves liable to lethal harm - ‘death by meta-data’, as former CIA chief Michael Hayden freely admitted in a 2014 interview.²⁸ As Gregoire Chamayou points out, the capacity of the technology to identify targets, along with the implicit ethicality of the instrument, is precisely what allows the ethical focus to be subverted into a pure game of numbers, whereby “the suspect is guilty until proven innocent – which, however, can only be done posthumously”.²⁹ It will be evident to all but the most technologically hardened ethicist that this, by practice, cannot truly satisfy the requirements of just killing. Furthermore, the foundations for algorithmic calculations are by no means morally unproblematic.

The development toward greater trust in techno-authority truncates “experiential and situated knowledge”³⁰ and gives priority to discrete numbers in deliberating the permissibility of harm to civilians (number of deaths are often the focus here), and the fixation with data (the bigger the better!) reflects this priority. Technologies for identifying potential collateral damage estimates are a crucial tool in assessing the incidental killing of civilians, helping to ensure that campaigns may stay within legal and normatively accepted bounds. However, the methodological rationale is often a matter of form over substance. Technological authority is pivotal in this process. In her dynamic analysis of necessity in just war reasoning, Neta Crawford highlights precisely this point:

The technical analysis is used to help decision makers stay within the law, but it may also serve to excuse decisions that we might otherwise believe were wrong and to defuse the moral responsibility for actions. The moral tension between military necessity, and discrimination and proportionality are not eliminated, but they are smoothed by the use of technical analysis. In a sense, some amount of authority over *jus in bello* was ceded to the military, then to military lawyers, is then ceded to technical analysis and a form of computer-assisted expertise.³¹

In other words, the technological capacity factors in as a superior calculative information provider, which is ostensibly neutral in character. But technologies such as SKYNET or CDE technologies are by no mean infallible in securing correct outcomes, particularly when they are partnered with a sense of urgency (such as FAST CD 2.0, for example). Technology, like the humans that produce the technology, can fail – yet the authority of a technologically determined course of action is powerful. In his exploration on surveillance and predictive policing systems, Kevin Miller highlights the uncritical trust placed in computer-based systems. He notes:

In decision-systems, study after study across numerous disciplines has confirmed the phenomenon of ‘automation bias [that] occurs in decision-making, because humans have a tendency to disregard or not search for contradictory information in light of a computer-generated solution that is accepted as correct.³²

This applies not only to purely automated decision-systems, but also to “mixed-mode” system where a human is in the loop to review the decisions. His point is that

even though there are humans in the process, there is little chance of errors being reduced or challenged once a decision has been made. This effectively makes the contestation of an unethical algorithmic calculation highly problematic. To be diligent in our moral analysis, this condition needs attention in deciding, strategically, where the limitations for the infliction of harm are to be set.

The human element to this drone assemblage – whether at the operational or strategic level - is thus embedded deeply within a techno-logos, to which s/he tailors her actions, intentionally and unintentionally. The techno-logos at work here may correspond well to purely calculable aspects of moral reasoning – consequentialist calculations of utility, for instance. But they cannot address dimensions of moral reasoning that exceed a purely analytical cost-benefit analysis. For the remainder of the written evidence, my aim is to map these technological limitations to ethical decision-making onto the different levels of warfare – tactical, operational and strategic.

IV. Tactical, operational and strategic blind spots

I have suggested above that drone technology as a systemic assemblage has the capacity to shape and direct decision-making processes in morally relevant ways. It prioritises combatants' self-preservation by making possible the elimination of a threat from a remote position as a form of defensive killing. Second, it shifts temporal horizons for moral calculations – the elasticity of necessity and 'last resort' are a case in point here. Third, it produces a technologically determined moral authority that problematises discrimination and narrows the possibility for moral contestation. Furthermore, it fosters a recoding of social and cultural dynamics of war through attention and action economies that adhere to a very specific U.S. centric idea of cultural of moral individualism. I lack the space here to go into greater detail or exhaust all possibilities in which this technology has agentic capacities. This is subject to a more extensive exploration some other time. Instead, I will try and map examples of these limitations, or slippages, onto the levels of warfare, which each comprise a moral dimension that needs to be considered in setting benchmarks. Specifically, I will problematise discrimination/proportionality, operator morality and the pursuit of peace against specific drone-related technological frames.

