

# Ethical Conduct in the Future of Unmanned Warfare

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## Abstract:

Unmanned combat systems seem to be the next leap in military technology, promising greater lethality at a lower human cost. However, these systems are qualitatively different from earlier military advances such as the bow-and-arrow, gunpowder or even aircraft because in addition to increasing the physical or moral distance at which killing takes place in war, they replace rather than augment functions that are performed by human beings. As the Singapore Armed Forces (SAF) moves to develop and deploy unmanned systems, it is timely to examine the ethical implications that will arise from the advent of unmanned warfare. This is a critical issue to explore for the SAF because the rapidity of technological development has outstripped the evolution of the laws which govern armed conflict.

*Keywords: Unmanned Technologies; Ethical Implications; Moral Conduct; Information Management and Accountability*

## INTRODUCTION

Unmanned combat systems seem to be the next leap in military technology, promising greater lethality at a lower human cost. However, these systems are qualitatively different from earlier military advances such as the bow-and-arrow, gunpowder or even aircraft because in addition to increasing the physical or moral distance at which killing takes place in war, they replace rather than augment functions that are performed by human beings. As the Singapore Armed Forces (SAF) moves to develop and deploy unmanned systems, it is timely to examine the ethical implications that will arise from the advent of unmanned warfare. This is a critical issue to explore for the SAF because the rapidity of technological development has outstripped the evolution of the laws which govern armed conflict—there is no mention of unmanned systems in the United Nations Charter.<sup>1</sup> If left unaddressed at the organizational level, the propensity for unethical and therefore unlawful conduct in war is high and Singapore cannot afford such mistakes.

Despite our reputation as a country that punches above its weight, Singapore's dependence on international goodwill (in the form of trade and investment) means that we are obliged, probably more

than most countries, to obey international laws and conventions in order to remain relevant. Moreover, as a country with one of the lowest Total Fertility Rates in the world,<sup>2</sup> the SAF is compelled to incorporate unmanned systems and technologies as a demographic necessity and therefore we cannot escape their implications. Therefore, this article intends to first lay out the necessity of ethical conduct in war, establish the trajectory of unmanned combat systems, and in so doing discuss the implications to the SAF using the Just War framework.

## THE NECESSITY OF ETHICAL CONDUCT IN WAR

In upholding the death sentence for General Yamashita, General MacArthur wrote:

"The soldier, be he friend or foe, is charged with the protection of the weak and unarmed. It is the very essence and reason for his being. When he violates this sacred trust, he not only profanes his entire cult but threatens the very fabric of international society. ... This officer, of proven field merit, entrusted with high command involving authority adequate to responsibility, has failed this irrevocable standard; has failed his duty to his troops, to his country, to his enemy, to mankind; has failed utterly his soldier faith.

The transgressions resulting therefrom as revealed by the trial are a blot upon the military profession, a stain upon civilization and constitute a memory of shame and dishonor that can never be forgotten.”<sup>3</sup>

There is a nobility in warfare that is expected of civilized peoples. The brutality and human cost of war has resulted in the Geneva and Hague Conventions that spell out the rules that govern warfare, the concept of war crimes and in spirit exemplifies how the protection of the “weak and unarmed” is the “very essence and reason for [the soldier’s] being.” While some countries can decide that such a perspective is unacceptable, the realist answer for small nations such as Singapore is that it must accept these rules of warfare and abide by them if it desires to be a member of the international community. The SAF’s overseas

deployments in combat zones can be seen in the light of Singapore earning its membership in this global humanity.

Post-conflict, the survival of the state of Singapore depends crucially on our ability to restart the economy and the speed at which we re-establish

our land, air and sea links with the rest of the world.

To do that, we need to remain full, respected members of the international community.

Therefore, it is paramount that we retain this global citizenship by complying fully with the letter and spirit of

international law. In particular, as we incorporate unmanned systems and increase the reliance on Decision Support Systems (DSS) to accelerate our war-fighting cycle, it is important that we remain cognisant of the requirements of international and human rights law. If we can demonstrate our intention

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MQ-9 Reaper in flight

to err on the side of caution and fulfill the criteria of Just War,<sup>4</sup> then the SAF will retain the moral high ground and win legitimacy in an era where being perceived as “just” is strategic victory.

