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# Armed UAVs in conflict escalation and inter-State crisis

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# Key takeaways

- Armed unmanned aerial vehicles (UAVs) offer persistent loiter capability and the ability to deliver lethal force without directly risking users' own military personnel. To date, these systems have been mostly used in roles related to surveillance and targeted strikes in uncontested airspace.
- Armed UAV systems are now spreading to a greater number of States and future systems are likely to be more survivable in contested battlespaces. This has heightened concerns that existing standards and mechanisms may not be sufficient to ensure appropriate degrees of transparency, oversight and accountability for their transfer and use.
- In part because States have not to date been transparent about their use of armed UAVs, it is not clear whether they and impacted States would interpret similarly the signals such use could send in inter-State crisis and conflict situations. As such, armed UAV use could inadvertently contribute to conflict escalation, particularly in already complex and unstable strategic environments, in ways that policymakers may not have yet considered.
- In addition to addressing concerns outlined in previous UNIDIR papers on the rapid spread and technological advancement of armed UAV systems, the development of common understandings for their use could help to form the basis for appropriate standards or best practices in order to reduce the risk of armed UAV accidents and inadvertent conflict escalation, as well as to inform crisis management decision-making processes.

# Introduction

Armed unmanned aerial vehicles (UAVs) possess an attractive mix of features to users (see box 1). Consequently, these systems are spreading rapidly to a broader range of States.<sup>1</sup> To date armed UAVs have been limited to uses outside typical high-intensity military battlefields, often for clandestine purposes, and frequently with the acquiescence of the States whose territory they overfly.

Previous studies by UNIDIR and others have found that, in the absence of common understandings between States or international standards, this kind of armed UAV use raises various transparency, oversight and accountability related concerns. For instance, use of armed UAVs may lower political thresholds for the use of force by creating the impression in the user State that it is lower risk.<sup>2</sup> In itself, this arguably enables specific practices that could contribute to undermining international stability. Perhaps in part due to recent incidents involving armed UAVs (see box 2), awareness has now also begun to grow that their use could influence relations among States in a range of ways that exacerbate or even cause crisis or conflict.<sup>3</sup>

## Box 1: Four features of armed UAVs

1. Due to their remotely-piloted nature, armed UAV deployments pose little to no direct risk of harm to operators.
2. Armed UAVs are able to loiter over a target or battlefield, providing real-time and persistent surveillance.
3. When armed, UAVs can reduce the time between target identification and a strike decision. Unlike other intelligence, surveillance and reconnaissance capabilities, there is no need to deploy additional capabilities to deploy lethal force, depending on the command and control processes of the operator.
4. Current-generation armed UAVs are highly susceptible to air defence systems and are relatively easy to identify and destroy or disrupt. New armed UAV systems are being developed to overcome these challenges.

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<sup>1</sup> G. Woodhams, "Weapons of Choice: The Expanding Development, Transfer and Use of Armed UAVs", UNIDIR, 2018, pp. 3-7, <http://unidir.ch/files/publications/pdfs/weapons-of-choice-the-expanding-development-transfer-and-use-of-armed-uavs-en-723.pdf>.

<sup>2</sup> J. Borrie, E. Finckh and K. Vignard, "Increasing Transparency, Oversight and Accountability of Armed Unmanned Aerial Vehicles", UNIDIR, 2017, p. 2, <http://www.unidir.org/programmes/security-and-society/increasing-uav-transparency-oversight-and-accountability>; and United Nations Office for Disarmament Affairs, "Study on Armed Unmanned Aerial Vehicles Prepared on the Recommendation of the Advisory Board on Disarmament Matters", October 2015, p. 4, <https://www.un.org/disarmament/publications/more/drones-study/>.

<sup>3</sup> M.C. Horowitz, S.E. Kreps, and M. Fuhrmann, "Separating Fact from Fiction in the Debate over Drone Proliferation", *International Security*, vol. 41, no. 2, 2016, p. 101; L. Lewis and A. Williams, "Summary Impact of Unmanned Systems to Escalation Dynamics", Center for Naval Analysis (CNA) Center for Autonomy and AI, 2017, [https://www.cna.org/CNA\\_files/PDF/Summary-Impact-of-Unmanned-Systems-to-Escalation-Dynamics.pdf](https://www.cna.org/CNA_files/PDF/Summary-Impact-of-Unmanned-Systems-to-Escalation-Dynamics.pdf); J. Schaus and K. Johnson, "Unmanned Aerial Systems' Influences on Conflict Escalation Dynamics", Center for Strategic and International Studies (CSIS) Briefs, August 2018, <https://www.csis.org/analysis/unmanned-aerial-systems-influences-conflict-escalation-dynamics>.

This paper seeks to encourage policymakers to reflect on how the increasing ubiquity of armed UAVs may influence international crises and affect conflict escalation dynamics. That armed UAVs could carry particular risks in inter-State crisis and conflict situations might seem counter-intuitive. However, it may be noted that:

- Due to the secretive nature of much armed UAV use, it is frequently not clear what the rules of engagements are, or even whether a strike is occurring in a situation of conflict, something that affects which international legal rules apply.
- For reasons explained below, remotely piloted systems seem prone to certain safety and reliability-related issues that crewed systems are not.
- The signals that the use of armed UAVs in conflicts or crisis situations send may not be clearly understood on all sides given the lack of transparency of users to date and absence of international dialogue on the appropriate use of armed UAVs.
- Reduced risk to military personnel for a State using armed UAVs is not synonymous with the absence of risk from broader escalation or retaliation by other belligerents in response to that use.

As armed UAVs spread, States are deploying them in new ways, including in intra-State conflicts with regional characteristics involving multiple belligerents. Looking to the future, developments in UAV technology are likely to contribute to the emergence of unmanned systems capable of operating far more effectively within contested airspace.<sup>4</sup> Yet it is not just these future systems that are of concern. Our main finding is that, even if of limited tactical utility for high-intensity inter-State warfare, current-generation armed UAVs could have negative implications for managing conflict escalation. Part of this challenge emerges from the fact that user States are developing principles for the deployment, rules of engagement and oversight for the use of armed UAVs as they go along, for the large part secretly or at least in isolation from one another. This means that divergent interpretations of the signals that armed UAV user behaviour sends are possible—including among affected belligerents not even possessing or deploying armed UAVs. And, as mentioned above, human error and safety and reliability issues may lead to armed UAVs being used in unintended ways.

