

## Comments

# From Siri to Sci-Fi: Are Lethal Robots People Too?

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### ABSTRACT

Autonomous weapons systems, colloquially referred to as “killer robots,” are becoming less of a science fiction fantasy and more of a reality on the modern battlefield. They operate based on Artificial Intelligence (AI) which helps them undergo a self-learning thought process, where the machines learn new tasks based on responses from previous interactions. As the AI behind these systems becomes more sophisticated, the machines engage in greater autonomous decision-making.

As they function with increased autonomy, some weapons experts and governments have suggested extending legal personhood to autonomous weapons systems because their decision-making resembles that of human brains. Theoretically, this extension would resemble how corporations operate as legal persons, even though corporations are a type of business entity. Although the comparison reveals notable similarities at the surface, it ultimately fails. Because autonomous systems are weapons, their use must conform to International Humanitarian Law (IHL), which

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does not support such an extension of corporate personhood. The doctrine of IHL has restrictively extended the idea of personhood, and no express declaration from either the United States Congress or the United Nations supports a broad expansion.

Furthermore, fundamental principles of corporate law, such as the piercing the corporate veil doctrine, cannot apply to autonomous weapons systems. Because weapons systems are machines, they cannot hold financial assets or deliberately abuse a limited liability shield. Ultimately, the failed application of this analogy under IHL combined with the inapplicability of key principles of corporate law indicates that extending legal personhood to autonomous weapons systems cannot succeed.

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#### I. INTRODUCTION

Robots and autonomous weapons systems are not legal persons under the current law.<sup>1</sup> Such a distinction is necessary because, although they are just machines, the computer programming behind autonomous systems<sup>2</sup> is rapidly advancing.<sup>3</sup> Artificial intelligence (AI)<sup>4</sup> is becoming smarter and

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1. See Shawn Bayern, *The Implications of Modern Business-Entity Law for the Regulation of Autonomous Systems*, 19 STAN. TECH. L. REV. 93, 93 (2015).

2. As defined by the U.S. Department of Defense, autonomous weapons systems are “weapon system[s] that once activated, can selected and engage targets without further intervention by a human operator.” U.S. DEP’T OF DEFENSE, NO. 3000.09, DIRECTIVE: AUTONOMY IN WEAPON SYSTEMS 13 (2012) <http://bit.ly/2Ne9bg4> [hereinafter *DoD DIRECTIVE 3000.09*]. The phrase “autonomous system” and “autonomous weapons system,” may have slightly different connotations, but this Comment uses both terms interchangeably to refer to military systems with some degree of automated capacity. See generally Raja Chatila & Catherine Tessier, *A Guide to Lethal Autonomous Weapon Systems*, CNRS NEWS FR. (Apr. 9, 2018), <https://bit.ly/2QbsSpi>.

3. See Janosch Delcker, *Europe divided over robot ‘personhood,’* POLITICO (Apr. 11, 2018, 12:45 PM), <https://politi.co/2GSxkTH>.

4. AI is a sub-field of computer science that examines how machines can imitate human mental skills, such as pattern recognition, understanding natural language, or

more autonomous and the technology engages in a thought process that operates similarly to human consciousness.<sup>5</sup> The possibility of recognizing personhood for AI is relevant in both civil and military contexts; the latter is the focus of this Comment.<sup>6</sup>

A notable example of advanced AI in the civilian world is Sophia the Robot.<sup>7</sup> As her name suggests, Sophia is a robot with a realistic human appearance who can engage in conversations and act upon human traits, such as compassion.<sup>8</sup> In 2017, she was granted full citizenship in Saudi Arabia.<sup>9</sup> Sophia is the first robot to receive legal citizenship status,<sup>10</sup> and in 2018 she received the first-ever robot visa.<sup>11</sup> While universal rights of robots may sound like science fiction, Sophia's technological advancement and international recognition offer a glimpse into the future evolution of AI and legal personhood.<sup>12</sup>

With respect to the military, autonomous systems are starting to make lethal decisions, meaning that the machines, not their human operators, decide when to engage in lethal force.<sup>13</sup> For example, Russia is currently developing a weapon to make "shoot-no-shoot" decisions.<sup>14</sup> The U.S. Department of Defense (DoD) utilizes autonomous drones.<sup>15</sup> And Israel currently employs a fully autonomous loitering munition,<sup>16</sup> the Harop, which can independently dive-bomb radar signals.<sup>17</sup>

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adaptive learning from experience. Bernard Marr, *The Key Definitions of Artificial Intelligence (AI) That Explain Its Importance*, FORBES (Feb. 14, 2018 1:27 AM), <https://bit.ly/2AynpSI>; *see also infra* Section II.A.

5. *See* Delcker, *supra* note 3.

6. *See infra* Section II.B., Part III.

7. *See Sophia*, HANSON ROBOTICS, <https://bit.ly/2EINLmm> (last visited Oct. 30, 2018).

8. *See id.*

9. *See* Emily Reynolds, *The agony of Sophia, the world's first robot citizen condemned to a lifeless career in marketing*, WIRED (June 1, 2018), <https://bit.ly/2RyullW>.

10. *See id.*

11. Paul Armstrong, *AI Humanoid 'Sophia' Is Granted First Ever Robot Visa, Speaks With President*, FORBES (Oct. 27, 2018, 10:42 AM), <https://bit.ly/2AADM13>.

12. Despite her developments, Sophia is not without criticism. *See* Jaden Urbi, *The complicated truth about Sophia the robot-an almost human robot or a PR stunt*, CNBC (June 5, 2018, 11:15 AM), <https://cnb.cx/2kQLZPD>. Sophia is criticized because she appears "hot" or "sexy." *See id.* Others question why she was granted citizenship in Saudi Arabia, which is a nation that still maintains male guardianship over women. *See* Reynolds, *supra* note 9.

13. *See* Billy Perrigo, *A Global Arms Race for Killer Robots Is Transforming the Battlefield*, TIME (Apr. 9, 2018, 2:12 PM), <https://bit.ly/2C9FHK0>.

14. *See id.*

15. While not all autonomous drones are weaponized, they nevertheless exemplify how this technology is evolving and has the potential for a military capacity. *See id.* They also demonstrate the military's interest in autonomous technology. *Id.*

16. A loitering munition is a weapons system that "loiters" above the target and strikes its target after waiting for it to arrive. Aire Egozi, *Loitering Weapon Systems - A Growing Demand*, IHLS (Dec. 16, 2016), <https://bit.ly/2PL4UCt>.

17. *See* Perrigo, *supra* note 13 (recognizing nations that have already deployed AI in a military capacity); *see also infra* Section III.B.

While militarized AI is largely a vision of the future, legal personhood for robots is a topic of current discussion in the international community.<sup>18</sup> In 2017, the European Parliament suggested that self-learning robots<sup>19</sup> should receive electronic personalities,<sup>20</sup> which would be a limited legal status specific to robots.<sup>21</sup> However, 156 AI experts, consisting of computer scientists, law professors, and CEOs,<sup>22</sup> responded with a letter<sup>23</sup> arguing against the proposition.<sup>24</sup> The experts insisted that the current civil laws of the European Union are sufficient to manage robot liability.<sup>25</sup> In addition to the ethical implications of elevating robots to a personhood status, the experts asserted that granting this special legal status could insulate manufacturers from liability.<sup>26</sup> Ultimately, the European Commission did not implement the European Parliament's suggestion of electronic personhood.<sup>27</sup> Although the European Commission did not validate electronic personhood in this instance, the discussion is not foreclosed. As AI technology continues to evolve, other governments and legislatures will consider the question as to the appropriate legal status for this person-like technology.<sup>28</sup>

With respect to militarized AI, autonomous weapons systems differ from traditional weapons because these systems act in accordance with software codes and programming, as opposed to direct human control.<sup>29</sup> Thus, anticipating and accounting for the behavior of militarized AI is difficult.<sup>30</sup> The absence of direct human control is prompting governments

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18. See Thomas Burri, *The EU is right to refuse legal personality for Artificial Intelligence*, EUROACTIV (May 31, 2018), <https://bit.ly/2EZE30h>; see also *infra* Section III.B.

19. Self-learning robots learn new tasks through a trial and error process, which is similar to how humans learn. See John Straw, *Self Learning Robots*, DISRUPTIONHUB (June 18, 2015), <https://bit.ly/33sxrRa>.

20. Electronic personhood and electronic personality both refer to the idea of granting a legal entity status to robots. See Delcker, *supra* note 3.

21. This legal status would allow robots to be sued and insured individually and obtain liability and protections separate from their creators. See *id.* Robots would not be full citizens with all rights of people. For example, they would not have the right to marry. See *id.*

22. Nathalie Navejan, a French law professor at the Université d'Artois, and Noel Sharkey, a professor of artificial intelligence and robotics at the University of Sheffield, were two of the experts who expressed concern that electronic personhood would absolve manufactures of liability. See *id.*

23. The letter received the consensus that granting robots electronic personhood would be irresponsible for ethical and legal reasons. See *id.*

24. See *id.*

25. See *id.*

26. See Delcker, *supra* note 3.

27. See Burri, *supra* note 18.

28. See Delcker, *supra* note 3.

29. See Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 CALIF. L. REV. 513, 534 (2015).

30. See *id.*

to consider issues of accountability when determining the proper status of these systems.

