AUTONOMOUS WEAPON SYSTEMS AND THE THRESHOLD OF NON-INTERNATIONAL ARMED CONFLICT

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The employment of autonomous weapon systems (AWS) will potentially revolutionize how war is waged. States cite numerous advantages to the use of AWS, which once activated can acquire, track, select, and attack targets without further human intervention.[1] Potential benefits of AWS include additional force protection; risk and exposure reduction during dangerous missions; freeing personnel from mundane and repetitive tasks; reduction of personnel and the high cost associated with them; faster decision-making; greater accuracy; and greater predictability.[2] The ongoing international humanitarian law (IHL) discussion predominantly centers on whether States' development and employment of AWS can comply with certain fundamental obligations contained in this body of law.[3]

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1. There is no accepted definition of AWS. Autonomy and autonomous weapon systems have been defined in many different ways. For a useful overview of the meaning of autonomy and various definitions, see INT'L COMM. FOR THE RED CROSS, EXPERT MEETING ON AUTONOMOUS WEAPON SYSTEMS: TECHNICAL, MILITARY, LEGAL AND HUMANITARIAN ASPECTS 61–64 (2014) [hereinafter ICRC EXPERT MEETING ON AWS]. This article will rely on the working definition used in the ICRC Expert Meeting on AWS: "the key factor will be the level of autonomy in functions required to select and attack targets (i.e. critical functions), namely the process of target acquisition, tracking, selection, and attack by a given weapons system." *Id*. at 62. Note that what the ICRC has termed "critical functions"—the acquisition, tracking, selection and attack of targets—is of particular relevance to international humanitarian law. ICRC EXPERT MEETING ON AWS, *id*. at 7. *See also* U.S. DEP'T OF DEF., DOD DIRECTIVE 3000.09 13–14 (2012), http://www.dtic.mil/whs/directives/corres/pdf/300009p.pdf [hereinafter DoD DIRECTIVE 3000.09] ("A weapon that, once activated, can select and engage targets without further intervention by a human operator").

2. *See* UNITED NATIONS INSTITUTE FOR DISARMAMENT RESEARCH, FRAMING DISCUSSIONS ON THE WEAPONIZATION OF INCREASINGLY AUTONOMOUS TECHNOLOGIES 5–6 (2014), http://www.unidir.org/files/publications/pdfs/framing-discussions-on-the-weaponization-of-increasingly-autonomous-technologies-en-606.pdf.

3. Specifically, there is concern as to whether AWS will have sufficient capability to comply with the principles of distinction, proportionality, and precaution in a complex and changing environment over time. *See, e.g.*, Marco Sassoli, *Can Autonomous Weapon Systems Respect the Principles of Distinction, Proportionality and Precaution?*, *in* ICRC EXPERT

Many of the legal challenges discussed will arise irrespective of whether they are used by armed groups or States.[4] Specific concerns pertaining to armed groups, however, may be raised in determining whether hostilities between a State and an armed group, or between two or more such groups, reaches the threshold of a non-international armed conflict (NIAC),[5] thus triggering the applicable body of IHL. This article examines whether reliance on AWS by armed groups could have legal consequences for when the threshold of a NIAC is crossed. Part I discusses the proliferation of AWS and their future accessibility to armed groups. Part II outlines the applicable law distinguishing situations of peacetime from those of armed conflict, introducing the criteria of organization and intensity. The way in which AWS use by armed groups may impact the requirements of organization and

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MEETING ON AWS, *supra* note 1, at 41; Kenneth Anderson, Daniel Reisner & Matthew Waxman, *Adapting the Law of Armed Conflict to Autonomous Weapon Systems*, 90 INT'L L. STUD. 386 (2014); Michael N. Schmitt & Jeffrey S. Thurnher, *"Out of the Loop": Autonomous Weapon Systems and the Law of Armed Conflict*, 4 HARV. NAT'L SECURITY J. 231 (2013). The question of "meaningful human control" has increasingly garnered attention. Although not a legal concept, it likely results, in part, from recognition that the more autonomy AWS have in complex environments and over time, the more difficult it will be to predict their actions, potentially making compliance with IHL provisions less foreseeable. For discussions on human control, see UNITED NATIONS INSTITUTE FOR DISARMAMENT RESEARCH, THE WEAPONIZATION OF INCREASINGLY AUTONOMOUS TECHNOLOGIES: CONSIDERING HOW MEANINGFUL HUMAN CONTROL MIGHT MOVE THE DISCUSSION FORWARD (2014); Michael C. Horowitz & Paul Scharre, *Meaningful Human Control in Weapon Systems: A Primer* (CTR. FOR A NEW AM. SEC., Working Paper No. 031315, 2015), http://www.cnas.org/sites/default/files/publications-pdf/Ethical_Autonomy_Working_Paper_031315.pdf; Rebecca Crootof, *The Meaning of "Meaningful Human Control,"* 30 TEMPLE INT'L & COMP. L.J. (forthcoming 2016) (discussing definitional difficulties). *See also* Noel Sharky, *Autonomous Weapons and Human Supervisory Control*, *in* ICRC EXPERT MEETING ON AWS, *supra* note 1, at 29 (showing that AWS pose challenges for IHL principles of distinction, proportionality, and precaution); DoD DIRECTIVE 3000.09, *supra* note 1, at ¶ 4(a) (referring to appropriate levels of human judgment). Accountability for the use of AWS also presents particular challenges. *See, e.g.*, Jens David Ohlin, *The Combatant's Stance: Autonomous Weapons on the Battlefield*, 92 INT'L L. STUD. 1 (2016); Tim McFarland & Tim McCormack, *Mind the Gap: Can Developers of Autonomous Weapons Systems be Liable for War Crimes?* 90 INT'L L. STUD. 361 (2014); *The 'Killer Robots' Accountability Gap*, HUM. RTS. WATCH (April 8, 2015), https://www.hrw.org /news/2015/04/08/killer-robots-accountability-gap. In addition, there is also apprehension surrounding the moral and ethical implications that development and use of these systems will bring. *See, e.g.*, *The Problem*, CAMPAIGN TO STOP KILLER ROBOTS (last visited Apr. 16, 2016), https://www.stopkillerrobots.org/the-problem/; *Ban 'Killer Robots' Before It's Too Late*, HUM. RTS. WATCH (Nov. 19, 2012), https://www.hrw.org/news/2012/11/19/ban-killer-robots-its-too-late.

4. IHL is premised on the equal application of the law. *See, e.g.*, Adam Roberts, *The Equal Application of the Laws of War: A Principle Under Pressure*, 90 INT'L REV. OF THE RED CROSS 931 (2008).

5. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts, art. 1, June 8, 1977, 1125 U.N.T.S. 609 [hereinafter APII]; Prosecutor v. Tadić, Case No. IT-94-1-AR72, Decision on Defence Motion for Interlocutory Appeal on Jurisdiction, ¶ 70 (Int'l Crim. Trib. for the former Yugoslavia Oct. 2, 1995); COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, ¶ 4339 (Yves Sandoz, Christophe Swinarski & Bruno Zimmermann eds., 1987) [hereinafter COMMENTARY ON THE ADDITIONAL PROTOCOLS].

intensity is considered in Parts III and IV respectively. It is suggested that under certain circumstances extensive reliance on AWS could affect whether or not the criterion of organization is met. It is possible, although less likely, that the intensity criterion could also be impacted. Admittedly, such an analysis remains to some degree hypothetical as these systems have yet to be developed and/or employed. Part V draws conclusions.

I. PROLIFERATION OF AWS

At present, only States—and a small number at that—have the resources necessary to pursue research, development, and fielding of AWS. A number of systems which incorporate certain elements of autonomy[6] have been employed by States for decades. Systems such as the U.S. Phalanx Close-in Weapons System (CIWS); the Patriot Air and Missile Defense System; the Counter Rocket, Artillery and Mortar System (CRAM); and similar platforms are deployed for limited defensive purposes and in relatively restricted environments.[7]

Those conducting research, however, are seeking to expand the ways in which AWS can be used beyond these limitations to be truly autonomous.[8] Amongst the capabilities being researched and developed of particular relevance to this article are the ability of a weapon system to search for and engage targets autonomously in complex environments.[9] Such capabilities could be constrained by pre-programmed parameters, but the system might eventually have the ability to adapt depending on the circumstances. The Office for Naval Research, for instance, is developing the CARACaS—Control Architecture for Robotic Agent Command and Sensing.[10] CARACaS "allows boats to operate autonomously . . . including operating in sync with other unmanned vessels; choosing their own routes; [and] swarming to interdict enemy vessels . . . ."[11] This technology can be installed in virtually any boat,[12] which would include weaponized vessels. Although these systems require human supervision to "detect, deter or destroy attacking

6. Note that whether such systems are viewed as autonomous depends on how one defines autonomy. *See supra* note 1.

7. *See* Paul Scharre & Michael C. Horowitz, *An Introduction to Autonomy in Weapon Systems*, 21 (CTR. FOR A NEW AM. SEC., Working Paper No. 021015, 2015), http://www.cnas.org/sites/default/files/publications-pdf/Ethical%20Autonomy%20Working%20Paper_021015_v02.pdf (listing a number of countries that possess what they term "human-supervised autonomous weapon systems").

8. *See, e.g.*, *Laboratory for Autonomous Systems Research*, U.S. NAVAL RES. LABORATORY, http://www.nrl.navy.mil/lasr/ (last visited Apr. 16, 2016).

9. *See, e.g.*, U.S. DEP'T. OF DEF., UNMANNED SYSTEMS INTEGRATED ROADMAP § 4.7.3.3 (2013).

10. David Smalley, *The Future Is Now: Navy's Autonomous Swarmboats Can Overwhelm Adversaries*, OFF. OF NAVAL RES., http://www.onr.navy.mil/Media-Center/Press-Releases/2014/autonomous-swarm-boat-unmanned-caracas.aspx (last visited Apr. 16, 2016).

11. *Id*.

12. *Id*.

adversaries,"[13] it is possible that at some point they would also be able to operate with minimal human input.

The development of autonomy is not only being pursued for military purposes. Numerous companies and universities also have projects to develop systems capable of operating without human involvement beyond initial input. For example, Google-owned Boston Dynamics recently released a new version of its Atlas Humanoid Robot designed to function in disaster areas unsafe for humans.[14] Its capabilities, upon initial setup, include the ability to autonomously lift and put boxes on shelves, get up after being pushed, and climb stairs.[15]

Such expensive and intricate systems may be out of reach for armed groups. However, the rapid pace of technological advances and the increasing proliferation of technology into the civilian sector will likely reduce the cost of at least some technology, making it more accessible to armed groups. Armed groups could combine simple and easily accessible off-the-shelf technologies to create autonomous systems without expending large sums of money or investing in complex infrastructure. 3D printing technology, for instance, could be merged with swarm technology.[16] It is not too much of a leap to imagine that armed groups could make masses of small objects—tiny drones—with 3D printers and use swarm technology to field objects that could perhaps deliver miniature weapons. Indeed, engineers at the University of Sheffield's Advanced Manufacturing Research Center (AMRC) have already manufactured disposable print-on-demand drones made by 3D printing.[17]

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13. *Id*.

14. *See* Greg Kumparak, *The Latest Generation Atlas Humanoid Robot Is Absolutely Incredible*, TECH CRUNCH (Feb. 23, 2016), http://techcrunch.com/2016/02/23/i-know-i-shouldnt-feel-bad-for-a-robot-but-i-do-anyway/ (stating that the Atlas is more advanced than previous generations).

15. David Goldman, *Google's New Robot is Now Even More Human*, CNN MONEY (Feb. 24, 2016), http://money.cnn.com/2016/02/24/technology/google-robot/; *see also* Erico Guizzo & Evan Ackerman, *Boston Dynamics' Marc Raibert on Next-Gen ATLAS: "A Huge Amount of Work,"* IEEE SPECTRUM (Feb. 24, 2016), http://spectrum.ieee.org/automaton/robotics/humanoids/boston-dynamics-marc-raibert-on-nextgen-atlas ("[Atlas] chases the box around and stacks the boxes autonomously, once someone gets it set up and tells it to go"). While a human steers it outside, it is able to balance itself, use its sensors and control its own motion. *Id*. Google is also developing machine learning through the use of neuro networking and reinforcement learning in its DeepMind subsidiary. Reese, *Google's DeepMind: The Smart Person's Guide*, TECHREPUBLIC (Aug. 3, 2016), http://www.techrepublic.com/article/google-deepmind-the-smart-persons-guide/.

16. *See* Joshua Steinman, *Imagine the Starling: Peak Fighter, the Swarm, and the Future of Air Combat*, WAR ON THE ROCKS (Feb. 17, 2016), http://warontherocks.com/2016/02/imagine-the-starling-peak-fighter-the-swarm-and-the-future-of-air-combat/ (discussing the possibility that future warfare will consist of a digital-centered battlefields with "printable, payload-carrying drones and cheap processing power").

17. Adam Clark Estes, *How 3D Printing Will Create On-Demand Swarms of Disposable Drones*, GIZMODO (Mar. 30, 2014), http://gizmodo.com/how-3d-printing-will-create-on-demand-swarms-of-disposa-1553933989. Note that regular drones have been used by at least one armed group: In 2012, Hezbollah reportedly launched a Shahed 129 combat drone 25 miles into Israeli territory. EU PARLIAMENT DIRECTORATE GENERAL FOR EXTERNAL POLICIES, HUMAN RIGHTS IMPLICATIONS OF THE USE OF DRONES AND UNMANNED ROBOTS WARFARE § 1.2.1 (2013).

Not only is it likely that armed groups will increasingly have access to AWS, but also many of the advantages that are motivating States to develop and field these systems will similarly entice armed groups to acquire, modify, and use them. Conventional methods of warfare, as well as asymmetrical tactics such as suicide bombers, can be costly. AWS created from easily accessible technology could provide a cheaper option for armed groups. Likewise, the ability to have these systems carry out operations that previously would have put their members at risk would be an important incentive.

