

2019

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### Recommended Citation

Sandra Sawan Lara, *The iTunes of Downloadable Guns: Firearms as a First Amendment Right*, 28 Cath. U. J. L. & Tech 81 (2019).

Available at: <https://scholarship.law.edu/jlt/vol28/iss1/6>

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# THE iTUNES OF DOWNLOADABLE GUNS: FIREARMS AS A FIRST AMENDMENT RIGHT

*Sandra Sawan Lara\**

*“Guns de-horsed the aristocrats.”<sup>1</sup>*

For centuries, guns have been a controversial topic in society. The conversation about guns has predated modern arguments about Second Amendment rights.<sup>2</sup> While recently the argument has primarily focused on the limits to the constitutional right to bear arms, the right to bear arms would not exist without the right to innovate. The breakthrough of the firearm is not the gun itself, but the engineering and technological innovation that gun manufactures have spurred in the last two centuries.<sup>3</sup> As society enters the next two centuries, Americans no longer live in a world where gun powder is smuggled across enemy lines, but in a world where anyone can print a bullet at home. A world where these innovations have created new discussions about whether the Bill of Rights is one cohesive document and whether it should still be interpreted in that manner. A world where First and Second Amendment rights are constantly being scrutinized. Whether one identifies with people who

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<sup>1</sup> Interview with Cathal Nolan, Military Historian, B.U. (2011).

<sup>2</sup> Matt Jancer, *Gun Control Is as Old as the Old West*, SMITHSONIAN.COM (Feb. 5, 2018), <https://www.smithsonianmag.com/history/gun-control-old-west-180968013/>.

<sup>3</sup> Andrew Knighton, *These Technological Innovations Transformed the History of Handheld Firearms*, WAR HIST. ONLINE (Nov. 24, 2017), <https://www.warhistoryonline.com/guns/the-history-of-handheld-firearms.html>.

value one right over another, people who wish to limit individuals' rights, or people looking to remove any limits on individuals' rights, a changing society and technological innovations raise more questions than answers.

How do today's innovations change the discussions involving firearms and freedom of information? How is the ability to print three-dimensional ("3D") objects at home changing the way people view their most fundamental rights? While there are new ways to express oneself via coding, are the freedoms to create, innovate, share, and repeat not protected rights?

This Comment will show that coding expression is protected speech, the limits to which should be reviewed under a strict scrutiny standard. In addition, it will explore more efficient regulatory schemes for 3D printable firearm files that could pass strict scrutiny review and address the true problems faced. Section II of this Comment will provide background on the history of guns and a timeline leading up to 3D printed firearms. Section III will discuss the history of 3D printing and the open-source environment. Section IV will lay out the current constitutional law regarding speech as well as how coding and military coding are treated. Section V of the Comment will address issues with the current legal treatment of coding, specifically focusing on public safety and national security. Section VI will discuss state legislation that has been introduced to regulate 3D firearms, which appears to offer better alternatives than existing federal regulations. Section VII will conclude the C with a discussion of the repercussions of failing to change the way coding is treated.

## I. BACKGROUND

### A. Historical Significance of Firearms

Background knowledge on the crucial role guns have played in society is important to understanding why the sharing of manufacturing information should be protected speech.

From being traded on the Silk Road to becoming the contemporary center of technological development, firearms have been a part of human evolution for more than a thousand years.<sup>4</sup> Firearms first appeared in China during the ninth century with the creation of gunpowder and the Chinese fire lance.<sup>5</sup> By the fifteenth century, inventions such as the lock—the firing mechanism on guns—began to modify traditional weaponry on the battlefield.<sup>6</sup> Around this time, guns

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<sup>4</sup> Tonio Andrade, *The Age of Gunpowder*, 5 EMORY ENDEAVORS IN WORLD HIST. 1, 1-8 (2013).

<sup>5</sup> Harder, *supra* note 1.

<sup>6</sup> *Id.*

were becoming less expensive and more efficient, which allowed lower-class soldiers to become skilled gunners with little training.<sup>7</sup>

In 1835, Samuel Colt, a mechanical engineer, patented the first revolving cylinder firearm capable of shooting multiple rounds without having to be reloaded.<sup>8</sup> Often referred to as the gun that “won the West,” the cylinder firearm is credited with the success of American western expansion during the Texas Revolution and the Mexican-American War.<sup>9</sup> Colt marketed his gun as an essential part of the American frontier using the slogan, “God created men equal, Col. Colt made them equal. . . .”<sup>10</sup> He sold his gun to forty-niners heading to the gold rush, migrating settlers, Texas cowboys, and lawmen on the frontier.<sup>11</sup> Decades later and a year into the Civil War, Colt’s Patent Fire Arms Manufacturing Company had produced an estimated four hundred fifty thousand guns in sixteen different models.<sup>12</sup> Today, the company is known as Colt’s Manufacturing Company.<sup>13</sup> According to the Bureau of Alcohol, Tobacco, Firearms, and Explosives, in the year 2016, United States gun manufacturers produced almost 11.5 million firearms.<sup>14</sup> One man’s vision and the free flow of information shaped American history by allowing for the expansion of the nation, the protection of individuals, and the creation of an entire industry.

In 2013, a twenty-five year old American printed the first functioning 3D gun.<sup>15</sup> He founded a non-profit organization called Defense Distributed, claiming to be “the first private defense contractor in service of the general public” with the goal of advancing “small scale, digital, personal gunsmithing technology.”<sup>16</sup> In furtherance of this purpose, Defense Distributed uploaded to its website an open-source coded file with instructions on how to print a 3D

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<sup>7</sup> *Id.*

<sup>8</sup> Richard C. Rattenbury, *Samuel Colt American Inventor and Manufacturer*, ENCYCLOPEDIA BRITANNICA, <https://www.britannica.com/biography/Samuel-Colt> (last visited Sept. 15, 2019).

<sup>9</sup> *Samuel Colt*, WHO MADE AMERICA, [http://www.pbs.org/wgbh/theymadeamerica/whomade/colt\\_hi.html](http://www.pbs.org/wgbh/theymadeamerica/whomade/colt_hi.html) (last visited Sept. 15, 2019).

<sup>10</sup> *Id.*

<sup>11</sup> *Id.*

<sup>12</sup> Rattenbury, *supra* note 9.

<sup>13</sup> History.com Editors, *Samuel Colt*, HISTORY.COM (Nov. 9, 2009), <https://www.history.com/topics/inventions/samuel-colt>.

<sup>14</sup> Damien Paletta, *U.S. Gun Manufacturers Have Produced 150 Million Guns Since 1986*, DENVER POST (Feb. 23, 2018), <https://www.denverpost.com/2018/02/23/how-many-guns-are-there/>; BUREAU OF ALCOHOL, TOBACCO, FIREARMS, AND EXPLOSIVES, ANNUAL FIREARMS MANUFACTURING AND EXPORT REPORT (2016), <https://www.atf.gov/file/123801/download>.

<sup>15</sup> Andy Greenberg, *A Landmark Legal Shift Opens Pandora’s Box for DIY Guns*, WIRED (July 10, 2018), <https://www.wired.com/story/a-landmark-legal-shift-opens-pandoras-box-for-diy-guns/>.

<sup>16</sup> *Id.*; *About*, DEF. DISTRIBUTED, <https://defdist.org> (last visited Sept. 15, 2019).

firearm.<sup>17</sup> Within hours, the file had been downloaded over one hundred thousand times.<sup>18</sup> A few days later, Defense Distributed received a letter from the United States Department of State demanding that it remove the 3D printable file for the single-shot gun called the Liberator.<sup>19</sup> Today, gun innovation is not met with the open arms of Colt's generation. The Liberator's contributions to science and innovation are instead met with panic.