The risk of inadvertent conflict escalation seems particularly acute when armed UAVs are deployed over or near disputed territories on land and at sea. Alongside this, the increasing number of States using armed UAVs for counter-terrorism purposes increases the likelihood of inter-State dynamics coming into play. When armed UAVs are deployed in complex inter-State conflicts involving multiple actors and alliances, regional dynamics and attribution challenges will further contribute to the possibility that these operations cross escalatory thresholds.

Box 2 briefly describes several recent incidents in which the use of UAVs has contributed to increased tension in the ways described above. While these examples are not limited to armed systems, the point is that it can be difficult for parties other than the user to tell if the aerial craft in question are armed, and in cases of doubt they may choose to assume the worst case. In view of the rapid spread of UAV systems in general and armed UAVs in particular, this paper concludes that States should take stock of the challenges that their use poses for international stability. Further, States should consider which common understandings, principles, and standards for armed UAV use

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<sup>4</sup> See D. Hambling, “Change in the Air: Disruptive Developments in Armed UAV technology”, UNIDIR, 2018; A. Zegart, “Cheap Fights, Credible Threats: The Future of Armed Drones and Coercion”, *The Journal of Strategic Studies*, 2018; and M. Meyer, “The New Killer Drones: Understanding the Strategic Implications of Next-Generation Unmanned Combat Aerial Vehicles”, *International Affairs*, vol. 91, no. 4, 2015. pp. 765–780.

could reduce the risk of accidents with strategic consequences, clarify escalation thresholds and help to prevent crises from occurring.

## Box 2: Examples of increased tensions due to UAV use

### India and China

In December 2017, the People's Liberation Army (PLA) protested that India had "invaded Chinese airspace" after an unarmed Indian UAV crossed the Line of Actual Control along the border with India's Sikkim state.<sup>5</sup> India acknowledged that the incident occurred after a technical failure led to the loss of control of the system. Although the incident was resolved through diplomatic channels, some regional experts have suggested that China's language reflects broader concerns about India's use of UAVs close to Chinese territory.<sup>6</sup> These concerns may be amplified if either side deploys armed UAVs along the border in the future.<sup>7</sup>

### Israel

Following the downing of an Iranian UAV within Israeli airspace in February 2018, Israeli Prime Minister Benjamin Netanyahu warned that the Islamic Republic of Iran should "not test Israel's resolve".<sup>8</sup> Retaliatory airstrikes against Iranian assets that Israel thought had launched the UAV from within the Syrian Arab Republic represented a significant escalation of Israel's involvement in that conflict. During these strikes, Israel suffered the first loss of a combat aircraft since 1979, when an F-16 fighter jet was downed, apparently by a Syrian anti-aircraft missile. The Israel Defence Forces conducted similar retaliatory strikes against Syrian Arab Armed Forces after a Syrian UAV entered Israeli airspace after passing over Jordanian airspace in July 2018.<sup>9</sup>

*Continued on p. 4*

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<sup>5</sup> BBC News, "China Claims Indian Drone 'Invaded Airspace in Crash'", 7 December 2017, <https://www.bbc.com/news/world-asia-china-42261725>.

<sup>6</sup> R. Jennings, "China and India Aim For A Diplomatic Solution Over Their Drone Crash Crisis", Forbes, 8 December 2017, <https://www.forbes.com/sites/ralphjennings/2017/12/08/chinas-anger-at-crashed-drone-shows-growing-fear-over-the-power-of-india/#56df96404289>.

<sup>7</sup> China already has armed UAV capability and it has been reported that India has acquired Israeli armed UAVs and is in discussions to acquire armed US systems; see M. Pubby, "Government Approves \$400-million Plan to Procure Armed Heron TP Drones From Israel", The Economic Times of India, 14 July 2018, <https://economictimes.indiatimes.com/news/defence/government-approves-400-million-plan-to-procure-armed-heron-tp-drones-from-israel/articleshow/48906195.cms>; and M. Stone, "Exclusive: U.S. Offers India Armed Version of Guardian Drone—Sources", Reuters, 18 July 2018, <https://www.reuters.com/article/us-britain-airshow-india-drones-exclusiv/exclusive-u-s-offers-india-armed-version-of-guardian-drone-sources-idUSKBN1K820K>.

<sup>8</sup> S. Osborne, "Benjamin Netanyahu Waves 'Drone Debris' above His Head as He Warns Iran not to 'Test Israel's Resolve'", The Independent, 18 February 2018, <https://www.independent.co.uk/news/world/middle-east/israel-iran-benjamin-netanyahu-test-resolve-drone-nuclear-deal-munich-a8216366.html>.

<sup>9</sup> J.A. Gross, "IAF Strikes Syrian Army Posts near Border in Response to Drone Infiltration", Times of Israel, 12 July 2018, <https://www.timesofisrael.com/reports-of-israeli-strike-in-syria-hours-after-regime-drone-penetrates-airspace/>.

## Box 2: Examples of increased tensions due to UAV use (cont.)

### Confrontation in the Syrian Arab Republic

As discussed in the first paper in this series, in augmenting other military capabilities the use of armed UAVs has led to new forms of confrontation between parties to the conflict in the Syrian Arab Republic.<sup>10</sup> Turkey extended its military operations with armed UAV operations in 2018.<sup>11</sup> The United States shot down a pro-regime UAV in June 2017 that it determined to be within firing range of US coalition forces.<sup>12</sup> The United States also destroyed a Russian-made T-72 tank with an armed UAV in 2018.<sup>13</sup> More recently, Russian military officials suggested that the United States provided support for a UAV attack against Russia's Khmeimim airbase<sup>14</sup> and used the attack to justify retaliatory measures against non-State armed groups in Idlib.<sup>15</sup>

### Armed UAV 'friendly fire' in Afghanistan and Iraq

Fifteen Afghan National Police Officers were killed in a US armed UAV operation in Helmand Province in July 2017.<sup>16</sup> The incident follows a similar case of armed UAV 'friendly fire' in Afghanistan in 2014<sup>17</sup> and an Iraqi armed UAV operation that struck allied militia in January 2016.<sup>18</sup> In all three instances, armed UAV operators were supporting allied forces in close combat, and poor coordination and misidentification were blamed for the strikes. These cases of 'friendly fire' not only demonstrate the challenges to UAV targeting but highlight the reality that the persistent loiter capabilities of some armed UAVs are not a panacea. Similarly, armed UAV strikes may also increase tensions between allies, especially where cases of misidentification lead to unintended strikes against adversaries or civilians, as well as with other belligerents to a conflict.