The advanced capabilities of autonomous weapons systems have led experts to question the proper entity status of these systems.<sup>31</sup> Similar to how autonomous weapons systems act without the necessary involvement of individual people, corporations can act in their own name.<sup>32</sup> Therefore, assigning a legal personhood status to autonomous weapons systems would seem to mirror the reasoning behind corporate personhood.<sup>33</sup> However, the fact that these systems are ultimately just weapons, combined with the different bodies of law that govern weapons as opposed to corporations, reasons against expanding corporate personhood to these systems.<sup>34</sup>

Part II of this Comment will present an overview of the background material relevant to the analysis of this Comment.<sup>35</sup> Specifically, Part II will provide a general overview of AI<sup>36</sup> and how AI can act with varying degrees of autonomy;<sup>37</sup> the military potential for AI;<sup>38</sup> how the corporate personhood theory has evolved over time into granting a legal entity status with very high levels of autonomy;<sup>39</sup> and the laws of war that govern the use of autonomous weapons systems.<sup>40</sup>

Next, Part III will explain how the theories of corporate personhood do not analogize to autonomous weapons systems when analyzed under International Humanitarian Law (IHL).<sup>41</sup> Part III will then argue that IHL is the best doctrine under which to analyze the entity status of autonomous weapons systems and explain how customary international law distinguishes machines from humans.<sup>42</sup> Next, Part III will analyze why the piercing the corporate veil doctrine does not apply to autonomous systems.<sup>43</sup> Ultimately, Part III will recommend that legal personhood should not extend to autonomous systems.<sup>44</sup> Finally, Part IV will offer concluding statements on the issues raised by this Comment.<sup>45</sup>

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31. See Delcker, *supra* note 3.

32. See Bayern, *supra* note 1, at 96.

33. See *id.* at 94.

34. See *infra* Part III.

35. See *infra* Part II.

36. See *infra* Section II.A.

37. See *infra* Section II.A.

38. See *infra* Section II.B.

39. See *infra* Section II.C.

40. See *infra* Section II.D.

41. See *infra* Section III.A.

42. See *infra* Section III.B.

43. See *infra* Section III.C.

44. See *infra* Section III.D.

45. See *infra* Part IV.

## II. BACKGROUND

As AI becomes more autonomous and “human-like,” some experts have looked to the evolving theories of corporate personhood as a structure for categorizing autonomous systems.<sup>46</sup> Similarly, as corporations have evolved, the corresponding corporate personhood theories have mirrored this development to allow a corporation to be viewed as an independent and distinct entity.<sup>47</sup> Unlike corporations, which are legal entities governed by state law, autonomous systems are weapons systems that are governed by IHL, which does not support an expansion of legal personhood to non-human entities.<sup>48</sup>

### A. *What is AI, and How Does It Work?*

AI is a sub-field of computer science that examines how machines can imitate human mental skills, such as pattern recognition, understanding natural language, and adaptive learning from experience.<sup>49</sup> Broadly, AI is composed of computations that allow machines to “perceive, reason, and act.”<sup>50</sup> Specifically, AI is “[t]he theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.”<sup>51</sup> AI distinguishes itself from regular computer programming because the machines are able to learn and subsequently correct themselves.<sup>52</sup> Thus, AI uses a trial and error “thought process” which mimics the mental process that the human brain performs when learning a new task.<sup>53</sup>

In terms of measuring AI development, AI can fall into one of three categories: narrow;<sup>54</sup> strong;<sup>55</sup> or superintelligence.<sup>56</sup> Narrow AI is “machine intelligence that equals or exceeds human intelligence for specific tasks.”<sup>57</sup> For example, narrow AI includes algorithms that route

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46. See Bayern, *supra* note 1, at 93 (discussing the application of modern entity law for autonomous systems).

47. See *infra* Section II.C.

48. See *infra* Sections III.A–B.

49. See Marr, *supra* note 4.

50. STEPHAN DE SPIEGELEIRE ET AL., ARTIFICIAL INTELLIGENCE AND THE FUTURE OF DEFENSE: STRATEGIC IMPLICATIONS FOR SMALL AND MEDIUM SIZED FORCE PROVIDERS 27 (2017), <http://bit.ly/2CuV1IQ>.

51. Marr, *supra* note 4.

52. See Sarah Dai & Alice Shen, *Made in China 2025: China has a competitive AI game plan but success will need cooperation*, SOUTH CHINA MORNING POST (Oct. 1, 2018, 11:00 PM), <https://bit.ly/2Rj1a9w>.

53. See *id.*

54. See Ray Kurzweil, *On My Mind: Long Live AI*, FORBES (Aug. 15, 2005), <https://bit.ly/2CNkmHG>.

55. See *id.*

56. See *id.*

57. See *id.*

information used when a person sends an email.<sup>58</sup> Strong AI, on the other hand, is “machine intelligence with the full range of human intelligence.”<sup>59</sup> Sophia the Robot, for instance, is likely considered strong AI because she functions with machine learning akin to human consciousness.<sup>60</sup> Finally, super-intelligent AI is “machine intelligence that exceeds human intelligence across any task.”<sup>61</sup> Even though computers can beat humans at Jeopardy, and devices such as Siri<sup>62</sup> engage in simple conversations, the general consensus remains that no super-intelligent AI exists, even though those examples function at a super-intelligent level.<sup>63</sup>

### B. *Autonomous Systems Within the U.S. Military*

AI also includes weapons systems that act with varying degrees of autonomy.<sup>64</sup> Autonomy refers to the ability of a machine to perform a task or function on its own.<sup>65</sup> An autonomous weapons system is “any system that is capable of targeting and initiating the use of potentially lethal force without direct human supervision . . . in lethal decision-making.”<sup>66</sup> Some systems operate completely independently, whereas others require human involvement to help the machine make decisions.<sup>67</sup>

Several definitions exist regarding what constitutes autonomy in the weapons context.<sup>68</sup> For example, the DoD defines an autonomous weapon as a system that “once active, can select and engage targets without further intervention by a human operator.”<sup>69</sup> Semi-autonomous weapons, on the other hand, are weapons systems that are only aimed to engage individual and specific targets that are pre-selected by a human operator.<sup>70</sup>

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58. *See id.*

59. *Id.*

60. *See Reynolds, supra* note 9.

61. DE SPIEGELEIRE ET AL., *supra* note 50, at 30. A superintelligent system would be able to conduct decision-making that goes beyond our current cognitive abilities. *See* Luke Dormehl, *A beginner’s guide to A.I. superintelligence and ‘the singularity*, DIGITAL TRENDS (Oct. 4, 2017, 7:00 AM), <https://bit.ly/2wxekVH>.

62. Siri is an “intelligent assistant” on iPhones that utilizes machine learning to respond to voice commands from the user. *Siri*, APPLE, <https://apple.co/32lDaqY> (last visited Feb. 9, 2020).

63. *See Artificial Superintelligence (ASI)*, TECHOPEDIA, <https://bit.ly/2EPf9B5> (last visited Feb. 9, 2020).

64. *See* PAUL SCHARRE, *ARMY OF NONE: AUTONOMOUS WEAPONS AND THE FUTURE OF WAR 27* (1st ed. 2018).

65. *See id.*

66. Peter Asaro, *On banning autonomous weapon systems: human rights, automation, and the dehumanization of lethal decision-making*, 94 INT’L REV. RED CROSS 687, 690 (2012).

67. *See* SCHARRE, *supra* note 64, at 30.

68. *See* Amitai Etzioni & Oren Etzioni, *Pros and Cons of Autonomous Weapon Systems*, MIL. REV., May–June 2017, at 72, 77.

69. *DoD DIRECTIVE 3000.09, supra* note 2, at 13.

70. *See id.*

The level of a machine's autonomy depends on the degree to which it performs tasks independently and with less direction from human operators.<sup>71</sup> The DoD unmanned system roadmaps<sup>72</sup> classify autonomy along a spectrum,<sup>73</sup> which separates into three primary categories.<sup>74</sup>

The first category focuses on the task the machine is performing.<sup>75</sup> Generally, the machine will perform some tasks autonomously while humans remain in control of others.<sup>76</sup> For example, U.S. fighter aircraft have been modified with an automatic ground collision avoidance system (Auto-GCAS).<sup>77</sup> If the pilot is about to crash, Auto-GCAS will take control of the aircraft and pull it up away from the ground before it crashes.<sup>78</sup> Hence, the machine makes the decision about pulling away from the ground and deciding the best manner to avoid a crash.<sup>79</sup>

A machine should not be referred to as autonomous without reference to the exact task that becomes automated.<sup>80</sup> For example, cars are driven by humans but operate with autonomous functions, such as automatic braking, automatic seat belt retractions, and automatic airbags.<sup>81</sup> These autonomous functions assist the driver, but the car is not a fully autonomous machine because the car remains under direct human control.<sup>82</sup> A car, therefore, operates similarly to the Auto-GCAS system because a human remains in control of the operations except for select safety functions.

The second category along the autonomy spectrum focuses on the relationship between the human and the machine when the machine performs a task.<sup>83</sup> This category further divides into two types of operations. The first is "semiautonomous operations," in which the human is "in" the loop.<sup>84</sup> The second is "supervised autonomous operations," in which the human sits "on" the loop.<sup>85</sup> The term "loop" refers to the military

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71. See SCHARRE, *supra* note 64, at 28.

