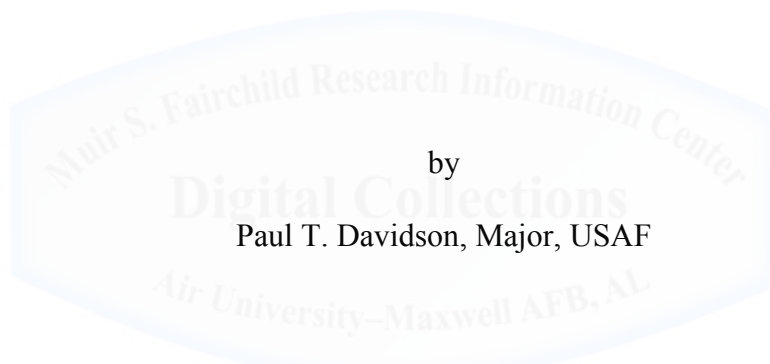


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AIR COMMAND AND STAFF COLLEGE

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**Lethal RPAs: Ethical Implications of Future Airpower Technology**



by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

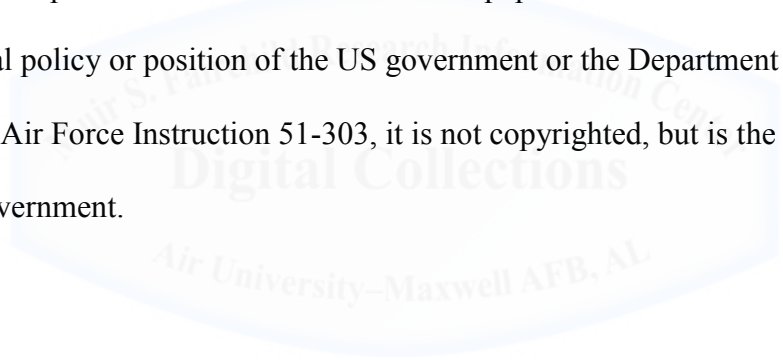
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## **Abstract**

Remotely Piloted Aircraft (RPA) provide a tactically effective tool for warfighters, but they are employed at a cost. An analysis of the implications of RPAs through a deontological, aretaic, and teleological ethic provide insight into some of those costs. Deontological ethics view issues through a sense of duty or obligation. This view stresses the importance of abiding to international conventions of war founded in Just War Theory. The narrative, or informational aspect of war, is strongly embedded in the legitimacy of a country's just use of force in war. RPAs, and distance warfare in general, make it difficult to prove the proportionality and discrimination of an action without "boots on the ground." Aretaic ethics assess the virtue of an action. RPAs provide action independent of physical courage, which is a key component of the warrior ethos. Teleological ethics focus on the consequences of actions. The consequences of risk transfer, disengagement, and a reduced threshold are evaluated suggesting an increased likelihood in the use of RPAs for lethal force. With this ethical framework established, an assessment of the future of RPAs is undertaken. Robotics and autonomy are two potential future capabilities that increase concern of the above ethical implications. The United States is at an impasse where it can help shape the future use of these technologies in war. Recommendations include guiding their use within this framework of ethics, advocating for international adoption of restrictions, and ensuring checks and balances. RPAs, like other Airpower technology, will remain a vital tool, but not a panacea and should remain subject to an ethical evaluation.

*Science is a double-edged sword; it creates as many problems as it solves, but always on a higher level.*

*- Michio Kaku, Physics of the Future*

Unmanned technology has surged over the past decade leaving some wondering if aircraft will remain manned for much longer. There is a growing emergence in this technology because it is a proven solution to many recent problems. There has also been a swell because of the innate desire to minimize the loss of life in war. In many ways, unmanned technology is only continuing the technological trend in warfare of distancing the soldier further from danger. As these trends indicate, there is little doubt that drones<sup>1</sup> and associated technology, such as increasing autonomy, are the wave of the future. Illustrating this point, the chief scientist of the Air Force published *Technology Horizons* in 2011 producing a list of ten future themes for Air Force research and development, two of which were increased autonomy and moving from piloted aircraft to remotely piloted aircraft.<sup>2</sup> More significantly, in 2000 Senator John Warner laid out a roadmap requiring a third of all “aircraft designed to attack behind enemy lines be unmanned [by 2010], and that by 2015 all ground combat vehicles be driverless.”<sup>3</sup> Part of the explanation Senator Warner gave was that “the driving force is the culture in our country today, which says ‘Hey! If our soldiers want to go to war, so be it. But don’t let any of them get hurt.’”<sup>4</sup> This roadmap led to the National Defense Act of 2001 and “by some definitions the first goal has been met.”<sup>5</sup> While all signs point to continued increase in unmanned technologies, it does not sit well with everyone, especially when various versions of these technologies deliver lethal effects.

‘Covert’ drone strikes against terrorists in the Middle East and Africa are frequently in the news and many question the appropriateness of this lethal tactic.<sup>6/7</sup> As recently as 5 February 2013, *Wired* suggested President Obama’s “Memo on Targeted Killing is a Drone Strike on the

Law.”<sup>8</sup> Is this the proper way to wage war against terrorism? Does the United States follow the laws of due process, particularly in targeting American citizens, and the laws of war? Questions like these, dealing with what is ‘proper’, are ethical in nature and answering them provides insight into the implications of future Airpower technology.

Technology solves many problems today, and holds much promise for the future, but as succinctly stated by Kaku, solving one problem often creates others.<sup>9</sup> Viewing technology through an ethical lens provides insight into some of these ‘other’ problems. RPAs provide a practical case study for the ethical implications of technology in war. This paper, building on the work of others, seeks to establish an ethical baseline for evaluating technology. It then uses that baseline to identify particular ethical dilemmas by way of a case study in RPAs present and future, and finally argues for regulation of the use of drone technology for lethal purposes.