a. Drone technology at the tactical level

The benefits of drone technology are most often and most clearly articulated at the tactical level. It is at this level that discussions about discrimination and proportionality come into play most pertinently. The argument goes as follows: drone technology allows for greater loiter capacity, leading to greater visual information, data volume and intelligence, which, in turn, allows for better discrimination between combatants and non-combatants. It is this capacity, paired with the risk-free nature of drone use to operators, that lead Bradley Strawser to suggest that there is a moral obligation to use drones for certain contexts of warfare.³³ If there is a technology that can save (some) lives and can conduct a more discriminatory strike action, then this should be a straight forward moral calculation. As Michael Walzer puts it: "Drones ... are discriminating weapons that do not kill

civilians, or not many civilians, as long as they are used with discrimination".³⁴ And herein lies the crux, relevant to the tactical level. While, there is evidence that drone strikes have had some tactical success in disrupting terrorist networks the moral good here is called into question when looking at the technologically facilitated practice in more detail. For one, the increased loiter capacity in itself poses ethical problems for its voyeuristic nature. Surveillance, as a technologically facilitated practice, is by no means value-neutral. The practice of watching someone from a 'hidden' location constitutes an act of voyeurism. This voyeurism is a manifestation of dominance and control, a gaze onto the Other, which produces hierarchies of 'good' and 'bad', without possibility of contestation by those observed. This is particularly problematic when those under surveillance are not legitimate combatants, but extend to a wider range of potential targets, calling into question ideas of discrimination and proportionality.

Furthermore, some commentators consider the technology to offer a moral advantage for tactical targeting decision. Jeff McMahan, for example, argues that the advanced loiter capacity of newer versions of lethal drones "better enable the weapons operator to make morally informed decisions about the use of their weapons"³⁵ This should be called into question against a background of growing accounts which testify to the error margin of targeting decisions. Repeatedly, reports surface that drone operations have targeted funerals, weddings and other non-military gatherings. The question is – how can that happen? Here, I suggest, the mix-mode systems dynamic, highlighted earlier comes into play. As Air Force Major General James O. Poss noted in response to the accidental killing of 15 civilians in Afghanistan in 2011: "Technology can occasionally give you a false sense of security that you can see everything, hear everything, that you know everything".³⁶ The problem here is not technology as such, but the interpretive dynamic that the technology creates. Gusterson describes this as a problematic combination of limitations of technology, interpretive "infilling and remote individualisation". Once a frame is constructed, composed from the technologically provided information and the narratives produced (often based on cultural assumptions), "ambiguous information is interpreted within that frame, informational gaps are ignored and moral judgements are rendered".³⁷ What is at stake here is the production of knowledge through technologically mediated frames, which provide only an incomplete or misguided picture. This then is taken as a trusted basis for morally relevant decisions. Such processes complicate calculations of discrimination and proportionality, but also pose a problem for accountability structures.

b. Drone technology at the operational level

The operational level is concerned primarily with employing military forces in a theatre of war.³⁸ Military operations are concerned with furthering military objectives in on-going theatres of war. The wider operational impact of drones is a complex area of analysis, whether we look at official theatres of war or CIA-driven counter-terrorism operations. If we consider the levels of violence that persist in territories in which lethal drones are used, one may be justified in suggesting that lethal drones are counter-productive. The counter-productive effects relate in part to the tactical impairments for accurate knowledge above. Where civilians might be mistaken for legitimate targets, the grievances produced among the target population may well lead

to greater levels of radicalisation. I am, however, here concerned again with the technological dimension and the ways in which it shapes an operator's ability for moral reasoning.

The previous section has outlined ways in which moral decision are potentially compromised by a combination of technological authority and the construction of interpretive narratives. Recall here that the drone operator is embedded into a wider drone-interface environment in which s/he constitutes part of the drone assemblage – physically and mentally. Physically, the drone operator's sensory capacities are focused sharply on a visual and data environment, whereby other senses typically crucial in the experience of warfare, such as smell or sounds, are somewhat truncated. Cut off from the civilian environment just on the outside of the trailer, drone operators become susceptible to focused digital cues. This insertion into a setting in which sensory capacities are truncated constitutes part of a wider digital conditioning, which affects an understanding of what is real and what is not. This in turn, I would suggest, affects the moral reasoning capacities of the operators themselves. Such digital conditioning produces technologically conditioned subjects that “compulsively anticipate the next decision point”.³⁹ The logic of the decision points is primarily data driven. With a very limited sensory engagement, the full realm of information points for moral decision-making is truncated, turning the decision to inflict violence on a target into an ostensibly neutral and purely rational act for which the drone operators involved become the executioners.