72. The DoD Unmanned Systems Roadmaps discuss the development of autonomous systems. See GCN Staff, *DOD's roadmap to integrated unmanned systems*, GCN (Sept. 14, 2018), <https://bit.ly/2UFUP9h>. They discuss how the technology can be integrated into the current operations of the DoD. See *id.*; see also *DOD DIRECTIVE 3000.09*, *supra* note 2, at 1.

73. See SCHARRE, *supra* note 64, at 27.

74. See *id.* at 28.

75. See *id.*

76. See *id.*

77. See *id.*

78. See *id.* (noting that this system has already saved at least one aircraft in combat, rescuing a U.S. F-16 in Syria).

79. See *id.*

80. See *id.*

81. See *id.*

82. See SCHARRE, *supra* note 64, at 28.

83. See *id.*

84. See *id.* at 29.

85. See *id.*

OODA loop,<sup>86</sup> which stands for “observe, orient, decide, and act.”<sup>87</sup> This loop guides the AI’s rational thinking towards responding to a stimulus in chaotic or confusing situations.<sup>88</sup>

A semiautonomous system can sense the environment and recommend how to proceed, yet the machine cannot perform the task until it receives a human command.<sup>89</sup> Hence, the human is “in” the loop because he remains involved in how the machine senses, decides, and then acts.<sup>90</sup>

A supervised autonomous system can sense, decide, and act on its own, but a human user retains control over the machine’s behavior, allowing the person to potentially intervene and change the machine’s behavior.<sup>91</sup> For example, humans stay “on” the loop in combat operations to protect communication links of cyber operations.<sup>92</sup> The human involvement ensures that the technology is not compromised by an adverse armed party.<sup>93</sup> The machine does not make its own determinations.<sup>94</sup> Hence, the human primarily serves as a check on the machine’s decision-making.<sup>95</sup> For example, the human supervisor decides to land an aircraft or decides to order mechanical parts.<sup>96</sup> Thus, the human user working with a supervised autonomous system is “on” the loop.<sup>97</sup>

For example, the Phalanx Close-In Weapons Systems (CIWS) is an independent and self-contained unit with an automated fire-control system.<sup>98</sup> Thus, a CIWS can automatically search for, detect, track, engage, and confirm targets using its computer-controlled radar system.<sup>99</sup> The CIWS requires human supervision and only attacks specific targets, such as missiles or boats, that the human operators identify.<sup>100</sup>

The third category refers to the sophistication of the machine’s decision-making process when performing a task.<sup>101</sup> Fully autonomous

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86. *See id.*

87. *See OODA LOOP: What You Can Learn from Fighter Pilots About Making Fast and Accurate Decisions*, FARNAM STREET BLOG, <https://bit.ly/2CaM3c3> (last visited Oct. 27, 2018).

88. *See id.*

89. *See SCHARRE, supra* note 64, at 29.

90. *See id.*

91. *See SCHARRE, supra* note 64, at 29.

92. *See* David Vergun, *Supervised autonomy the goal in Army aviation, says major general*, ARMY.MIL (Sept. 14, 2017), <https://bit.ly/2BD2j4M>.

93. *See id.*

94. *See id.*

95. *See id.*

96. *See id.*

97. *See SCHARRE, supra* note 64, at 29.

98. *See* Charlie Dunlap, Jr., *Autonomous weapons and the law: the Yale and Brookings discussions*, LAWFIRE BLOG (Apr. 9, 2018), <https://bit.ly/2AsLpGs>.

99. *See id.*

100. *See id.*

101. *See SCHARRE, supra* note 64, at 30.

systems sense, decide, and act without human intervention.<sup>102</sup> The human is entirely “out” of the loop.<sup>103</sup> The machine is acting on its own, as would a regular soldier. Before deploying a fully autonomous weapon, however, a fully autonomous machine must “learn” to act consistently within the laws of war.<sup>104</sup> Assuming that the autonomous system operates lawfully, AI experts and military personnel suggest that autonomous systems have great military potential because of a machine’s ability to act more precisely than humans.<sup>105</sup> Machines do not experience fatigue and emotions that can impair judgment, and consequently diminish the quality of a task.<sup>106</sup>

Beginning in 2005, the DoD began publishing a series of roadmaps for future unmanned system investment.<sup>107</sup> These roadmaps discussed sensors, communications, power, weapons, propulsion, and other technologies.<sup>108</sup> The DoD roadmaps have the long-term goal of achieving complete autonomy for these weapons systems.<sup>109</sup> The 2011 roadmap outlines four stages of autonomy: (1) human-operated; (2) human delegate; (3) human supervised; and (4) fully autonomous.<sup>110</sup> Investment in unmanned systems is expanding,<sup>111</sup> per the goals of the DoD, with the eventual goal of fully integrating unmanned systems into combat operations over the next 25 years.<sup>112</sup> Advanced autonomous systems would have the ability to analyze and adapt to the environment, and they would interact with other autonomous systems.<sup>113</sup>

As AI advances, autonomy is a key objective as it reduces the human workload required for military operations.<sup>114</sup> A lighter human workload will lead to greater military efficiencies,<sup>115</sup> such as manpower

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102. *See id.*

103. *See id.*

104. *See* Dunlap, *supra* note 98; *see also infra* Section II.D.

105. *See* Dunlap, *supra* note 98.

106. *See id.*

107. *See* SCHARRE, *supra* note 64, at 27.

108. *See id.*, at 15.

109. *See id.*

110. *See* U.S. DEP’T OF DEF., UNMANNED SYSTEMS INTEGRATED ROADMAP: FY2011-2036 46 (2011) [hereinafter *UNMANNED SYSTEMS INTEGRATED ROADMAP*].

111. *See* Michael C. Horowitz, *The Algorithms of August*, FOREIGN POL’Y (Sept. 12, 2018, 8:00 AM), <https://bit.ly/2x6tNxD> (commenting that the private sector invested between 15 and 23 billion dollars in AI in 2016).

112. *See UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 46 (commenting that the full potential of unmanned systems will occur when they have highly autonomous capabilities and can interact with their surroundings).

113. *See id.*

114. *See id.* at 20. In January 2017, the DoD produced an autonomous drone swarm of 103 robots flying over California whose flight path was determined in real-time by an algorithm. *See* Perrigo, *supra* note 13. Even though this is not a weaponized example, it demonstrates the rapidly evolving trend of this technology and hints at its military application. *See UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 20.

115. *See UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 20.

productivities, cost savings,<sup>116</sup> and quicker human decision-making.<sup>117</sup> Autonomous systems produce greater military advantages like increasing the efficacy of each combatant, expanding the battlefield to previously inaccessible areas and reducing casualties by removing human combatants from dangerous missions.<sup>118</sup>

### C. *Overview of the Development of Corporate Personhood*

As AI becomes more advanced, experts and governments have considered granting the technology a special legal status similar to that of a corporation.<sup>119</sup> A corporation is an artificial entity that exists through recognition of the law and can act only through its agents.<sup>120</sup> A corporation is also a legal entity with an identity, or personality, that is completely separate from that of its owners.<sup>121</sup> To gain this separate identity, a corporation must incorporate<sup>122</sup> by filing the articles of incorporation with a state's Secretary of State.<sup>123</sup>

Corporations have standing to enter into contracts, hold property, sue and be sued, and conduct business in the corporate name.<sup>124</sup> Unless its articles of incorporation provide otherwise, every corporation generally has the same powers as an individual to do all things necessary to fully

116. In a 2013 article in *The Fiscal Times*, DoD figures estimated that “each soldier in Afghanistan costs the Pentagon roughly \$850,000 per year,” whereas “the TALON robot, a small rover outfitted with weapons, costs \$230,000.” Etzioni & Etzioni, *supra* note 68, at 72.

117. *UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 45–48; *see also* Mark M. Beard, *Autonomous Weapons and Human Responsibilities*, 45 *GEO. J. INT’L L.* 617, 625 (2014) (citing National Defense Authorization Act for Fiscal Year 2001, Pub. L. No. 106-398, § 220(a), 114 Stat. 1654, 1654A to 38 (2000)) (mandating that one-third of designated U.S. military aircraft and ground combat vehicles be unmanned by 2010 and 2015).

118. *See* Etzioni & Etzioni, *supra* note 68, at 72.

119. *See* Bayern, *supra* note 1, at 97; *see also* Delcker, *supra* note 3.

120. *See* *Premium Prod., Inc. v. Pro Performance Sports, LLC*, 997 F. Supp. 2d 433, 437 (E.D. Va. 2014).

121. *See* *Krivo Indus. Supply Co. v. Nat’l Distillers & Chemical Corp.*, 483 F.2d 1098, 1102 (5th Cir. 1973).

122. To incorporate, a person from the company engages in the process of filing the necessary documents with the Secretary of State to form a legal corporation. *See Incorporation*, *BLACK’S LAW DICTIONARY* (10th ed. 2014).