II. APPLICABLE LAW

Under IHL, conflicts are either international armed conflicts (IACs)—those between States[18]—or NIACs—those with or between armed groups.[19] The threshold for IACs is crossed whenever armed force is used between States "regardless of the reasons or intensity of this confrontation."[20] In contrast, NIACs require a certain level of intensity of violence and at least one sufficiently organized armed group.[21] Whether or not a situation of violence is deemed to be a NIAC has important consequences. It triggers the application of IHL as a body of law, which has a different set of rules on the use of force and for detention than those applicable below the threshold of armed conflict, in particular the rules found in human rights law.[22] How the violence is characterized also affects the criminal

18. *See, e.g.*, Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, art. 2, Aug. 12, 1949, 6 U.S.T. 3114, 75 U.N.T.S. 31 [hereinafter GCI]; Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, art. 2, Aug. 12, 1949, 6 U.S.T. 3217, 75 U.N.T.S. 85 [hereinafter GCII]; Convention Relative to the Treatment of Prisoners of War, art. 2, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135 [hereinafter GCIII]; Convention Relative to the Protection of Civilian Persons in Time of War, art. 2, Aug. 12, 1949, 6 U.S.T. 3516, 75 U.N.T.S. 287 [hereinafter GCI–IV]; Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, art. 1, June 8, 1977, 1125 U.N.T.S. 3.

19. *See supra* note 5.

20. INT'L COMM. OF THE RED CROSS, HOW IS THE TERM "ARMED CONFLICT" DEFINED IN INTERNATIONAL HUMAN LAW? (Mar. 2008), https://www.icrc.org/eng/assets/files/other/opinion-paper-armed-conflict.pdf [hereinafter ICRC OPINION PAPER]; *see also* COMMENTARY TO GENEVA CONVENTION III RELATIVE TO THE TREATMENT OF PRISONERS OF WAR 23 (Jean Pictet ed., 1960) [hereinafter GCIII COMMENTARY] ("It makes no difference how long the conflict lasts, how much slaughter takes place, or how numerous are the participating forces."). *But see* INT'L COMM. OF THE RED CROSS, INTERNATIONAL HUMANITARIAN LAW AND THE CHALLENGES OF CONTEMPORARY ARMED CONFLICTS 7 (2011), http://www.icrc.org/eng/assets/files/red-cross-crescent-movement/31st-international-conference/31-int-conference-ihl-challenges-report-11-5-1-2-en.pdf [hereinafter ICRC CHALLENGES REPORT 2011] (recognizing that a minority view disagrees).

21. *See infra* note 25.

22. *See, e.g.*, A.P.V. ROGERS, LAW ON THE BATTLEFIELD 217 (3d ed. 2012). Human rights law continues to apply during armed conflict. COMMENTARY ON THE ADDITIONAL PROTOCOLS, *supra* note 5, ¶¶ 4429, 4513. The way in which its rules apply, however, may be affected by the applicability of IHL. *See* Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226, ¶ 25 (July 8) (discussing the principle of *lex specialis*). In addition, armed forces

liability of individuals for their actions[23] and impacts other legal regimes, such as refugee law.[24]

There are two types of NIACs—those governed by Common Article 3 of the Geneva Conventions[25] and those to which Additional Protocol II (APII) applies in addition. Common Article 3 has a lower threshold of applicability than APII[26] and, as such, demarks the line between a peacetime law enforcement regime from one of armed conflict. Because Common Article 3 applies to all NIACs, identifying its threshold of applicability is particularly important.

The language of Common Article 3—"in the case of armed conflict not of an international character"—is, however, vague.[27] Consequently, over the years, a great deal of ambiguity and debate has surrounded the circumstances under which the Article and accompanying customary international law have been considered to apply, although it is agreed that Common Article 3 applies only to violence that rises above the level of internal tensions and disturbances.[28] This ambiguity was embraced at the time of drafting. Many States wished to avoid the appearance of granting legitimacy to armed groups[29] and considered that international regulation over their internal affairs could affect their ability to maintain law and order and impact their national security.[30] Such States were reluctant to accept the existence of a NIAC and therefore found the lack of clarity useful. From a humanitarian perspective, the ambiguity afforded sufficient flexibility to interpret the threshold broadly, thus allowing for a maximum level of protection in a wide range of situations.[31]

Those positions have morphed for certain States and organizations. Likely as a result of the acknowledgment that once the threshold of Common Article 3 is

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may also carry out law enforcement activities during armed conflict, which would be governed by human rights law.

23. For example, to prosecute an individual for war crimes, an armed conflict must exist. Rome Statute of the International Criminal Court art. 8, July 17, 1998, 2187 U.N.T.S. 90 [hereinafter Rome Statute].

24. *See, e.g.*, Council Directive 2004/83/EC, 2004 O.J. (L 304) 12 (EU); INTERNATIONAL LAW ASSOCIATION, THE HAGUE CONFERENCE: USE OF FORCE 4–5 (2010), http://www.ila-hq.org/download.cfm/docid/2176DC63-D268-4133-8989A664754F9F87.

25. GCI–IV, *supra* note 18, art. 3.

26. *See, e.g.*, Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶ 197 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008); Prosecutor v. Lubanga, ICC-01/04-01/06-2842, Judgment, ¶ 536 (Mar. 14, 2012).

27. GCI–IV, *supra* note 18, art. 3.

28. The rule is found in APII Article 1(2), but is considered to apply to Common Article 3 as well. COMMENTARY ON THE ADDITIONAL PROTOCOLS, *supra* note 5, ¶¶ 4472–73; Rome Statute, *supra* note 23, art. 8(2)(d); UNITED KINGDOM MINISTRY OF DEFENCE, THE MANUAL OF THE LAW OF ARMED CONFLICT ¶ 15.2.1 (2004) [hereinafter UK MANUAL].

29. GCI–IV, *supra* note 18, art. 3.

30. *See* GCIII COMMENTARY, *supra* note 20, at 30–31. *See also* MICHAEL BOTHE ET AL., NEW RULES FOR VICTIMS OF ARMED CONFLICTS, COMMENTARY ON THE TWO 1977 PROTOCOLS ADDITIONAL TO THE GENEVA CONVENTIONS OF 1949, at 716 (1982).

31. *See id.* at 36.

met, certain conduct of hostilities rules also apply,[32] and because of the development of human rights law and its accompanying restrictions,[33] the application of NIAC law is now seen by some States as providing more flexibility in action, rather than serving as a restrictive force.[34] For similar reasons, the humanitarian motivation to embrace a broad definition of armed conflict has shifted, as the human rights restrictions applicable in peacetime are often seen to provide more protection than the law of armed conflict. This added complexity has reignited the debate and ambiguity over where the precise threshold for a NIAC lies, and should lie.