### *An Ethical Primer*

Ethics have received increased attention in military and government circles in the past few years. In 2010 General Stanley McChrystal was fired because of inappropriate remarks made in a *Rolling Stone* article.<sup>10</sup> By the end of 2010 and into 2011 the military saw the repeal of the Don’t Ask Don’t Tell (DADT) policy.<sup>11</sup> 2012 saw the resignation of one of the military’s most lauded Generals, David Petraeus,<sup>12</sup> and the demotion of Four Star General “Kip” Ward as a result of ethical violations.<sup>13</sup> Each of these examples highlights the importance of ethics and the implications of their violation in the United States military system and culture. Ethical questions are raised not only in personnel matters but also in matters of technology, as the recent debate over drone strikes has illuminated.<sup>14</sup>

What are ethics? *Ethics are guidelines for right and wrong conduct*; or for what ‘ought’ to be done.<sup>15</sup> These guidelines come from a society’s values. These values originate from a variety of sources, the discussion of which is beyond the scope of this paper.<sup>16</sup> In the case of the United States, the nation’s corporate ethic is espoused in official documents such as the Declaration of Independence, the Constitution and the National Security Strategy (NSS). From these documents, two old and one modern, are found common values of “life, liberty, and the pursuit of happiness.”<sup>17</sup> While the national ethic is difficult to define succinctly, it is nonetheless crucial to a nation’s identity, thereby implicating how a nation will likely observe, orient, decide, and act.

Because of a myriad of interconnected factors and situations, ethics are complex. A simplified overview, however, may assist in developing principles, identifying ethical problems, and proposing their solutions. There are three commonly understood classes of ethics: duty, virtue, and consequence, each providing a distinct ethical lens by which to view problems and ultimately make decisions.<sup>18</sup> These classes, in layman’s terms, ask, “what does my sense of duty tell me is the correct choice to make, what decision appeals most to virtue, and what decision will result in favorable consequences?” These three ethical categories are also known as deontological, aretaic, and teleological ethics respectively.<sup>19</sup> A look at each one of these ethical disciplines provides insight into the implications of the use of RPAs and future Airpower technologies.

### *Deontological Ethics*

Deontological ethics “give moral weight to aspects of actions other than their consequences or in addition to them.”<sup>20</sup> By looking beyond the consequences of an action, this

ethical lens looks at issues from a sense of duty. From a military standpoint, deontological ethics say the military has a duty to abide by laws, treaties, and policies. A recent example of the deontological ethic at work is the release of the Department of Justice (DOJ) White Paper outlining the legal justification for killing US citizens, associated with Al Qaeda, by drones.<sup>21</sup> Additionally, deontological ethics drive America's desire to keep its word at the international level. An analysis of laws such as the Geneva Conventions and Laws of Armed Conflict (LOAC) provide guidelines which 'ought' to be followed. From a deontological perspective, if America does not agree with certain laws and restrictions it should not sign those laws.

The continuity between what is stated and what is done is imperative in maintaining a positive public opinion, especially for super power nations. As Michael Walzer, in his thorough book *Just and Unjust Wars* points out, there is a desire in war "to act or to seem to act morally."<sup>22</sup> In this vein, deontological ethics provide a continuity test between technology (means) and application (ways). Deontological ethics enable decision makers to uphold consistent values throughout means and ways on the path to achieving consistent ends. This ethical continuity, or discontinuity, is an important aspect of a nation's way of war because it sends a message. The Israel-Hezbollah war of 2006 is an example of this, whereby Israel was largely regarded as having fought the war illegally.<sup>23</sup> The end result was that Israel won tactical battles but lost the war in the eyes of many in the world. In other words, technology used unethically may invalidate the ends.<sup>24</sup> As Walzer says, "do justice unless the heavens are (really) about to fall."<sup>25</sup>

### *Just War Theory*

Outside observers latch on to the hypocrisy of the Israeli narrative, claiming to be just in their execution of the war, but taking actions that showed otherwise. Winning over public

opinion starts with justification for ones actions. In the case of military might the concept of Just War Theory provides such justification. Just War Theory is commonly divided into two segments: the justice in going to war (*jus ad bellum*) and justice during war (*jus en bello*). *Jus ad bellum* provides six criteria for going to war: just cause, last resort, proportionality, likelihood of success, right intentions, and legitimate authority.<sup>26</sup> *Jus ad bellum* provides a litmus test for the US war against Al Qaeda. In actuality, Al Qaeda declared war against the US first in 1996 and 1998,<sup>27</sup> it was not until after the 11 September 2001 attack on American soil that President Bush stated “we stand together to win the war against terrorism.”<sup>28</sup> President Obama, while shying away from the Global War on Terrorism (GWOT) mantra, has maintained that the US is still at war with Al Qaeda. Fundamentally, America has just cause in the war against Al Qaeda, because it was attacked first, making it a war of self-defense. Legitimate authority was granted to the President by Congress on 18 September 2001 to “authorize the use of United States Armed Forces against those responsible for the recent attacks launched against the United States.”<sup>29</sup> Even killing American citizens, who have joined Al Qaeda, has been declared legal by the DOJ.<sup>30</sup> Because the war against Al Qaeda is generally acknowledged as just, the more controversial aspects of the war against terror are found in *Jus en bello*. *Jus en bello* looks at two criteria: proportionality and discrimination.<sup>31</sup>