123. *See* DOUGLAS M. BRANSON ET AL., *BUSINESS ENTERPRISES: LEGAL STRUCTURES, GOVERNANCE, AND POLICY* 191 (3d ed. 2016). The articles of incorporation refer to the original articles of incorporations, all amendments, and any other documents permitted or required to be filed with the Secretary of State. *See* MODEL BUS. CORP. ACT § 2.02 (AM. BAR ASS’N 2016). At a minimum, the articles of incorporation must include (1) a corporate name for the corporation; (2) the number of shares the corporation is authorized to issue; (3) the street address of the corporation’s registered office and the name of its registered agent at that office; and (4) the name and address of each incorporator. *See id.*

124. *See* Susanna Kim Ripken, *Corporations Are People Too: A Multi-Dimensional Approach to the Corporate Personhood Puzzle*, 15 *FORDHAM J. CORP. & FIN. L.* 97, 106 (2009).

conduct its business and affairs,<sup>125</sup> such as signing contracts or accruing business debts.<sup>126</sup> Because a corporation is an artificial concept, and not a natural human, these actions are conducted by the directors or officers of the corporation.<sup>127</sup>

Shareholders in a corporation are not personally liable for the debts and obligations of the corporation.<sup>128</sup> This limited liability of shareholders allows for greater business growth, increased access to monetary resources, and reduced risk to shareholders wanting to invest in a business without becoming personally liable to the company's creditors.<sup>129</sup>

Despite the general guarantees of limiting personal liability after incorporating, this advantage is not absolute.<sup>130</sup> The doctrine of piercing the corporate veil<sup>131</sup> allows courts to impose personal liability on shareholders for the debts or liabilities of the corporation when the corporation engages in some form of misconduct.<sup>132</sup> Hence, incorporating does not create a complete barrier from liability.<sup>133</sup> The rationale for piercing the corporate veil is that if the beneficial "veil" of limited liability is abused then liability for wrongdoing should fall on the blameworthy actor, which could be an individual within the company.<sup>134</sup>

Two general factors exist in piercing the corporate veil cases: (1) domination or control by a shareholder, whether an individual or another corporate entity, over the subject corporation; and (2) a fraud, wrong, or injustice.<sup>135</sup> Within these general factors, smaller considerations often influence courts to find personal liability: (1) lack of corporate formalities; (2) commingling of corporate assets; (3) undercapitalization;<sup>136</sup> (4)

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125. See MODEL BUS. CORP. ACT § 3.02 (AM. BAR ASS'N 2016).

126. See *id.* § 6.22 (stating that a shareholder of a corporation is not personally liable for the acts or debts of the corporation except that he may become personally liable by reason of his own acts or conduct).

127. See BRANSON ET AL., *supra* note 123, at 368.

128. See *id.* at 297.

129. See *id.* *But cf.* N. Y. Cent. & Hudson River R.R. Co. v. United States, 212 U.S. 481, 493 (1909) (recognizing corporate criminal liability).

130. See BRANSON ET AL., *supra* note 123, at 297; see also *infra* Section III.C.

131. See *infra* Section III.C.

132. See BRANSON ET AL., *supra* note 123, at 297-99. *But see* Krivo Indus. Supply Co. v. Nat'l Distillers & Chemical Corp., 483 F.2d 1098, 1102 (5th Cir. 1973) (noting that the corporate form should not be taken lightly given that it is one of the principle benefits behind the purpose of incorporation).

133. See BRANSON ET AL., *supra* note 123, at 299.

134. See *id.* at 298; see also *United States v. Milwaukee Refrigerator Transit Co.*, 142 F. 247, 255 (E.D. Wis. 1905) ("[W]hen the notion of legal entity is used to defeat public convenience, justify wrong, protect fraud, or defend crime, the law will regard the corporation as an association of persons.").

135. See BRANSON ET AL., *supra* note 123, at 299.

136. Undercapitalization refers to a company that does not have enough capital to conduct its business. See *Capitalization*, BLACK'S LAW DICTIONARY (10th ed. 2014). Thus, when a company lacks sufficient capital, it is undercapitalized. *Id.* The theory behind undercapitalization is that if owners chose to run a business with insufficient capital to

allegation of a tort; and (5) misrepresentation or fraud.<sup>137</sup> The corporate veil is pierced based on an individualized fact-based analysis, as opposed to a process codified by state statute.<sup>138</sup> The factual context is extremely important in weighing the relevant factors in deciding whether to pierce the corporate veil.<sup>139</sup>

Years of U.S. jurisprudence have allowed the term “person” to include both natural persons and artificial entities, such as corporations.<sup>140</sup> Thus, legal personhood for corporations has developed through various theories over time.<sup>141</sup> Corporations have been thought of as (1) an artificial and dependent person, (2) an aggregate person, and, most recently, (3) a real and independent person.<sup>142</sup>

Under the first theory, which arose during the first half of the Nineteenth Century,<sup>143</sup> a corporation was viewed as an artificial and dependent person that is solely a legal construct created to facilitate commerce.<sup>144</sup> If a corporation only receives legal recognition through state approval, the corporation depends on the law to recognize its legal personhood,<sup>145</sup> and it possesses only the abilities that the state chose to grant.<sup>146</sup> Under this theory, legal personality was primarily granted when a corporation could offer society a specific benefit that required this separate legal status.<sup>147</sup>

The second theory of corporate personhood, which arose during the last half of the Nineteenth Century,<sup>148</sup> views the corporation as an aggregate person because a corporation could not be formed without the

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cover expenses, then they should accrue personal liability. *See* BRANSON ET AL., *supra* note 123, at 302. Although deciding to pierce the corporate veil is done on a case-by-case basis, when combined with other factors, undercapitalization is a significant factor for consideration. *See* BRANSON ET AL., *supra* note 123, at 302.

137. BRANSON ET AL., *supra* note 123, at 300–04.

138. *See id.* at 298 (citing MODEL BUS. CORP. ACT § 6.22 (AM. BAR ASS’N 2005)).

139. *See id.* at 305.

140. *See* 18 AM. JUR. 2D *Corporations* § 65 (2018). *But see* People *ex rel.* Nonhuman Rights Project, Inc. v. Larvey, 124 A.D.3d 148, 148 (N.Y. App. Div. 2014) (holding that a chimpanzee was not a person entitled to rights afforded by a writ of habeas corpus).

141. *See* Ripken, *supra* note 124, at 106.

142. *See id.* (citing MODEL BUS. CORP. ACT § 3.02 (AM. BAR ASS’N 2005)).

143. *See id.* at 107.

144. *See id.* at 106.

145. *See id.* at 107.

146. *See* Trs. of Dartmouth Coll. v. Woodward, 17 U.S. 518, 636 (1819).

147. *See* Louis K. Liggett Co. v. Lee, 288 U.S. 517, 549 (1933) (Brandeis, J., dissenting); *see also* Prairie Capital III, L.P. v. Double E. Holding Corp., 132 A.3d 35, 59 (Del. Ch. 2015) (first citing *Trs. of Dartmouth Coll.*, 17 U.S. at 636 (“[a] corporation is an artificial being, invisible, intangible, and existing only in contemplation of law, and being a purely metaphysical creature . . . because it lacks a body and mind, a corporation only can act through human agents.”); then citing *Daimler AG v. Bauman*, 571 U.S. 117, 135 (2014) (recognizing that a corporation is a distinct legal entity that can act only through its agents); and then citing *Braswell v. United States*, 487 U.S. 99, 110 (1988) (holding that artificially entities such as corporations may act only through their agents)).

148. *See* Ripken, *supra* note 124, at 109.

action and agreement of human beings.<sup>149</sup> Human involvement is critical, as the corporation can only act through the people who manage it.<sup>150</sup> The aggregate theory holds that “the corporate person has no existence or identity that is separate . . . from the natural persons in the corporation.”<sup>151</sup> The entity is entirely owned and managed by people, and the corporation’s actions are actually conducted by its employees, as opposed to the corporation itself.<sup>152</sup>

The aggregate person theory became less prominent during the early Twentieth Century, as corporations grew increasingly large in size.<sup>153</sup> As the role of shareholders became more tangential to the corporation’s management, the identity of large corporations became separate from their shareholders.<sup>154</sup> The corporation no longer resembled the aggregate consciousness of its shareholders, because it evolved into its own entity.<sup>155</sup> Additionally, as an artificial entity, the corporation could potentially exist indefinitely, whereas individual shareholders cannot.<sup>156</sup> These new considerations about the increased sized and perpetual duration of corporations prompted a new theory to explain corporate personhood.<sup>157</sup>

The third theory, the real entity theory, views the corporation as “an undeniably real and non-imaginary person.”<sup>158</sup> The corporation has its own consciousness and its actions are considered qualitatively different from those of its members.<sup>159</sup> Under this theory, a corporation can act by its own volition.<sup>160</sup> Hence, the corporation becomes responsible for its own actions<sup>161</sup> and would assume its own (criminal) liability distinct from any potential liability of its members.<sup>162</sup> By viewing the corporation as a separate entity, the law treats the corporation like an autonomous individual.<sup>163</sup> The precedent of corporate personhood is the foundation for exploring the possibility of expanding legal personhood to other non-human entities, such as highly advanced autonomous systems.<sup>164</sup>

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149. *See id.*

150. *See In re Bean*, 278 B.R. 567, 568 (Bankr. M.D. Fla. 2002).

151. *See Ripken, supra* note 124, at 110.

152. *See In re Bean*, 278 B.R. at 568.

153. *See Ripken, supra* note 124, at 111.

154. *See id.*

155. *See id.*

156. *See id.*

157. *See id.*

158. *See Ripken, supra* note 124, at 112 (citing W. Jethro Brown, *The Personality of the Corporation and the State*, 21 L. Q. REV. 365, 370 (1905)).

159. *See id.* at 114.