In 1995, the International Criminal Tribunal for the former Yugoslavia (ICTY) held that an "armed conflict exists whenever there is a resort to armed force between States *or protracted armed violence* between governmental authorities and *organized armed groups* or between such groups within a State."[35] Known as the *Tadić* test, the requirements of organization and intensity are now considered to be reflective of customary international law. The test's broad support is reflected in, for example, the agreement by the majority of States to incorporate a similar test into the Rome Statute of the International Criminal Court,[36] citation in military manuals,[37] reliance on the test by United Nations bodies[38] and affirmation in subsequent international tribunal cases.[39] The key purpose underlying both

32. Jakob Kellenberger, *Foreword* to JEAN-MARIE HENCKAERTS & LOUISE DOSWALD-BECK, CUSTOMARY INTERNATIONAL HUMANITARIAN LAW, at xv, xvi (2005) [hereinafter CIHL Study].

33. *See* Claus Kress, *Some Reflections on the International Legal Framework Governing Transnational Armed Conflict*, 15 J. OF CONFLICT AND SECURITY L. 245, 260–61 (2010); David Krezmer, *Rethinking Application of IHL in Non-International Armed Conflicts*, 42 ISR. L. REV. 8 (2009). Note that the current debate on how human rights law applies during armed conflict has added yet another element to the discussion.

34. The United States, for example, considers that it is in a global armed conflict with Al Qaeda. *See, e.g.*, Remarks by John Brennan, Assistant to the President for Homeland Sec. and Counterterrorism, The White House Office of the Press Sec'y (May 26, 2010), http://www.whitehouse.gov/the-press-office/remarks-assistant-president-homeland-security-and-counterterrorism-john-brennan-csi.

35. Prosecutor v. Tadić, Case No. IT-94-1-AR72, Decision on Defence Motion for Interlocutory Appeal on Jurisdiction, ¶ 70 (Int'l Crim. Trib. for the former Yugoslavia Oct. 2, 1995) (emphasis added).

36. Rome Statute, *supra* note 23, art. 8(2)(f).

37. *See, e.g.*, UK MANUAL, *supra* note 28, ¶ 15.3.1; *see also* U.S. DEP'T OF DEF., LAW OF WAR MANUAL, §§ 3.4.2.2, 17.1.1 (June 2015) [hereinafter U.S. DOD LAW OF WAR MANUAL] (citing the criteria).

38. *See, e.g.*, International Commission of Inquiry on Darfur, *Report to the United Nations Secretary-General Pursuant to Security Council Resolution 1564 of 18 September 2004*, ¶¶ 74−76 (2005), *transmitted by Letter dated 31 January 2005 from the Secretary-General addressed to the President of the Security Council*, U.N. Doc. S/2005/60 (Feb. 1, 2005); Report of the Independent International Commission of Inquiry on the Syrian Arab Republic, HUMAN RIGHTS COUNCIL, U.N. Doc. A/HRC/21/50, Annex II, ¶ 3 (Aug. 16, 2012).

39. *See, e.g.*, Prosecutor v. Jean-Paul Akayesu, Case No. ICTR-96-4-T, Judgment, ¶ 620 (Sept. 2, 1998); Prosecutor v. Limaj, Case No. IT-03-66-T, Judgment, ¶ 84 (Int'l Crim. Trib. for the former Yugoslavia Nov. 30, 2005); *see also* Prosecutor v. Boškoski and Tarčulovski, Case

criteria is to distinguish situations of internal disturbances from those of armed conflict.[40]

Identifying the threshold for the application of APII is more straightforward. This treaty, which develops and supplements Common Article 3,[41] requires that armed groups be "under responsible command, exercise such control over a part of [the State's] territory as to enable them to carry out sustained and concerted military operations and to implement [the] Protocol"[42] and, like Common Article 3, excludes situations of internal disturbances and tensions.[43] Many armed conflicts, however, do not fulfill APII's stringent criteria. Its application is limited to high intensity NIACs in the territory of State parties that have ratified APII and excludes conflicts between armed groups.[44] Consequently, when discussing the minimum threshold necessary to trigger an armed conflict with an organized armed group, the key issue is clarifying when Common Article 3 and relevant customary international law apply.

III. ORGANIZATION & AWS

There have traditionally been three main reasons underlying the organization requirement. First, it is meant to rule out individual or private action.[45] This can be seen in the fact that both APII and Common Article 3 require the existence of parties to the conflict.[46] The term "parties" implies collective entities on either side.[47] Second, the criterion originally stems from the recognition that a certain amount of organization is required in order for violence to reach the level of

No. IT-04-82-T, Judgment, ¶ 175 n.703 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008) (citing previous case law); Prosecutor v. Lubanga, ICC-01/04-01/06-2842, Judgment, ¶¶ 533, 536 (Mar. 14, 2012).

40. *See* Prosecutor v. Tadić, Case No. IT-94-1-AR72, Decision on Defence Motion for Interlocutory Appeal on Jurisdiction, ¶ 562 (Int'l Crim. Trib. for the former Yugoslavia Oct. 2, 1995).

41. APII, *supra* note 5, art. 1.

42. *Id*. In contrast, territorial control is not a requirement for the application of Common Article 3; *see, e.g*., Prosecutor v. Milošević, Case No. IT-02-54-T, Decision on Motion for Judgment of Acquittal, ¶ 36 (Int'l Crim. Trib. for the former Yugoslavia Feb. 25, 2004); BOTHE ET AL., *supra* note 30, at 695.

43. APII, *supra* note 5, art. 1(3).

44. *Id*. at art. 1. A number of States that have been engaged in armed conflict, such as India, Indonesia, Iraq, Israel, Pakistan, Syria, and the United States, have not ratified APII. Treaties, States Parties, and Commentaries, ICRC, https://www.icrc.org/applic/ihl/ihl.nsf/States.xsp?xp_viewStates=XPages_NORMStatesParties&xp_treatySelected=475. To the degree that its rules reflect customary international law, APII rules would still apply to non-parties.

45. SANDESH SIVAKUMARAN, THE LAW OF NON-INTERNATIONAL ARMED CONFLICT 176−77 (2012).

46. GCI–IV, *supra* note 18, art. 3. Note also UN Security Council resolutions reaffirming that all parties are bound to comply with their "obligations under international humanitarian law and in particular the Geneva Conventions of 12 August 1949." S.C. Res. 764, U.N. Doc. S/RES/764 (July 13, 1992); S.C. Res. 1193, U.N. Doc. S/RES/1193 (Aug. 28, 1998).

47. SIVAKUMARAN, THE LAW OF NON-INTERNATIONAL ARMED CONFLICT, *supra* note 45, at 177; ICRC CHALLENGES REPORT 2011, *supra* note 20, at 8.

intensity that necessitates IHL's application.[48] Historically, the level of violence deemed to be sufficient could only be achieved through the coordinated efforts of a group. The significance of the relationship between the level of violence and the organization criterion has decreased as technological developments have facilitated the ability of fewer individuals to carry out more widespread violence. Extensive use of AWS by armed groups has the potential to significantly exacerbate this trend. The third, and most important, reason for the organization requirement is to enable compliance with IHL by armed groups.[49] This latter element of organization is, as will be discussed below, not only an underlying reason for the criterion, but also is a requirement that armed groups must fulfill in order for a NIAC to be triggered.