A proportional view in Just War Theory looks at the relationship between destruction caused in war and the desired objective. The nature of this relationship is difficult to define, but it alludes to the desire to limit destruction to only that which is necessary to achieve military objectives. One way to assess proportionality is to compare drone strikes with acts of terrorism. A study by Columbia Law School found somewhere between 456 and 661 fatalities in Pakistan in 2011 as a result of drone strikes.<sup>32</sup> The ‘covert’ nature of these operations makes it difficult to

determine the exact number of deaths, but if the median is taken, the average lies around 559 fatalities in 2011.<sup>33</sup> According to a study by the National Consortium for the Study of Terrorism and Responses to Terrorism (START), in 2011 there were 1642 and 1513 fatalities resulting from acts of terror in Afghanistan and Pakistan respectively.<sup>34</sup> The proportionality comparison becomes 559 deaths from drone strike with 3155 deaths from terrorist attacks, thus implying for many that drone strikes are proportional. A greater disconnect between this technology and Just War Theory comes from discrimination.

Discrimination in Just War Theory ensures that warring nations only target combatants. Article 43 of the Geneva Conventions defines combatants as “members of the armed forces of a party to a conflict.”<sup>35</sup> This has been interpreted by the General Counsel of the Department of Defense to claim “in the current conflict with al Qaida and the Taliban, the term [enemy combatant] includes a member, agent, or associate of al Qaida or the Taliban.”<sup>36</sup> Non-combatants then are civilians, and should not be targeted according to the laws of war. With advances in communication and technology, the precision of drone strikes has increased but civilian deaths remain an unfortunate consequence. A recent study by New York University and Stanford makes a convincing case that drone strikes in Pakistan are not discriminatory enough and calls for a re-evaluation of current US policies.<sup>37</sup> According to the report, an estimated 474 - 881 civilians, or non-combatants, were killed between 2004 and 2012 as a result of US drone strikes.<sup>38</sup> While a utilitarian may argue that the number of people saved outweighs the number of non-combatants killed, in today’s world of ubiquitous media, even one civilian casualty may not be acceptable.

A disregard for discrimination can have devastatingly negative consequences on strategy. Along these lines Mark Clodfelter, in *Beneficial Bombing*, argues “success in stabilizing Afghanistan depends in large measure on how public opinion” sees America’s use of force.<sup>39</sup> As

the NYU and Stanford report suggests, global opinion is turning against the US use of force in the form of drone strikes. In this vein, tactical victories can result in a lost war if a nation is indiscriminate and disproportionate in its use of force, or is at least perceived as such by the international community. War fought from a distance makes proving discrimination and proportionality difficult. After strikes, insurgents can replace dead insurgent bodies, with dead civilian bodies and then bring in their own media to portray a deceitful account of what happened. Without friendly force “boots on the ground” and an active informational operations (IO) campaign, it is inherently difficult to maintain a positive public opinion in distance warfare.

Deontological ethics also begs the question of how well America abides by its own policies, such as the President’s five rules for drone strikes and the DOD policy for autonomy. During a CNN interview, President Obama dictated five rules to follow when carrying out covert drone strikes.<sup>40</sup> First, the target has to be authorized by law. Second, it has to be a threat that is serious and not speculative. Third, capturing a target must not be feasible or reasonable. Fourth, care must be taken to avoid civilian casualties. Fifth, American citizens are subject to the protections of the Constitution and due process.<sup>41</sup> These rules provide the foundation for reasonable guidelines for the lethal use of force because they eventually require it to only be employed as a last resort.

The recent release of the DOJ White Paper addresses the legality of drone strikes and targeting American citizens, in reference to rules one and five.<sup>42</sup> Because of the classified and often covert nature of drone strikes, rules two and four are difficult to validate, but because of precision guided munition (PGM) technology, persistent tracking of high value targets (HVTs), and the nature of other DOD engagements during war time, it is reasonable to assume they are being upheld.

The main sticking point with the President's five rules is rule three. Taking life is not a light matter. In war, force is authorized, but there are times when enemy soldiers are captured rather than killed, particularly when they surrender. The very nature of drones, removing humans from the battlefield, prevents this possibility. Even though lethal force is supposed to be a last resort, many other possible outcomes are left out of the decision process. Furthermore, there has been a significant increase in drone killings over the past four years. According to the *Long War Journal*, 45 drone strikes took place in Pakistan from 2004-2008, while 280 took place from 2009-2012.<sup>43</sup> If drone strikes were a last resort, the expected trend would be a decrease in the number of strikes. As alluded to above, the disconnect between established rules and actual adherence to them creates a negative narrative in public opinion. Transparency may help improve public opinion, but the tension between operations security and transparency makes information operations (IO) difficult.

The other recently released policy related to RPAs is *DOD Directive, Number 3000.09*. Published in November 2012, this directive provides a forward looking view of drone technology with regard to autonomy, and provides another method of deontological analysis. In this directive, the two most significant guidelines are that "autonomous and semi-autonomous weapon systems shall be designed to allow commanders and operators to exercise appropriate levels of human judgment over the use of force" and "human-supervised autonomous weapon systems may be used to select and engage targets, with the exception of selecting humans as targets."<sup>44</sup> Significantly, the policy notes the importance of human judgment over the use of force and the underlying notion that autonomous weapon systems should not be allowed to select humans as targets. This DOD policy provides guidelines for the future use of drone and robotic

technologies, and the extent to which the government follows it will serve as a deontological measure in the future.