## II. A HISTORY OF 3D PRINTING: THE DRIVER OF INNOVATION

In order to understand the impact that open-source sharing of 3D files has on technological innovation, one must first understand the technology. Three-dimensional printing was created from a technology called additive manufacturing.<sup>20</sup> Additive manufacturing is the process of creating objects by placing layers on top of each other until there is a finalized product.<sup>21</sup> Between 1981 and 1999, scientists published the first accounts of functional rapid prototyping systems using something called photopolymers, a type of liquid synthetic material.<sup>22</sup> The research findings showed that when an ultraviolet laser beam hit the liquid photopolymer, the material transformed into hard plastic almost immediately.<sup>23</sup> In 1984, this process led to stereolithography.<sup>24</sup> Stereolithography is the process in which digital data uses the lasers and photopolymers to create a 3D object.<sup>25</sup> In layman's terms, 3D printing. At this

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<sup>17</sup> Greenberg, *supra* note 16.

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*; Andy Greenberg, *State Department Demands Takedown of 3D Printable Gun File for Possible Export Control Violations*, FORBES (May 9, 2013), <https://www.forbes.com/sites/andygreenberg/2013/05/09/state-department-demands-takedown-of-3d-printable-gun-for-possible-export-control-violation/#6219b3d375ff>.

<sup>20</sup> Dana Goldberg, *History of 3D Printing: It's Older than You Are (That Is, if You're Under 30)*, REDSHIFT (Apr. 13, 2018), <https://www.autodesk.com/redshift/history-of-3d-printing/>.

<sup>21</sup> Dibya Chakravorty, *What Is 3D Printing - Simply Explained*, ALL3DP, <https://all3dp.com/1/what-is-3d-printing/> (last visited Sept. 15, 2019).

<sup>22</sup> Goldberg, *supra* note 21; *What Are Photopolymers?*, PHOTOPOLYMERS, <https://photopolymer.com/> (last visited Sept. 24, 2019).

<sup>23</sup> Goldberg, *supra* note 21.

<sup>24</sup> *Id.*

<sup>25</sup> U.S. Patent No. 5,554,336 (filed June 5, 1995) ("Stereolithography is a method and apparatus for making solid objects by successively 'printing' thin layers of a curable material, e.g., a UV curable material, one on top of the other. A programmed movable spot beam of UV light shining on a surface or layer of UV curable liquid is used to form a solid cross-section of the object at the surface of the liquid. The object is then moved, in a programmed manner, away from the liquid surface by the thickness of one layer, and the next cross-section is then formed and adhered to the immediately preceding layer defining the object. This process is continued until the entire object is formed.").

time, the innovative technology was in its infancy.<sup>26</sup> The technology still had flaws, for example it produced imperfections when the material hardened, and the machines and materials were highly expensive.<sup>27</sup>

Since its creation, 3D printing technology has made incredible strides.<sup>28</sup> Between 1999 and 2010, the world of medicine witnessed its revolutionary effects.<sup>29</sup> For example, in 1999, a scientist at Wake Forest's Institute for Regenerative Medicine printed a human bladder, coated it with the patient's cells, and successfully implanted the bladder with little to no chance of the patient rejecting the organ.<sup>30</sup> Within those ten years, medicine also saw the rise of 3D printed prosthetics and functional mini kidneys.<sup>31</sup> The technology even led to the bioprinting of blood cells using only human cells.<sup>32</sup>

During this time period, 3D printing also collided with the open-source movement.<sup>33</sup> Open-source software gives users the freedom to make changes to technology and share it with developers and other users.<sup>34</sup> In fact, users have the ability to take the source code of the program they are using, modify it, and then distribute the new file.<sup>35</sup> This concept quickly moved through the developing world of 3D printing, allowing individuals to rapidly improve the relevant technology.<sup>36</sup> In 2005, Dr. Adrian Bowers' RepRap project launched an open-source 3D printer project.<sup>37</sup> The goal of the project was for contributors to help develop a 3D printer that was able to print its own parts and rebuild itself.<sup>38</sup> The

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<sup>26</sup> Goldberg, *supra* note 21.

<sup>27</sup> *Id.*; see also Mariella Moon, *What You Need to Know About 3-D Printed Organs*, ENGADGET (June 20, 2014), <https://www.engadget.com/2014/06/20/3d-printed-organ-explainer/?guccounter=1>.

<sup>28</sup> Goldberg, *supra* note 21.

<sup>29</sup> *Id.*

<sup>30</sup> *Id.*; see William Harris, *How 3-D Bioprinting Works*, HOWSTUFFWORKS, <https://health.howstuffworks.com/medicine/modern-technology/3-d-bioprinting1.htm> (last visited Sept. 15, 2019); see also Moon, *supra* note 28.

<sup>31</sup> Goldberg, *supra* note 21.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> Chris Hoffman, *What Is Open Source Software, and Why Does It Matter?*, HOW-TO GEEK (Sept. 26, 2016), <https://www.howtogeek.com/129967/htg-explains-what-is-open-source-software-and-why-you-should-care/> ("If a program is open-source, its source code is freely available to its users. Its users—and anyone else—have the ability to take this source code, modify it, and distribute their own versions of the program. The users also have the ability to distribute as many copies of the original program as they want. Anyone can use the program for any purpose; there are no licensing fees or other restrictions on the software."); see also *The Open Source Definition*, OPEN SOURCE INITIATIVE, <https://opensource.org/osd> (last visited Sept. 15, 2019).

<sup>35</sup> Hoffman, *supra* note 35; see also Bennett M. Sigmond, *Free/Open Source Software Licensing – Too Big to Ignore*, 34 COLO. L. 89, 90-91 (2005).

<sup>36</sup> Goldberg, *supra* note 21.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

result of the group project was Darwin, a self-replicating printer released in 2008.<sup>39</sup> Other open-source programs, like Kickstarter, have become widely used in today's society to fund new businesses and drive technological innovations.<sup>40</sup>

Since 2011, 3D printing has continued to evolve.<sup>41</sup> Creators of 3D printers continue to expand their innovative capabilities, while prices are quickly declining and efficiency is surging.<sup>42</sup> Today's printers even have the ability to print in materials other than plastic.<sup>43</sup> For example, innovators are printing homes for the developing world, smart robotic arms, and bone replacements.<sup>44</sup> The reality is, 3D printing technology is going to continue to grow and change, and it will be at the hands of individuals layering their knowledge on top of the knowledge of others, the same way materials are 3D printed until there is a finalized product.<sup>45</sup> In the future, children might be making school projects on 3D printers, which would parallel what past generations did when they started printing their book reports once household printers were introduced.<sup>46</sup>

With all of this in mind, one can see why individuals are scared of giving the public the ability to print a firearm. People fear an untraceable gun. A gun that can pass through a metal detector without being detected. A gun that is able to evade production and sales tracking. A gun that individuals can modify and print. These fears may seem reasonable considering the rapid growth of 3D printing. However, with fear there often comes drastic, unreasonable decisions that tend to infringe on basic principles of American society. In addition, the problems tied to the unpredictability of 3D printed firearms are not reasonable because these problems have solutions and are completely preventable. More specifically, regulation of the sale of printers and printing materials is constitutional and a rational solution to the problem of traceability.

This phase of innovation should not be led by fear, but by the principles that have governed firearm innovation since its inception in ancient Chinese times. The more innovation that is permitted, the more that can be learned about 3D

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<sup>39</sup> *Id.*

<sup>40</sup> *Id.* ("Kickstarter, which launched in 2009 and has since crowdfunded countless 3D-printing-related projects"); KICKSTARTER, <https://www.kickstarter.com/about?ref=global-footer> (last visited Sept. 12, 2019).

<sup>41</sup> Goldberg, *supra* note 21.

