



## RESEARCH ARTICLE

### Drone Warfare and Threshold of the Use of Force

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| Article Info   | Abstract  |
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| <b>Keywords:</b><br><i>Drones,<br/>Warfare,<br/>Technology,<br/>Threshold,<br/>Force</i> | <i>The proliferation of drones among both state and non-state actors, as evidenced by their widespread use, signals a shift towards more accessible forms of military engagement. In this context, the paper discusses how drones, as unmanned, remotely operated aircraft, have revolutionized warfare by enabling remote engagement and minimizing personnel risk. Concepts such as risk compensation, the 'body bag syndrome', and the potential for drones to lower the threshold for use of force has also been explored. The precision and long endurance of drones, coupled with their cost-effectiveness, emerge as double-edged swords, enhancing military capabilities while raising questions about the ease of resorting to force. The paper highlights the operational advantages of drones over manned aircraft, including rapid deployment, reduced training requirements, and operational flexibility. This paper also explores the transformative role of drone technology in contemporary military operations and examines the impact of drones on the threshold of use of force in contemporary times. Following the thematic analysis of qualitative sources backed by quantitative data, this paper explores how drones have lowered the threshold for the use of force.</i> |

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## Introduction

When technologies interact with social, political, and organizational practices, it creates something new in human affairs. Throughout history, numerous disruptive technologies have been developed for use in warfare, such as gunpowder and the atomic bomb. The impact of disruptive technologies is not always immediately apparent and may represent an evolutionary progression building on other technologies.<sup>1</sup> However, the use of drones in military operations has brought a paradigm shift in modern conflicts. The proliferation of drone technology has revolutionized the way states and non-state actors engage in conflicts. Drones are unmanned aircrafts operated remotely. Use of drones significantly alters our understanding of warfare by introducing a new paradigm of remote engagement, where the risks to personnel are minimised fundamentally transforming the tactics and strategies of military engagements. The convergence of this technology with the post-9/11 security environment has led to a new form of warfare that poses a series of challenges to traditional warfare.<sup>2</sup> Particularly, the use of combat drones has reshaped military tactics, and the future conflicts will see a surge in the employment of drones in a conflict.

However, concerns about the ethical implications of drone warfare have been raised. Arguments against drones use centre on the premise that they could diminish constraints on use for force by reducing risks to soldiers, potentially leading to more frequent or easily initiated conflicts.<sup>3</sup> Furthermore, the use of drones as a strike weapon in a combat zone with no human onboard may increase public support for force.<sup>4</sup> While drones may influence attitudes towards war, their direct impact on initiating conflicts remains uncertain, indicating that multiple elements influence the decision-making process surrounding military engagements. In this paper, the use of force specifically refers to actions that are not legitimate, as use of drones to strike in any other country is a breach of sovereignty. In this context, the paper primarily focuses on highlighting the implications of drones on the threshold of use of force in modern times and assesses future escalation risks. This paper also offers

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<sup>1</sup> David Hastings Dunn, "Drones: disembodied aerial warfare and the unarticulated threat" *International Affairs*, Vol. 89, No. 5 (2013): 1237–1246.

<sup>2</sup> Ibid.

<sup>3</sup> James Igoe Walsh and Marcus Schulzke, "The Ethics of Drone Strikes: Does Reducing the Cost of Conflict Encourage War?" (Carlisle, PA: The United States Army War College Press, September 2015).

<sup>4</sup> Ibid.

a thorough insight into the evolving dynamics of drone technology and their role in contemporary warfare.

## Evolution of Drone Technology

Drones are remotely piloted systems that remained part of military arsenals since the 20<sup>th</sup> century.<sup>5</sup> In World War I, the United States experimented with drones for the first time, notably the Sperry Flying Bomb and the Kettering Bug, but these efforts faced technological limitations.<sup>6</sup> During the interwar years, significant developments occurred in radio control technology, leading to the US Army's target drone program.<sup>7</sup> During World War II, the United State Army Air Forces (USAAF) experimented with the use of remotely controlled aircraft, albeit on a trial basis. The project named the Aphrodite program involved converting heavy bombers into radio-controlled aircraft for missions against German targets; however, this project could not be successful and was cancelled in January 1945.<sup>8</sup>

Following the World War II, a shift towards using unmanned aircraft for aerial targets instead of repurposing old, manned aircraft was witnessed. One prominent example is Ryan Firebee, who played an important role in this era and led to significant advancements in drone technology. During the Cold War era, use of drones for intelligence gathering saw a rise. It is important to note that the Ryan 147 Lightning Bug was developed as a significant advancement in reconnaissance capabilities.<sup>9</sup>

The Vietnam War was the first conflict in which drones were used. The Vietnam War saw widespread use of the Ryan 147 Lightning Bug.<sup>10</sup> These drones played multiple roles, including reconnaissance,

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<sup>5</sup> James J. Wirtz, "Drone: remote control warfare," *Intelligence and National Security*, Vol. 34, No. 3 (2019): 456-461.