As this section has attempted to show, deontological ethics provide a framework for what ought to be done from a sense of duty or obligation. The US and its drone strikes are subject to a review of Just War Theory and stated policies. The degree to which the methods in war, *jus en bello*, do not align with stated values creates a disconnect in public opinion. This disconnect creates a negative narrative that can undermine efforts in the long run. While it may be a matter of perception, perception is often reality. Michael Ignatieff, in *Virtual War*, summarizes this divide well when reflecting on the Kosovo war he says, “We had talked the language of ultimate causes and practiced the art of minimum risk.”<sup>45</sup>

### *Aretaic Ethics*

While deontological ethics provide an analysis founded on a call to duty, aretaic ethics provide a method of analysis based on a call to virtue. Aretaic ethics deal with “motives or character traits rather than right or wrong actions.”<sup>46</sup> There are certain character traits that are helpful to the military services and many of these traits are codified in their values.

### *Courage*

For the Air Force, the core values are Integrity, Service, and Excellence. According to the USAF, in order for an individual to possess integrity, they must also possess personal courage.<sup>47</sup> The Army has seven core values that spell out the mnemonic LDRSHP; Loyalty, Duty, Respect, Service, Honor and Personal Courage.<sup>48</sup> The Navy and Marines share core values of Honor, Courage, and Commitment.<sup>49</sup> As evident above, courage is the one core value common to all the military services.

Using the aretaic ethical view, and understanding the common need for courage in all services, begs the question how is the military culture impacted by an increase in unmanned technology? If drones allow wars to be fought remotely does the need for courage decrease? Essentially, do drones require courage to employ? Arguably, yes and no, depending upon the type of courage implied. For example, a certain degree of courage comes from standing up in the face of risk, but physical risk is low to the drone pilot and decision makers (not necessarily the same individual) who are located far from the battlefield. Risk in and of itself does not make an act just, as deontological ethics have shown, but it does have an effect on the aretaic ethic. Certainly, a degree of personal courage is required, because responsibility for taking life is attributed to the RPA operator and the decision maker. This responsibility carries with it some level of risk, even if only internal, and thereby requires courage.<sup>50</sup> Therefore, an aretaic analysis of drone usage shows a decline in the need for physical courage, but a consistent requirement for personal courage. In effect, replacing men with machines to carry out missions changes the traditional military ethos.

The long term effect of a service with a decreased need for physical courage is unknowable. This does not necessarily mean that military members will not be courageous unless they are engaged in battle. Rather it suggests the lacking functional need for physical courage should be supplemented by a continued discussion, education, and acknowledgement of courage as a necessary military value. Armin Krishnan, in his book *Killer Robots*, highlights how the replacement of soldiers with robots will likely result in a loss of military skills.<sup>51</sup> While Krishnan's focus is on technical skills, the same can be said of courage. In the future it will be important to emphasize that physical courage begins with personal courage. Drone pilots and

decision makers can maintain personal courage by understanding the implications of their actions and not falling victim to desensitization.

### *Warrior Culture*

An additional concern from an aretaic point of view is the effect on the warrior culture. The Army has a 'Warrior Ethos' that says a warrior keeps the mission in focus, does not quit, and never leaves a comrade behind.<sup>52</sup> An Air Force pamphlet, entitled *Warrior Facts*, states that "warriors face challenges that try the most mentally, physical and technologically prepared Airmen today."<sup>53</sup> The pamphlet then lists some of the "warrior" career fields such as combat controllers, pararescue, and security forces. It appears that there are degrees of a warrior mentality within the military. The closer a military member is to the fight, the more risk that individual is subject to, increasing the need for a "warrior" spirit. Significantly, the "V" device for Valor is given for "acts of heroism by an individual above what is normally expected while engaged in direct combat with an enemy."<sup>54</sup>

While some element of the military will always need the warrior ethos, it does not follow that all members and functions of the military require the same level of warrior mentality. However, the more closely connected to the fight or mission at hand, the more likely that military member is to being in a supported rather than supporting role. Arguably, a decreased number of warrior career fields will relegate a service or function to more of a supporting role. For the Air Force, the implication is that increased reliance on technology alone will result in an increasingly supporting role. While this may not be to the detriment of the country, it is likely that American citizens with a warrior disposition will likely join other services. One option is to increase warrior training. While the function and platforms the military invests in are likely to require less traditional warrior ethos, the military can compensate through increased training and

recognition of secondary actions that require the military ethos, such as base defense and self-defense.

The question becomes to what degree is having a warrior culture essential to the military?<sup>55</sup> On the one hand it is the basis for America's trust in its military members. Military members are given the status of combatant during wartime, have agreed to place their life at risk for their country if needed, and have been skillfully trained to carry out their duties. The most significant of these duties being the responsibility to take life in defense of the nation.

Aretaic ethics appeal to virtue of which courage and the warrior ethos are two important components for the military member. An increased reliance on technology, decreases the need for human action in the face of physical adversity, thereby functionally requiring less physical courage. Internal virtues are still necessary, such as mental courage and mental toughness. In the end, virtue ethics may not be the deciding factor when mapping out future technology and capabilities of the military, but they should not be neglected.

### *Teleological Ethics*

Teleological ethics focus on the outcome, or consequence of actions. In a teleological analysis, the outcome determines whether the act was ethical.<sup>56</sup> These outcomes can be both direct and indirect. Because of the vastness of possible direct and indirect consequences from kinetic action, this paper will focus on the three common consequences discussed today with regard to drone strikes: risk-transfer, disengagement, and reduced threshold.