## THE TRAJECTORY OF UNMANNED TECHNOLOGIES

The SAF currently employs unmanned technologies in areas which extend the capabilities of human operators. For instance, the use of unmanned technologies in surveillance operations extend the range and acuity of human reconnaissance scouts and removes the risk to human life versus manned surveillance aircraft. The SAF even has prototypes in the use of unmanned ground vehicles for patrol, and resupply missions.<sup>5</sup> These are “dull, dirty, dangerous and demanding” combat scenarios which typically incur a high casualty rate and the inherent risk is near-impossible to mitigate tactically.<sup>6</sup>

These types of “remote-control[led]” unmanned surveillance systems are currently the dominant type out there and their presence is uncontroversial. The true issues arise when unmanned combat systems—that is unmanned systems with the ability to kill—are operated with reduced or even no involvement by the man-in-the-loop. This relates to the other two basic command modes; semi-autonomous and autonomous. Fully-autonomous systems operate through a series of programs and algorithms without human intervention. An autonomous robot possesses the ability to make its own decisions consistent with its mission without requiring direct human authorisation, including the decision to use lethal force.<sup>7</sup> The last mode is semi-autonomous. Semi-autonomous operation allows a robot to operate without human intervention until certain critical decision points that mandate human judgment are reached. These are then diverted to the control of the operator. The robot would act as an extension of a human soldier under the direct authority of a human, including the authority over the use of lethal force.

The use of autonomous or even semi-autonomous unmanned combat systems is a qualitative difference from the SAF’s current unmanned operations. The reduced involvement of human judgment has significant ramifications for the morality of the actions undertaken by the system’s inherent logic. In *I, Robot*,

famed science fiction writer Isaac Asimov lays down three rules that all “robots” must obey:

*Law Number 1: A robot may not injure a human being or, through inaction, allow a human being to come to harm.*

*Law Number 2: A robot must obey orders given to it by human beings, except where such orders would conflict with the First Law.*

*Law Number 3: A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.*

– Isaac Asimov, “Three Laws of Robotics,” 1942

Yet the unmanned combat systems, or “robots,” of today have already broken a portion of Asimov’s First Law.<sup>8</sup> The technology required for artificial intelligence to distinguish a small boy playing with a toy gun from an adult carrying a fully loaded AK-47 automatic assault rifle is beyond current capabilities,<sup>9</sup> but more importantly is an ethical dilemma that technology may not be able to solve.

## CAN THE SAF CHOOSE NOT TO ADOPT AUTONOMOUS UNMANNED COMBAT SYSTEMS?

Given these concerns about the ethical implications of such systems, there is the option of choosing not to adopt such technologies. However, the technology has been adopted at extraordinary speed worldwide. In 2003, the year the American-led coalition defeated Saddam Hussein’s armed forces, America’s military logged a total of roughly 35,000 Unmanned Aerial Vehicle (UAV) flight-hours in Iraq and Afghanistan. In 2009, the tally reached 800,000 hours.<sup>10</sup> Even this larger figure is an underestimate, because it does not include the flights of small drones, which have proliferated rapidly in recent years. Global sales of UAVs in 2010 were expected to exceed \$4.7 billion, and America is estimated to account for 60% of that total. For its part, America’s Department of Defense says it will spend more than \$22 billion to develop, buy and operate drones between 2007 and 2013. Following the United States (US), Israel ranks second while Germany and Italy are roughly matched for third. Britain, France, Russia and Spain are not far behind, and, say some experts, so is China.<sup>11</sup>

In total, more than three dozen countries operate UAVs, including Belarus, Colombia, Sri Lanka and Georgia. Some analysts say Georgian armed forces, equipped with Israeli drones, outperformed Russia in aerial intelligence during their brief war in August 2008. Therefore, the adoption of unmanned technologies is not an option for the SAF. These semi-autonomous or fully autonomous systems offer a combat edge that is irresistible. They can process information more quickly, do tedious analysis of large data sets instantaneously and dramatically accelerate the engagement cycle. If available, any military would be foolhardy to reject the ability to “get inside” the enemy’s Observation, Orientation, Decision and Action (OODA) loop, particularly the SAF.<sup>12</sup>

Moreover, the demographics of Singapore mean that the SAF must find ways to retain our combat edge while gradually decreasing the amount of people that we employ. This means that we must be active adopters of technology in all aspects to increase productivity and as a force multiplier. In addition, the evolution of the threat environment to include high-end fighters and precision stand-off munitions means that the SAF has to react more quickly and further compress the engagement cycle. This necessarily involves compressing the decision cycle, which cannot be done without some form of automation and DSS. The trend is clear—warfare will evolve and autonomous systems will ultimately be fielded in its conduct.