<sup>6</sup> Dennis Larm, "History and Background," in *Expendable Remotely Piloted Vehicles for Strategic Offensive Airpower Roles* (Air University Press, 1996), 9-24, <http://www.jstor.org/stable/resrep13923>.

<sup>7</sup> Richard M. Clark, "Evolution of Uninhabited Combat Aerial Vehicles (UCAV)," in *Uninhabited Combat Aerial Vehicles: Airpower by the People, For the People, But Not with the People* (Air University Press, 2000): 9, [https://www.jstor.org/stable/pdf/resrep13976.7.pdf?refreqid=fastlydefault%3Af2becbb63702af89cde658d553c2cfdb&ab\\_segments=&origin=&initiator=&acceptTC=1](https://www.jstor.org/stable/pdf/resrep13976.7.pdf?refreqid=fastlydefault%3Af2becbb63702af89cde658d553c2cfdb&ab_segments=&origin=&initiator=&acceptTC=1).

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> David Axe, "Inside Vietnam's Forgotten Drone War," *Daily Beast*, September, 27, 2021, <https://www.thedailybeast.com/inside-vietnams-forgotten-drone-war>

electronic warfare, and propaganda dissemination.<sup>11</sup> Also, in the 1960s, the US tried to develop Stealth drone named Ryan 154 Compass Arrow. It was designed to conduct deep reconnaissance missions over China and was capable of flying at nearly fifteen miles high and capturing ground details as small as one foot. It was designed for long-range, high-altitude reconnaissance; however, the US-China relations improved during this period due to which the development of Ryan 154 Compass Arrow was not considered necessary anymore.<sup>12</sup> However, the technological advancements made during this project contributed to the designs of future stealth fighters, bombers, and drones.<sup>13</sup>

By 1985, the US, inspired by Israel's successful drone program, significantly enhanced its drone production. The RQ2 Pioneer Drone, a collaboration between the US and Israel, emerged in 1986 as a pivotal drone.<sup>14</sup> It is important to note that, this upgraded drone played a significant role during the Gulf War. A decade after this, the development of the Predator Drone in 1996 marked a significant evolution in drone capabilities, introducing weaponized drones to warfare. Drone market is projected to reach \$92 billion by 2030.<sup>15</sup>

### **Role of Drones in Contemporary Warfare**

Drones have emerged as an important military platform in modern times, leading to a shift in military tactics. Given that drones offer a quick and cost-effective alternative to military action, the need for large-scale military intervention has decreased. The use of drones in targeted strikes, surveillance, and Kamikaze style attacks are prominent examples of their role in modern times. Effectiveness of drones in the second Nagorno-Karabakh conflict has initiated a debate about whether drones are merely an addition to existing weapon systems, or it is a revolutionary shift. Although, usage of drones in this conflict was one sided i.e., Azerbaijan. However, unmanned aircrafts played a prominent role in countering Armenian ground forces on the battlefield highlighting the vulnerability

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<sup>11</sup> Megan, "When Were Military Drones First Used," *Drone Survey Services*, accessed December 17, 2023, <https://dronesurveyservices.com/when-were-military-drones-first-used/>

<sup>12</sup> "AQM-91 Firefly / Compass Arrow," *Global Security*, accessed December 18, 2023, [https://www.globalsecurity.org/intell/systems/compass\\_arrow.htm](https://www.globalsecurity.org/intell/systems/compass_arrow.htm)

<sup>13</sup> Ibid.