<sup>42</sup> *Id.*

<sup>43</sup> *Id.* ("Designers are no longer limited to printing with plastic. Case in point: You can now print the engagement ring of your dreams using gold or silver. Engineers at the University of Southampton have flown the world's first 3D printed unmanned aircraft, and KOR Ecologic prototyped Urbee, a car with a 3D printed body that's built to get 200 mpg on the freeway.").

<sup>44</sup> *Id.*

<sup>45</sup> *What Is 3D Printing?*, 3D PRINTING, <https://3dprinting.com/what-is-3d-printing/> (last visited Sept. 23, 2019); Goldberg, *supra* note 21.

<sup>46</sup> Goldberg, *supra* note 21.

printed weapons, and the better society can prepare for the real and more reasonable fear of not knowing how our enemies will use these weapons. The only way to achieve this greater level of innovation is to uphold the constitutionally protected right to scientific and innovative expression.

### III. SPEECH AND COMPUTER CODING

The First Amendment states, “Congress shall make no law . . . abridging the freedom of speech. . . .”<sup>47</sup> While freedom of speech is one of the most protected constitutional rights, if not the most protected, not all speech is considered to be protected speech.<sup>48</sup> Some forms of unprotected speech include: incitement, fighting words, hate speech, obscenity, and compelled speech.<sup>49</sup> However, these categories of unprotected speech are not far reaching, nor do the courts like creating new categories.<sup>50</sup> Rather, each category has a very narrow and strictly applied definition, and the courts only recognize forms of speech that fit within these historically defined categories.<sup>51</sup> If speech falls within one of the unprotected speech categories, the government can generally regulate the speech, and this regulation is reviewed under a rational basis standard of scrutiny.<sup>52</sup> Even then, if the government’s regulation of unprotected speech is discriminatory toward content or viewpoint, the regulation will be subject to a strict scrutiny analysis.<sup>53</sup>

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<sup>47</sup> U.S. CONST. amend. I.

<sup>48</sup> Katherine A. Moerke, *Free Speech to a Machine—Encryption Software Code Is Not Constitutionally Protected Speech Under the First Amendment*, 84 MINN. L. REV. 1007, 1012-13 (2000).

<sup>49</sup> *Id.* at 1013-14 (recognizing that the Supreme Court has carved out these specific categories of unprotected speech and arguing that software source code is not protected speech, but also recognizing that the Supreme Court has “afford[ed] robust protections to the Internet, as a new mode of communication”).

<sup>50</sup> *United States v. Stevens*, 559 U.S. 460, 472 (2010) (stating prior decisions of what constitutes free speech “cannot be taken as establishing a freewheeling authority to declare new categories of speech outside the scope of the First Amendment”).

<sup>51</sup> *Brown v. Entm’t Merchs. Ass’n*, 564 U.S. 786, 791 (2011) (citing *United States v. Stevens*, 559 U.S. 460); *see Stevens*, 559 U.S. at 468-69 (“From 1791 to the present, however, the First Amendment has ‘permitted restrictions upon the content of speech in a few limited areas,’ and has never ‘include[d] a freedom to disregard these traditional limitations.’ These ‘historic and traditional categories long familiar to the bar,’—including obscenity, defamation, fraud, incitement, and speech integral to criminal conduct—are well-defined and narrowly limited classes of speech, the prevention and punishment of which have never been thought to raise any Constitutional problem.”) (citations omitted).

<sup>52</sup> 16A C.J.S. *Constitutional Law* § 841 (2019); *see State v. Crawley*, 819 N.W.2d 94, 118 (Minn. 2012).

<sup>53</sup> *R.A.V. v. City of St. Paul*, 505 U.S. 377, 384-85 (1992) (stating the Supreme Courts cases “surely do not establish the proposition that the First Amendment imposes no obstacle whatsoever to regulation of particular instances of such proscribable expression, so that the government may regulate them freely. That would mean that a city could enact an ordinance

Generally, protected speech cannot be restricted or regulated, and laws that regulate protected speech are reviewed under a strict scrutiny standard.<sup>54</sup> Strict scrutiny requires a law to be narrowly tailored to achieve a compelling government interest.<sup>55</sup> However, some regulations of protected speech are reviewed under different levels of scrutiny.<sup>56</sup> For example, time, place, and manner restrictions are reviewed under rational basis scrutiny and are generally permissible, so long as they are content neutral, serve a significant government interest, and leave open ample alternative channels of communication.<sup>57</sup> The main distinction allowing for regulation of protected speech is whether the regulation is content neutral rather than content based.<sup>58</sup> Content-based regulations are presumptively invalid and subject to “the most exacting scrutiny.”<sup>59</sup> Content-neutral regulations are generally permissible and subject to intermediate scrutiny, which means that for a regulation to be permissible, it must be substantially related to the achievement of an important government interest.<sup>60</sup>

While the regulation of guns is protected by the Second Amendment, sharing materials that explain how to make guns is considered speech protected by the First Amendment.<sup>61</sup> The analysis then turns on three main issues: (1) whether a 3D printing file is protected speech, (2) whether the existing regulations are content neutral, and (3) whether each existing regulation passes its required level of scrutiny?

#### A. Coding and Computer Software as Speech

The question of whether source code is speech is an important one that arises

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prohibiting only those legally obscene works that contain criticism of the city government or, indeed, that do not include endorsement of the city government. Such a simplistic, all-or-nothing-at-all approach to First Amendment protection is at odds with common sense and with our jurisprudence as well”).

<sup>54</sup> *Brown*, 564 U.S. at 799.

<sup>55</sup> *Id.*

<sup>56</sup> 16A C.J.S. *Constitutional Law* § 844 (2019).

<sup>57</sup> *Id.*; see *Frisby v. Schultz*, 487 U.S. 474, 488 (1998); *City of Ladue v. Gilleo*, 512 U.S. 43, 59 (1994).

<sup>58</sup> 16A C.J.S. *Constitutional Law* § 844 (2019); see *Texas v. Johnson*, 491 U.S. 397, 401-04 (1989); *Clark v. Cmty. for Creative Non-Violence*, 104 S. Ct. 3065, 3079 (1984); *United States v. O’Brien*, 391 U.S. 367, 376-77 (1968).

<sup>59</sup> 16A C.J.S. *Constitutional Law* § 844 (2019); see *People v. Jones*, 721 N.E.2d. 546, 550 (Ill. 1999).

<sup>60</sup> 16A C.J.S. *Constitutional Law* § 844 (2019); see *Ward v. Rock Against Racism*, 491 U.S. 781, 791 (1989).

<sup>61</sup> *City of Seattle v. Evans*, 366 P.3d 906, 910-11 (Wash. 2015).

in various contexts.<sup>62</sup> People create software that operates computers by writing source code in different software languages.<sup>63</sup> Two main areas have presented challenges to government regulation of source code: (1) regulations on violent video games, and (2) regulations on the export of encryption software (mainly software that allows for concealed electronic communication).<sup>64</sup> These challenges have given the Supreme Court the opportunity to review the constitutionality of these regulations.<sup>65</sup>

*i. Video Game Source Coding*

One of the main areas in which the Supreme Court has dealt with source code is in the video game context. Historically, the Supreme Court has held that computer coding is protected speech when it is used for expressing creative information, such as virtual reality or video game content.<sup>66</sup> For example, in *Brown v. Entertainment Merchants Association* and *Reno v. American Civil Rights Union*, the court struck down content-based regulations on violent video games, upholding constitutional protections for video game source coding when the coding's outcome is expressive or artistic.<sup>67</sup>

In *Brown*, video game and software industries challenged the constitutionality of a California law that prohibited the sale or rental of violent video games.<sup>68</sup> The Supreme Court struck down the law, concluding that video games were a protected means of expression and an outright ban was unconstitutional.<sup>69</sup> Specifically, the court concluded that the law did not meet strict scrutiny, stating:

Because the Act imposes a restriction on the content of protected speech, it is invalid unless California can demonstrate that it passes strict scrutiny—that is, unless it is justified by a compelling government interest and is narrowly drawn to serve that interest. The State must specifically identify an actual problem in need of solving, and the curtailment of free speech must be actually necessary to the solution.<sup>70</sup>

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<sup>62</sup> Moerke, *supra* note 49, at 1007.