*Risk Transfer*, similar to Michio Kaku's statement, argues that risk is never completely removed from a situation it is only transferred. In the case of drone technology, what was once a localized battlefield is now a global battlefield, because the pilots of drone weapon systems do

not need to deploy to the area of responsibility (AOR). However, if responsibility for the drone attack, the concept of attribution, includes drone pilots in the United States, those pilots are combatants, and legal targets as governed by laws of war. Hypothetically, these operators can be on an enemy target list, in danger of being attacked simply going to and from work. Fighting wars from American soil also creates problems like added stress on families. While high operations tempo is difficult for families, the military is intentional about reintegrating soldiers who return from a combat zone. RPA pilots do not have that luxury. The only decompression allotted is on the drive home. Ultimately, legal combatants that reside in the US create a risk for all Americans. P.W. Singer elaborates on this concept in *Wired for War*, saying “exponentially more lethal weapons helped lead to equivalent exponential ‘stretching’ of the battlefield.”<sup>57</sup> The risk has transferred from a local battlefield to a global battlefield of engagement.

*Disengagement* argues that the more removed, or disengaged, a member is from an operation the less familiar they are with the devastating effects and the more likely they are to use lethal force. It is the notion that removing the warrior from the battlefield creates a soldier who does not understand the implications of his actions from afar, potentially promoting disproportionate violence. This disengagement perpetuates to the decision maker.<sup>58</sup> The more removed a decision maker is from a personal connection with combat, the more likely they are disengaged.

Lieutenant Colonel David Grossman’s *On Killing* provides unique insights into the psychology of killing and the effects of disengagement. In his book he argues, “With every foot of distance there is a corresponding decrease in reality ... [and] much of the mindless cruelty of recent wars has been perpetrated by warriors at a distance.”<sup>59</sup> One of the reasons a resistance to kill decreases with distance is because physical distance also relates to emotional distance. In the

case of the drone pilot, Grossman explains how “killing through a TV screen, a thermal sight, a sniper sight, or some other kind of mechanical buffer ... permits the killer to deny the humanity of his victim.”<sup>60</sup> Grossman calls this buffer a mechanical distance. The combination of mechanical and physical distance results in a reduced aversion to killing. Restraint of destruction, Grossman goes on to argue, is the result of a “psychological safety catch.”<sup>61</sup> Killing at a distance is necessary at times, but increased distance combined with desensitization is dangerous.

The *reduced threshold* concept suggests drones are used instead of manned platforms because there is a threshold, a risk or cost, that makes the use of drones more appealing than manned platforms. It begs the question, if America is not willing to risk its blood to achieve an objective or outcome, is that objective worth going to war in order to obtain? Cost can be quantified as blood and treasure. While blood is arguably more valuable, treasure is more prevalent. Almost all decisions in war require a payment but not all require the possibility of the loss of life. Bob Seidensticker, author of *Futurehype* points out “today’s risks usually involve money, while those in the past often involved lives.”<sup>62</sup> Decision makers have to weigh the cost and risk and determine if a course of action is favorable. In other words, the outcome must justify the payment. Drones allow decision makers to weigh cost and risk solely on treasure, removing the blood element, thereby tipping the scales in favor of action.

### *Tomorrow’s Lethal Drones*

Drones have a myriad of uses, empowering the military services with a different set of tools to accomplish their missions. P.W. Singer sees drones doing jobs that are “dull, dirty or dangerous.”<sup>63</sup> As alluded to by the DOD policy on autonomy and the Air Force’s *Technology*

*Horizons*, the flight path for drones appears to be in increased autonomy. A combination of these two trends, doing the jobs that are dull, dangerous, or dirty and decreasing reliance upon humans, point to the future of drone technology. But what does this future look like? Armin Krishan and Michio Kaku provide interesting forecasts in robotics and artificial intelligence.

Krishnan looks at five future scenarios resulting in the proliferation of robotic technology, ranging from most likely to least likely. The first possibility is an unlimited proliferation of drone technology, where it inevitably ends up in the hands of rogue states and terrorists.<sup>64</sup> This proliferation is already a reality as seen in Hezbollah's use of drones against Israel.<sup>65</sup> The second picture is of the misuse of drone technology by a government.<sup>66</sup> Krishnan sites inappropriate surveillance, assassination, and repression as possible government misuses.<sup>67</sup> The third scenario is the "normalization of war".<sup>68</sup> In this future, as with the reduced threshold concept, wars become more prevalent. Wars may increase, because the potential for loss of life on the offender side is low, attacks are mounted so quickly that the defender cannot retaliate, and technologically advanced countries can attack weaker countries from far away with impunity.<sup>69</sup> The fourth picture of the future is the "accidental war scenario," where a malfunction of technology accidentally sparks a conflict between states. The advancement of nanobots and their potential for self-replication is one of the main components of this possibility.<sup>70</sup> The final picture Krishnan presents is the "terminator scenario," where "humanity builds intelligent machines capable of evolving by themselves ... [which] surpass human intelligence" and become self-aware only to then turn on humanity.<sup>71</sup> Scenarios four and five are less likely because the human desire for self-preservation will motivate rational scientists to take appropriate precautions. Scenarios one through three, however have already occurred to some extent.

Michio Kaku presents another insightful view of future drone technology, along the path of autonomy. Kaku argues that we have to “differentiate between two types of robots”, those that have a human in the loop and those that are fully autonomous.<sup>72</sup> This framework looks at autonomy, be it in drones or robots, as a scale with full human control on one side and zero human control on the other side (Figure 1). The RPA strikes discussed throughout this paper reflect the left side of the scale. What is significant about Kaku’s statement is the gap between some amount of human in the loop and full autonomy. Kaku claims this gap is actually a giant leap in technology and is due to computers not being able to perform two simple human functions: “pattern recognition and common sense.”<sup>73</sup> Until technology enables robots or drones to perform these tasks, full autonomy appears to be in the far future which Kaku places in the 2070 to 2100 AD timeframe.<sup>74</sup> Because full autonomy is in the far future, Kaku recommends efforts now to “try to enhance ourselves, becoming superhuman in the process.”<sup>75</sup> These enhancements include cochlear implants, artificial vision, and bionic body parts. Significantly, this is also one of the Air Force goals as stated in *Technology Horizons* which states “augmentation of human performance via implants that improve memory, alertness, cognition, and visual/aural acuity” will provide value, cost savings and reduced manpower requirements.<sup>76</sup>