<sup>14</sup> David Daly, "A Not-So-Short History of Unmanned Aerial Vehicles (UAV)," *CONSORTIQ*, accessed December 18, 2023, <https://consortiq.com/uas-resources/short-history-unmanned-aerial-vehicles-uavs>

<sup>15</sup> Ibid.

of conventional military equipment to drones. Utilization of drones by Azerbaijan played a significant role in determining the outcome of the war. The war concluded with Armenia accepting a ceasefire agreement under severe terms.<sup>16</sup>

In addition, the growing use of Kamikaze or suicide drones in recent times have demonstrated a clear shift towards increasingly disruptive means of engagement. The Nagorno-Karabakh and the ongoing Russia-Ukraine conflicts are important examples of this trend. In the context of Russia-Ukraine conflict, drone models like the AeroVironment Switchblade, the Phoenix, and Zala Lancet-3 have been prominent due to their cost-effectiveness along with their ability to evade conventional air defences.<sup>17</sup> Considering this, it can be argued that drones due to the effectiveness have become an important weapons platform for major military powers. Moreover, drones also have revolutionized Intelligence, Surveillance, and Reconnaissance (ISR) operations. This can be seen from Ukraine's deployment of over six thousand ISR drones against Russian troops.<sup>18</sup> This is because drones provide direct situational awareness of the battlefield leading to precise military strikes on the enemy positions.<sup>19</sup>

Apart from this, drones are also being utilized for broader information warfare. In contemporary times, drones provide aerial documentation of conflict zones that were previously unimaginable. This footage, when disseminated through the media, it influences public opinion. In this context, the Russia-Ukraine conflict is the best example, where Ukraine released drone footage that showed destruction of Russian tanks. This footage was circulated around the world through media contributing to broader information warfare while gathering support from public. Considering this, one could argue that real-time drone footage

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<sup>16</sup> Robyn Dixon, "Azerbaijan's drones owned the battlefield in Nagorno-Karabakh and showed future of warfare," *The Washington Post*, November 11, 2020, [https://www.washingtonpost.com/world/europe/nagorno-karabakh-drones-azerbaijanarmenia/2020/11/11/441bcbd2-193d-11eb-8bda-814ca56e138b\\_story.html](https://www.washingtonpost.com/world/europe/nagorno-karabakh-drones-azerbaijanarmenia/2020/11/11/441bcbd2-193d-11eb-8bda-814ca56e138b_story.html)

<sup>17</sup> Aamna Rafiq, "Drone Warfare in Contemporary Conflicts: Five Lessons to Gen Up," (Institute of Strategic Studies Islamabad (ISSI), September 19, 2022), [https://issi.org.pk/wp-content/uploads/2022/09/IB\\_Aamna\\_Sept\\_19\\_2022.pdf](https://issi.org.pk/wp-content/uploads/2022/09/IB_Aamna_Sept_19_2022.pdf)

<sup>18</sup> Shaza Arif, "Ukraine and Use of Commercial Drones on the Battlefield," (Center for Aerospace & Security Studies (CASS), June 3, 2022), <https://casstt.com/ukraine-and-use-of-commercial-drones-on-the-battlefield/>

<sup>19</sup> "Drones in Ukraine and beyond: Everything you need to know," (European Council on Foreign Relations (ECFR), August 11, 2023), <https://ecfr.eu/article/drones-in-ukraine-and-beyond-everything-you-need-to-know/>

from conflict zones has emerged as a crucial tool for shaping public perception.

### **Cost Considerations: Are Drones a Financially Viable Option?**

It is important to consider financial aspects while analysing the relationship between drones and the employment of force. It is pertinent to note that drones are relatively less costly and are easier to maintain as compared to traditional aircraft. Keeping this in view, drones present a significant advantage when employing force. The financial aspect is particularly crucial when considering attacks against well-defended targets that were previously - too risky for a manned aircraft.

It is crucial to highlight that drones as compared to manned aircrafts are cheaper to manufacture and maintain.<sup>20</sup> This cost-effectiveness is due to their relatively smaller size, simpler design and absence of life support systems for pilot. Furthermore, many components of drones are mass-produced for different commercial applications that further reduce the production cost. For instance, the Houthis launched multiple domestically produced suicide drones towards allegedly Israeli-linked commercial vessels<sup>21</sup> and cost of each drone is around \$2000.<sup>22</sup> However, the cost of munitions to counter these drones range from \$1 million to \$4.3 million per unit.<sup>23</sup> This highlights that the countermeasures for drones are far more costly than a suicide drone itself.