<sup>63</sup> *Id.*; Ian Buckley, *What Is Coding and How Does It Work?*, MAKE USE OF (Mar. 25, 2019), <http://www.makeuseof.com/tag/what-is-coding/>.

<sup>64</sup> Moerke, *supra* note 49, at 1007.

<sup>65</sup> *Id.*

<sup>66</sup> *Brown v. Entm't Merchs. Ass'n*, 564 U.S. 786, 789-90 (2011); *Reno v. ACLU*, 521 U.S. 844, 874 (1997); *Roth v. United States*, 354 U.S. 476, 484 (1957).

<sup>67</sup> *Brown*, 564 U.S. at 790-91 (“The most basic of those principles is this: as a general matter...government has no power to restrict expression because of its message, its ideas, its subject matter, or its content.”) (internal quotations omitted); *Reno*, 521 U.S. at 849-52.

<sup>68</sup> *Brown*, 564 U.S. at 789-90.

<sup>69</sup> *Id.* at 799.

<sup>70</sup> *Id.*

After analyzing whether California was pursuing its stated interest in any way, the court concluded that the law was not narrowly tailored because of both under and over inclusiveness.<sup>71</sup> The law was under inclusive because it prevented minors from accessing violent information through video games, but not through alternative means.<sup>72</sup> It was over inclusive because it abridged the First Amendment rights of minors, and the rights of parents who believe violent video games are a “harmless pastime.”<sup>73</sup> The Supreme Court thought both raised serious doubts that the law was pursuing the interest the government was invoking and not simply disfavoring a particular viewpoint.<sup>74</sup> Ultimately, the court reiterated that strict scrutiny “is a demanding standard” and “it is rare that a regulation restricting speech because of its content will ever be permissible.”<sup>75</sup>

Similarly, in *Reno*, the American Civil Rights Union (“ACLU”) challenged the constitutionality of a content-based law.<sup>76</sup> The ACLU challenged the anti-indecency provisions of the Communications Decency Act (“CDA”), which sought to protect minors from certain material on the internet.<sup>77</sup> The “patently offensive display” provision prohibited knowingly sending or displaying “patently offensive” messages in a manner that made them available to a minor.<sup>78</sup> The government attempted, and ultimately failed, to defend the provisions by arguing that they were reasonable time, place, and manner restrictions.<sup>79</sup>

The Supreme Court held the challenged provisions unconstitutional on two grounds: (1) the provisions constituted content-based restrictions and therefore could not be reasonable time, place, and manner restrictions;<sup>80</sup> and (2) the provisions were facially overbroad.<sup>81</sup> The court reached its conclusion based on

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<sup>71</sup> *Id.*; *R.A.V. v. City of St. Paul*, 505 U.S. 377, 381, 387 (1992).

<sup>72</sup> *Brown*, 564 U.S. at 801-02.

<sup>73</sup> *Id.* at 804.

<sup>74</sup> *Id.* at 802.

<sup>75</sup> *Id.* at 799.

<sup>76</sup> *Reno v. ACLU*, 521 U.S. 844, 849 (1997).

<sup>77</sup> *Id.* at 845, 849, 861.

<sup>78</sup> *Id.* at 858-61.

<sup>79</sup> *Id.* at 879-80; *accord* Brief for Appellants at 27-33, *Reno v. ACLU*, 521 U.S. 844 (1997) (No. 96-511); Reply Brief for Appellants at 8-9, 12-16, *Reno v. ACLU*, 521 U.S. 844 (1997) (No. 96-511).

<sup>80</sup> *Reno*, 521 U.S. at 868.

<sup>81</sup> *Id.* at 867-68 (concluding that time, place and manner restrictions are usually permissible unless they are content-based. The government tried to further argue the CDA was a reasonable time, place, and manner restriction by comparing it to zoning laws that were upheld in *City of Renton v. Playtime Theaters, Inc.* Distinguishing the case, the court held: “In *Renton*, we upheld a zoning ordinance that kept adult movie theaters out of residential neighborhoods. The ordinance was aimed, not at the content of the films shown in the theaters, but rather at the ‘secondary effects’—such as crime and deteriorating property values—that these theaters fostered: “It is the secondary effect which these zoning

the following facts: (1) the provisions did not allow the parents of the minors to purchase the video games for their children; (2) the provisions applied to all transactions and contained no limitations for solely commercial transactions; and (3) the provisions did not contain a definition of “indecent” or a requirement that the content must lack serious literary, artistic, political, or scientific value.<sup>82</sup>

The court’s legal analysis highlights the various issues that content-based regulations raise in society. In this specific case, the court emphasized how these issues are compounded when the content-based regulation is the result of a fear of new technology, such as the internet.<sup>83</sup> Stressing the importance of maintaining constitutional rights, the court stated:

The record demonstrates that the growth of the Internet has been and continues to be phenomenal. As a matter of constitutional tradition, in the absence of evidence to the contrary, we presume that governmental regulation of the content of speech is more likely to interfere with the free exchange of ideas than to encourage it. The interest in encouraging freedom of expression in a democratic society outweighs any theoretical but unproven benefit of censorship.<sup>84</sup>

While neither of these cases was about the coding itself, and each instead focused on the artistic expression of the content of the coding, both cases give the impression that the court views video game source coding as expression. If the Supreme Court did not view coding as expression, there would have been no need for it to dive into the content or the product that the coding created. In conclusion, the court is clear that literary, artistic, political, or scientific expression through video game coding is considered protected speech and cannot be regulated unless: (1) the regulation meets strict scrutiny; or (2) the regulation constitutes a reasonable time, place, and manner restriction.

*ii. Nonmilitary Computer Source Code and the Courts*

It is easy to see how coding in a video game creates something that is creative

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ordinances attempt to avoid, not the dissemination of ‘offensive’ speech.” According to the Government, the CDA is constitutional because it constitutes a sort of ‘cyberzoning’ on the Internet. But the CDA applies broadly to the entire universe of cyberspace. And the purpose of the CDA is to protect children from the primary effects of ‘indecent’ and ‘patently offensive’ speech, rather than any ‘secondary’ effect of such speech. Thus, the CDA is a content-based blanket restriction on speech, and, as such, ‘cannot be properly analyzed as a form of time, place, and manner regulation.’ “ (quoting *City of Renton v. Playtime Theaters, Inc.*, 475 U.S. 41 (1986)).

<sup>82</sup> *Id.* at 871-72 (“The vagueness of the CDA is a matter of special concern [because] the CDA is a content-based regulation of speech. The vagueness of such a regulation raises special First Amendment concerns because of its obvious chilling effect on free speech.”).

<sup>83</sup> *Id.* at 885.

<sup>84</sup> *Id.*

or expressive. However, there are three other aspects of coding that create more difficult constitutional questions: (1) source and object code, (2) encryption, and (3) cryptography.