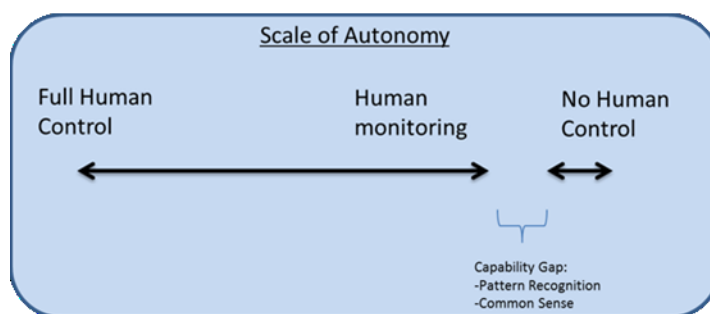


Figure 1

Combining the visions of Kaku and Krishan with the technological trend of distance warfare presents a dilemma. The ultimate end-state, if left unchecked, results in unprecedented

power in a single person's hands. Assuming full autonomy is a long way off, the more immediate concern is balancing the power held by a decision maker, who has the ability to make life and decisions with impunity. Distance warfare is almost to the point where an individual has only to decide they want an individual killed and it immediately happens. The claim that with great power comes great responsibility has never been more true.

### *Recommendations*

The advancement of unmanned technology is inevitable, but providing boundaries for the proper use of this technology is not only attainable but proper for ensuring this awesome capability is wielded ethically. The three ethical frameworks presented provide insights into possible future guidelines.

From the deontological view four possible guidelines for the future use of RPAs exist. First, the United States should ensure humans are always kept "in the loop" when carrying out lethal attacks. This ensures responsibility is ultimately attributed to the operators and decision makers. Second, different types of warfare should use drone technology differently. In the case of irregular warfare (IW) or the war on terrorism, lethal RPAs have arguably been most effective when used as a last resort. In the case of major combat operations (MCO), RPA technology with full autonomy should only be used, like nuclear weapons, as a "second-use" option. At the risk of losing to a country that is less ethically bound than the United States, the United States needs to be prepared to defend against another country's use of drone technology, and this second-use option ensures the United States research and development stays abreast with the technology. It also allows the United States to maintain an ethical upper hand. Third, in order to minimize the hypocritical narrative, when 'covert' attacks cease to be covert they should be stopped. This does

not mean that covert operations should not exist, but rather is a realization that when covert operations lose their covert nature they have lost much of their effectiveness. Finally, from a sense of duty, the United States should focus its future unmanned efforts on the ISR (intelligence, surveillance, reconnaissance), non-lethal, and defensive capabilities. Krishnan also argues for an increased focus on the defensive posture of drone technology.<sup>77</sup> The difficulty with this approach lies in the fact that defensive weapons inherently have an offensive capability. The offensive or defensive use of technology often lies in the hands of the operator. With these guidelines in place, the next step is to take regulation, such as that found in the DOD directive, to the international level. Updates to the Geneva Conventions to include guidelines for lethal drone technology will help define proper use, as seen through deontological ethics.

From an aretaic framework, the military can uphold virtue by continuing to acknowledge courage and the warrior ethos as values essential to its existence. These virtues set the military apart from other organizations. One practical solution for the Air Force is to develop tactical Airpower experts that have experience across the spectrum of the Air Force capabilities, to include air, cyber and space.<sup>78</sup> This is already done in a small way through the training of mission commanders. A mission commander is responsible for leveraging all allocated capabilities to achieve a given mission. Currently mission commanders plan and lead large force engagements in war and in exercises, such as Red Flag. Mission commander's need courage and the warrior ethos in order to lead others into battle. Holding this capability in high esteem and ensuring more cross flow between AFSCs into the mission commander role can serve as a reminder of the necessary military virtues.

Finally, from a teleological framework, the United States should maintain transparency in its lethal use of RPAs, ultimately minimizing their use. The short term consequences of a

lethal RPA attack appear to be no different than any other air strike. The problem lies in the longer term consequences, such as risk transfer, disengagement and reduced threshold. To minimize the negative effects of these consequences, the United States should maintain checks and balances prior to going kinetic regardless of the platform used. These checks and balances include a formal declaration of war from Congress, keeping a human in the loop, and ensuring more than one decision maker. A reversal of the current trend of drone strikes will also reduce the long term effects.

### *Conclusion*

This paper has attempted to summarize an ethical framework to aid in the development and employment of future airpower technology. It is a dangerous endeavor, because as Walzer says, “moral talk is coercive,”<sup>79</sup> but to neglect the ethical dimension is more dangerous. Asking deontological, aretaic and teleological questions helps identify some of the less obvious concerns created by technology. The point is not to get rid of all RPAs, but to employ and develop them ethically, making every employment decision intentionally, as a last resort and with full understanding of the ethical implications. Put another way, technology is a tool in the hand of its user that “isn’t inherently good or bad, but it will have an impact, which is why it is not neutral.”<sup>80</sup> The key is to develop the right balance of tools and warriors to win the nation’s battles and to employ them in a proper manner.