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<sup>10</sup> G. Woodhams, "Weapons of Choice: The Expanding Development, Transfer and Use of Armed UAVs", UNIDIR, 2018, p. 15. <http://undir.ch/files/publications/pdfs/weapons-of-choice-the-expanding-development-transfer-and-use-of-armed-uavs-en-723.pdf>

<sup>11</sup> Daily Shabab, "Turkey's Bayraktar TB2 Drones Enable Swift, Precise Victory against YPG/PKK in Syria's Afrin", 19 April 2018, <https://www.dailysabah.com/war-on-terror/2018/04/19/turkeys-bayraktar-tb2-drones-enable-swift-precise-victory-against-ypgpkk-in-syrias-afrin>; and C. Koettl et al., "How a Drone Hunted Three Kurdish Fighters in Syria", New York Times, 3 March 2018, <https://www.nytimes.com/video/world/middleeast/10000005738262/turkey-drone-attack-kurds-syria.html>.

<sup>12</sup> R. Browne and B. Starr, "US Shoots Down Another Pro-Regime Drone in Syria", CNN, 20 June 2017, <https://edition.cnn.com/2017/06/20/politics/us-syria-shoots-down-pro-regime-drone/>.

<sup>13</sup> P. Stewart, "US drones destroys Russian-made tank in Syria", Reuters, 13 February 2018, <https://www.reuters.com/article/us-mideast-crisis-usa-syria-tank/u-s-drone-destroys-russian-made-tank-in-syria-idUSKCN1FX2SJ>

<sup>14</sup> TASS Russian News Agency, "Drone Attack on Russia's Syrian Airbase was Elaborate Pentagon Operation, Says Expert", 25 October 2018, <http://tass.com/defense/1027834>.

<sup>15</sup> J. Trevithick, "Russia Says It Used Precision Guided Munitions in Strikes on Syrian Rebel Drone Makers", The Drive, 5 September 2018, <http://www.thedrive.com/the-war-zone/23376/russia-says-it-used-precision-guided-munitions-in-strikes-on-syrian-rebel-drone-makers>.

<sup>16</sup> A. Gul, "Errant US Drone Strike Kills 15 Afghan Troops", Voice of America News, 22 July 2017, <https://www.voanews.com/a/us-drone-strike-kills-afghan-forces/3954711.html>.

<sup>17</sup> D. Wiener-Bronner, "NATO Drone Strike Accidentally Kills Five Afghan Soldiers", The Atlantic, 6 March 2014, <https://www.theatlantic.com/international/archive/2014/03/nato-drone-strike-kills-five-afghan-soldiers/358874/>.

<sup>18</sup> Reuters, "Friendly Fire' by Iraqi Drone Kills Nine Anti-IS Fighters", 10 January 2016, <https://www.reuters.com/article/us-mideast-crisis-iraq-military/friendly-fire-by-iraqi-drone-kills-nine-anti-is-fighters-idUSKCN0U00OP20160110>.



# 1 What is crisis and conflict escalation?

Before proceeding, it is important to explain what is meant by crisis and conflict escalation in this paper:

- **Crisis:** Scholars describe a crisis as the “intermediate zone between peace and war”.<sup>19</sup> Many different factors can contribute to the onset of a crisis, although it is often triggered by an identifiable act of violence, event or change in the environment, or a combination of these factors.<sup>20</sup> Unlike the broader term international dispute—a frequent occurrence emerging from conflicting interests between States—a crisis is a change in a States’ perception in the level of threat to their national interests to the extent that it demands a response in a finite period of time, during which military hostilities appear highly likely but not inevitable.<sup>21</sup> Understanding how armed UAVs may contribute to the onset of crises, and conversely how these systems may help to manage them peacefully, is critical to assessing what implications the proliferation of these systems will have for inter-State relations.
- **Conflict escalation** is “an increase in the intensity or scope of warfare that crosses threshold(s) considered significant by one or more of the participants”.<sup>22</sup>

To consider how this can relate to armed UAV use it is necessary to detour briefly into the broader literature on conflict theory. In the nineteenth century, Carl von Clausewitz provided the basis for much modern thinking about conflict escalation in his seminal work *On War*.<sup>23</sup> Clausewitz’s insights about the political objectives of warfare were based in part on the axiom that, in conflict, belligerents seek to impose their will on their adversary (or adversaries). The propensity for this warfare to escalate towards the extreme is, in principle, only limited by physical and logistical constraints preventing the full commitment of resources—or when political calculations indicate that such escalating actions are too costly.<sup>24</sup> Clausewitz also noted that the uncertain, ambiguous and unpredictable nature of warfare influences both the nature and outcomes of these decisions during the actual conduct of war.<sup>25</sup>

From the later 1940s there were notable developments in trying to understand how to limit escalation due to the extreme levels of mutual destruction nuclear warfare would cause. Thomas Schelling employed a game theory-based approach to consider how rational actors would determine appropriate courses of action in particular contexts.<sup>26</sup> Schelling’s approach considered how adversaries could identify shared expectations of the limits of conflict. He noted that

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<sup>19</sup> G.H. Snyder and P. Diesing, “Conflict among Nations: Bargaining Decision Making and System Structure in International Crises”, Princeton University Press, 1978, p 10.

<sup>20</sup> The majority of historical crises have been caused by violent events, however it has been noted that new technologies may increasingly enable non-violent interactions which raise the prospect of war; see T. Sweijs, A. Usanov and R. Rutten, “Back to the Brink: Escalation and Interstate Crisis”, The Hague Centre for Strategic Studies, 2016, pp. 27–29 and 39–40, <http://hcss.nl/report/back-brink>.

<sup>21</sup> This definition draws on M. Brecher, “Introduction: Crisis, Conflict, War: State of the Discipline”, *International Political Science Review / Revue Internationale de Science Politique*, vol. 17, no. 2, 1996, p. 127.

<sup>22</sup> F.E. Morgan et al., *Dangerous Thresholds: Managing Escalation in the 21st Century*, RAND Corporation, 2008, <https://www.rand.org/pubs/monographs/MG614.html>. p xi.

<sup>23</sup> C. von Clausewitz (transl. by M. Howard and P. Paret), *On War*, 1882, Alfred A. Knopf, Everyman’s Library edition, 1993.

<sup>24</sup> *Ibid.*, pp. 75–76.

<sup>25</sup> On the persistence of chance in contemporary warfare, see T. Waldman, “‘Shadows of Uncertainty’: Clausewitz’s Timeless Analysis of Chance in War”, *Defence Studies*, vol. 10, no. 3, 2010, pp. 336–368; and A. Beyerchen, “Clausewitz, Nonlinearity and the Unpredictability of War”, *International Security*, vol. 17, no. 3, 1992, pp. 59–90.