Apart from this, the comparison of a Reaper drone with F-35 Lightning II further highlights the cost-effectiveness of drones. A Reaper drone requires the support of two pilots, a ground control station, and a secure data link for communication and control. With these requirements, the operational cost of a Reaper drone for flight of an hour is around \$3250.<sup>24</sup> It is important to note here that each Reaper drone

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<sup>20</sup> Richard J. Gross, "Military Drone Cost: Breaking Down the Price Tag (2023)," *Propel*, July 17, 2023, <https://www.propelrc.com/military-drone-cost/>

<sup>21</sup> "High Costs of Countering Drones Alarm Pentagon," *Dawn*, December 24, 2023, <https://www.dawn.com/news/1800350/high-costs-of-countering-drones-alarm-pentago>

<sup>22</sup> [Ibid.](#)

<sup>23</sup> [Ibid.](#)

<sup>24</sup> Wayne McLean, "Drones are cheap, soldiers are not: a cost-benefit analysis of war," *The Conversation*, June 26, 2014, <https://theconversation.com/drones-are-cheap-soldiers-are-not-a-cost-benefit-analysis-of-war-27924>

costs around \$32 million.<sup>25</sup> On the other hand, the initial cost of purchasing F-35 Lightning II is over \$109 million.<sup>26</sup> When it comes to the annual operational expenses, this aircraft stands at \$5 million.<sup>27</sup> Similarly, the cost for each hour of flight is estimated to be \$44,000.<sup>28</sup> To simply put, the US Department of Defense (DOD) has projected that the total cost for purchasing, operating, and maintaining single F-35 Lightning II aircraft and its associated systems for its entire life to be nearly \$1.7 trillion.<sup>29</sup> This comparison between an advanced aircraft and a combat drone highlights a significant difference in purchasing and maintaining them. Similarly, comparison between the fourth-generation aircrafts and less sophisticated drones show that drones are cost effective.

### **Do Drones Encourage Use of Force?**

It is argued that drones lower the threshold for use of force. The key argument is that drones enable countries to carry out attacks without any risk of casualties to its own personnel resulting in willingness to engage in drone attacks even in situations where it would not otherwise use military force. Drones, by their nature, have the potential to encourage states to engage and use force even in situations where diplomatic means could have resolved the issue.<sup>30</sup> Apart from the already discussed arguments, further discussion surrounding drones and threshold of use of force are deliberated below.

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<sup>25</sup> “MQ-9 Reaper: All about the US drone that crashed into the Black Sea,” *The Economic Times*, March 16, 2023, <https://economictimes.indiatimes.com/news/international/us/mq-9-reaper-all-about-the-us-drone-that-crashed-into-theblacksea/articleshow/98645377.cms?from=mdr>

<sup>26</sup> Justin Hayward, “How Much Does An F-35 Cost?” *Simple Flying*, December 20, 2023, <https://simpleflying.com/how-much-does-an-f-35cost/#:~:text=The%20F%2D35%20Lightning%20II,to%20%24109%20million%20per%20aircraft>.

<sup>27</sup> Wayne McLean, “Drones are cheap, soldiers are not: a cost-benefit analysis of war,” *The Conversation*, June 26, 2014, <https://theconversation.com/drones-are-cheap-soldiers-are-not-a-cost-benefit-analysis-of-war-27924>

<sup>28</sup> Marcin Frackiewicz, “How much does an F-35 cost per flight hour?” *TS2*, November 4, 2023, <https://ts2.space/en/how-much-does-an-f-35-cost-per-flight-hour/#gsc.tab=0>

<sup>29</sup> United States Government Accountability Office, *F-35 Joint Strike Fighter: More Actions Needed to Explain Cost Growth and Support Engine Modernization Decision*, May 30, 2023, <https://www.gao.gov/products/gao-23-106047#:~:text=The%20F%2D35%20Lightning%20II,options%20for%20modernizing%20its%20engine>.

<sup>30</sup> Marcus Schulzke and James Igoe Walsh, “Drones and Moral Hazard,” in *Drones and Support for the Use of Force* (University of Michigan Press, 2018), pp. 105-128, [https://muse.jhu.edu/pub/166/oa\\_monograph/chapter/2234205#:~:text=Because%20drones%20permit%20force%20to,states%20Page%204%20Drones%20and](https://muse.jhu.edu/pub/166/oa_monograph/chapter/2234205#:~:text=Because%20drones%20permit%20force%20to,states%20Page%204%20Drones%20and)

## Risk Compensation

The concept of risk compensation suggests that when there is a constant level of acceptable risk, decreasing the risk associated with a certain action can increase its acceptance.<sup>31</sup> In other words, if something becomes safer to do then people may do it more frequently. Drones reduce the direct human costs of conflict for the side using them. As a result, risk is transferred from the party employing them to the party against which they are being utilized. This leads to an increased risk-taking by those protected from the immediate consequences of their actions. In the context of drone warfare, the idea of risk compensation comes into play when there is a shift in how risk is perceived leading to a higher degree of willingness to use military force. This becomes more relevant when targeting areas where risk is high and manned mission could be dangerous. The use of drones in such scenario ensures that even if a drone is lost, there are no direct human casualties on the side of the attacking force leading to a more aggressive action.