The full consequences of digital interface conditioning of drone operators is not yet clear, but I would like to suggest that it perhaps allows us to understand the disparity between an observed “hunger to attack” a target, and narratives of dispassionate and considered assessments of potential targets of warfare on distanced grounds.⁴⁰ While accounts of drone operators consistently reject notions that drone warfare is playstation warfare, the known stories from operators do also indicate that despite the intimacy implicit in the observation and the emotional consequences this might carry, there remains a screen mediated distance that cuts the operator off from the sensory realities of warfare on the ground and thus retains a veneer of the unreal. More research is required on the effect of drone technology on the operators and their capacity for moral reasoning, to better understand the dissonance between accounts and the impact it has on their moral integrity.

c. Drone technology at the strategic level

The strategic level is perhaps where the ethical dimension of politics is most clearly articulated. It is also where tactical and operational decisions come to roost. And it is here that moral guidelines are most pressingly needed. There are many aspects that make the use of drones strategically problematic. What should inform the strategic level is a move toward cessation of violence in territories of conflict in which drones are used. This is called into question with drone technology. Here, again, I draw on the problems of technologically mediated target selection.

A crucial part of the targeted killing program is the identification of relevant targets. The erstwhile criterion of only targeting ‘High Value’ individuals, which were known

by name and position in a specific terrorist organization (as first instituted by George W. Bush) has long been replaced by a practice that sees individuals placed on Kill Lists not simply because of who they are, but also what they *appear* to be doing. In latter instance, previously unknown and unidentified individuals are marked as potentially dangerous and placed on a Kill List for ‘signatures strikes’, on the basis of observed patterns in their behaviour. This process entails a combination of human intelligence (HUMINT) and signals intelligence (SIGINT), but SIGINT is the more relevant component in this context. The role of SIGINT is to feed massive amounts of data into what is known as the ‘disposition matrix’, which is integral to imputing terrorist intent. However, the nature of the data collection process (to which the drone is instrumental) is such that in order to yield any relevant and actionable results, the definition of ‘what a terrorist is’ must be broad. Without a single well-defined profile for a terrorist to work with, the only way that pattern-of-life analysis can identify the signature of terrorist activity is by taking a broad view of what kinds of patterns constitute a terrorist signature. As Jutta Weber has argued convincingly, in the end it is the fear of “failing to spot potential suspects” that provides the criteria for the algorithms which in turn determine who might be a suspect. “Accordingly, more and more data are included in watch and kill lists”, and more and more individuals are identified as potential terrorists.⁴¹ This expands, rather than collapses, time horizons for the cessation of conflict. In fact, it renders them infinite in the continued application of lethal force, with potentially ever-expanding zones of war.

V. Concluding thoughts

A honest and conscientious consideration of the ethical impact and implications of using armed drones would require first and foremost greater levels of transparency. Without clear and confirmed factual knowledge, much of the implication we raise unfortunately remain subject to speculation. The pressing ethical charge thus is for UK drone operations to allow for greater oversight. This would be done, experts suggest, without compromising too much on national security or indeed giving too much away.⁴² It would, however, go a long way in upholding the democratic values of the UK.

Where we cannot build a fruitful debate about ethics on a solid foundation of actual facts, we can observe the implications and consequences as best as possible. What we can observe is a growing dissonance between narratives of clean and/or just killing with drones and the very messy and seemingly counter-productive reality of drone warfare on the ground. This suggests that there are slippages at work that urgently need to be addressed before the UK continues on its path of using armed drones ‘hand in glove’ with the US.⁴³

Like any new technology of force, drone technology influences processes of decision-making in ways that may not be obvious in existing discussions on the ethics of drones. Those who posses lethal drone technologies (or plan to acquire it) should be aware of the moral challenges that this poses to existing categories in the ethics of war. The need for clear guidelines and regulations is pressing. To propose clear guidelines, one should be aware of the practices drone technology invites and the moral dimensions drone technology might occlude. An awareness of what specifically is involved in the use of drone technology might help set realistic guidelines at every level, train operators appropriately and work toward upholding existing ethical

principles. It might also assist in drawing important ethical lines in what is permissible in the use of drones for law enforcement domestically.

As we move forward in the drive to further automate decisions as to who is liable to be killed, this technological context poses ethical questions of the highest order. Where drone technology is the beginning of such processes, autonomous weapons system and systems of AI will be the next step in encoding categories of ‘right’ and ‘wrong’ into lethal machines that operate on efficiency and utility maximisation principles. With a growing focus on algorithmically determined calculable outcomes, the danger is that we lose sight of the important social dimensions of warfare and making peace.