<sup>26</sup> T. Schelling, *The Strategy of Conflict*, 1960, Harvard University Press.

geographical boundaries, the use of certain weapons, or the illegitimacy of certain targets may delineate *thresholds* to conflict.<sup>27</sup> Schelling suggested that tradition and precedent play a critical role in allowing adversaries to tacitly formulate an understanding of these socially constructed “stopping places or dividing lines”.<sup>28</sup> Just as two individuals may reach an unspoken agreement when “I expect, that she expects, that I expect” and so on, States can identify a mutually reinforcing chain of expectations about the thresholds they will not cross.

This kind of approach to understanding conflict escalation became highly influential, especially in analyzing inter-State conflict.<sup>29</sup> Yet, according to one statistical analysis, 80 per cent of conflicts since the end of the Second World War took place within States.<sup>30</sup> Following the Cold War’s end, new explanatory models have emerged to try to explain the dynamics of civil wars<sup>31</sup> and in certain States ‘irregular warfare’ has emerged as an overarching term characterizing warfare involving non-State armed groups.<sup>32</sup> Against this context, armed UAVs emerged in the early twenty-first century as a new means of delivering lethal force in what a former British military commander described as “wars among the people”.<sup>33</sup>

Whether warfare is considered ‘irregular’ or ‘regular’,<sup>34</sup> physical and logistical constraints and political calculations influence both State and non-State actors’ decisions to increase the intensity or scope of the means of violence at their disposal.<sup>35</sup> In reality, it is very rare for parties to a conflict to have truly equal or symmetrical capabilities. However, these disparities may radically alter the way in which opponents seek to achieve their political objectives. If the primary variable at the disposal of the weaker side is the degree of discrimination in their use of violence, the limits of escalation for a stronger side are principally political.<sup>36</sup>

This is salient when considering the use of armed UAVs in ‘irregular warfare’ because of the perception that they are low/no risk, which may erode political thresholds toward conflict escalating toward the extreme. This would seem to run counter to a proposition sometimes heard, particularly from military practitioners, that armed UAVs are no different to crewed systems in how they are tasked and deployed, and that the same rules of engagement and international legal rules are applicable.<sup>37</sup>

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<sup>27</sup> T. Schelling, *Arms and Influence*, 1966, Yale University Press, pp. 131–141.

<sup>28</sup> *Ibid.*, p. 135.

<sup>29</sup> H. Kahn, *On Escalation: Metaphors and Scenarios*, Transaction Publishers, 2009 (1965); and R. Smoke, *War: Controlling Escalation*, Harvard University Press, 1978.

<sup>30</sup> G. Blainey, *The Causes of War*, Macmillan, 1988, p. 71, cited in M.L.R. Smith, “Escalation in Irregular War: Using Strategic Theory to Examine First Principles”, *Journal of Strategic Studies*, vol. 35, no. 5, pp. 613–637 and 635.

<sup>31</sup> P. Collier and A. Hoeffler, “Greed and Grievance in Civil War”, *Oxford Economic Papers*, vol. 56, no. 4, 2004, pp. 563–595; E.K. Denny and B.F. Walter, “Ethnicity and civil war”, *Journal of Peace Research*, vol. 51, no. 2, 2014, pp. 199–212.

<sup>32</sup> J.B. White, “Some Thoughts on Irregular Warfare: A Different Kind of Threat”, Central Intelligence Agency, 1996, <https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/96unclass/iregular.htm>.

<sup>33</sup> R. Smith, *The Utility of Force: The Art of War in the Modern World*, Penguin Allen Lane, 2005.

<sup>34</sup> See, M.L.R. Smith, “Escalation in Irregular War: Using Strategic Theory to Examine First Principles”, *Journal of Strategic Studies*, vol. 35, no. 5, 2012, pp. 613–637.

<sup>35</sup> L. Freedman, “Terrorism as a Strategy”, *Government and Opposition*, vol. 42, no. 3, 2007, pp. 314–339; and D. Kilcullen, “Countering Global Insurgency”, *Journal of Strategic Studies*, vol. 28, no. 4, 2005, pp. 597–617.

<sup>36</sup> M.L.R. Smith, “Escalation in Irregular War: Using Strategic Theory to Examine First Principles”, *Journal of Strategic Studies*, vol. 35, no. 5, pp. 613–637 and 622–624.

<sup>37</sup> Similar views were expressed in a recent scenario-based exercise, “Game of Drones: Wargame Report”, CNAS, p. 9, <http://drones.cnas.org/reports/game-of-drones>. The United Kingdom, one of the few States with a public doctrine for the use of UAVs, has made broadly similar statements; see UK Ministry of Defence, Joint Doctrine Publication 0-30.2

That this proposition does not necessarily hold is supported by the findings of a recent study into the ways in which US military policymakers view armed UAVs in offensive and defensive situations.<sup>38</sup> Simply put, there is disparity. In situations in which these practitioners were asked to consider deploying armed UAVs, they viewed the deployment and subsequent loss of an armed UAV as qualitatively different from the loss of a manned aircraft. This in itself is hardly surprising: their willingness to deploy these systems in part derived from the fact that an armed UAV loss would be more acceptable than the loss of a crewed aircraft. These findings complement those of a scenario-based exercise demonstrating that a range of States would be more likely to carry out armed UAV operations in contexts where crewed operations may be deemed too costly or the risk to pilots considered too high.<sup>39</sup> The greater willingness to deploy these systems may also reflect a view that armed UAVs are less escalatory, that they represent a new rung on the “escalation ladder”.<sup>40</sup> Alternatively, armed UAV users might recognize that an affected State would view their deployment against it to have crossed a significant threshold, but they accept this risk given the low costs in terms of “blood, treasure and reputation”.<sup>41</sup>

In the aforementioned study of US policymakers, the perceptions of respondents changed when the tables were turned and they were asked to view the situation from a defensive posture, for example responding to an adversaries’ deployment of an UAV in their State’s sovereign airspace. These policymakers were then much less clear that an armed UAV incursion would be viewed distinctly from an incursion by a manned system or whether they would respond differently.<sup>42</sup> In practice, as discussed in the first paper in this series, States have responded to the inter-State deployment of armed UAVs in a variety of ways. Statements from a number of those affected suggest that they believed this ambiguity was being exploited by offensive actors to test their resolve.<sup>43</sup> It means that if there is any norm emerging that affected States view the deployment of armed UAVs as qualitatively different from manned systems it appears to be a fragile one.