Although a certain level of organization is fundamental to the concept of an organized armed group for the purpose of characterizing a conflict, defining the minimum legal requirements for the criterion remains difficult. The approach taken by international tribunals, some States, and a number of inter-governmental organizations is to rely upon indicia, which in aggregate support the existence of sufficient organization. ICTY jurisprudence has been particularly helpful in expounding factors that, when viewed together, are useful for determining that an armed group qualifies as an organized armed group.[50] The *Boškoski* judgment is noteworthy as it summarizes a number of previous judgments. It states that the key indicia are the armed group's degree of command structure,[51] capability to carry out operations in an organized manner,[52] level of logistics,[53] degree of discipline, and ability to implement IHL[54] and speak with one voice.[55] It is worth emphasizing that these factors may point to a sufficient level of organization, but are not themselves requirements.[56] Therefore, while the indicia remain an important tool

48. Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶ 198 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008); Prosecutor v. Haradinaj, Case No. IT-04-84-T, Judgment, ¶ 90 (Int'l Crim. Trib. for the former Yugoslavia Apr. 3, 2008); APII, *supra* note 5, art. 1; *see also* Michael N. Schmitt, *Classification of Cyber Conflict*, 17 J. CONFLICT & SECURITY L. 233, 245 (2013); Kenneth Watkin, *Opportunity Lost: Organized Armed Groups and the ICRC "Direct Participation in Hostilities" Interpretive Guidance*, 42 N.Y.U. J. INT'L L. & POL. 641, 680 (2010).

49. *See, e.g.*, SIVAKUMARAN, THE LAW OF NON-INTERNATIONAL ARMED CONFLICT, *supra* note 45, at 184−85.

50. *See, e.g.*, Prosecutor v. Milošević, Case No. IT-02-54-T, Decision on Motion for Judgment of Acquittal, ¶ 36 (Int'l Crim. Trib. for the former Yugoslavia Feb. 25, 2004); Prosecutor v. Limaj, Case No. IT-03-66-T, Judgment, ¶ 84 (Int'l Crim. Trib. for the former Yugoslavia Nov. 30, 2005); Prosecutor v. Haradinaj, Case No. IT-04-84-T, Judgment, ¶ 90 (Int'l Crim. Trib. for the former Yugoslavia Apr. 3, 2008).

51. Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶ 199 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008).

52. *Id.* ¶ 200.

53. *Id.* ¶ 201.

54. *Id.* ¶ 202.

55. *Id.* ¶ 203.

56. This, notwithstanding the phraseology at times used. *See id.* ¶ 194 ("Nevertheless, certain elements of this minimal level of organisation have been elaborated by the Tribunal's

for identifying the existence of a NIAC, the absence of some factors does not necessarily indicate a failure to satisfy the organization requirement. When assessing the question at hand—whether there is anything particular about armed groups' reliance on AWS that could generate legal consequences for determining if the organization prong of the *Tadić* test has been met—examining indicia in aggregate could provide some guidance.

It is argued here that in addition to the indicia, certain minimum parameters for the organization criterion can be inferred from the law. Specifically, a system of control must exist in order for organized armed groups to have the ability to comply with IHL.[57] The ability to comply with the law is required by both APII and Common Article 3. APII expressly stipulates that the organized armed group have the ability to implement the rules in the Protocol.[58] The obligation can be implicitly read into Common Article 3, which provides that "each Party to the conflict shall be bound to apply, as a minimum, the following provisions . . . ." and thus indicates that rights and obligations are imposed on both parties to the conflict.[59] It is generally considered that organized armed groups do not have to actually comply with the law to satisfy this criterion, but must have the capacity to do so.[60]

In order to fulfill the requirement that an armed group should at the very least possess the this capacity to fulfill its obligations, some type of command structure that effects control over a group's members is necessary.[61] To this end, the criterion of a "responsible command," expressly articulated in Article 1 of APII, refers to the structure necessary to ensure the ability to comply with applicable law.[62]

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jurisprudence.").

57. Sasha Radin, Organized Armed Groups under International Humanitarian Law 71–75 (2016) (unpublished PhD. Dissertation, University of Melbourne) (on file with the Baillieu Library, University of Melbourne).

58. APII, *supra* note 5, art. 1.

59. For a discussion on how IHL binds armed groups, see Sandesh Sivakumaran, *Binding Opposition Groups*, 55 INT'L & COMP. L. Q. 369 (2006).

60. *See* Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶¶ 196, 199−203, 205, 277 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008); APII, *supra* note 5, art. 1; *see also* Michael N. Schmitt, *Status of Opposition Fighters in a Non-International Armed Conflict*, 88 INT'L L. STUD. 119, 129–30, n.68 (2012); Marco Sassòli, *Transnational Armed Groups and International Humanitarian Law* 6–7, HPCR Occasional Paper Series no. 6, at 13−14 (2006).

61. On this view, see Radin, *supra* note 57, at 71–75. The ICTY *Boškoski* judgment recognizes this aspect with respect to Common Article 3, stating that "[t]he leadership of the group must, as a minimum, have the ability to exercise some control over its members so that the basic obligations of Common Article 3 . . . may be implemented." Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶ 196 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008).

62. Radin, *supra* note 57, at 71–75. The concept of responsible command has both individual and group aspects. *See, e.g.*, CIHL Study, *supra* note 32, cmt. to r.4. The group aspect concerns the structure of the group, YORAM DINSTEIN, THE CONDUCT OF HOSTILITIES UNDER THE LAW OF INTERNATIONAL ARMED CONFLICT 49 (2d ed. 2010). The plain meaning of the text in Article 1 of APII suggests that the requirement relates to the overall structure of the group. *Id*. at 49. In Article 1 of APII, the group's structure is also explicitly linked to its ability to carry out

Although a command structure is not explicitly required by Common Article 3, a number of commentators consider that a responsible command is a prerequisite for the Article's application.[63] Moreover, the fact that the parties to the conflict are bound to apply the law also implies that they have the structural capacity to do so. Therefore, the obligation to comply with IHL, together with a requirement to have a command structure, informs the type of organization an armed group must have.[64]

Although the level and type of control necessary remains unclear, it can be said that the above-mentioned indicia provided by the international tribunal reflect a higher level of organization than is required at a minimum for the application of Common Article 3. Courts, in particular, have largely based their assessments upon State-like conceptions of organization, which presume a sophisticated level of organization in the armed group.[65] Armed groups, however, need not mirror State armed forces in their structure in order to qualify as organized armed groups, even for the application of APII, which requires meeting a higher threshold of organization than Common Article 3.[66]

Taking into account the indicia and these broad minimum requirements of command structure and ability to abide by IHL, several aspects are identified which could result from extensive use by armed groups of AWS—namely, the likely simplification of structure in the group, the potential for significant reduction in group size, and the possible lack of control over key functions carried out by AWS. It is considered whether these aspects could impact the organization criterion, and thus the character of a conflict.