¹ Drone Wars UK, ‘UK Drone Strike Stats on Operation Shader’, August 2017

<https://dronewars.net/uk-drone-strike-list-2/>

² Presentation at the ICCS Birmingham ‘10 Years UK Reaper’, event, 18 October, 2017, Birmingham, UK.

³ Christof Heyns, ‘Preface: Coming to terms with drones’, in David Cortright, Rachel Fairhurst and Kristen Wall (eds.), *Drones and the Future of Armed Conflict: Ethical, Legal and Strategic Implications* (Chicago, IL: University of Chicago Press, 2015), pp. vii-xi.

⁴ Michael Walzer, ‘Just and unjust targeted killing and drone warfare’, *Daedalus: The Journal of the American Academy of Arts and Sciences*, 145:4 (2016), pp. 12-24.

⁵ Micah Zenko, ‘The (Not-So) Peaceful Transition of Power: Trump’s Drone Strikes Outpace Obama’, *Council of Foreign Relations*, 2 March, 2017, <https://www.cfr.org/blog/not-so-peaceful-transition-power-trumps-drone-strikes-outpace-obama>

⁶ Charlie Savage and Eric Schmitt, ‘Trump Poised to Drop Some Limits on Drone Strikes and Commando Raids’, *The New York Times*, 21 September, 2017 https://www.nytimes.com/2017/09/21/us/politics/trump-drone-strikes-commando-raids-rules.html?_r=0

⁷ Chris Cole, ‘After Ten Years, Time to Ground Britain’s Drones’, *Drone Wars UK*, 09 October, 2017, <https://dronewars.net/2017/10/09/after-ten-years-time-to-ground-britains-drones/>

⁸ Owen Bowcott, “‘Specific” terror evidence not necessary for RAF drone strikes”, *The Guardian*, 11 January, 2017, <https://www.theguardian.com/world/2017/jan/11/raf-drone-strikes-terror-attorney-general>;

⁹ Larisa Brown, ‘Secret RAF drone strikes take out British jihadis: Our ‘pilots’ working way through kill list of UK fanatics fighting ISIS in Iraq and Syria’, *The Daily Mail*, 23 February, 2017, <http://www.dailymail.co.uk/news/article-4251122/Our-pilots-working-way-kill-list-UK-jihadis.html>

¹⁰ Grégoire Chamayou, *Drone Theory* (London: Penguin, 2015), p. 14.

¹¹ John Kaag and Sarah Kreps, ‘Drones bring an end to war’s easy morality’, *Chronicle of Higher Education*, 10 September 2012. Available at: <<http://www.chronicle.com/article/Opinion-Drones-End-Wars-Easy/134236/>>. Accessed 12 January 2017.

¹² David Cortright and Rachel Fairhurst, ‘Assessing the debate on drone warfare’, in David Cortright, Rachel Fairhurst and Kristen Wall (eds.), *Drones and the Future of*

Armed Conflict: Ethical, Legal and Strategic Implications (Chicago, IL: University of Chicago Press, 2015), pp. 1-22, at 8.

¹³ John Kaag and Sarah Kreps, 'The use of unmanned aerial vehicles in contemporary conflict: A legal and ethical analysis', *Polity*, 44:2 (2012), pp. 260-85.

¹⁴ Gusterson, *Drone*, p. 92.

¹⁵ Hugh Gusterson, *Drone: Remote Control Warfare* (Cambridge, MA: MIT Press, 2016), p. 91.

¹⁶ Ibid.

¹⁷ Markus Gunneflo, *Targeted Killing: A Legal and Political History* (Cambridge: Cambridge University Press, 2016), p. 111. See also Jeffrey David Simon, *The Terrorist Trap: America's Experience with Terrorism* (Bloomington, IN: Indiana University Press, 2001).

¹⁸ Duane Clarridge, quoted in Christopher J. Fuller, 'The eagle comes home to roost: The historical origins of the CIA's lethal drone program', *Intelligence and National Security*, 30:6 (2015), pp. 769-792, at 780.

¹⁹ Steven J. Barela, 'Introduction: Legitimacy as target', in Steven J. Barela (ed.) *Legitimacy and Drones: Investigating the Legality, Morality and Efficacy of UCAVs* (Farnham: Ashgate, 2015), pp.1-24, at 2.