States frequently signal to each other in crisis situations through their military actions. Early in the Cold War during the Cuban missile crisis in 1962, for instance, US policymakers agonized over the escalatory consequences that certain military actions (such as naval and air blockades of Cuba) might send to the Soviet Union’s leadership.<sup>44</sup> Moreover, some States have well-established tacit

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Unmanned Aircraft Systems, August 2017, p. 34,

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/673940/doctrine\\_uk\\_uas\\_jdp\\_0\\_30\\_2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/673940/doctrine_uk_uas_jdp_0_30_2.pdf).

<sup>38</sup> J. Schaus and K. Johnson, “Unmanned Aerial Systems’ Influences on Conflict Escalation Dynamics”, CSIS Briefs, 2 August 2018, <https://www.csis.org/analysis/unmanned-aerial-systems-influences-conflict-escalation-dynamics>.

<sup>39</sup> CNAS, “Game of Drones: Wargame Report”, Center for the New American Security, p. 9, <http://drones.cnas.org/reports/game-of-drones/>.

<sup>40</sup> J. Schaus and K. Johnson, “Unmanned Aerial Systems’ Influences on Conflict Escalation Dynamics”, CSIS Briefs, 2 August 2018, pp. 6-7, <https://www.csis.org/analysis/unmanned-aerial-systems-influences-conflict-escalation-dynamics>.

<sup>41</sup> A. Zegart, “Cheap Fights, Credible Threats: The Future of Armed Drones and Coercion”, The Journal of Strategic Studies, 2018.

<sup>42</sup> J. Schaus and K. Johnson, “Unmanned Aerial Systems’ Influences on Conflict Escalation Dynamics”, CSIS Briefs, 2 August 2018, pp. 6-7, <https://www.csis.org/analysis/unmanned-aerial-systems-influences-conflict-escalation-dynamics>.

<sup>43</sup> G. Woodhams, “Weapons of Choice: The Expanding Development, Transfer and Use of Armed UAVs”, UNIDIR, 2018, pp 14-15, <http://unidir.ch/files/publications/pdfs/weapons-of-choice-the-expanding-development-transfer-and-use-of-armed-uavs-en-723.pdf>.

<sup>44</sup> G. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis*, Longman, 1999, pp. 109–120.

systems of signaling via different military activities, understandings not captured in treaties or regulations.<sup>45</sup>

While States may understand the signaling associated with other points of military interaction, such as the use of maritime surveillance assets, the lack of precedent for the use of armed UAVs limits States' ability to develop mutually reinforcing expectations of thresholds in crisis.<sup>46</sup> Yet those situations are precisely those in which States could have the most interest in deploying UAVs—both armed and unarmed, though it may be difficult for anyone other than the user to tell the difference between them—due to their persistent loitering capabilities and low risk to the user's military personnel. User States may view the deployment of armed UAVs as less costly, and therefore potentially less escalatory, than the use of manned systems. However, this view may not be shared by an affected State. Similarly, while affected States may view destroying or disrupting an armed UAV as less escalatory than striking a manned aircraft, this view may not be shared by the armed UAV user.<sup>47</sup> The lack of shared understandings of how armed UAVs will interact with conflict thresholds may have negative implications for managing conflict escalation, particularly when they are deployed in already complex and unstable strategic environments.

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<sup>45</sup> See for example O.S. Mastro, "Signaling and Military Provocation in Chinese National Security Strategy: A Closer Look at the Impeccable Incident", *Journal of Strategic Studies*, vol. 34, no. 2, 2011, pp. 219–244; A.S. Bowen, "Coercive Diplomacy and the Donbas: Explaining Russian Strategy in Eastern Ukraine", *Journal of Strategic Studies*, 2017.

<sup>46</sup> The authors thank Paul Scharre, Senior Fellow and Director of the Technology and National Security Program at the Center for a New American Security, for raising this comparison.

<sup>47</sup> Gen. J.P. Abizaid (US Army, Ret.), R. Brooks and R. Stohl, "Recommendations and Report of the Task Force on US Drone Policy Task Force Co-Chairs, Second Edition", Stimson Center, 2015, p. 31, <https://www.stimson.org/content/recommendations-and-report-stimson-task-force-us-drone-policy-0>.

## 2 Armed UAVs and conflict escalation

This paper considers three ways in which crisis and conflict escalation involving armed UAVS can occur:<sup>48</sup>

- **Accidental escalation:** An unintentional increase in the intensity or scope of conflict beyond a recognized threshold as the result of an unplanned action.
- **Inadvertent escalation:** An intentional action to increase in the intensity or scope of conflict interpreted to have crossed a threshold by an adversary in an unforeseen way.
- **Deliberate escalation:** An intentional action to increase the intensity or scope of conflict beyond a recognized threshold.

At the same time, it is recognized that in actual crisis or conflict these types of escalation may not occur in isolation from one another. Furthermore, the complex dynamics of warfare mean that the intentions of any actor are difficult to concretely ascertain, an adversaries' perception of any action will be dynamic, and intentional acts may be based on prior unintentional errors. In other words, a challenge in managing conflict escalation is that whether any action is seen to be qualitatively different from those which preceded it relies upon a subjective judgment. Nevertheless, the simple typology outlined here aids assessment of the ways in which armed UAVs' features may contribute to escalation and identify the contexts where such escalation is most likely.

### 2.1 ARMED UAVS AND ACCIDENTAL ESCALATION

Armed UAVs are complicated technological platforms and require sophisticated organizational and technical support in order to operate. While much is made of the relative precision of these systems' strike capabilities, like any means of delivering lethal force they are not infallible. Human error is inevitable, including in armed UAV targeting, in ways that could affect conflict escalation dynamics. Similarly, armed UAVs face a number of reliability and safety issues that may increase the likelihood they are used in unplanned ways:

- **Human error in armed UAV targeting:** Civilians are not legitimate targets in conflict.<sup>49</sup> This even applies to the use of armed UAVs, although indications are that identifying individuals from aerial UAV footage is challenging.<sup>50</sup> A systematic study of official US figures found misidentification to be the primary cause of civilian casualties from US armed UAV operations in Afghanistan. It noted that misidentification can occur in several ways. Most frequently, actions of an individual or group may be misinterpreted as those of a combatant, or individuals in close proximity to known combatants may be mistakenly identified as belonging to an armed group.<sup>51</sup> Improving the quality of imaging and developing additional tools, training and education may mitigate these challenges, though such measures are unlikely to fully eliminate the risk of target misidentification. Strikes against misidentified targets, particularly civilians, may be viewed to have crossed an escalatory threshold by an affected State.