First, the use of AWS has the potential to significantly simplify the structure of armed groups in a variety of ways. Coordination[67] could be improved by the use

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hostilities that reach a certain intensity. *Id*.

63. *See, e.g*., LINDSAY MOIR, THE LAW OF INTERNAL ARMED CONFLICT 36, 43 (2002); BOTHE ET AL., *supra* note 30, at 695.

64. Radin, *supra* note 57, at 71–75.

65. This is even true of the *Limaj* judgment, which considered the Kosovo Liberation Army (KLA) to be organized. The conclusion was reached even though the KLA was at times an underground organization, Prosecutor v. Limaj, Case No. IT-03-66-T, Judgment, ¶ 104 (Int'l Crim. Trib. for the former Yugoslavia Nov. 30, 2005) and despite its fluid nature, *id*. ¶ 95). The judgment still relied upon the hierarchical organizational characteristics of the KLA frequently found in States to reach its conclusion that the group was organized. *Id*. ¶¶ 109, 111, 113, 117, 132–33. See also ICTY indicia in Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶¶ 199–203 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008).

66. *See, e.g*., COMMENTARY ON THE ADDITIONAL PROTOCOLS, *supra* note 5, ¶ 4463 ("The existence of a responsible command implies some degree of organization of the insurgent armed group or dissident armed forces, but this does not necessarily mean that there is a hierarchical system of military organization similar to that of regular armed forces.").

67. Note that the degree to which units are able to coordinate action was a factor considered by Office of the Prosecutor of the International Criminal Court's Article 53(1) Report on the Situation in Mali demonstrating the organization of Al-Qaeda in the Islamic Maghreb. Office of the Prosecutor, *Situation in Mali: Article 53(1) Report*, ¶ 79 (Jan. 16, 2013). The report examined how the various armed groups divided territory they controlled into military zones and how operations were coordinated vertically across levels of command as well as horizontally between adjacent units. *Id*. at 79–80; *see also* Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-

of AWS carrying out intelligence, surveillance, and reconnaissance (ISR) activities. These activities have experienced tremendous enhancement with the advent of remotely piloted aircraft (RPA).[68] The U.S. Defense Advanced Research Projects Agency's (DARPA) Collaborative Operations in Denied Environment project seeks to add software to existing platforms that enables multiple RPAs to collaborate autonomously for the purpose of evaluating their own surveillance area and surrounding environments in order to present information and recommendations to a supervisor.[69] These autonomous systems are not limited to ISR functions; DARPA foresees them as having targeting capabilities.[70] Utilizing this collaborative autonomy, an RPA could find and engage targets with minimal human oversight.[71] The degree of human coordination needed could be significantly reduced should armed groups possess platforms equipped with technologies such as collaborative autonomy and the miniaturization of technology. Swarms of tiny drones, for instance, could potentially communicate with each other. Control of these systems could be more centralized and require less manpower. Coordination could become a matter of initial programming and modification of that programming at later stages as needed.

Another aspect of coordination that would be affected is logistics. The need for basic sustenance such as food, water, barracks and financial compensation would obviously not apply to AWS. The ability of fewer people to carry out greater levels of violence would reduce the complexity of their requirements as well. Mobile systems would be able to return to a base for refueling and rearmament relatively quickly, or could self-destruct, reducing the need for convoy resupply and associated security. Logistics would still be necessary, but could be simplified.

Similarly, control of physical spaces or populations suggests that an armed group has a certain amount of organization. AWS use has the potential to reduce the complicated infrastructure and higher levels of manpower that has generally been necessary to control territory and populations. For armed groups with significant finances and infrastructure, robots, such as the South Korean SGR-1 sentry robot currently deployed along its Demilitarized Zone with North Korea, or

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T, Judgment, ¶ 279 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008) (noting that radio communications were issued to tactical elements to await further guidance before engaging in military operations and to conserve ammunition).

68. *See* UNITED STATES AIR FORCE RPA VECTOR: VISION AND ENABLING CONCEPTS 2013-2038, at 11 (Feb.17, 2014) http://www.defenseinnovationmarketplace.mil/resources/USAF-RPA_VectorVisionEnablingConcepts2013-2038_ForPublicRelease.pdf (last visited June 7, 2016).("Today, RPA provide near-real-time information, not only to senior operational decision makers but also directly to joint and coalition forces in the field."), http://www.defensein novationmarketplace.mil/resources/USAF-RPA_VectorVisionEnablingConcepts2013-2038_ForPublicRelease.pdf (last visited June 7, 2016).

69. Jean-Charles Ledé, *Collaborative Operations in Denied Environment (CODE)*, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY, http://www.darpa.mil/program/collab orative-operations-in-denied-environment (last visited Apr. 17, 2016).

70. *Id*.

71. *Id*.

less sophisticated versions, could be used to identify individuals[72] and engage targets.[73] A more likely scenario, however, given the potential difficulty armed groups might face in acquiring such systems, would be the use of swarms of cheap objects to create no-go areas. These objects could physically be in place, in a way similar to mines, or could generate fear that prevents the movement of people.

Supplanting functions that people have traditionally carried out—be it to coordinate ISR, carry out logistics, control spaces, or for other reasons—may potentially lead to less complex command structures. Systems could replace a significant number of personnel at the lower tactical level. For example, it is foreseeable that AWS could substitute for small teams manning road blocks. The infrastructure needed to recruit and motivate members could be reduced because fewer members might be required to achieve the group's goals. These, and similar changes could simplify the command structure by removing individuals or perhaps even tiers of that hierarchy. Armed groups which are organized in less complex ways do not have as much need for an intricate command structure with precisely defined roles.

It is suggested that while it is probable this simplification will likely have an effect on how one interprets the above-mentioned indicia for determining the existence of a NIAC,[74] such changes will not likely affect the organization criterion in and of itself. This is because a reduction in the complexity of the infrastructure required for coordination and logistics, and in order to control physical spaces and populations, as well as the existence of a less intricate command structure, would not automatically affect the group's ability to abide by IHL. In fact, it is possible that a simpler structure could make it easier for a group to do so. Therefore, a less complex organizational structure that could evolve as a result of AWS augmentation would not necessarily impact qualification as an organized armed group.

This leads to the second question raised about whether use of AWS on a large scale could impact the organization prong of the *Tadić* test. Even if an armed group has the structural ability to abide by IHL and the organizational capacity to conduct operations of sufficient intensity, what happens if the group is reduced so dramatically in size that it consists of, say, five members? Reduction in size does not necessarily lead to a loss in ability to abide by IHL. Moreover, as these technologies advance, a scenario could arise where very few people can engage in violence that clearly crosses the intensity threshold. It could be argued that because the object and purpose of the intensity criterion—to provide regulation to situations where domestic systems are unsuited to cope[75]—remains, the legal regime of IHL should apply irrespective of a group's size.