In the context of drone warfare, the inclination for military action because of reduction in risks is the core of risk compensation. Apart from this, drones can change risk perceptions in ways that might encourage riskier behaviour. This phenomenon is known as the Peltzman effect.<sup>32</sup> An example that further elucidates this concept is the enhancement of vehicle safety features. These improvements make drivers feel more secure, which may lead to more reckless driving, potentially negating the safety gains. Similarly, in case of drone warfare, the increased sense of security could lead to more aggressive actions, potentially undermining the very goals of reducing casualties and collateral damage. Furthermore, drones can encourage decision-makers to authorise actions that are morally questionable creating a “Moral Hazard”. This concept describes a situation where an entity is more inclined to take risks due to the perceived low consequences of failure.<sup>33</sup>

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<sup>31</sup> Mikkel Vedby Rasmussen, “The Revolution in Military Affairs and the Boomerang Effect,” *DIIS Report* 2004:6, p. 9 (Danish Institute for International Studies, 2004), [https://www.files.ethz.ch/isn/19255/Revolution\\_Military\\_Affairs.pdf](https://www.files.ethz.ch/isn/19255/Revolution_Military_Affairs.pdf)

<sup>32</sup> Marcus Schulzke and James Igoe Walsh, “Drones and Moral Hazard,” in *Drones and Support for the Use of Force* (University of Michigan Press, 2018), 116, [https://librar.y.oapen.org/bitstream/id/dbc17a3f-949f-4f0a-8b59\\_accbb273e97c/1004146.pdf](https://librar.y.oapen.org/bitstream/id/dbc17a3f-949f-4f0a-8b59_accbb273e97c/1004146.pdf)

<sup>33</sup> John Kaag and Sarah Kreps, “The Moral Hazard of Drones,” *The New York Times*, July 22, 2012, <https://archive.nytimes.com/opinionator.blogs.nytimes.com/2012/07/22/the-moral-hazard-of-drones/>

## Body Bag Syndrome

Body Bag Syndrome takes on a unique dimension of human psychology. Drones significantly reduce the risk of casualties among militaries, particularly for the side using them, due to the absence of humans on board. This aspect aligns with the public's growing aversion to war casualties, as exemplified by the concept of "body bag syndrome."<sup>34</sup> In traditional combat, the fear of military casualties often influences public opinion and political, leading to a hesitancy to engage in military operations.<sup>35</sup> However, drones tend to minimise the risk to soldiers, thus altering the public and political perception and willingness regarding the use of force. The debate regarding body bag syndrome raises critical questions about drones that lower the threshold for the use of force in international arena. Drone operations' safety leads to increased employment without adequate consideration of moral responsibility.

## Precision

One of the key arguments in favour of drone use is their capability to precisely engage targets. The precision of drones increases the likelihood of success while at the same time reducing the human and financial costs. Although it aligns with the imperative to protect non-combatants in conflict zones which is the foundation of International Humanitarian Law (IHL), this precision along with reduced risk and lowered cost presents a scenario that is viewed as advantageous. Consequently, drones are viewed as a preferred method of engagement over other forms of military action leading to lowered threshold of use of force. Therefore, the use of drones raises important questions regarding the threshold for engaging in military action.

## Acceptance of Use of Drones

When it comes to the acceptance of drones' usage, targeted countries might perceive drone attacks differently than they would for a manned aircraft incursion. Unlike fighter jets, the absence of human presence in drones can lead to a perception of a less direct form of aggression. This could potentially trigger a different and mild response from the attacked

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<sup>34</sup> Philip Everts, "When the Going Gets Rough: Does the Public Support the Use of Military Force?" *World Affairs*, Vol. 162, No. 3 (2000):91–107, <https://www.jstor.org/stable/20672578#>

<sup>35</sup> Allyson L. Mitchell, "My Neighbor Is A Terrorist: Peacebuilding, Drones, and America's Presence in Yemen," *Beyond Intractability*, November 2012, <https://www.beyondintractability.org/reflection/mitchell-neighbor>

country compared to a manned aircraft strike. Another reason is that use of drones in the media are portrayed differently than traditional military operations. It is observed that use of force using drones often receive less media coverage compared to ground operations or manned aircraft attacks.<sup>36</sup>

Furthermore, drones' usage has a certain degree of normalisation in the public consciousness due to the increased use of drones in contemporary times. This makes drone attacks seem more routine and less shocking than other forms of military engagement leading to mild reaction. The perception of drone strikes as less aggressive likely triggers a mild response leading to reduced escalation. The targeted country may protest diplomatically; however, the perceived lower level of aggression might not trigger a military response.