160. *See id.*

161. *See N.Y. Cent. & Hudson River R.R. Co. v. United States*, 212 U.S. 481, 495 (1909) (recognizing corporate criminal liability).

162. *See Ripken, supra* note 124, at 115.

163. *See id.*; *see also Bayern, supra* note 1, at 95.

164. *See Delcker, supra* note 3.

#### D. *The Laws of War*

As autonomous weapons systems expand, their use must conform to the four main principles of the Laws of Armed Conflict (LOAC) and IHL.<sup>165</sup> Unlike corporations, which are governed by state law, IHL applies internationally and provides a set of rules that aim to limit the suffering of combatants and non-combatants during a conflict.<sup>166</sup> IHL protects those who are not participating in the conflict and restricts the “means and weapons of warfare.”<sup>167</sup> As noted in Additional Protocol I to the Geneva Convention,<sup>168</sup> IHL applies only during an armed conflict,<sup>169</sup> it does not apply during peacetime.<sup>170</sup>

IHL consists of four main principles: (1) humanity; (2) necessity; (3) proportionality; and (4) distinction.<sup>171</sup> Humanity prohibits the “infliction of suffering, injury, or destruction unnecessary to accomplish a legitimate military purpose.”<sup>172</sup> Military necessity justifies certain actions as necessary to defeat the enemy as efficiently as possible.<sup>173</sup> Proportionality requires that even when actions may be justified by military necessity, the actions should not be unreasonable or excessive.<sup>174</sup> Finally, distinction refers to the obligation to distinguish between civilians and armed forces.<sup>175</sup>

165. See Dunlap, *supra* note 98. The terms “Laws of Armed Conflict” and “International Humanitarian Law” are very similar and are often used interchangeably. See *id.* This Comment will refer to “International Humanitarian Law” because of its uniform recognition in international law and academic discussions. See STEPHEN DYCUS ET AL., NATIONAL SECURITY LAW 277 (Rachel E. Barkow et al. eds., 6th ed. 2016).

166. See DYCUS ET AL., *supra* note 165, at 278.

167. *War & Law*, INT’L COMMITTEE RED CROSS, <https://bit.ly/2rcQh0F> (last visited Oct. 21, 2018).

168. The Additional Protocols supplement the Geneva Conventions to account for the changes in war, from conflicts fought by large State armies into conflicts of States fighting smaller non-State actors. See DYCUS ET AL., *supra* note 165, at 286.

169. See Protocol Additional to the Geneva Conventions of August 12, 1949, and Relating to the Protection of Victims of International Armed Conflicts art. 48, June 8, 1977, 1125 U.N.T.S. 3 [hereinafter Additional Protocol I]. An armed conflict exists when two states are engaged in armed violence. See *Prosecutor v. Tadic*, Case No. IT-94-1-I, Decision on the Defense Motion for Interlocutory Appeal on Jurisdiction, ¶ 70 (Int’l Crim. Trib. for the Former Yugoslavia Oct. 2, 1995); see also DYCUS ET AL., *supra* note 165, at 279.

170. See DYCUS ET AL., *supra* note 165, at 278. Peacetime refers to “a time when a nation is not at war.” *Peacetime*, MERRIAM-WEBSTER, <https://bit.ly/2Mkjs9x> (last visited Jan. 19, 2019).

171. “Parties shall distinguish between civilians and combatants and between civilian objects and military objectives and shall direct military operations only against military objectives.” Additional Protocol I, *supra* note 169, at art. 48.

172. U.S. DEP’T OF DEF., LAW OF WAR MANUAL 50–59 (2015), <https://bit.ly/2WRuUhj> [hereinafter LAW OF WAR MANUAL].

173. See *id.* at 51.

174. *Id.*

175. See *id.*

These principles aim to limit the suffering of non-combatants during military attacks.<sup>176</sup> Generally, an attack refers to “acts of violence against the adversary, whether in offense or in defense.”<sup>177</sup> Indiscriminate attacks are prohibited.<sup>178</sup> Indiscriminate attacks are attacks that are not directed at a specific military object, employ a method or means of combat which cannot be directed at a specific military objective, or use a method or means of combat with effects that cannot be limited as required by the Additional Protocol.<sup>179</sup>

Autonomous systems differ from traditional weapons, like bullets, because these systems employ programming.<sup>180</sup> Given that autonomous systems operate through software codes, anticipating and accounting for their behavior is difficult.<sup>181</sup> The uncertainty in predicting the behavior of autonomous weapons systems presents challenges because the weapon’s operator cannot know whether using the weapon will comply with IHL. Moreover, as the weapons advance, their increased independence and autonomous functions further obfuscate the proper characterization or entity status.<sup>182</sup>

IHL heavily relies on the concept of custom.<sup>183</sup> Although no definition of customary law is universally accepted,<sup>184</sup> the international community generally accepts international norms that emerge from consistent State practice or behavior that, over time, becomes accepted as a legal obligation.<sup>185</sup> Commenting on the consistency of State practice, the

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176. *See id.* at 15.

177. *See Additional Protocol I*, *supra* note 169.

178. *See id.*

179. *See* DYCUS ET AL., *supra* note 165, at 286. Additional Protocol I governs international armed conflicts and essentially codifies the laws of war. *See* DYCUS ET AL., *supra* note 165, at 286. Additional Protocol II allows for greater protection of individuals in non-international conflicts. *See* DYCUS ET AL., *supra* note 165, at 287. However, the United States has not ratified either Additional Protocol I or Additional Protocol II. *See* DYCUS ET AL., *supra* note 165, at 287.

180. *See* Calo, *supra* note 29, at 534.

181. *See id.*

182. *See* Perrigo, *supra* note 13.

183. *See* RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW § 102 (1987). Evidence of custom includes treaties, decisions of national courts and international tribunals, national legislation, diplomatic correspondence, opinions of national legal advisors, and the practice of international organizations. *See Customary International Law: Research Guides & Background Information*, DUKE L., <https://bit.ly/2qlkSsm> (last visited Dec. 23, 2019) (citing *Report of the International Law Commission to the General Assembly (Part II): Ways and Means of Making the Evidence of Customary International Law More Readily Available*, [1950] 2 Y.B. Int’l L. Comm’n 367, ILC Doc. A/1316).

184. *See* RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW § 102 (AM. LAW INST. 1987).

185. *See id.*

International Court of Justice in *North Sea Continental Shelf*<sup>186</sup> noted that State practice should be “extensive and virtually uniform.”<sup>187</sup>

Regardless of the persuasive nature of international legal obligations, custom is not equivalent to U.S. law on U.S. soil.<sup>188</sup> IHL, however, is still relevant to U.S. law.<sup>189</sup> In *Hamdan v. United States*,<sup>190</sup> for example, the D.C. Circuit noted that Congress essentially incorporates the international laws of war into domestic law, rather than creating a U.S. common law of war.<sup>191</sup> In *Hamdan*, the court reasoned that the lack of clear consensus within customary international law should not create a bright-line rule that requires civil or criminal liability within the U.S.<sup>192</sup>

Despite the ambiguities of customary international law, the United Nations (U.N.) Charter, the foundational treaty of the U.N.,<sup>193</sup> has been adhered to by almost all States.<sup>194</sup> And even the non-member States have acquiesced in its principles,<sup>195</sup> which reflects the highly persuasive nature of international custom.

Customary international law is relevant when evaluating corporate liability in an international context. In *Kiobel v. Royal Dutch Petroleum Co.*,<sup>196</sup> the Second Circuit held that “corporate liability is not a discernable norm of customary international law.”<sup>197</sup> The court noted that no corporation has ever been subject to any form of liability under customary IHL.<sup>198</sup> The U.S. Supreme Court, in *Mohamad v. Palestinian Authority*,<sup>199</sup> then extended the *Kiobel* decision in holding that only a natural person is an individual who can be held liable under the Torture Victim Protection

186. See *N. Sea Cont'l Shelf* (Fed. Rep. Ger. v. Den., Neth.), Judgment, 1969 I.C.J. 3, 43 (Feb. 20 1969).

187. *Id.*

188. See *DYCUS ET AL.*, *supra* note 165, at 278.

189. See *id.*

190. See *Hamdan v. United States*, 696 F.3d 1238, 1250 (D.C. Cir. 2012).

191. See *id.* at n.10; see also *Sosa v. Alvarez-Machain*, 542 U.S. 692, 725 (2004) (ruling that “any claim based on the present-day law of nations [must] rest on a norm of international character accepted by the civilized world”).

192. See *Hamdan*, 696 F.3d at 1250.

193. See *Charter of the United Nations*, UNITED NATIONS, <https://bit.ly/34tqQWY> (last visited Feb. 9, 2019).

194. See *DYCUS ET AL.*, *supra* note 165, at 278.

195. See *RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW* § 102 cmt. h (AM. LAW INST. 1987).

196. See *Kiobel v. Royal Dutch Petroleum Co.*, 621 F.3d 111, 121 (2d Cir. 2010).

197. *Id.* at 131; see also *Jesner v. Arab Bank*, 138 S. Ct. 1386, 1388 (2018) (holding that absent further action from Congress, it was inappropriate for courts to extend ATS liability to foreign corporations).