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<sup>48</sup> F.E. Morgan et al., *Dangerous Thresholds: Managing Escalation in the 21st Century*, RAND Corporation, 2008, pp 20-28, <https://www.rand.org/pubs/monographs/MG614.html>.

<sup>49</sup> ICRC, *Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, <https://ihl-databases.icrc.org/ihl/INTRO/470>.

<sup>50</sup> M.C. Fysh and M. Bindemann, "Person Identification from Drones by Humans: Insights from Cognitive Psychology", *Drones*, vol. 2, no. 4, 2018, p. 32.

<sup>51</sup> L. Lewis, *Reducing and Mitigating Civilian Casualties: Enduring Lessons*, Joint Civilian Casualty Study by Joint and Coalition Operational Analysis (JCOA), 2013, p. 10, <http://www.dtic.mil/docs/citations/ADA579024>.

- **Reliability and safety issues:** Armed UAVs have crashed at a far higher rate than their manned counterparts.<sup>52</sup> The remotely piloted nature of these systems relies on communications infrastructure that adds a vulnerability that crewed systems can mitigate with direct human control. According to data obtained under a Freedom of Information request, over 400 large US military UAVs crashed between 2001 and 2016 and 194 of these accidents resulted in costs of over \$1 million each to the US military.<sup>53</sup> As more States look to develop armed UAV capabilities domestically, it remains to be seen whether the systems that emerge will successfully overcome these reliability and safety issues. Given the problems beset by the most advanced militaries, this seems unlikely. As indicated in box 2, States have blamed technical faults for the loss of control of armed UAVs that have subsequently entered contested territories. The number of armed UAV accidents to date suggests that they are viewed as more expendable than their manned counterparts. This adds weight to the suggestion that armed UAV users are more likely to deploy these systems than their manned counterparts. Gaps in understanding about whether these deployments cross escalatory thresholds may lead to inadvertent conflict escalation, something explored below.

The United States features in the examples above because it has been a pioneer in the development and use of armed UAVs. As such, more data points are available about mistargeting, as well as safety and reliability, involving its armed UAVs. However, the United States is highly unlikely to be unique in encountering these problems.

## 2.2 ARMED UAVS AND INADVERTENT CONFLICT ESCALATION

Beyond immediately destroying or disrupting UAVs involved in incursions of their sovereignty, few States have responded with drastic retaliatory measures to date. However, the majority of incidents to date have involved unarmed systems. For reasons explained earlier, armed UAV deployments may be viewed differently. Even if the loss of these systems is something that armed UAV users have anticipated (given the probability that the system will be lost to defensive countermeasures), affected States may view the deployment of armed UAVs to have crossed escalatory thresholds. Moreover, as armed UAV users continue to expand the use of these systems for counter-terrorism and counter-insurgency operations (see box 3), these operations are increasingly likely to interact with inter-State dynamics. Risks of inadvertent escalation are particularly high within certain contexts:

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<sup>52</sup> For an open-source database of UAV crashes between 2010 and 2016, see “Drone Crash Database”, Drone Wars UK, <https://dronewars.net/drone-crash-database/>.

<sup>53</sup> E. Chow, A. Cuadra and C. Whitlock, “Hazard above: Drone Crash Database—Fallen from the Skies”, Washington Post, 19 January 2016, <https://www.washingtonpost.com/graphics/national/drone-crashes/database/>.

- **Complex intra-State conflict:** As demonstrated in the conflicts in the Syrian Arab Republic, Yemen and the Sahel, States are increasingly deploying armed UAVs to augment their military capabilities in conflicts involving a multitude of State and non-state actors which frequently have regional and international connections. The complexity of these conflicts may mean that the ‘low cost’ nature of UAV deployments make them particularly attractive to policymakers. In intra-State conflicts where States seek to avoid direct military confrontation with other States, armed UAVs may be a particularly attractive option in order to strike non-State armed groups. Even if these systems are intercepted by States on opposing sides of the conflict, armed UAV users would not lose their own military personnel, and thus feel pressured to retaliate or otherwise escalate. Nevertheless, the regional characteristics of such conflicts increase the likelihood that armed UAVs cross sovereign borders in ways that could be perceived as escalatory by the affected State(s). Additionally, the fact that multiple actors may be deploying armed UAVs may present attribution challenges. For example, allied ground forces, including non-State armed groups, will be more likely to face challenges to attributing armed UAVs strikes, and a strike could be attributed erroneously to party with no involvement in an attack.
- **Contested territories:** The use of armed UAVs within, and near, territories over which States have competing sovereignty claims are especially risky for inadvertent conflict escalation. Within these contexts, air defense systems may be less robust than within uncontested national borders. At the same time, potential for misperception may be higher due to a higher state of tension in which even inadvertent actions are framed as threatening. Additionally, the features of armed UAVs may reduce opportunities to de-escalate tensions, given that they are less responsive to radio and pilot communication signals than crewed aircraft.<sup>54</sup> Yet the limited survivability of current-generation armed UAV systems could lead armed UAV users to believe that their deployments do not signal a significant increase in the scope or intensity of their military involvement. Or, their regular deployment of armed UAVs could be intended to undermine previous limits to the conflict.<sup>55</sup> Overall, regardless of the kinetic effects of these operations, affected States may nonetheless consider armed UAV deployments to have crossed escalatory thresholds. They may also view the cumulative effect of multiple deployments to have crossed escalatory thresholds at an earlier point than armed UAV users might have intended.

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<sup>54</sup> M. Zenko and S. Kreps, “Limiting Armed Drone Proliferation”, US Council of Foreign Relations Special Report, 2014, pp. 11–12, <https://www.cfr.org/report/limiting-armed-drone-proliferation>.

<sup>55</sup> Schelling described this as “salami tactics”, see T. Schelling, *Arms and Influence*, Yale University Press, 1966, pp. 66–67.

### Box 3: Armed UAVs and escalation of irregular warfare

Current-generation armed UAVs are still mostly deployed in counter-terrorism and counter-insurgency operations by State military and paramilitary forces in surveillance operations or in strikes against non-State armed groups. Facing such a capability, non-State armed groups have evolved their tactics.<sup>56</sup> Certain non-State armed groups have also sought to utilize their adversary's use of armed UAVs to rationalize their retaliatory actions.<sup>57</sup> As discussed in the second paper in this series, some non-State armed groups are looking to develop and acquire armed UAVs.<sup>58</sup> In certain instances, non-State armed groups have deployed armed UAVs of their own (including as flying bombs) to which States have retaliated harshly.<sup>59</sup>

All of this raises the prospect that the use of armed UAVs may contribute to irregular warfare escalating to more extreme degrees of violence. As operations against non-State armed groups continue to expand, they may have spillover effects for inter-State relations, even when used in a State's own domestic context.