### **Long Endurance**

Drones possess the capability to hover over a target area for extended periods unlike manned aircrafts. This endurance allows them to wait for suitable moment to strike. This aspect of drones i.e., ability to loiter enhances the precision of military operations that incentivizes the use of force. Drones are also capable of conducting longer and uninterrupted missions that allows them to cover larger areas for extended durations and engage where needed. The long-endurance drones can operate for over 30 hours without needing to refuel.<sup>37</sup> Keeping this in view, future technological advancements might further enhance this capability, potentially eliminating the need for these systems to land, except for routine maintenance.

### **Operational Advantages over Manned Aircrafts**

Drones offer several advantages in terms of deployment and operationalisation.<sup>38</sup> In this context, drones can be deployed more rapidly

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<sup>36</sup> Joanna Frew, "In the Frame: UK Media Coverage of Drone Targeted Killing," *Drone Wars UK*, January 2020, <https://dronewars.net/wp-content/uploads/2020/01/InTheFrame-Web.pdf>

<sup>37</sup> Thomas G. Mahnken, Travis Sharp, and Grace B. Kim, "Deterrence by Detection: A Key Role for Unmanned Aircraft Systems in Great Power Competition," Center for Strategic and Budgetary Assessments (CSBA), 2020, [https://csbaonline.org/uploads/documents/CSBA8209\\_\(Deterrence\\_by\\_Detection\\_Report\)\\_FINAL.pdf](https://csbaonline.org/uploads/documents/CSBA8209_(Deterrence_by_Detection_Report)_FINAL.pdf)

<sup>38</sup> "The Impact of Drones on Future of Military Warfare," Zena Drone, Accessed January 1, 2024, <https://www.zenadrone.com/drones-impact-the-future-of-military-warfare/>

and with greater ease. This speed in deployment is a significant advantage in scenarios that require immediate military action. Also, operating drones requires less extensive training compared to flying conventional aircraft. Drones like Mojave allows forward-basing operations without relying on traditional paved runways or extensive infrastructure.<sup>39</sup> Its ability to take off and land from a remote surface significantly enhances operational flexibility. Combination of factors such as rapid deployment, less extensive training requirements, and independence from runways, significantly lower the threshold for the use of force. Their ability to be operated from almost anywhere makes them a preferred choice for a range of military actions. As a result, the decision to employ military force becomes easier and more feasible.

### **Use of Drones by States**

The debate until now suggests that drone technology has reduced the threshold for use of force in contemporary times. Moving forward, analysing various international incidents involving drones provides ample evidence for the debate regarding drones and how they lower the threshold of use of force. These events not only portray the decreased risk of human casualties but also underscore other aspects, such as cost efficiency and the evolving nature of military engagement. The US military actively employs drones in combat, using them for both surveillance and offensive operations<sup>40</sup>. To start with, the US military has been utilising drones for decades. Many scholars have comprehensively explored the public's perception of use of military drone within the framework of American foreign policy. In the US, the use of drones in military operations garners significantly more public support than ground operations, a preference that transcends political affiliations, suggesting a bipartisan consensus in favor of drone use.<sup>41</sup> However, in contemporary times, other states and even non-state actors are utilizing drones in

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<sup>39</sup> “General Atomics Aeronautical, General Atomics Aeronautical Systems Inc, Accessed January 1, 2024, <https://www.ga-asi.com/remotely-pilotedaircraft/mojave>

<sup>40</sup> Christopher Woody and Jake Epstein, “Russia and Ukraine are Fighting the Kind of Drone War the US Military Has Been Worrying About, and It's Scrambling to Prepare for a Future That's Already Here,” Business Insider, September 1, 2023, <https://www.businessinsider.com/russia-ukraine-fighting-drone-war-us-military-was-waiting-for2023-8>

<sup>41</sup> James Igoe Walsh and Marcus Schulzke, “Introduction,” in *Drones and Support for the Use of Force* (University of Michigan Press, 2018), 1-28, <https://www.jstor.org/stable/j.ctvh4zhx8>

combat and drones have lowered the threshold for use of force due to multiple factors discussed previously.