198. The court considered whether Nigerian residents under a class action lawsuit could sue under the ATS claiming that Dutch, British, and Nigerian corporations committed human rights abuses and oil exploitation. See *Kiobel*, 621 F.3d at 123; see also *Alien Tort Statute*, 28 U.S.C.A. § 1350 (West 1948) (“The [United States] district courts shall have original jurisdiction of any civil action by an alien for a tort only, committed in violation of the law of nations or a [United States] treaty . . .”).

199. See *Mohamad v. Palestinian Auth.*, 132 S. Ct. 1702, 1703 (2012).

Act.<sup>200</sup> This ruling maintains the distinction between a natural person and other entities.<sup>201</sup>

However, some contrary precedent suggests that non-human entities can violate, and become liable under, international customary law.<sup>202</sup> For example, the Seventh Circuit in *Flomo v. Firestone Nat. Rubber Co.*<sup>203</sup> held that corporate liability was possible under the Alien Tort Statute (ATS).<sup>204</sup> The Seventh Circuit disagreed with the decision in *Kiobel* and reasoned that even if no corporation had ever been punished for violating customary international law, litigation can be used to enforce an international norm.<sup>205</sup> The court noted that tort liability is a globally common consideration when deciding in favor of corporate liability.<sup>206</sup>

Within the military, the development of weapon systems with greater degrees of autonomy is growing.<sup>207</sup> Although these machines may make decisions like a human mind or a corporate body, this similarity is not enough to merit an independent entity status.

### III. ANALYSIS

Legal personhood status should not extend to autonomous weapons systems. The discussion of legal personhood for military robots has received less prominence than that for civil robots, as noted by the European Parliament's recent discussion.<sup>208</sup> Even so, analyzing militarized autonomous systems will likely follow the recent discussion of whether to grant a special type of electronic personhood for autonomous weapons systems.<sup>209</sup>

Three reasons support the determination that autonomous weapons systems do not merit legal personhood based on the corporate personhood analogy. First, the doctrines of law that govern corporations and war are fundamentally different. Therefore, the extension of personhood to autonomous weapons systems based on surface similarities is illogical.<sup>210</sup> Second, international custom does not support equating machines to

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200. *Id.* at 1703. The Torture Victim Protection Act authorizes a cause of action against an individual for acts of torture and extrajudicial killings. *See* 28 U.S.C. § 1350 (2018).

201. *See Mohamad*, 132 S. Ct. at 1703.

202. *See Flomo v. Firestone Nat. Rubber Co.*, 643 F.3d 1013, 1015 (7th Cir. 2011).

203. *See id.* at 1024

204. *Id.*

205. *See id.* at 1017.

206. *See id.* at 1019.

207. *See supra* Section II.B.

208. *See supra* Part I.

209. *See supra* Part I.

210. *See Burri, supra* note 18; *see also infra* Section III.A.

people.<sup>211</sup> Third, inanimate objects cannot be deliberately undercapitalized in an attempt to escape liability.<sup>212</sup>

#### A. *Legal Personhood Under IHL*

The legal personhood theory can only apply to persons, not autonomous weapons systems. Corporations are governed by state and federal statutes<sup>213</sup> (which do recognize legal personhood beyond humans)<sup>214</sup> whereas autonomous weapons systems are governed by IHL (which has no established precedent recognizing personhood beyond literal humans).<sup>215</sup> Corporate law and IHL support different entities, systems, and purposes.<sup>216</sup> Even though facially the analogy of extending personhood from one non-human entity to another appears logical, this comparison will not pass muster when applied to an international doctrine based on custom, as opposed to a constitution. State constitutions expressly grant corporations recognition, whereas international custom (which is not binding law) focuses on governing the behavior of persons.<sup>217</sup>

Even though the corporate personhood analogy ultimately fails under IHL, the surface-level similarities of autonomous systems and corporations warrant a discussion about the appropriate entity status for autonomous weapons systems. The real entity theory, which views the corporation as an independent entity, does not apply to the current technology given that the extent of human involvement prevents the machines from operating completely independently.<sup>218</sup> The two factors of longevity and size that prompted theorists to view corporations as real entities,<sup>219</sup> rather than aggregate bodies, do not apply to robots. First, corporations can exist indefinitely,<sup>220</sup> whereas technological innovations cannot.<sup>221</sup> Robots have a lifecycle.<sup>222</sup> While this may depend on each individual system, the lifecycle may typically last between eight and ten

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211. *See infra* Section III.B.

212. *See infra* Section III.C.

213. *See* U.S. CONST. amend. X.

214. *See supra* Section II.C.

215. *See* Dunlap, *supra* note 98; *see also* Section II.D.

216. *Compare* U.S. CONST. amend. X *with* U.N. Charter art. 2, ¶ 4.

217. *See* Dunlap, *supra* note 98.

218. *See UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 50. Even though Russia is developing a weapon to make lethal decisions, and Israel has a fully autonomous loitering munition, these developments are advanced outliers and not common weapons on the battlefield. *See* Perrigo, *supra* note 13.

219. *See* Ripken, *supra* note 124, at 111–12; *see also supra* Section II.C.

220. *See* Ripken, *supra* note 124, at 114.

221. *Robot Life Cycle-FAQs*, MOTION CONTROLS ROBOTICS, <https://bit.ly/33ku6Uo> (last visited Jan. 15, 2019).

222. *See id.*

years,<sup>223</sup> which is shorter than the potentially perpetual duration of a corporation.

Second, an individual autonomous system is smaller than a large corporation. Some of the largest corporations on the Fortune 500 list have millions of employees and millions of dollars in revenue.<sup>224</sup> In contrast, autonomous systems are individual pieces of machinery that do not have independent assets or revenue values.<sup>225</sup> Ultimately, the distinguishing factors of the real entity theory do not pertain to autonomous systems.<sup>226</sup> Therefore, despite the apparent independent decision-making of super-intelligent robots, these systems are not structurally similar enough to corporations to be analyzed under the real entity theory.

On the other hand, the aggregate theory bears more resemblance to the current setup of autonomous weapons systems. Under the aggregate theory, the corporation's identity is inseparable from the humans who support it.<sup>227</sup> Just as corporations make decisions that are administered by human actions (such as directors approving business decisions) autonomous systems also rely on humans to make decisions (such as creating particular programming to distinguish between military and civilian targets when making lethal decisions).<sup>228</sup> Under DoD policy,<sup>229</sup> shoot-no-shoot decisions are, ultimately, a human-made decision.<sup>230</sup> The lethal decision is inseparably connected to the human operator.<sup>231</sup> Therefore, the inherent interconnection between the operator and the weapon best resembles the aggregate person theory.<sup>232</sup>

Given that autonomous systems operate on the battlefield, not in the boardroom, IHL should guide the appropriate entity status for these systems because of their specific use in warfare. Instead of assigning autonomous systems legal personhood based on the U.S. Constitution and drawing from corporate law, weapons experts and governments should look to IHL for guidance.<sup>233</sup> While IHL does not explicitly address

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223. *Id.*

224. Wal-Mart is number one on the Fortune 500 list, and reported having 2,300,000 employees and \$500,343,000 in revenue in 2018. *Walmart*, FORTUNE GLOBAL 500, <https://bit.ly/2NgAlmt> (last visited Jan. 15, 2019).

225. *See supra* Section II.A.

226. *See supra* Section II.C.

227. *See Ripken, supra* note 124, at 110.

228. *See SCHARRE, supra* note 64, at 29; *UNMANNED SYSTEMS INTEGRATED ROADMAP, supra* note 110, at 50; Etzioni & Etzioni, *supra* note 68, at 77. *See also Bayern, supra* note 1, at 93.

229. The current DoD policy requires lethal autonomous systems to remain under human control. *See UNMANNED SYSTEMS INTEGRATED ROADMAP, supra* note 110, at 50.

230. *See UNMANNED SYSTEMS INTEGRATED ROADMAP, supra* note 110, at 50.

231. *See id.*

232. *See Ripken, supra* note 124, at 110; *see also supra* Section II.C.

233. In particular, the European government has seriously considered this issue; although, the European Commission did not recognize electronic personhood. *See Burri, supra* note 18.

autonomous systems, it should be central in evaluating their proper entity status because IHL is the relevant law when determining the legality of weapons used in conflict.<sup>234</sup>

The basic purposes of corporations and autonomous systems are dissimilar.<sup>235</sup> Autonomous weapons systems increase military efficiencies and minimize risk.<sup>236</sup> Corporations primarily exist to shield the directors from personal liability related to poor business decisions.<sup>237</sup> Autonomous systems and corporations exist for separate reasons and strive towards completely different objectives.<sup>238</sup>

An autonomous machine is not the functional equivalent of an independent human person, unlike a corporation that can legally function akin to a human person.<sup>239</sup> An autonomous *weapons* system is a *weapon*. Unlike an aggregate corporate body where decisions are made based on collective consciousness,<sup>240</sup> the machine does not contribute to the decision-making process; it responds based on preprogrammed algorithms that are physically executed by an operator.<sup>241</sup> Although machines operate based on codes created by humans, this coordination is less intensive than the process directors must undergo when making business decisions within an aggregate corporate body.<sup>242</sup> Autonomous systems do not contribute input regarding their operations.<sup>243</sup> Their actions are preprogrammed.<sup>244</sup> Therefore, autonomous systems operate as inanimate objects that are extensions of human decision-making, not as independent individuals on the battlefield or as members of the board of directors.