## End Notes

<sup>1</sup> RPA pilot Major Andrew “Judge” Beitz explains the term ‘unmanned vehicle’ is vague and includes platforms of all shapes, sizes, capabilities, and varying levels of human control. He suggests using the terms remotely piloted aircraft (RPA) for platforms that require a pilot to operate an aircraft capable of integrated airpower and unmanned aerial vehicle (UAV) for standalone platforms. The other term often used in the media is ‘drone’ and for the purposes of this paper will be used interchangeably with RPA. Interviewed, 23 February, 2013.

<sup>2</sup> *Technology Horizons*, xix

<sup>3</sup> Singer, *Wired for War*, 59-60.

<sup>4</sup> Ibid.

<sup>5</sup> Springer, *Military Robots and Drones*, 209.

<sup>6</sup> Peter Bergen, “Drone is Obama’s weapon of choice,” *CNN*, 19 September 2012, <http://edition.cnn.com/2012/09/05/opinion/bergen-obama-drone/index.html?iref=allsearch> (accessed 25 March 2013).

<sup>7</sup> Mirza Shahzad Akbar, “The folly of drone attacks and U.S. strategy,” *CNN Opinion*, 4 October 2012, <http://www.cnn.com/2012/10/04/opinion/pakistan-drone-attacks-akbar/index.html> (accessed 25 March 2013).

<sup>8</sup> David Kravets, “Obama’s Memo on Targeted Killings Is a Drone Strike on the Law,” 5 February 2013, <http://www.wired.com/threatlevel/2013/02/legal-basis-killing-americans/> (accessed 25 March 2013).

<sup>9</sup> Kaku, *Physics of the Future*, 19.

<sup>10</sup> CNN Wire Staff, “McChrystal relieved of command, Petraeus chosen to take over,” *CNN*, 23 June 2010, <http://www.cnn.com/2010/POLITICS/06/23/general.mcchrystal.obama.apology/index.html> (accessed 25 March 2013).

<sup>11</sup> CNN Wire Staff, “Obama signs repeal of ‘don’t ask, don’t tell’ policy,” *CNN*, 27 December 2011, <http://www.cnn.com/2010/POLITICS/12/22/dadt.repeal/index.html> (accessed 25 March 2013).

<sup>12</sup> Dana Ford, “CIA chief Petraeus resigns over affair,” *CNN*, 10 November 2012, <http://www.cnn.com/2012/11/09/politics/petraeus-cia-resignation/index.html> (accessed 25 March 2013).

<sup>13</sup> CNN News Blog, “Four-star general demoted for improper spending,” *CNN*, 13 November 2012, <http://news.blogs.cnn.com/2012/11/13/four-star-general-demoted-for-improper-spending/> (accessed 25 March 2013).

<sup>14</sup> Throughout this paper multiple news articles and headlines are referenced, highlighting the contemporary nature of the issues.

<sup>15</sup> Rhodes, *An Introduction to Military Ethics*, 5.

<sup>16</sup> G.E.M. Anscombe provides a strong case for “divine law” as the best source for ethical guidelines in her essay *Modern Moral Philosophy*.

<sup>17</sup> National Archives, “Charters of Freedom: A New World is at Hand,” [http://www.archives.gov/exhibits/charters/declaration\\_transcript.html](http://www.archives.gov/exhibits/charters/declaration_transcript.html) (accessed 1 April 2013).

<sup>18</sup> Rhodes, 7.

<sup>19</sup> Perry, *Partly Cloudy*, 5.

<sup>20</sup> Ibid.

<sup>21</sup> Steve Inskeep, “DOJ Paper: When It’s OK To Kill Americans In Al-Qaida,” 5 February 2013, <http://www.npr.org/2013/02/05/171138329/doj-paper-when-its-ok-to-kill-americans-in-al-qaida?sc=17&f=3> (accessed 1 April 2013).

<sup>22</sup> Walzer, *Just and Unjust Wars*, 20.

<sup>23</sup> Arkin, *Divining Victory*, 149.

<sup>24</sup> Not all cultures believe this statement as evidenced by the unrestricted warfare (URW) school of thought. See Major Joao Vincente’s Air Command and Staff College paper “‘Beyond-the-Box’ Thinking on Future War: The Art and Science of Unrestricted Warfare.”

<sup>25</sup> Survival appears to be the only end that arguably justifies any means.

<sup>26</sup> Dawkins, “Unmanned Combat Aerial Vehicles: Examining the Political, Moral, and Social Implications.” 26.

<sup>27</sup> The Heritage Foundation, “Al-Qaeda: Declarations & Acts of War,” <http://www.heritage.org/research/projects/enemy-detention/al-qaeda-declarations> (accessed 1 April 2013).

<sup>28</sup> The White House, “Statement by the President in His Address to the Nation,” 11 September 2001, <http://georgewbush-whitehouse.archives.gov/news/releases/2001/09/20010911-16.html> (accessed 1 April 2013).