One prominent example of this is that allegedly Israel conducted a drone strike in Iran that targeted a military factory near Isfahan, in January 2023. This is one instance that shows how drone technology has lowered the threshold for military engagements, allowing states to conduct precise operations like this with reduced risk.<sup>42</sup> By opting for a drone strike, Israel demonstrated the ability to target key facilities in Iran while minimizing the potential for direct confrontation and the risks typically associated with traditional military actions. In the second case scenario, Russia in April 2008 downed a Georgian Hermes 450 drone.<sup>43</sup> Eventually the countries fought a war in August that year; however, the war could have started months ago if Russia had shot down a manned aircraft instead. These incidents underscored how drones have made it more feasible for countries to respond to perceived threats with less regard for the traditional consequences associated with manned aircraft engagements, primarily due to the lower financial and human costs involved.

Apart from this, Israel downed an Iranian armed drone in February 2018 which demonstrates lowered threshold for engaging in provocative actions.<sup>44</sup> In this case, Iran sending a drone with explosives was a proactive action. In response, Israel downed this drone and further escalation did not take place. This incident suggests that drones do lower the threshold of the use of force. This particular incident shows a shift towards more frequent and bold military actions, fuelled by acceptability of use of force by utilizing drones. Another incident took place in June 2019 when Iran downed a US Global Hawk in the Gulf of Oman.<sup>45</sup> People

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<sup>42</sup> Dov Lieber, Benoit Faucon, and Aresu Eqbali, "Israel Drone Strike Hit Iranian Weapons Facility," *The Wall Street Journal*, January 30, 2023, <https://www.wsj.com/articles/israel-drone-strike-hit-iranian-weapons-facility-11675110298>

<sup>43</sup> Seth Frantzman, "Remember when a Russian MiG-29 shot down a Georgian drone?" *Drone Wars*, July 8, 2020, <https://dronewars2021.com/2020/07/08/remember-when-a-russian-mig-29-shot-down-a-georgian-drone/>

<sup>44</sup> "Israel Says Iranian Drone It Shot Down in February Was Carrying Explosives," *Reuters*, April 14, 2018, <https://www.reuters.com/article/us-israel-iran-drone/israel-says-iranian-drone-it-shot-down-in-february-was-carrying-explosives-idUSKBN1HK2LU/>

<sup>45</sup> Joshua Berlinger, Mohammed Tawfeeq, Barbara Starr, Shirzad Bozorgmehr, and Frederik Pleitgen, "Iran Shoots Down US Drone Aircraft, Raising Tensions Further in Strait of Hormuz," *CNN*, June 20, 2019, <https://edition.cnn.com/2019/06/20/middleeast/iran-drone-claim-hnk-intl/index.html>

perceive drones as a less provocative option than manned aircraft, enabling a response that might otherwise be considered too escalatory or risky. If we had downed a manned aircraft instead of a drone in this scenario, the dynamics would have been different. Similarly, in the Russia-Ukraine Conflict, both sides are prioritising drones to strike each other's facilities and opting not to deploy their substantial fleets of manned aircrafts.<sup>46</sup> This choice stems from the significant risks posed by both sides' surface-to-air missiles that endanger pilots supporting ground operations. Consequently, Moscow and Kyiv have engaged in a less costly form of warfare through drones. This shift highlights that even in active conflicts, the adoption of drones has effectively lowered the threshold for the use of force.

In all these instances, escalation dynamics may have been more likely to spiral into armed conflict if manned aircrafts would have been used instead of drones. Collectively, these incidents reinforce that drone technology in military operations has indeed lowered the threshold for the use of force. A shift characterized not only by the reduced risks and consequences, but also by the more cost-effective nature of drones compared to manned aircraft operations. These factors have led to an increased tendency for states and non-state actors to engage in military actions leading to alteration in the dynamics of international conflict.

### **Impact on Threshold of Use of Force**

Drones have brought a transformation in how militaries engage in conflicts.<sup>47</sup> The wide range of availability and capabilities of drones have led to lowering the threshold of use of force. This is because countries and even non-state actors find drones an attractive platform in peacetime as well as during conflict. Additionally, technological advancements particularly drones create a scenario where political leaders might no longer feel the need to seek public approval or consensus before engaging in warfare or using force. This is due to the perceived reduction in risk to their own soldiers potentially making the decision to go to war easier.<sup>48</sup>

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<sup>46</sup> “Why hasn’t Russia mobilised its vast air power against Ukraine?” *Al Jazeera*, March 2, 2022, <https://www.aljazeera.com/news/2022/3/2/why-hasnt-russia-mobilised-its-vas-t-air-power-against-ukraine>

<sup>47</sup> Sarah Kreps and Micah Zenko, “The Next Drone Wars: Preparing for Proliferation,” *Foreign Affairs*, Vol. 93, No. 2 (2014): 68–79.