The laws of war focus on the obligations of the *persons* engaged in war,<sup>245</sup> not the conduct of robots.<sup>246</sup> IHL regulates and prohibits the use of weapons that cause unnecessary suffering or contribute to indiscriminate attacks.<sup>247</sup> IHL imposes rules on when and how an attack should be

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234. See Dunlap, *supra* note 98.

235. Compare *supra* Section II.A. with *supra* Section II.C.

236. See *UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 20.

237. See Nikki Nelson, *The Benefits of Business Incorporation*, WOLTERS KLUWER, <https://bit.ly/2EWfSRT> (last visited Oct. 31, 2018).

238. Compare *supra* Section II.A with *supra* Section II.C.

239. See *Kennison v. Daire*, (1986) 160 CLR 129, 130 (Austl.) (reasoning that an ATM could not give the bank's consent and no principle of law exists that requires it to be treated as though it were a human person).

240. See Ripken, *supra* note 124, at 110.

241. See *supra* Section II.A.

242. See *UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 46; see also *supra* Section II.C.

243. See *UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 50.

244. See *supra* Section II.B.

245. See *LAW OF WAR MANUAL*, *supra* note 177, at 330.

246. See SCHARRE, *supra* note 64, at 269 (noting that "people fight wars, not robots").

247. See *id.* at 251–52. Over time, several international treaties came into effect to limit unnecessary suffering. *Weapons*, INT'L COMMITTEE RED CROSS (Nov. 30, 2011), <https://www.icrc.org/en/document/weapons>. The Geneva Protocol, which has been

conducted, with a focus on guiding the *human* behavior involved in conducting an attack.<sup>248</sup>

Although weapons used in warfare must conform to IHL principles, the standard of adhering to these principles does not require autonomous systems to make legal determinations.<sup>249</sup> IHL does not focus on the process of how a decision is made; under this doctrine of law, the laws focus on the results of the action, namely whether an indiscriminate attack has occurred.<sup>250</sup> In contrast, directors' obligations under corporate law are reviewed based on the *process* of making business decisions.<sup>251</sup> IHL's focus on the results of the process rather than the process itself demonstrates that different standards are emphasized when determining conformity with the law under corporate law and IHL.<sup>252</sup> The different standards between these bodies of law reflect that U.S. domestic law and international law support different purposes and structures.

IHL and U.S. law are different legal doctrines that support different purposes and afford different legal protections.<sup>253</sup> Unlike corporations, which have been granted legal personhood based on their roles in a U.S. domestic context, autonomous weapons systems operate under IHL, which is strongly based on international custom.<sup>254</sup> By applying the corporate personhood analogy under IHL, the concept of corporate liability would have to exist as a recognized principle of international law.<sup>255</sup>

#### B. *International Custom: Machines Are Not Humans*

International custom does not support equating machines to people, and it remains divided regarding corporate liability, as discussed below.<sup>256</sup>

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supplemented by the Biological Weapons Convention in 1972 and the Chemical Weapons Convention in 1993, prohibits the develop, production, acquisition, use of biological and chemical weapons. *Id.* Additionally, the 1980 Convention on Certain Conventional Weapons limits the use of incendiary weapons. *See id.*

248. *See* SCHARRE, *supra* note 64, at 269.

249. *See supra* Section II.D.

250. *See Additional Protocol I*, *supra* note 169, at art. 48.

251. Directors of corporations owe fiduciary duties of loyalty and care, which require the directors to act in the best interest of the corporation and maintain an informed process when making business decisions. *See* *Smith v. Van Gorkom*, 488 A.2d 858, 873 (Del. 1985) (noting that a director's duty to make an informed business decision falls under the duty of care and that the directors engaged in a poor process when approving the merger); *see also In re The Walt Disney Co. Derivative Litig.*, 906 A.2d 27, 57 (Del. 2006) (determining that the compensation committee members were informed when approving an expensive severance package, and thus, did not breach their duty of care).

252. *Compare supra* Section II.C. *with supra* Section II.D.

253. *Compare supra* Section II.C. *with supra* Section II.D.

254. *See* RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW § 102 (AM. LAW INST. 1987); *see also supra* Section II.D.

255. *See supra* Section II.D.

256. *See infra* Section III.B.

In fact, the existing case law reveals a restrictive view of personhood and a limitation on corporate liability as a recognized custom.<sup>257</sup>

For example, in *Kiobel*<sup>258</sup> the Second Circuit held that “corporate liability is not a discernable norm of customary international law.”<sup>259</sup> The U.S. Supreme Court then extended the *Kiobel* decision in *Mohamad*,<sup>260</sup> holding that only a natural person is an individual who can be held liable under the Torture Victim Protection Act.<sup>261</sup> These rulings maintain the distinction between a natural person and other non-human entities.<sup>262</sup>

Notwithstanding the Seventh Circuit’s holding in *Flomo*, extending corporate liability under the ATS, the Supreme Court’s holding in *Mohamad*<sup>263</sup> should govern the entity status of autonomous systems because of its restrictive view of personhood.<sup>264</sup> First, the Court in *Mohamad* focused on the concept of natural personhood, whereas the courts in *Flomo* and *Kiobel* focused on the concept of corporate liability.<sup>265</sup> Determining the scope of liability is a separate issue from discussing the proper entity status for autonomous systems. Given that the analysis in *Mohamad* more closely aligns with the focus of determining personhood, *Mohamad*’s ruling should control.<sup>266</sup>

*Mohamad* cautions against extending legal personhood to anything other than a human individual.<sup>267</sup> The common meaning of an individual refers only to a human being, not an organization, or an entity, or even an association.<sup>268</sup> Even though the Dictionary Act allows the term “person” to include artificial entities,<sup>269</sup> a statute should only extend personhood to artificial entities if congressional intent clearly warrants such expansion.<sup>270</sup> Absent clear statutory or congressional expression, the U.S. Congress likely intends the term personhood to only pertain to human beings.<sup>271</sup> The

257. See *infra* Section III.B.

258. See *Kiobel v. Royal Dutch Petroleum Co.*, 621 F.3d 111, 121 (2d Cir. 2010).

259. *Id.* at 131; see also *Jesner v. Arab Bank*, 138 S. Ct. 1386, 1388 (2018) (holding that absent further action from Congress, it was inappropriate for courts to extend ATS liability to foreign corporations).

260. See *Mohamad v. Palestinian Auth.*, 132 S. Ct. 1702, 1703 (2012).

261. See *id.* at 1703. The Torture Victim Protection Act authorizes a cause of action against an individual for acts of torture and extrajudicial killings. See 28 U.S.C. § 1350 (2018).

262. See *Mohamad*, 132 S. Ct. at 1703.

263. See *id.* The Torture Victim Protection Act authorizes a cause of action against an individual for acts of torture and extrajudicial killings. See also 28 U.S.C. § 1350 (2018).

264. See *Mohamad*, 132 S. Ct. at 1703.

265. See *Flomo v. Firestone Nat. Rubber Co.*, 643 F.3d 1013, 1024 (7th Cir. 2011); *Kiobel v. Royal Dutch Petroleum Co.*, 621 F.3d 111, 131 (2d Cir. 2010).

266. See *Mohamad*, 132 S. Ct. at 1703.

267. See *id.*

268. See *id.*

269. 1 U.S.C. § 1.

270. See *Mohamad*, 132 S. Ct. at 1703.

271. See *id.*

U.S. Congress has not expressed a desire to equate machines to people.<sup>272</sup> Thus, the lack of congressional intent further supports the contention that international customary law restrictively views legal personhood as solely pertaining to human beings.

Second, even though the court in *Flomo* held in favor of extending liability for non-human entities, *Flomo* only dealt with the issue of corporate liability under the ATS.<sup>273</sup> *Flomo* may control in specific situations where an alien autonomous system violates a statute. Because the narrow application of *Flomo* goes beyond this analysis, the premise of *Kiobel* (that corporate liability is not a norm of customary international law)<sup>274</sup> should be used to determine the entity status of autonomous systems.

An express, written declaration from the U.N. expanding the term “person” to include artificial entities would be the strongest indication of support for electronic personhood under IHL, given that IHL follows the customary practices of the international community.<sup>275</sup> However, the international community lacks consensus as to the regulation of these systems and their legal status.<sup>276</sup> Specifically, even though the European Parliament suggested that self-learning robots<sup>277</sup> merit electronic personalities,<sup>278</sup> the European Commission ultimately rejected this contention after opposition from experts,<sup>279</sup> and the arguments for and against an electronic personality remain up for debate.<sup>280</sup> The international myriad of views falls very short of clear statutory intent to recognize

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272. Unlike the U.S. Government, the E.U. has considered recognizing an entity status for robots. See Delcker, *supra* note 3. This legal status would allow robots to be sued and insured individually, and obtain liability and protections separate from their creators. See *id.*

273. See *Flomo v. Firestone Nat. Rubber Co.*, 643 F.3d 1013, 1015 (7th Cir. 2011). Additionally, corporate liability is not a set norm of international law. See also *Kiobel v. Royal Dutch Petroleum Co.*, 621 F.3d 111, 131 (2nd Cir. 2010).