### 2.3 DELIBERATE ESCALATION AND INDICATIONS OF FUTURE CAPABILITIES

As discussed in the other papers in this series, as well as armed UAVs spreading, disruptive developments in UAV technology are likely before long to enable States to acquire un-crewed systems able to carry out penetrative strikes in contested airspace. If the threat of these systems fails to coerce an adversary, the low perceived costs associated with their deployment could encourage possessor States to deploy them in shows of force that are escalatory. For example, these systems could be deployed as a first strike capability to degrade an adversary's defensive capabilities or to target strategic assets. Correspondingly, fear of surprise attack from such systems might lead to pre-emptive escalatory action.

It remains to be seen whether the development of 'combat hardened' armed UAV systems will lead to strategic asymmetries between States' military capabilities. Whether this actually comes to pass is arguably less important than what States fear may occur. They are likely to view the development and adoption of new technological developments relevant to armed UAVs through the prism of their strategic rivalries—especially as many of these developments are shrouded in secrecy. The fast pace of change of these developments may itself contribute to instability as the fear that rivals will benefit from technological breakthroughs in the future may encourage States to take more offensive postures or carry out escalatory action by other means.

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<sup>56</sup> For instance, some of Turkey's first air operations against the Kurdistan Workers Party (PKK) in south-eastern Turkey and the Syrian Arab Republic were carried out by armed UAVs. Following these strikes, the PKK significantly increased its use of vehicle borne explosive devices (VBEDs) and suicide bombers. M. Gurcan, "In Struggle against PKK, Turkey Takes Flight", *Al Monitor*, 14 October 2016, <https://www.al-monitor.com/pulse/originals/2016/10/turkey-pkk-learn-from-isis-drones.html>.

<sup>57</sup> Al-Qaida in the Arabian Peninsula has made extensive use of images of civilian casualties from US UAV strikes and has referred to the lack of 'accountability' for UAV operations in Yemen; see A.Y. Zellin, "Dodging the Drones: How Militants have Responded to the Covert US Campaign", *Foreign Policy*, 31 August 2012, <https://foreignpolicy.com/2012/08/31/dodging-the-drones-how-militants-have-responded-to-the-covert-us-campaign/>.

<sup>58</sup> D. Hambling, "Change in the Air: Disruptive Developments in Armed UAV technology", UNIDIR, 2018.

<sup>59</sup> S. Heller, "Russia Can Stop a Slaughter in Idlib", *The Atlantic*, 7 September 2018, <https://www.theatlantic.com/international/archive/2018/09/idlib-syria-russia-turkey/569590>; see also J. Trevithick, "Russia Says It Used Precision Guided Munitions In Strikes on Syrian Rebel Drone Makers", *The Drive*, 5 September 2018, <http://www.thedrive.com/the-war-zone/23376/russia-says-it-used-precision-guided-munitions-in-strikes-on-syrian-rebel-drone-makers>.



### 3 Armed UAVs and crisis management

While the lack of normative agreement surrounding the use of armed UAVs may contribute to crisis onset, some have suggested UAVs writ large as a category have persistent surveillance capabilities that could help in managing international crises in two key ways.<sup>60</sup> Firstly, the additional information that UAVs' surveillance capabilities afford may enhance decision-making. Secondly, these capabilities might dissuade adversaries from launching surprise attacks because their preparations and movements would be seen and then countered—in effect UAVs could contribute to “deterrence by denial”.<sup>61</sup>

It has been suggested that the primary way that innovations in military technology affect international stability is by influencing the information available to decision-makers.<sup>62</sup> Yet the persistence of human error in targeting of armed UAVs in lethal strikes demonstrates that the utility of this information is determined by the ways in which it is used. As one former senior air force officer observed, “information possession is not so much of an end in itself ... [A] broader examination of cognitive processes would reveal that there are many sources for decision failure beyond a lack of information”.<sup>63</sup>

In this respect, one expert has argued that a number of factors limit the potential for the increase in information afforded by UAVs to enhance decision-making. Michael Boyle noted that States may have limited capacity to process the information provided from UAV surveillance and suggested that vivid imagery could exaggerate cognitive biases and encourage hasty responses.<sup>64</sup> In response, other experts have argued that States are “likely to design decision making systems to reflect their ability to process information”.<sup>65</sup> One of the obstacles to assessing armed UAVs' potential to contribute to crisis management is that the decision-making processes surrounding their use are largely opaque outside State command and control structures.<sup>66</sup>

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<sup>60</sup> M.C. Horowitz, S.E. Kreps, and M. Fuhrmann, “Correspondence: Debating Drone Proliferation”, *International Security*, vol. 42, no. 3, 2017/18, pp. 178–182.

<sup>61</sup> “Denial-based deterrence strategies entail discouraging an adversary from taking a prohibited action by convincing enemy leaders that such efforts can be countered sufficiently to deny their benefit”; see F.E. Morgan et al., *Dangerous Thresholds Managing Escalation in the 21st Century*, RAND Corporation, 2008, p. xiii, <https://www.rand.org/pubs/monographs/MG614.html>.

<sup>62</sup> R.F. Lehman III, “Future Technology and Strategic Stability”, in E.A. Colby and M.S. Gerson (eds), *Strategic Stability: Contending Interpretations*, Strategic Studies Institute, 5 February 2013.

<sup>63</sup> M. Pietrucha, “Living with Fog and Friction: The Fallacy of Information Superiority”, *War on the Rocks*, 7 January 2016, <https://warontherocks.com/2016/01/living-with-fog-and-friction-the-fallacy-of-information-superiority>.

<sup>64</sup> M.J. Boyle, “Correspondence: Debating Drone Proliferation”, *International Security*, vol. 42, no. 3, 2017/2018, pp. 178–182.

<sup>65</sup> M.C. Horowitz, S.E. Kreps, and M. Fuhrmann, “Correspondence: Debating Drone Proliferation”, *International Security*, vol. 42, no. 3, 2017/2018, pp. 178–182.