Source code, whether in a 3D printer or in a video game, is used to communicate instructions that direct a computer to complete a task.<sup>85</sup> It can be written in a number of languages; some of the most popular languages are Python, Java, and C.<sup>86</sup> These are specialized programming languages that humans can read if they are familiar with them; it is the same as being fluent in a different language.<sup>87</sup> Source code can also contain notes and comments for the reader and serve as a manual.<sup>88</sup> On its own however, source code cannot actually cause a computer to undertake an action.<sup>89</sup> This is similar to how speech in any language does not necessarily compel an individual to commit a specific action. Instructions written in source code are then used to write object code.<sup>90</sup> This object code is then able to make a computer execute the source code's instructions.<sup>91</sup> Source and object code are just the beginning of this puzzle and are used in a number of different ways.

In addition, source and object code are both used to create encrypted software. People often create codes and, in most instances, they then share them over the internet as encrypted codes.<sup>92</sup> Encryption is the process of converting a plain text file, like a Microsoft Word document, into a scrambled form.<sup>93</sup> This is accomplished through the use of encryption software, which is written with code.<sup>94</sup> Once the encrypted file is shared, the authorized reader can use a

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<sup>85</sup> *Source Code Definition by Linux*, LINUX, [http://www.linfo.org/source\\_code.html](http://www.linfo.org/source_code.html) (last visited Sept. 15, 2019).

<sup>86</sup> *Id.*

<sup>87</sup> Joe Pappalardo, *The Air Force Will Treat Computer Coding Like a Foreign Language*, POPULAR MECHANICS (Sept. 13, 2018), <https://www.popularmechanics.com/technology/security/a23116594/air-force-coding-programming-language-mike-kanaan/>; Lynn Hater, *French, Spanish, German ... Java? Making Coding Count As a Foreign Language*, NPR (Mar. 1, 2016), <https://www.npr.org/sections/ed/2016/03/01/468695376/french-spanish-german-java-making-coding-count-as-a-foreign-language>.

<sup>88</sup> *Source Code Definition by Linux*, *supra* note 86.

<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

<sup>91</sup> *Difference Between Source Code and Object Code*, THE CRAZY PROGRAMMER, <https://www.thecrazyprogrammer.com/2018/05/source-code-and-object-code.html> (last visited Sept. 12, 2019).

<sup>92</sup> Moerke, *supra* note 49, at 1008; *Difference Between Cryptography vs Encryption*, EDUCBA, <https://www.educba.com/cryptography-vs-encryption/> (last visited Apr. 11, 2019).

<sup>93</sup> Moerke, *supra* note 49, at 1018-19; *Difference Between Cryptography vs Encryption*, *supra* note 93; *Junger v. Daley*, 209 F.3d 481, 482 (6th Cir. 2000).

<sup>94</sup> Moerke, *supra* note 49, at 1019; *Difference Between Cryptography vs Encryption*, *supra* note 93.

decryption key (also written with code) to decrypt the file and read the plain text version.<sup>95</sup> This process of encrypting, sharing, and decrypting is called cryptography.<sup>96</sup>

Legal challenges to the regulation of code, encryption, and cryptography are often associated with the Export Administration Regulations (“EAR”).<sup>97</sup> These regulations create a “licensing scheme to control the export of nonmilitary technology, software, and commodities.”<sup>98</sup> These regulations are structured around the Commodity Control List, which includes both source code and object code.<sup>99</sup> In addition, encryption and cryptography technologies are regulated for national security reasons.<sup>100</sup> Any item on the list requires a license issued by the government in order to be exported.<sup>101</sup> Challenges to these regulations have raised questions as to whether they violate the First Amendment; these challenges argue that source code is a “highly-structured text in which computer programs are written” and is constitutionally protected speech.<sup>102</sup> The ninth and sixth circuits have addressed these constitutional concerns.<sup>103</sup>

In *Bernstein v. United States Department of Justice*, the Court of Appeals for the Ninth Circuit upheld a lower court ruling that source code is protected speech.<sup>104</sup> While the court ultimately entered summary judgment on procedural grounds, it concluded that “source code is utilized by those in the cryptography field as a means of expression,” and therefore, any regulation that applies to this expression is “burdening a particular form of expression directly.”<sup>105</sup>

In *Bernstein*, a mathematics professor attempted to publish his research and

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<sup>95</sup> Moerke, *supra* note 49, at 1018-19; *Difference Between Cryptography vs Encryption*, *supra* note 93.

<sup>96</sup> *Difference Between Cryptography vs Encryption*, *supra* note 93.

<sup>97</sup> Moerke, *supra* note 49, at 1021; *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d 1132, 1136-37 (9th Cir. 1999), *reh’g granted*, 192 F.3d 1308 (9th Cir. 1999); *see generally* *Bernstein v. U.S. Dep’t of Commerce*, No. C 95-0582, 2004 U.S. Dist. LEXIS 6672, at \*5 n.2 (N.D. Cal. Apr. 19, 2004) (granting summary judgment on July 28, 2003, on procedural grounds); *Junger v. Daley*, 209 F.3d 381, 483 (6th Cir. 2000).

<sup>98</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1136; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1 (granting summary judgment on July 28, 2003, on procedural grounds); *Junger*, 209 F.3d at 483.

<sup>99</sup> *Junger*, 209 F.3d at 483 (discussing nuclear materials, facilities, and equipment; materials for processing; computers and computer related equipment; sensors and lasers; and marine equipment).

<sup>100</sup> Moerke, *supra* note 49, at 1007-08; *Junger*, 209 F.3d at 483.

<sup>101</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1138; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1 (granting summary judgment on Jul. 28, 2003, on procedural grounds); *Junger*, 209 F.3d at 483.

<sup>102</sup> Moerke, *supra* note 49, at 1008.

<sup>103</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1136; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1; *Junger*, 209 F.3d at 485.

<sup>104</sup> Moerke, *supra* note 49, at 1008; *see* *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1136; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1.

<sup>105</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1142.

development of an encryption method online along with the source code he used to write the encryption method.<sup>106</sup> The government argued that the EAR included as an “export” the sharing of the professor’s source code on the “internet and other global mediums if such publication[s] would allow passive or active access by a foreign national within the United States or anyone outside the United States.”<sup>107</sup> Thus, the government believed the professor was required to obtain a prepublication license.<sup>108</sup> The government’s substantive argument failed as the court reasoned that:

Cryptographers use source code to express their scientific ideas in much the same way that mathematicians use equations or economists use graphs. Of course, both mathematical equations and graphs are used in other fields for many purposes, not all of which are expressive. But mathematicians and economists have adopted these modes of expression in order to facilitate the precise and rigorous expression of complex scientific ideas. Similarly, the undisputed record here makes it clear that cryptographers utilize source code in the same fashion.<sup>109</sup>

The court then extensively discussed the expressive nature of source code, concluding that “the distinguishing feature of source code is that it is meant to be read and understood by humans, and that it cannot be used to control directly the functioning of a computer.”<sup>110</sup>

In *Junger v. Daley*, the sixth circuit held that “computer source code is an expressive means for the exchange of information and ideas about computer programming” and “is protected by the First Amendment.”<sup>111</sup> In this case, the EAR required a professor at Case Western University School of Law to obtain a license in order to post encryption source code as part of his online class about computers and the law.<sup>112</sup> Technically, the regulation at issue designated the material posted by the professor as an “export” of a restricted technology.<sup>113</sup> In reviewing the First Amendment challenge, the court recognized the difficulty it

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<sup>106</sup> *Id.* at 1135-36; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1.

<sup>107</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1137-38; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1.

<sup>108</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1137-38; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1.

<sup>109</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1143; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1.

<sup>110</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d at 1142; *Bernstein v. U.S. Dep’t of Commerce*, 2004 U.S. Dist. LEXIS 6672, at \*1.

<sup>111</sup> *Junger v. Daley*, 209 F.3d 381, 485 (6th Cir. 2000).

<sup>112</sup> *Id.* at 483.