274. See *Kiobel*, F.3d at 131.

275. See U.N. Charter art. 43, ¶ 1; see also DYCUS ET AL., *supra* note 165, at 383.

276. In addition to considering the appropriate legal status, international groups have considered banning autonomous systems altogether. See Sono Motoyama, *Inside the United Nations' Effort to Regulate Autonomous Killer Robots*, VERGE (Aug. 27, 2018, 11:11 AM), <https://bit.ly/2oelmMH>. The Campaign to Stop Killer Robots, which is backed by Elon Musk, Tesla's co-founder and CEO, is a non-governmental organization that aims to ban “killer robots” that could engage targets independently. See *id.* However, weapons expert and former disarmament ambassador for India, Amandeep Gill, argues against Musk's concerns and emphasizes that humans are still in charge. See *id.*

277. Self-learning robots learn new tasks through a trial and error process, which is similar to how humans learn. See John Straw, *Self-Learning Robots*, DISRUPTION (June 18, 2015), <https://bit.ly/2NgZY6K>.

278. See Delcker, *supra* note 3. This legal status would allow robots to be sued and insured individually, and obtain liability and protections separate from their creators. See *id.* Robots would not be full citizens with all rights of people. See *id.* For example, they would not have the right to marry. See *id.*; see also *supra* Part I.

279. See Burri, *supra* note 18; see also *supra* Part I.

280. See Delcker, *supra* note 3; see also *supra* Part I.

electronic personhood.<sup>281</sup> Therefore, no express intent, or even a consensus, exists to support extending legal personhood beyond a person.

C. *Inanimate Objects Cannot be Undercapitalized*

Autonomous decisions can increase military efficiency, yet they also yield questions of accountability.<sup>282</sup> In corporate law, when members of the board of directors of the corporation (rather than the corporation itself) become personally liable, the liability ensues under the piercing the corporate veil doctrine.<sup>283</sup> Undercapitalization, an important factor when deciding to pierce the corporate veil, refers to the deliberate choice to establish a shell corporation, without any viable assets, for the sole purpose of escaping personal liability.<sup>284</sup> However, autonomous systems cannot be pierced because, unlike corporations, autonomous systems are not financial liability shields. Autonomous systems are just extremely advanced pieces of technology; they do not hold financial assets. Inanimate objects cannot act to commit fraud, unlike corporations that conduct business in their own name.<sup>285</sup>

Piercing the corporate veil is appropriate when the totality of the circumstances indicates that the corporate form is being used to commit fraud or serve an injustice against the corporate form.<sup>286</sup> For example, in *OTR Associates v. IBC Services, Inc.*,<sup>287</sup> the New Jersey Superior Court appropriately pierced the corporate veil.<sup>288</sup> IBC had no assets except its lease with a parent corporation.<sup>289</sup> IBC was created for the sole purpose of insulating the parent corporation from liability.<sup>290</sup> Thus, the deliberately undercapitalized company demonstrated fraud as well as an abuse of the corporate form.<sup>291</sup>

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281. U.S. DoD Policy “allows commanders and operators to exercise appropriate levels of human judgment over the use of force.” See Perrigo, *supra* note 13. Russia also does not support regulation of these systems arguing that IHL is sufficient. See *id.* China has been silent. See *id.* However, The Campaign to Stop Killer Robots includes 22 countries who seek a pre-emptive ban on their use: Algeria, Argentina, Bolivia, Brazil, Chile, Costa Rica, Cuba, Ecuador, Egypt, Ghana, Guatemala, Holy See, Iraq, Mexico, Nicaragua, Pakistan, Panama, Peru, State of Palestine, Uganda, Venezuela, and Zimbabwe. See *Country Views on Killer Robots*, STOP KILLER ROBOTS (Nov. 16, 2017), <https://bit.ly/2NEqhmF>.

282. See Perrigo, *supra* note 13; see also Delcker, *supra* note 3.

283. See BRANSON ET AL., *supra* note 123, at 297; see also *supra* Section II.C.

284. See BRANSON ET AL., *supra* note 123, at 297–99; see also *supra* Section II.C.

285. See *supra* Section II.C.

286. See *supra* Section II.C.

287. See *OTR Assocs. v. IBC Servs., Inc.*, 801 A.2d 407, 412 (N.J. Super. Ct. App. Div. 2002).

288. See *id.*

289. See *id.* at 411.

290. See *id.*

291. See *id.* at 409–10.

Unlike the corporation in *OTR Associates*, an autonomous weapon system is not deliberately created to limit liability for the military.<sup>292</sup> Although similar to shell corporations, in that autonomous systems lack their own assets,<sup>293</sup> the reason for their lack of assets differs. Shell corporations often exist as limited liability loopholes.<sup>294</sup> On the contrary, weapons systems are pieces of technology that literally cannot hold or receive financial assets. Instead of attempting to dodge liability, autonomous systems expand military capabilities and minimize military risk by accessing previously inaccessible locations and removing humans from exceedingly dangerous missions.<sup>295</sup> Further, unlike a corporation that conducts business in its own name, a weapons system is a preprogrammed tool on the battlefield that only follows the commands of its operator.<sup>296</sup> Weapons systems do not fight as independent actors engaged in armed conflict.<sup>297</sup>

The inapplicability of piercing the corporate veil to weapons systems further distinguishes them from corporations and highlights how the corporate personhood analogy fails in this context.<sup>298</sup> Not only do different laws govern autonomous systems than those that regulate corporations,<sup>299</sup> but fundamental concepts of corporate law do not translate to regulating weapons. The fact that weapons systems do not have assets is not an indication of undercapitalization or fraud, but rather an inherent characteristic of military technology, or of any inanimate object. Ultimately, the inapplicability of a key method of corporate law further supports the argument against extending legal personhood to an entity distinct from a corporation.

#### D. Recommendation

Legal personhood should not extend to autonomous systems. To successfully extend this doctrine, corporate personhood would have to successfully function under IHL.<sup>300</sup> However, legal personhood does not translate to an international context because the considerations used to create a separate entity view of corporate personhood cannot apply to

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292. Compare Etzioni & Etzioni, *supra* note 68, at 72 with *OTR Assocs.*, 801 A.2d at 412.

293. A shell corporation is a corporation without active business and only exists to serve another company's business operations. *Shell Corporation*, BLACK'S LAW DICTIONARY (10th ed. 2014).

294. See BRANSON ET AL., *supra* note 123, at 297–99; see also *supra* Section II.C.

295. See *UNMANNED SYSTEMS INTEGRATED ROADMAP*, *supra* note 110, at 20; see also Etzioni & Etzioni, *supra* note 68, at 72.

296. See Perrigo, *supra* note 13.

297. See DYCUS ET AL., *supra* note 165, at 278.

298. See *supra* Section II.C.

299. See *supra* Section III.B.

300. See *supra* Section II.D.

weapon systems,<sup>301</sup> and customary international law indicates that the concept of personhood should be restricted to actual persons.<sup>302</sup> Further, piercing the corporate veil, a key doctrine within corporate law, could not apply under IHL given that some factors used to impose directors' liability, such as undercapitalization, cannot apply to inanimate objects.<sup>303</sup>

Although autonomous systems continue to make more independent decisions, governments and lawmakers should still view them only as advanced pieces of technology.<sup>304</sup> Despite their growing autonomy, at the end of the day, these systems are machines.<sup>305</sup> Because machines are not the functional equivalent of human persons in war,<sup>306</sup> their legal entity status should not be conflated with that assigned to actual persons.<sup>307</sup>

Thus, as legislatures react to AI's increasingly human characteristics, they should recognize that acting like a human does not merit the legal status of a human. Although corporations can perform functions similar to those of humans, such as entering into contracts,<sup>308</sup> corporations received a legal status specific to their role in business,<sup>309</sup> which evolved to reflect the appropriate status of how corporations operate.<sup>310</sup> Therefore, given that autonomous systems are just advanced machines on the battlefield, they do not merit a distinct legal entity status.

#### IV. CONCLUSION

Even though autonomous systems make increasingly independent decisions, the argument of granting them legal personhood is without merit. Although autonomous weapons systems engage in similar decision-making to that of humans,<sup>311</sup> that similarity on its own is not enough to justify granting them legal personhood.<sup>312</sup> Because autonomous weapons systems are weapons used in conflict, their use must comply with IHL.<sup>313</sup> Furthermore, as evidenced by *Kiobel* and *Mohamad*, IHL views legal personhood restrictively and would not support an extension to autonomous weapons systems.<sup>314</sup> Finally, the corporate law doctrine of

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301. *See supra* Section III.A.

302. *See supra* Section III.B.

303. *See supra* Section III.C.

304. *See supra* Part I.

305. The law does not recognize technological innovations as legal persons. *See Bayern, supra* note 1, at 93; *see also supra* Part I.

306. *See supra* Section III.B.

307. *See supra* Section III.B.

308. *See Ripken, supra* note 124, at 106; *see also supra* Section II.C.

309. *See supra* Section II.C.

310. *See supra* Section II.C.

311. *See supra* Section II.A.

312. *See supra* Section III.A–B.

313. *See supra* Section III.A.

314. *See supra* Section III.B.

piercing the corporate veil does not apply to autonomous systems.<sup>315</sup> Ultimately, the failed application of the corporate personhood analogy under IHL combined with the inapplicability of a key principle of corporate law indicates that extending legal personhood to autonomous weapons systems cannot succeed.<sup>316</sup> Autonomous weapons systems are machines, and they should not receive a distinct type of legal personhood.<sup>317</sup>

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315. *See supra* Section III.C.

316. *See supra* Part III.

317. *See supra* Section III.D.