<sup>66</sup> J. Borrie, E. Finckh and K. Vignard, *Increasing Transparency, Oversight and Accountability of Armed Unmanned Aerial Vehicles*, UNIDIR, 2017, pp. 23–24; and Columbia Law School Human Rights Clinic and Sana’a Center for Strategic Studies, *Out of the Shadows: Recommendations to Advance Transparency in the Use of Lethal Force*, June 2017, [https://www.outoftheshadowsreport.com/s/106066\\_HRI-Out-of-the-Shadows-WEB-1-wfwg.pdf](https://www.outoftheshadowsreport.com/s/106066_HRI-Out-of-the-Shadows-WEB-1-wfwg.pdf).

<sup>67</sup> United Nations, “Cold War ‘Back with a Vengeance’ amid Multiple Entrenched Divides in Middle East, Secretary-General Tells Security Council, Urging Efforts to Avert Further Chaos”, 13 April 2018, <https://www.un.org/press/en/2018/sgsm18986.doc.htm>; see also The Kingdom of the Netherlands, Ministry of Foreign Affairs, “An Integrated International Security Strategy 2018–2022”, September 2018, p. 13, [https://www.government.nl/binaries/government/documents/reports/2018/05/14/integrated-international-security-strategy-2018-2022/NL\\_International\\_Integrated\\_Security\\_Strategy\\_2018\\_2022.pdf](https://www.government.nl/binaries/government/documents/reports/2018/05/14/integrated-international-security-strategy-2018-2022/NL_International_Integrated_Security_Strategy_2018_2022.pdf).

Moreover, if UAVs are beneficial in preventing crises escalating into armed conflict, this assumes that it would be clear that these systems are being used for surveillance purposes and do not pose a threat to a neighboring State. It is notable then that an increasing number of States that have deployed unarmed UAVs as surveillance assets are in the process of acquiring armed systems. Particularly given the time-to-strike decision benefit of these systems, their deployment may be viewed as more escalatory than other surveillance means.

# Conclusion

The current international environment is marked by an increase in inter-State tension and competition.<sup>67</sup> In this environment, it is important to identify potential sources of strategic instability and develop measures to manage or, better yet, prevent conflict escalation. Armed UAVs may be one capability that States use to signal their intentions to adversaries and to achieve their strategic objectives, or they may not intend for their use to signal anything at all. Regardless, the preceding discussion has highlighted that armed UAVs could present specific escalatory risks.

In isolation, armed UAVs are unlikely to achieve the strategic objectives of counter-insurgency or counter-terrorism campaigns. These irregular wars require political strategies for success. Yet, as an increasing number of States acquire armed UAVs it is likely that the relatively low costs associated with their use will continue to encourage States to utilize their unique characteristics for targeted strikes against non-State armed groups in situations where manned aircraft would be deemed too risky. As the scope and intensity of these operations continues to expand, they are increasingly likely to interact with inter-State dynamics and risk contributing to conflict escalation. The world may see more wars as a result.

The risks armed UAVs present seem more acute in already tense strategic environments and in complex intra-State warfare involving multiple belligerents. Meanwhile, human error and reliability and safety issues will continue to contribute to armed UAVs being used in ways unintended by their operators. Conversely, it is not inconceivable that operators will use armed UAVs in potentially escalatory ways while claiming error or malfunction as cover for their actions. To manage the risks of inadvertent conflict escalation in these contexts, States could usefully clarify thresholds and develop common understandings about armed UAV use before such ruses become commonplace.

As debates continue regarding the ethical and legal implications of increasingly autonomous weapons systems, ongoing developments in UAV technology will eventually deliver unmanned systems capable of operating in contested airspace. These future systems will have even greater implications for conflict escalation and inter-State conflict than current-generation armed UAVs. Fears about the strategic implications of these weapons could itself be destabilizing as States consider the development of these technologies through the lens of existing strategic rivalries.

Realizing the potential benefits of any new military innovation relies as much upon developing new organizational arrangements as it does on the nature of the technology itself.<sup>68</sup> Without greater degrees of transparency, it is difficult to assess whether armed UAVs' surveillance capabilities will have positive implications for international stability. By engaging in constructive multinational dialogue, States could share good practice to ensure that these benefits are realized. Such a dialogue could clarify the rules of engagement for armed UAVs, declare the limits of appropriate use for defensive and offensive purposes and reaffirm existing thresholds, for instance concerning sovereign borders.

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<sup>67</sup> United Nations, "Cold War 'Back with a Vengeance' amid Multiple Entrenched Divides in Middle East, Secretary-General Tells Security Council, Urging Efforts to Avert Further Chaos", 13 April 2018, <https://www.un.org/press/en/2018/sgsm18986.doc.htm>; see also The Kingdom of the Netherlands, Ministry of Foreign Affairs, "An Integrated International Security Strategy 2018–2022", September 2018, p. 13, [https://www.government.nl/binaries/government/documents/reports/2018/05/14/integrated-international-security-strategy-2018-2022/NL\\_International\\_Integrated\\_Security\\_Strategy\\_2018\\_2022.pdf](https://www.government.nl/binaries/government/documents/reports/2018/05/14/integrated-international-security-strategy-2018-2022/NL_International_Integrated_Security_Strategy_2018_2022.pdf).

<sup>68</sup> A. Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, Columbia University Press, 2009, p. 96.

Now is the time for States to engage in a focused discussion that recognizes the challenges that armed UAVs pose to international stability. The political and military practices and policies that emerge as armed UAVs proliferate will set the scene for later conflict escalation and crisis management approaches. UNIDIR's 2017 study suggested a number of ways forward in this regard, proposing the United Nations as an inclusive forum to exchange information relevant to developing common standards and understandings, to share best practices, and to seek to ensure that armed UAVs are used in ways that contribute international peace and security.<sup>69</sup>

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<sup>69</sup> J. Borrie, E. Finckh and K. Vignard, *Increasing Transparency, Oversight and Accountability of Armed Unmanned Aerial Vehicles*, UNIDIR, 2017.





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## **Armed UAVs in conflict escalation and inter-State crisis**

The Future of Armed UAVs Briefing Series supplements UNIDIR's 2017 study into 'Increasing Transparency, Oversight and Accountability of Armed Unmanned Aerial Vehicles (UAVs)' to support States to consider whether there is a need to develop common understandings and principles for their transfer and use. The first paper in this series identified trends which may raise new questions about the effectiveness of existing mechanisms and standards relevant to the transfer and use of armed UAVs. The second paper identified disruptive developments in armed UAV technology. This final paper considers what implications these developments may have for conflict escalation and inter-State crises.