### JUST WAR THEORY – JUS AD BELLUM (LAW OF WAR)

The eventual fielding of such autonomous systems means that the SAF has to carefully consider how unmanned systems fit into the Just War framework. The first set of criteria, *Jus ad Bellum*, relates to the right to wage war. This criteria has been grounds for contention because of the “flexibility” of the principle of just cause.

Operation Iraqi Freedom in 2003 demonstrated the execution of Just War under the United Nations Charter, when the US led an invasion of Iraq in the search for weapons of mass destruction. This invasion

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was not sanctioned by the United Nations because there was no provision in the UN Charter for a pre-emptive attack in self-defence. In retrospect, this example demonstrates how easily nations can justify war under *Jus ad Bellum* and proceed against international opinion

if they have the means to.<sup>13</sup> It can also be argued that the US was willing to sanction war on a second front because it believed in part that it could achieve military victory in Iraq without a significant loss of lives.

In a more contemporary instance, the use of drone aircraft to bomb Al Qaeda and Taliban leaders in Pakistan shows clearly the way that unmanned systems make it much easier for governments to justify lethal force when their soldiers’ lives are not put at risk.<sup>14</sup> The drone strikes started under President Bush and, controlled by satellite link from CIA headquarters in Virginia, have been expanded by President Obama and praised by both parties in Congress as a potent weapon against terrorism that puts no American lives at risk. Some legal scholars have questioned the legitimacy under international law of killings by a civilian agency in a country which the US is not officially at war with. In reducing the human cost of war, unmanned combat systems may therefore make the decision to use war as a solution to intractable problems easier. While it is not currently part of the threat environment, it would be prudent for the SAF to consider the impact of either our adversaries or our own forces using unmanned combat systems to deliver lethal force in the transition to hot war.

Of course, it seems silly to suggest that reducing friendly casualties is a dangerous thing for a military. After all, the whole purpose of advancements in

technology or the use of shrewd military strategy is to defeat the enemy and reduce your own losses. The employment of standoff munitions or unmanned combat systems can be seen as a mere extension of this motivation. However, as technology continues to improve unmanned systems, it is imperative to remember that giving a machine the complete authority to eliminate human life significantly changes the foundations of our existence.<sup>15</sup> Unmanned combat systems that operate autonomously are prone to change the way one rationalises the justification for going to war and how one defines its success in war. Ethical decision making within a machine is only as good as the human who programs it and the state of technology that exists at the time. Therefore, the humans behind the technology are ethically liable. This means that for the SAF, it is important to be extremely careful when designing and using such systems.

An interesting thought experiment would be to imagine if the parties in a conflict were equipped en masse with unmanned systems. Does that reduce the costs of war to a mere financial calculation and in so doing increase the prospects of war? What is perhaps more troubling is that if the costs of force-on-force warfare become merely financial, then in order to break the enemy's will to fight, will unmanned systems be used on targets that incur a human cost?

## **JUST WAR THEORY – JUS IN BELLO (LAW IN WAR)**

The second set of criteria is *Jus in Bello* which refers to the principles that direct how combatants should act. The principle of Distinction refers to the need to differentiate between combatants and non-combatants and is meant to protect non-combatants in the battlefield. Conduct should also be governed by the principle of Proportionality which states that an attack cannot be launched on a military objective in the knowledge that the incidental civilian injuries would be clearly excessive in relation to the anticipated military advantage. The last principle of Military Necessity refers to the use of minimum force

against military targets and is meant to limit excessive and unnecessary death and destruction.