<sup>48</sup> Marcus Schulzke and James Igoe Walsh, “Drones, Casualties, and Attitudes,” in *Drones and Support for the Use of Force* (University of Michigan Press, 2018), 62.

## Drones and Future Escalation Risks

The “second drone age” is marked by the widespread use of military drones and armed commercial drones signalling a turning point in drone warfare.<sup>49</sup> In this era, both state and non-state actors are increasingly vying for aerial dominance in and beyond traditional conflict zones. During the first drone age, the US held a monopoly on military drones using this technology predominantly in uncontested airspace. Operated by the US military, the Central Intelligence Agency (CIA), and the militaries of certain allies, these drones were primarily employed to target and eliminate individuals labelled as terrorists and insurgents, both within and beyond established conflict zones.

In the second drone age, various states are increasingly utilizing military drones, offering an easy way to carry out lethal strikes from the skies. The number of countries with these technologies has risen sharply from 60 in 2010<sup>50</sup> to 102<sup>51</sup> in 2019, a 70% increase. Among these, about 40 states, including Israel, Iran, the UK, the US, Turkey, France, the UAE, Saudi Arabia, Egypt, Nigeria, and Pakistan, are equipped or acquiring large drones capable of deadly attacks.<sup>52</sup> These states have used drones in operations or close air support. Currently, there are 21,000 confirmed unmanned aircraft in operation globally, but the actual number is probably higher than 30,000.<sup>53</sup> For instance, during the 2020 Azerbaijan-Armenia conflict over Nagorno-Karabakh, both sides actively used and shot down each other's drones. Military drones are used globally in diverse operations such as counterterrorism,

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<sup>49</sup> James Rogers, “Future Threats: Military UAS, Terrorist Drones, and the Dangers of the Second Drone Age,” in *A Comprehensive Approach to Countering Unmanned Aircraft Systems* (Joint Air Power Competence Centre, January 2021), <https://www.japcc.org/chapters/c-uas-future-threats-military-uas-terrorist-drones-and-the-dangers-of-the-second-drone-age/>

<sup>50</sup> Dan Gettinger, *The Drone Databook* (The Center for the Study of the Drone at Bard College, 2019), IX, <https://dronecenter.bard.edu/files/2019/10/CSD-Drone-Databook-Web.pdf>

<sup>51</sup> James Rogers, “Future Threats: Military UAS, Terrorist Drones, and the Dangers of the Second Drone Age,” in *A Comprehensive Approach to Countering Unmanned Aircraft Systems* (Joint Air Power Competence Centre, January 2021), <https://www.japcc.org/chapters/c-uas-future-threats-military-uas-terrorist-drones-and-the-dangers-of-the-second-drone-age/>

<sup>52</sup> Ibid.

<sup>53</sup> Dan Gettinger, *The Drone Databook* (The Center for the Study of the Drone at Bard College, 2019), IX, <https://dronecenter.bard.edu/files/2019/10/CSD-Drone-Databook-Web.pdf>

counterinsurgency, peacekeeping, border control, anti-piracy, drug interdiction, anti-smuggling efforts, firefighting, and environmental conservation. However, it is important to note that since the 1980s, at least 28 countries have operated drones beyond their national boundaries.<sup>54</sup> Opting for military drones as a low-cost, seemingly low-risk solution is becoming more common. However, even precise drone strikes have broader political ramifications and unintended consequences, potentially escalating conflicts or igniting new hostilities.

## **Conclusion**

In a nutshell, drones have significantly altered the way, modern military engage leading to a lowered threshold for the use of force. The ability of drones to carry out precision strikes along with kamikaze attacks with minimal risk to personnel coupled with their cost efficiency and long endurance has altered military calculations. This shift is evident in the use of drones in situations where the risk for manned aircraft was too high. The risk compensation phenomenon and the body bag syndrome further clarify the relationship between drones and the use of force. Drones present an attractive option for military action considering reduced risk to military personnel. Additionally, the logistical advantages of deploying drones further lower barriers for military action. Apart from this, drones have certain degree of acceptance in the society and media has normalised their usage leading to a mild response from the country attacked. This scenario further incentivises the drone usage instead of manned aircrafts. This transformation raises critical questions about the long-term implications for international security. All the debate suggests that the drones have lowered the threshold of use of force

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<sup>54</sup> Ibid, XII.