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- <sup>29</sup> 107<sup>th</sup> Congress, “Public Law 107-40,” 18 September 2001, <http://www.gpo.gov/fdsys/pkg/PLAW-107publ40/pdf/PLAW-107publ40.pdf> (accessed 1 April 2013).
- <sup>30</sup> Steve Inskeep, “DOJ Paper: When It’s OK To Kill Americans In Al-Qaida.”
- <sup>31</sup> Dawkins, 26.
- <sup>32</sup> Columbia Law School, “Counting Deaths from Drone Strikes,” October 2012, <http://web.law.columbia.edu/sites/default/files/microsites/human-rights-institute/files/COLUMBIACountingDronesFinal.pdf> (accessed 1 April 2013).
- <sup>33</sup> The very concept of ‘covert’ action that is actually ‘overt’ points to a disconnect in the message.
- <sup>34</sup> START: National Consortium for the Study of Terrorism and Responses to Terrorism, “Global Terrorism Database,” [http://www.start.umd.edu/gtd/search/Results.aspx?charttype=pie&chart=casualties&casualties\\_type=&casualties\\_max=&start\\_year=2011&start\\_month=1&start\\_day=1&end\\_year=2011&end\\_month=12&end\\_day=31&count=100](http://www.start.umd.edu/gtd/search/Results.aspx?charttype=pie&chart=casualties&casualties_type=&casualties_max=&start_year=2011&start_month=1&start_day=1&end_year=2011&end_month=12&end_day=31&count=100) (accessed 1 April 2013).
- <sup>35</sup> International Committee of the Red Cross, “International Humanitarian Law – Treaties and Documents,” <http://www.icrc.org/ihl.nsf/7c4d08d9b287a42141256739003e636b/f6c8b9fee14a77fdc125641e0052b079> (accessed 1 April 2013).
- <sup>36</sup> Council on Foreign Relations, “Enemy Combatants,” <http://www.cfr.org/international-law/enemy-combatants/p5312> (accessed 1 April 2013).
- <sup>37</sup> Stanford and NYU, “Living Under Drones: Death, Injury, and Trauma to Civilians From US Drone Practices in Pakistan,” <http://www.livingunderdrones.org/download-report/> (accessed 1 April 2013).
- <sup>38</sup> *Ibid.*, vii.
- <sup>39</sup> Clodfelter, *Beneficial Bombing*, 252 .
- <sup>40</sup> Chris Woods, “Obama’s Five Rules for Drone Strikes,” The Bureau of Investigative Journalism, 6 September 2012, <http://www.thebureauinvestigates.com/2012/09/06/obamas-five-rules-for-covert-drone-strikes/> (accessed 1 April 2013).
- <sup>41</sup> *Ibid.*
- <sup>42</sup> Steve Inskeep, “DOJ Paper: When It’s OK To Kill Americans In Al-Qaida.”
- <sup>43</sup> The Long War Journal, “Charting the data for US airstrikes in Pakistan, 2004-2004-2013,” <http://www.longwarjournal.org/pakistan-strikes.php> (accessed 1 April 2013).
- <sup>44</sup> DOD policy directive, 21 Nov 12.
- <sup>45</sup> Ignatieff, *Virtual War*, 155.
- <sup>46</sup> Perry, 5.
- <sup>47</sup> US Air Force, “Our Values,” <http://www.airforce.com/learn-about/our-values/> (accessed 1 April 2013).
- <sup>48</sup> US Army, “Living the Army Values,” <http://www.goarmy.com/soldier-life/being-a-soldier/living-the-army-values.html> (accessed 1 April 2013).
- <sup>49</sup> US Navy, “Honor, Courage, Commitment,” [http://www.navy.mil/navydata/nav\\_legacy.asp?id=193](http://www.navy.mil/navydata/nav_legacy.asp?id=193) (accessed 1 April 2013) and US Marines, “Principles & Values,” <http://www.marines.com/history-heritage/principles-values> (accessed 1 April 2013).
- <sup>50</sup> It is probable that physical courage is and will be increasingly required of RPA operators. RPA operators are combatants and can be targeted by adversaries. This will be expanded on in the concept of risk transfer.
- <sup>51</sup> Krishnan, *Killer Robots*, 136.
- <sup>52</sup> US Army, “Warrior Ethos,” <http://www.army.mil/values/warrior.html> (accessed 1 April 2013).
- <sup>53</sup> US Air Force, “Air Force Warrior Facts: Expand Your Training,” [http://www.airforce.com/pdf/warrior\\_fact\\_sheet.pdf](http://www.airforce.com/pdf/warrior_fact_sheet.pdf) (accessed 1 April 2013).
- <sup>54</sup> US Air Force Personnel Center, “AF releases criteria for new combat medal,” 25 February 2013, <http://www.afpc.af.mil/news/story.asp?id=123337550> (accessed 2 April 2013).
- <sup>55</sup> For a more thorough discussion of the impact of autonomy on the military ethos (more broad then the aforementioned warrior ethos), see Lt Col Michael Contratto’s Air War College paper “The Decline of the Military Ethos and Profession of Arms: An Argument Against Autonomous Lethal Engagements.”
- <sup>56</sup> Perry, 5.
- <sup>57</sup> Singer, 100.
- <sup>58</sup> Pilots do not often decide when or who to kill, but rather follow and apply established rules of engagement and LOAC.
- <sup>59</sup> Grossman, *On Killing*, 97.
- <sup>60</sup> *Ibid.*, 160.

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- <sup>61</sup> Ibid., 332.
- <sup>62</sup> Seidensticker, *Futurehype*, 150.
- <sup>63</sup> Singer, 63.
- <sup>64</sup> Krishnan, 146-147.
- <sup>65</sup> Ibid.
- <sup>66</sup> Ibid.
- <sup>67</sup> Ibid., 148-149.
- <sup>68</sup> Ibid., 150-152.
- <sup>69</sup> Ibid.
- <sup>70</sup> Ibid., 152-154.
- <sup>71</sup> Ibid., 154.
- <sup>72</sup> Kaku, 76.
- <sup>73</sup> Ibid., 82-83.
- <sup>74</sup> Ibid., 109.
- <sup>75</sup> Ibid., 122.
- <sup>76</sup> *Technology Horizons*, 5.
- <sup>77</sup> Krishnan, 160.
- <sup>78</sup> This recommendation comes from an interview with RPA pilot Major Dave “Drago” John where he expressed the value of cross-talk and interaction between different platforms and their cultures. Interviewed, 19 February, 2013.
- <sup>79</sup> Walzer, 12.
- <sup>80</sup> Seidensticker, 11.



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