The first implication of unmanned systems on ethical conduct in war is that removing humans from the battlefield may change the way society perceives war. While using unmanned systems suits the intent of minimizing your own casualties, it desensitizes society to the human deaths of the enemy. The US drone war against Al Qaeda and Taliban leaders in Pakistan has already caused civilian casualties numbered in the hundreds and yet there is domestic support for such a program and little remorse for the innocent lives that it has cost.<sup>16</sup> The US may be able to withstand the criticism but Singapore and its small, open economy cannot bear the marginalisation that will arise if it is accused of committing war crimes.

At the level of the soldiers who operate such systems, the compression of the kill chain and the removal of the “moral buffer” combine to remove the conscious weight of the decision to end another human being's life. The policy implication is then that the SAF needs to be cognisant of this impact on the decision that its soldier-operators will face. In an increasingly digitized environment, human life is reduced to a number of pixels and it becomes more difficult to ensure that there is an ethical basis for decision making—did we exhaust all efforts to ensure that we are targeting combatants, and are we using an appropriate amount of lethal force? This translates to the need to study thoroughly the way that the man-in-the-loop makes the decisions and not have the algorithm control the operator.

What is interesting is the potential for unmanned technologies to improve ethical conduct in war. Often in a shoot-or-hold-fire scenario, the soldier has to make a split second decision in order to preserve his own life. For unmanned systems, this self preservation is not required and therefore the actions made can be much more conservative, allowing the man-in-the-loop more time to decide whether the “villager” in his gun sights is an innocent bystander or a combatant. There is no need for a “shoot first, ask-questions later” approach.<sup>17</sup> The unmanned system also has the potential to apply Rules of Engagement (ROEs)



faultlessly as their judgment will not be clouded by emotion (fear, anger), fatigue, personal biases or what is termed as “scenario fulfillment” where, under stress, humans are vulnerable to use new information in ways that fit pre-existing belief patterns.<sup>18</sup>

Beyond these “human failings” that such unmanned systems will not face, these systems are likely to be equipped with sensors that are better suited for battlefield observation than humans currently possess. Furthermore, they are able to integrate information from multiple sources and formulate responses far more quickly,<sup>19</sup> and may even act as a ethical watchdog across the battlefield for infractions.<sup>20</sup>

### JUST WAR THEORY – JUS POST BELLUM (LAW AFTER WAR)

The wars in Afghanistan and Iraq vividly underline the importance of considering how wars are ended justly. In fact, the theory of Justice after War, or *Jus post Bellum*, can be seen in the Spring of 2002 when it became clear that the US did not have a complete plan for post-conflict rehabilitation in Afghanistan. The idea of a victor’s justice, in that the occupying force can dictate the terms of settlement, is rendered moot when the international community demands fairness and transparency. This is relevant because Singapore does not have the weight to dictate any form of agreement and in any sort of post-conflict negotiation will surely include the United Nations as a neutral mediator and adjudicator. Therefore it is critical that the SAF’s actions and policies reflect these strategic objectives.

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The use of unmanned combat systems in operations means the collection and analysis of more data which can be used to hold decision makers accountable

for the operations that they sanction. In an age of a pervasive mass media, it is therefore important to place more emphasis on information management and accountability in the use of semi-autonomous or fully-autonomous unmanned systems. At the initial stage of capability development, the SAF should build in mechanisms to ensure that the design of intelligent behaviors only provide responses within rigorously defined ethical boundaries.<sup>21</sup> Furthermore, the assignment of responsibility must be clear and explicit for all concerned parties regarding the deployment of a machine with lethal potential on its mission.<sup>22</sup>

If we can consistently display the principles of *Jus in Bello* during the conflict, and post conflict prove that these considerations were built into the structure and systems of war-fighting, then at the very least we have retained an ability to quickly reestablish links with the rest of the world.

### CONCLUSION

The fielding of increasingly autonomous unmanned systems is inevitable given the operational benefits that it offers and the demographic situation that we find ourselves in. It would therefore be prudent for the SAF to consider holistically, from the justification of war, to its conduct and finally its resolution, the potential benefits and pitfalls of such technologies on the ethical dimension of warfare. This is crucial as upholding internationally recognised codes of ethics in war relates directly to the survival of Singapore as a state post-conflict. 🌐

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