<sup>113</sup> *Id.* at 484.

faceted because source code has both expressive and functional aspects.<sup>114</sup> However, the court cited Supreme Court precedent and compared source code to other forms of protected speech that have both functional and expressive aspects.<sup>115</sup> For example, the sixth circuit focused heavily on how source code compares to a musical score.<sup>116</sup> While “a musical score cannot be read by the majority of the public,” such a score “can be used as a means of communication among musicians.”<sup>117</sup> The sixth circuit then found computer code to be very similar, stating that “though unintelligible to many, [it] is the preferred method of communication among computer programmers.”<sup>118</sup>

While the academic and scientific value of professors sharing their research and knowledge is quite different than the creative value of video games, two federal circuit courts have held that computer code has First Amendment protections in both of these instances.<sup>119</sup> These cases further support coding being considered protected speech. Similar to coding a video game or a diskette, coding a 3D printable firearm file should be considered protected speech.

### iii. *Military Computer Source Code and the Courts*

While non-military technologies are regulated by EAR, military technologies are regulated by the International Traffic in Arms Regulations (“ITAR”).<sup>120</sup> This regulatory scheme contains the United States Munitions List (“USML”), a list which provides information on and descriptions of items and services that are designated as “defense articles.”<sup>121</sup> The USML describes cryptographic technologies as:

- (b) Information Security Systems and equipment, cryptographic

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<sup>114</sup> *Id.*

<sup>115</sup> *Id.* (“The Supreme Court has explained that all ideas having even the slightest redeeming social importance, including those concerning the advancement of truth, science, morality, and arts have the full protection of the First Amendment. This protection is not reserved for purely expressive communication. The Supreme Court has recognized First Amendment protection for symbolic conduct, such as draft-card burning, that has both functional and expressive features. The Supreme Court has expressed the versatile scope of the First Amendment by labeling as ‘unquestionably shielded the artwork of Jackson Pollack, the music of Arnold Schoenberg, or the Jabberwocky verse of Lewis Carroll.’ Though unquestionably expressive, these things identified by the Court are not traditional speech.”).

<sup>116</sup> *Id.*

<sup>117</sup> *Id.*

<sup>118</sup> *Id.*

<sup>119</sup> *Bernstein v. U.S. Dep’t of Justice*, 176 F.3d 1132, 1136 (9th Cir. 1999), *reh’g granted*, 192 F.3d 1308 (9th Cir. 1999); *Junger v. Daley*, 209 F.3d 381, 485 (6th Cir. 2000).

<sup>120</sup> *Karn v. U.S. Dep’t of State*, 925 F. Supp. 1, 4-5, 7 (D.D.C. 1996).

<sup>121</sup> *Karn*, 925 F. Supp. at 4; *see also What Is ITAR?*, GOV’T REL., LLC, <https://gov-relations.com/itar/> (last visited Sept. 13, 2019).

devices, software, and components specifically designed or modified therefor, including: (1) Cryptographic ... systems, equipment, assemblies, modules, integrated circuits, components or software with the capability of maintaining secrecy or confidentiality of information or information systems.<sup>122</sup>

If an item is covered by ITAR, the person manufacturing or exporting the item needs to register with the Directorate of Defense Trade Controls (“DDTC”).<sup>123</sup> This raises the issue of how source code can be deemed protected speech by the courts when it comes to EAR, yet still be so heavily regulated by ITAR. In direct contradiction to the sixth and ninth circuit decisions regarding the EAR, the United States District Court for the District of Columbia has held that despite source code being speech, ITAR is a content-neutral regulatory scheme that meets intermediate scrutiny.<sup>124</sup> In *Karn v. United States Department of State*, the district court held that a diskette with source code supplementing a book about cryptographic techniques and protocols was subject to ITAR, and this regulation did not violate the individual’s First Amendment rights.<sup>125</sup> The court rejected the argument that the distinction between source code and object code made a difference and gave source code full First Amendment protections.<sup>126</sup>

In conclusion, source code is protected speech according to the sixth and ninth circuits; however, some courts still fail to recognize full First Amendment protections for source code that is classified as military source code. Furthermore, a 3D printing file is source code that needs to be converted into object code before a 3D printer can actually create an object. Circuit court precedent shows that such a file should be considered protected speech. Moreover, while the courts have been reluctant to decide that ITAR is a content-based regulatory regime, constitutional analysis shows that this is the case. Lastly, the only difference between ITAR and EAR is the content of the source code being regulated. The question remains, is the source code file containing

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<sup>122</sup> *Karn*, 925 F. Supp. at 5.

<sup>123</sup> *Karn*, 925 F. Supp. at 4; *What Is ITAR?*, *supra* note 122.

<sup>124</sup> *Karn*, 925 F. Supp. at 10-11.

<sup>125</sup> *Id.* at 10.

<sup>126</sup> *Id.* (“The government regulation at issue here is clearly content-neutral. The defendants’ rationale for regulating the export of the diskette is that the proliferation of cryptographic hardware and software will make it easier for foreign intelligence targets to deny the United States Government access to information vital to national security interests. The defendants are not regulating the export of the diskette because of the expressive content of the comments and or source code, but instead are regulating because of the belief that the combination of encryption source code on machine readable media will make it easier for foreign intelligence sources to encode their communications. The government considers the cryptographic source code contained on machine-readable media as cryptographic software and has chosen to regulate it accordingly.”) (internal quotation marks omitted).

instructions for a 3D printed gun protected speech?

B. Protected Speech and Defense Distributed in the Courts

i. *The Texas Lawsuit and Preliminary Injunction*

The question of whether or not Americans have freedom of speech rights with respect to guns first arose when Defense Distributed filed a lawsuit against the United States Department of State challenging the implementation of the ITAR governing the “export of defense articles.”<sup>127</sup> The company argued that the USML restrictions on exporting technical data violated its First Amendment rights because the files at issue were protected speech.<sup>128</sup> The government responded, arguing that even if the files were protected speech, ITAR is a content-neutral regulatory regime and the regulations meet their required burden to pass constitutional muster.<sup>129</sup> This lawsuit ended in a settlement after the court’s denial of the plaintiffs’ request for a preliminary injunction.<sup>130</sup>

In 2015, the United States District Court for the Western District of Texas denied Defense Distributed’s motion for a preliminary injunction that would have allowed the organization to continue to distribute the 3D printing file for the Liberator, online.<sup>131</sup> In order for the plaintiffs to succeed, they needed to carry their burden and establish the following four elements:

- (1) a substantial likelihood of success on the merits; (2) a substantial threat that failure to grant the injunction will result in irreparable injury; (3) that the threatened injury out-weighs any damage that the injunction may cause the opposing party; and (4) that the injunction will not disserve the public interest.<sup>132</sup>

The court’s decision ultimately turned on the last two elements of the test.<sup>133</sup> These two prongs require weighing the public’s interest against the private interests of the parties.<sup>134</sup> In order to satisfy this weighing test, Defense Distributed needed to provide proof that the threatened injury of denying the

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<sup>127</sup> *Def. Distributed v. U.S. Dep’t of State*, 121 F. Supp. 3d 680, 686 (W.D. Tex. 2015).

<sup>128</sup> *Id.* at 687.

<sup>129</sup> *Id.* at 693-94.

<sup>130</sup> *See generally id.* at 701 (“Plaintiffs’ Motion for Preliminary Injunction (Clerk’s Dkt. #7) is hereby DENIED.”).

<sup>131</sup> Greenberg, *supra* note 16; *see also Def. Distributed*, 121 F. Supp. 3d at 701 (“Plaintiffs’ Motion for Preliminary Injunction (Clerk’s Dkt. #7) is hereby DENIED.”).