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72. Mark Prigg, *Who Goes There? Samsung Unveils Robot Sentry that can Kill from Two Miles Away*, DAILY MAIL.COM (Sept. 16, 2014), http://www.dailymail.co.uk/sciencetech/article-2756847/Who-goes-Samsung-reveals-robot-sentry-set-eye-North-Korea.html.

73. *Id*.

74. *Supra* pp. 10–11.

75. *See infra*, sec. IV at p. 19 (making this point).

Yet, to equate these individuals to an organized armed group could also be problematic. Recall that an underlying reason for the organization requirement is that a collective entity is a party to the conflict.[76] It is unlikely that the drafters envisioned that five people, for instance, could be a collective entity that forms a party to the conflict.[77] A certain level of sophistication must exist in the organizational structure in order for its members to be a "collective." To suggest otherwise is to render the organization requirement close to meaningless and to place all emphasis on the intensity criterion. Furthermore, certain States might be reluctant to reduce the concept of an organized armed group to such a point, given their longstanding fear of legitimizing, or appearing to legitimize, rebels.

The third question concerning possible impact on the organization criterion could arise if key functions are carried out by AWS without sufficient control by the armed group. Should this occur, the group's structural ability to ensure IHL compliance could be affected.[78] The concern here lies specifically with the functional responsibilities that AWS may potentially be delegated—namely to acquire, track, select, and attack targets. Depending on the particular technology and programming, deploying systems for an extended duration in complex and dynamic operational environments could make it more difficult for a group as a whole to comply with core IHL principles, such as the principles of proportionality, distinction, and precautions.[79] Although a commander and operator would make the initial decision to deploy AWS—and conduct the initial analysis under IHL—once the system is deployed, changes in the operational environment could alter this analysis. An inability to make corresponding modifications to the AWS could jeopardize the group's structural ability to comply with IHL if occurring in a pervasive manner. When a commander or operator within an armed group maintains little or no control over AWS subsequent to its deployment and the system itself is unable to process and adapt to changes in its operational environment, IHL compliance could be impacted.[80] It must be emphasized that such systems would need to be used extensively in order to affect the group's *structural ability*. Otherwise, the way in which they were employed might

76. *Supra* pp. 9–10.

77. It is worth noting here that an argument that "private wars" have long been prohibited under IHL and thus would exclude such a small group, while true, would not logically extend to NIACs: Its roots are in the notion that during wars between States, private groups did not have the "right authority" to fight unless they were doing so under the authority of the State. Without that right, they were not eligible for the same beneficial treatment as others. On the prohibition against private wars, see COMMENTARY ON THE ADDITIONAL PROTOCOLS, *supra* note 5, ¶ 1672. For a summary of right authority, see Hays Parks, *Combatants*, 85 INT'L L. STUD. 247, 270 (2009).

78. See *supra* note 3 and accompanying text.

79. On the content of these principles, see CIHL Study, *supra* note 32, rr. 1, 14, 15.

80. For granularity on how autonomy might impact the notion of control under IHL, see the Stockton Center's AWS project. The project suggests that, in order to have prevent violations of IHL, an element of control must be programmed into the AWS and/or instilled through a tether or monitoring mechanism. Michael N. Schmitt, Jason Coats, Christopher M. Ford & Alan Scheuller, *Autonomous Weapons and the Law: A Project to Identify the Underlying Legal Issue of Autonomous Weapon Systems*, STOCKTON CENTER FOR THE STUDY OF INTERNATIONAL LAW (*forthcoming*).

constitute violations of IHL rules but would not be a reflection upon the group's ability to implement the law.

IV. INTENSITY AND AWS

The intensity of hostilities is the second prong of the *Tadić* test to establish the existence of a NIAC. The premise underlying this requirement is that situations where a domestic law enforcement regime would be sufficient to quell unrest must be distinguished from those where a breakdown in the system has occurred, thus generating a need for the application of military force and IHL. Unlike the organization requirement, the intensity criterion takes the conflict as a whole into consideration. Thus, it is not simply the acts of the organized armed group that are calculated, but the results of the combined violence carried out by all parties to the conflict.[81]

Although it is clear that hostilities must reach a certain level of intensity, the exact threshold remains uncertain.[82] As with the organization criterion, rather than defining intensity, the approach has generally been to look for indicia that the intensity threshold has been met. The ICTY's *Boškoski* judgment is again useful in that it summarizes the factors identified in ICTY jurisprudence. These include assessing the "seriousness of attacks," "spread of clashes over territory and over a period of time," "number of civilians forced to flee from the combat zones," "type of weapons used," "blocking or besieging of towns," "extent of destruction and the number of casualties," "quantity of troops," "existence and change of front lines between the parties," "occupation of territory," "deployment of government forces," "closure of roads," "cease fire orders and agreements," and the way force is used by the government.[83] These factors, it must be emphasized, are not

81. Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶ 185 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008) ("In applying this test, what matters is whether the acts are perpetrated in isolation or as part of a protracted campaign that entails the engagement of both parties in hostilities.").

82. One aspect that has been particularly debated is whether intense violence carried out over a short period would be sufficient for the purpose of triggering a NIAC, or if the violence must also be inflicted over a period of time. *See* Abella v. Argentina, Case 11.137, Inter-Am. Comm'n H.R., Report No. 55/97, OEA/Ser.L./V/II.98, doc. 6 rev. ¶ 152 (1997) (emphasizing the gravity of a situation); Jean-Pierre Bemba Gombo, ICC-01/05-01/08, Decision on Confirmation of Charges, ¶ 233 (June 15, 2009) (interpreting Article 8(2)(f) to mean protracted requirement as entailing an armed group's ability to plan and carry out military operations for a prolonged period of time); *see also* Prosecutor v. Lubanga, ICC-01/04-01/06-803, Decision on Confirmation of Charges, ¶ 234 (Jan. 29, 2007) (upholding the interpretation of article 8(a)(f) as requiring armed groups to have the ability to plan and carry out military operations for a prolonged period of time); Simon Schorno, *Why and How IHL Applies in Syria*, INTERCROSS (July 27, 2012), http://intercrossblog.icrc.org/blog/why-and-how-ihl-applies-in-syria (including the ICRC position that both components are relevant).

83. Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶ 177 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008); *see also* Prosecutor v. Lubanga, ICC-01/04-01/06-2842, Judgment, ¶ 538 (Mar. 14, 2012) (stating that the intensity of the comflict should be used to distinguish an armed conflict from banditry); Prosecutor v. Milošević, Case No. IT-02-54-T, Decision on Motion for Judgment of Acquittal, ¶ 28–31 (Int'l Crim. Trib. for the

requirements.

As discussed above, substantial augmentation of AWS will likely enable fewer individuals to achieve increased levels of violence. While this change could impact the organization necessary for an armed group to carry out violence on the required scale in the ways previously mentioned, it would probably not affect the legal requirement that the violence reach a certain level of intensity. Although, as a factual matter, the intensity threshold could be more easily reached as a result of the capabilities that AWS offer armed groups.