²⁰ Kevin Sullivan, Tom Jackman and Brian Fung, 'Dallas police used a robot to kill: What does that mean for the future of police robots? *The Washington Post*, 21 July 2016. Available at: <https://www.washingtonpost.com/national/dallas-police-used-a-robot-to-kill-what-does-that-mean-for-the-future-of-police-robots/2016/07/20/32ee114e-4a84-11e6-bdb9-701687974517_story.html>. Accessed 12 January 2017.

²¹ Anna Leander, 'Technological agency in the co-constitution of legal expertise and the US drone program', *Leiden Journal of International Law*, 26:4 (2013), pp. 811-31, at 816.

²² Bruno Latour *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: Oxford University Press, 2005), p. 104.

²³ Elke Schwarz, 'Prescription drones: On the techno-biopolitical regimes of contemporary "ethical killing"', *Security Dialogue*, 47:1 (2016), pp. 59-75.

²⁴ Leander, 'Technological agency'.

²⁵ See also Maja Zehfuss, 'Precision and the production of ethics', *European Journal of International Relations*, 17:3 (2011): 543-66.

²⁶ Alison Williams, 'Enabling persistent presence? Performing the embodied geopolitics of the Unmanned Aerial Vehicle assemblage', *Political Geography*, 30:7 (2011), pp. 381-90, at 387.

²⁷ Peter Asaro, 'The labor of surveillance and bureaucratized killing: New subjectivities of military drone operators', *Social Semiotics*, 23:2 (2013), pp. 196-224, at 220.

²⁸ David Cole, 'We kill people based on metadata', *New York Review of Books*, 10 May 2014. Available at: <<http://www.nybooks.com/daily/2014/05/10/we-kill-people-based-metadata/>>. Accessed 12 January 2017.

²⁹ Chamayou, *Drone Theory*, p. 146.

³⁰ Christopher Coker, *Ethics and War in the 21st Century* (London: Routledge, 2008), p. 38.

³¹ Neta Crawford, 'Bugsplat: US standing rules of engagement, international humanitarian law, military necessity and noncombatant immunity', in Anthony F. Lang, Cian O'Driscoll and John Williams (eds.) *Just War: Authority, Tradition and Practice* (Washington, DC: Georgetown University Press, 2013), pp. X-Y.

³² Kevin Miller, 'Total surveillance, big data and predictive crime technology: Privacy's perfect storm', *Journal of Technology of Law and Policy*, 19 (2014), pp. 105-46.

-
- ³³ Bradley J. Strawser, 'Moral predators: The duty to employ uninhabited aerial vehicles', *Journal of Military Ethics*, 9:4 (2010), pp. 342–68.
- ³⁴ Walzer, 'Just and unjust targeted killing', p. 21.
- ³⁵ Jeff McMahan, 'Foreword', in Bradley Strawser (ed.) *Killing by Remote Control* (Oxford: Oxford University Press, 2012), pp. ix-xvii.
- ³⁶ Quoted in David S. Cloud, 'Anatomy of an Afghan war tragedy', *Los Angeles Times*, 10 April 2011. Available at: <<http://articles.latimes.com/2011/apr/10/world/la-fg-afghanistan-drone-20110410/4>>. Accessed 12 January 2017.
- ³⁷ Gusterson, *Drone*, p. 69.
- ³⁸ USAF, 'Three levels of war', USAF College of Aerospace Doctrine, Research and Education (CADRE), in *Air and Space Power Mentoring Guide*, Vol. 1 (Maxwell AFB, AL: Air University Press, 1997). Excerpt available at: <<http://www.cc.gatech.edu/~tpilsch/INTA4803TP/Articles/Three%20Levels%20of%20War=CADRE-excerpt.pdf>>. Accessed 12 January 2017.
- ³⁹ Douglas Rushkoff, quoted in James Ash, *The Interface Envelope: Gaming, Technology, Power* (London: Bloomsbury, 2015), p. 4.
- ⁴⁰ Gusterson, *Drone*, p. 70.
- ⁴¹ Jutta Weber, 'Keep adding: On kill lists, drone warfare and the politics of databases', *Environment and Planning D: Society and Space*, 34:1 (2016), pp. 107–25, at p. 5.
- ⁴² Alex Moorhead, Evidence given at a closed expert workshop, PAX Netherlands, 18 January 2017, Utrecht, NL.
- ⁴³ Claire Phipps, Patrick Wintour and Justin McCurry, 'High degree of certainty that US strike killed Mohammed Emwazi', *The Guardian*, 13 November 2015, <https://www.theguardian.com/uk-news/2015/nov/13/us-air-strike-targets-mohammed-emwazi-uk-terrorist-known-as-jihadi-john>