<sup>132</sup> *Def. Distributed*, 121 F. Supp. 3d at 688 (citing *Hoover v. Morales*, 146 F.3d 304, 307 (5th Cir. 1998); *Wenner v. Tex. Lottery Comm’n*, 123 F.3d 321, 325 (5th Cir. 1997); *Cherokee Pump & Equip. Inc. v. Aurora Pump*, 38 F.3d 246, 249 (5th Cir. 1994)).

<sup>133</sup> *Def. Distributed*, 121 F. Supp. 3d at 689.

<sup>134</sup> *Id.*

injunction out-weighed any damage the injunction might cause to the government's interests.<sup>135</sup> This proved to be a difficult element for the plaintiffs to establish because the government was asserting that the regulations were put in place to further its interest in protecting the public "by limiting [the] access of foreign nationals to defense articles."<sup>136</sup> Nevertheless, Defense Distributed argued that this balance tilted in its favor for two reasons.<sup>137</sup> First, it asserted, "It is always in the public interest to prevent the violation of a party's constitutional rights."<sup>138</sup> Second, it asserted that the injunction would not stop the government from "controlling the export of classified information."<sup>139</sup>

While the district court considered the files to be subject to First Amendment protections, it was not convinced by either of Defense Distributed's claims.<sup>140</sup> The court agreed with the first assertion, but it believed that this claim still failed to consider the "public's keen interest" in restricting the export of defense articles.<sup>141</sup> With respect to the second assertion, the court took issue with the parties' conflicting views of whether posting files on the internet for free download constituted "export."<sup>142</sup> The court stated that because Defense Distributed failed to address this contradictory belief standing in sharp contrast with the government's asserted public interest, it failed to meet its burden with respect to the last two prongs of the test.<sup>143</sup>

While the court could have stopped there, "in an abundance of caution" it continued to analyze whether the plaintiffs could be successful on the merits.<sup>144</sup> This analysis was crucial to Defense Distributed's claims and it is critical to this Comment's discussion.

Defense Distributed focused its challenge on the State Department's interpretation of the Arms Export Control Act ("AECA").<sup>145</sup> Under this act, "the president is authorized to control the import and the export of defense articles and defense services" and to "promulgate regulations for the import and export of such articles and services."<sup>146</sup> "AECA imposes both civil and criminal

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<sup>135</sup> *Id.* at 688 (citing *Hoover v. Morales*, 146 F.3d 304, 307 (5th Cir. 1998); *Wenner v. Tex. Lottery Comm'n*, 123 F.3d 321, 325 (5th Cir. 1997); *Cherokee Pump & Equip. Inc. v. Aurora Pump*, 38 F.3d 246, 249 (5th Cir. 1994); *Canal Auth. of Fla. v. Callaway*, 489 F.2d 567, 572 (5th Cir. 1974)).

<sup>136</sup> *Def. Distributed*, 121 F. Supp. 3d at 689.

<sup>137</sup> *Id.*

<sup>138</sup> *Id.*

<sup>139</sup> *Id.*

<sup>140</sup> *Id.*

<sup>141</sup> *Id.* at 690.

<sup>142</sup> *Id.*

<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> *Id.*

<sup>146</sup> 22 U.S.C. § 2778(a)(1) (2012).

penalties for any violations of its provisions and subsequent regulations.”<sup>147</sup> The president “delegated his authority to promulgate [regulations under this act]” to the secretary of state.<sup>148</sup> These promulgated regulations are part of ITAR and are administered by the DDTC in the United States Department of State.<sup>149</sup>

AECA dictates that the “defense articles” designated under the act make up the USML.<sup>150</sup> This list is not a comprehensive list of specifically controlled items, it is rather “a series of categories describing the kinds of items” that qualify as “defense articles.”<sup>151</sup> Promulgated regulations have further defined “defense articles” to include “technical data recorded or stored in any physical form, models, mockups, or other items that reveal technical data directly relating to items designated in the USML.”<sup>152</sup> If a party is still unsure whether a particular item meets this definition, the regulation provides for a process in which the party can request a determination on the item.<sup>153</sup> This is the regulation the plaintiffs’ challenge rests on.<sup>154</sup>

Defense Distributed argued that this interpretation of AECA violated its First Amendment right to free speech.<sup>155</sup> The main point of contention between the parties was whether the computer files at issue constituted speech.<sup>156</sup> While the court did not make a decision on this issue, it decided to treat the 3D printing files as entitled to the protection of the First Amendment for purposes of the preliminary injunction analysis.<sup>157</sup> The court then focused its analysis on the level of protection afforded to the files at issue.<sup>158</sup> Defense Distributed argued that any regulation related to the files should be evaluated under a strict scrutiny standard because regulations under ITAR are content based.<sup>159</sup> While the court

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<sup>147</sup> *Id.* § 2778(c)-(e); *Def. Distributed*, 121 F. Supp. 3d at 686.

<sup>148</sup> Exec. Order No. 13637, 3 C.F.R. § 13637(1)(n)(i) (2013); 22 C.F.R. § 120.1(a) (2011); *Def. Distributed*, 121 F. Supp. 3d at 686.

<sup>149</sup> 22 C.F.R. § 120.1(a) (2011).

<sup>150</sup> 22 U.S.C. § 2778(a)(1) (2012); *Def. Distributed*, 121 F. Supp. 3d at 686-87.

<sup>151</sup> *Def. Distributed*, 121 F. Supp. 3d at 687 (citing *United States v. Zhen Zhou Wu*, 711 F.3d 1, 12 (1st Cir. 2013)).

<sup>152</sup> 22 C.F.R. § 120.6 (2011).

<sup>153</sup> 22 C.F.R. § 120.4(a) (2012).

<sup>154</sup> *Def. Distributed*, 121 F. Supp. 3d at 686 (explaining “A party unsure about whether a particular item is a ‘defense article’ covered by the Munitions List may file a ‘commodity jurisdiction’ request with the DDTC” and within 10 working days, the DDTC will provide a preliminary response. “If a final determination is not provided after 45 days, ‘the applicant may request in writing to the Director, Office of Defense Trade Controls Policy that this determination be given expedited processing.’ “ Defense Distributed submitted a commodity jurisdiction request covering the Published Files on June 21, 2013 and have not received a response.).

<sup>155</sup> *Id.* at 688.

<sup>156</sup> *Id.* at 691.

<sup>157</sup> *Id.* at 692.

<sup>158</sup> *Id.* at 693.

<sup>159</sup> *Id.* at 694.

agreed that on its face ITAR “unquestionably regulates speech concerning a specific topic,” it did not agree that this was enough to conclude that the regulations are content based.<sup>160</sup> In fact, the court concluded that the regulations are content neutral because, although they regulate a specific topic, the intention of regulating this topic is to satisfy a number of foreign policy and national defense goals, rather than to simply suppress Defense Distributed’s expression in favor of global access to firearms.<sup>161</sup> The court then went on to apply intermediate-scrutiny to the regulations and ultimately relied on a ninth circuit decision that concluded the regulations are narrowly tailored to serve a substantial government interest.<sup>162</sup>

However, Defense Distributed focused its argument on the government’s applied interpretation of the term “export” in ITAR by stating it was overbroad because it included domestic public speech, including posting information on the internet.<sup>163</sup> According to Defense Distributed’s theory, this imposed a burden on expression greater than was necessary for the furtherance of the government’s interest.<sup>164</sup> The court disagreed and held that a prohibition on internet posting is not an insurmountable burden on the plaintiffs’ domestic communications because AECA and ITAR do not prohibit domestic communications.<sup>165</sup> The government also highlighted that Defense Distributed was still free to disseminate its files using a method that did not provide it with the ability to share the information internationally.<sup>166</sup>

The court ultimately concluded that Defense Distributed would likely not succeed on the merits because ITAR is a content-neutral regulatory regime that is narrowly tailored to serve the substantial government interest of regulating the dissemination of military information.<sup>167</sup> This conclusion is crucial because the

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<sup>160</sup> *Id.*

<sup>161</sup> *Id.* (“The ITAR does not regulate disclosure of technical data based on the message it is communicating. The fact that Plaintiffs are in favor of global access to firearms is not the basis for regulating the ‘export’ of the computer files at issue. Rather, the export regulation imposed by the AECA is intended to satisfy a number of foreign policy and national defense goals, as set forth above. Accordingly, the Court concludes the regulation is content-neutral and thus subject to intermediate scrutiny.”).