However, one way the use of AWS could potentially affect the intensity criterion, or at least the indicia for the criterion, is the manner in which the value of human life is weighed *vis-a-vis* destruction of property. The number of casualties (armed forces and civilians), material destruction, and armed clashes are indicia of intensity.[84] As systems replace humans, the forms that armed clashes take could be altered, resulting in an increase in destruction and possible decrease in loss of life. This could occur when the clashes are between AWS and objects or are confrontations between AWS. In these cases, there is a potential that the ratio of destruction to casualties could be altered, where the loss of human life would be significantly reduced. This possibility would likely only occur in narrow circumstances where one would also have to assume that the replacement of humans by AWS does not give rise to an increase in civilian casualties as collateral damage.

In assessing the intensity requirement, the amalgamation of indicia have been considered by courts without allocating greater or lesser importance to certain indicia. However, if destruction of property, in the form of AWS, were to replace the loss of human life on a large scale, a question could arise as to whether this destruction should be accorded the same weight as casualties. Put differently, is the loss of, or injury to, human life to be given higher value than the destruction of property when assessing the intensity criterion? This question is not necessarily about the autonomy of the systems, but rather arises as a result of replacing humans with machines.

The loss of human life is certainly perceived to be more valuable.[85] As a legal

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former Yugoslavia Feb. 25, 2004) (applying the intensity factors to the actions of the Kosovo Libertarian Army (KLA)); Prosecutor v. Limaj, Case No. IT-03-66-T, Judgment, ¶¶ 90, 135–43, 150, 166–67 (Int'l Crim. Trib. for the former Yugoslavia Nov. 30, 2005) (holding that the determination of the intensity of a conflict and the organization of the parties are factual matters to be decided on a case-by-case basis); Prosecutor v. Haradinaj, Case No. IT-04-84-T, Judgment, ¶ 49 (Int'l Crim. Trib. for the former Yugoslavia Apr. 3, 2008) (stating that the factors relevant for assessing the intensity criterion are not, in themselves, essential to establish intensity, but are factors only).

84. Prosecutor v. Boškoski and Tarčulovski, Case No. IT-04-82-T, Judgment, ¶ 177 (Int'l Crim. Trib. for the former Yugoslavia July 10, 2008).

85. Compare, for instance, the attention accorded to helicopter shoot-downs with military personnel to unmanned drone crashes. Dexter Filkins, *31 Americans Die as Marine Copter Goes Down in Iraq*, N.Y. TIMES (Jan. 27, 2005), http://www.nytimes.com/2005/01/27/world/middleeast/31-americans-die-as-marine-copter-goes-down-in-iraq.html?_r=0; *US Drone Crashes in Southern Afghanistan; No Injuries*, THE SEATTLE TIMES (Feb. 20, 2016), http://www.seattletimes.com/nation-world/us-drone-crashes-in-southern-afghanistan-no-injuries/.

matter, IHL also accords human life the highest value. The underlying purpose of the law is to reduce harm and suffering to the greatest degree possible, while at the same time recognizing the reality that armed conflicts take place.[86] Moreover, the types of AWS armed groups are likely to have access to will probably be cheap and easily replaceable. Recall the potential for disposable drones made by 3D printers that are deployed in swarms. If human life is seen to have greater value, then replacement of humans by AWS has the potential to render the violence less intense, in that more damage to property might occur and fewer casualties might ensue. Ultimately, this could result in less likelihood that the threshold of an armed conflict would be crossed. The alternative, if destruction were to be accorded the same weight as human life, could lead to an extreme situation where, for example, intense clashes between AWS could satisfy the intensity requirement, and thus trigger an armed conflict (if the organization criterion was also satisfied). This would mean that violence solely between objects, and possibly easily replaceable objects at that, could trigger a legal regime that allows for the targeting of individuals based on their membership in a group.[87]

V. CONCLUSION

Extensive use of AWS by armed groups may, therefore, have legal consequences for whether the threshold of a NIAC is reached. The greatest potential for this change can be seen in the organization criterion. Employment of AWS by armed groups could affect whether or not they qualify as organized armed groups. It is the way in which AWS might be used that, under certain circumstances—namely, if there would be a pervasive lack of control over AWS or a significant reduction in the group size—that could ultimately impact whether a NIAC is triggered. Otherwise, AWS use could result in simplification of a group's organizational structure, which would not, in and of itself, affect the threshold for an armed conflict. The intensity prong of the *Tadić* test is less likely to be impacted by AWS use than the organization criterion. However, replacement of humans by

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In fact, the United States has even shot down its own drones intentionally when they were not functioning properly. Jeremy Hsu, *Air Force Shoots Down Runaway Drone over Afghanistan*, POPULAR SCI. (Sept. 14, 2009), http://www.popsci.com/military-aviation-amp-space/article/2009-09/when-drones-go-wild-air-force-shoots-them-down.

86. *See, e.g.*, Regulations Respecting the Laws and Customs of War on Land, annexed to Hague Convention No. IV Respecting the Laws and Customs of War on Land, pmbl., Oct. 18, 1907, 36 Stat. 2227; Hague Convention No. II with Respect to the Laws and Customs of War on Land, pmbl., July 29, 1899, 32 Stat. 1803 ("In view of the High Contracting Parties, these provisions, the wording of which has been inspired by the desire to diminish the evils of war so far as military necessities permit."); Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight, Nov. 29/Dec. 11, 1868, 18 Martens Nouveau Recueil (ser. 1) 474, http://www.icrc.org/applic/ihl/ihl.nsf/Article.xsp?ac tion=openDocument &documentId=568842C2B90F4A29C12563CD0051547C.

87. During NIACs, members of organized armed groups may be targeted as a consequence of their membership. INT'L COMMITTEE OF THE RED CROSS, INTERPRETIVE GUIDANCE ON THE NOTION OF DIRECT PARTICIPATION UNDER INTERNATIONAL HUMANITARIAN LAW 12 (Nils Melzer ed., 2009).

AWS does raise concerns regarding the value of human life versus objects.

On a more fundamental level, widespread use of AWS by armed groups may drive a reassessment of the reasons that traditionally have formed the foundation for the organization requirement. It may be questioned whether these reasons—the collective element of the criterion, the idea that a certain level of organization is needed in order to conduct levels of violence high enough to require the application of IHL, and the crucial role that providing the structural ability to abide by IHL plays in the criterion—remain the driving factors for the requirement.

In addition, in enabling groups to inflict more violence, and thus essentially placing more weight on the intensity side of the *Tadić* test, pervasive AWS use could bring into question the relationship between the test's two prongs. In particular, the scenario where a five-person group—which possesses both the structural ability to comply with IHL and capability, due to AWS augmentation, to inflict violence that, together with the hostilities engaged in by its opponents, meets the intensity criterion—could qualify as an organized armed group, challenges the relationship between the organization and the intensity requirements. A conclusion that the collective element is not significant and the infrastructure need not entail a degree of human complexity could render the organizational requirement a *de minimis* threshold to be crossed on the way to examining the intensity criterion. In this way, AWS use may add another dimension to the already complex debate on when a NIAC is—and should be—triggered.