<sup>162</sup> *See* United States v. Chi Mak, 683 F.3d 1126, 1135 (9th Cir. 2012) (finding the AECA and its implementing regulations are content-neutral).

<sup>163</sup> *Def. Distributed*, 121 F. Supp. 3d at 695.

<sup>164</sup> *Id.*

<sup>165</sup> *Id.* at 694 (quoting *Time Warner Cable, Inc. v. Hudson*, 667 F.3d 630, 641 (5th Cir. 2012)) (stating they must uphold the challenged regulations “if they further an important or substantial governmental interest; if the governmental interest is unrelated to the suppression of free expression; and if the incidental restriction on alleged First Amendment freedoms is no greater than is essential to the furtherance of that interest”).

<sup>166</sup> *Id.* at 695.

<sup>167</sup> *Id.* at 696.

court did not have to address the merits of the claim after concluding that Defense Distributed failed to carry its burden when applying the relevant balancing test.<sup>168</sup> In undertaking a merits analysis, the court created precedent with respect to Defense Distributed's main claims against the government.

Defense Distributed appealed the court's decision to deny the preliminary injunction; however, the fifth circuit ultimately affirmed. It concluded that the district court did not abuse its discretion in concluding that the government's interest in national security outweighed the plaintiffs' interest in protecting their constitutional rights.<sup>169</sup> The fifth circuit also declined to address the merits of the case,<sup>170</sup> and the Supreme Court denied certiorari.<sup>171</sup>

ii. *The Washington Lawsuit and Injunction*

Two years after the ruling in the Texas lawsuit, the DDTC settled with Defense Distributed and allowed the company to post the file.<sup>172</sup> However, the organization's win was short-lived because the settlement triggered an array of lawsuits across Democratic states; in the end, a Washington lawsuit led to a preliminary injunction requiring Defense Distributed to once again remove the file.<sup>173</sup>

The settlement called for a review of the USML in order to exclude any technical data that was the subject of Defense Distributed's lawsuit.<sup>174</sup> The DDTC agreed and issued a "temporary modification" to the USML that changed ITAR's applicability to Defense Distributed's files.<sup>175</sup> According to the DDTC, the reason for the change was an underlying export regulatory reform, through

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<sup>168</sup> *Id.* at 695.

<sup>169</sup> *Def. Distributed v. U.S. Dep't of State*, 838 F.3d 451, 460 (5th Cir. 2016) (holding "the district court did not abuse its discretion by denying the preliminary injunction on the non-merits requirements").

<sup>170</sup> *Id.* ("[We] decline to reach the question of whether Plaintiffs-Appellants have demonstrated a substantial likelihood of success on the merits.").

<sup>171</sup> *Def. Distributed v. U.S. Dep't of State*, 838 F.3d 451 (5th Cir. 2016), *cert. denied*, 138 S. Ct. 638 (2018).

<sup>172</sup> MICHAEL A. FOSTER, CONG. RESEARCH SERV., LSB10195, 3D-PRINTED GUNS: AN OVERVIEW OF RECENT LEGAL DEVELOPMENTS 2-3 (2018).

<sup>173</sup> *Washington v. U.S. Dep't of State*, 318 F. Supp. 3d 1247, 1254, 1264 (W.D. Wash. 2018) (granting preliminary injunction); FOSTER, *supra* note 173, at 3; see Vanessa Romo, *Attorneys General Sue Trump Administration to Block 3-D Printed Guns*, NPR (July 30, 2018, 11:27 PM), <https://www.npr.org/2018/07/30/634177862/attorneys-general-sue-trump-administration-to-block-3d-printed-guns> (identifying New York, New Jersey, Maryland, Massachusetts, Connecticut, Pennsylvania, Oregon, and the District of Columbia as parties in the Washington lawsuit).

<sup>174</sup> FOSTER, *supra* note 173, at 2-3; see *Washington*, 318 F. Supp. 3d at 1253 (granting preliminary injunction).

<sup>175</sup> See *Washington*, 318 F. Supp. 3d at 1258 (granting preliminary injunction); FOSTER, *supra* note 173, at 2-3.

which the government sought to remove certain firearms and ammunitions on the USML from the Department of State's jurisdiction and place them under the control of the Department of Commerce.<sup>176</sup>

The backlash prompted by the settlement and subsequent change in the USML led to states suing in order to prevent the file from being accessed in their state.<sup>177</sup> States like New Jersey and Pennsylvania even convinced Defense Distributed to agree to temporarily deny access to its files in those states.<sup>178</sup> The numerous lawsuits in both state and federal court led to a number of states and the District of Columbia filing a lawsuit against the Department of State, the DDTC, various government officials, and Defense Distributed in the United States District Court for the Western District of Washington.<sup>179</sup> The lawsuit argues that the Trump administration and the Department of State violated the Administrative Procedure Act ("APA") when issuing the changes to the USML.<sup>180</sup> After issuing an injunction in 2018 that barred the government from implementing the changes, the court ultimately ruled in late 2019 that the changes to the USML were in violation of the APA.<sup>181</sup> The government filed an appeal on January 15, 2020.<sup>182</sup> The litigation continues, and both sides appear to be prepared to take the case as far as necessary to win.<sup>183</sup>

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<sup>176</sup> Brief for Private Defendants in Opposition to Plaintiff States' Motion for a Preliminary Injunction at 4, *Washington v. U.S. Dep't of State*, 318 F. Supp. 3d 1247 (W.D. Wash. 2018) (No. 2:18-cv-01115-RSL); FOSTER, *supra* note 173, at 3.

<sup>177</sup> FOSTER, *supra* note 173, at 3.

<sup>178</sup> *Id.*

<sup>179</sup> *Id.*

<sup>180</sup> *See generally* Reply Brief for Plaintiff States In Support of Motion for Summary Judgment and Opposition to Defendants' Cross-Motions for Summary Judgment at 22, 25, *Washington v. U.S. Dep't of State*, 318 F. Supp. 3d 1247 (W.D. Wash. 2018) (No. 2:18-cv-01115-RSL); Reply Brief for Private Defendants in Support of Their Motion for Summary Judgment at 11-12, *Washington v. U.S. Dep't of State*, 318 F. Supp. 3d 1247 (W.D. Wash. 2018) (No. 2:18-cv-01115-RSL); FOSTER, *supra* note 173, at 3.

<sup>181</sup> *Washington v. U.S. Dep't of State*, 318 F. Supp. 3d 1247, 1264 (W.D. Wash. 2018); FOSTER, *supra* note 173, at 3; *Washington v. U.S. Dep't of State*, No. C18-1115RSL (W.D. Wash. Nov. 12, 2019) (order invalidating July 27, 2018, temporary modification and letter).

<sup>182</sup> *Washington v. Def. Distributed*, No. 20-35030 (9th Cir. filed Jan. 15, 2020).

<sup>183</sup> *Washington v. U.S. Dep't of State*, No. C18-1115RSL (W.D. Wash. Nov. 12, 2019) (order invalidating July 27, 2018, temporary modification and letter) (explaining that the court's decision held the agency action to change the USML to be arbitrary and capricious because "[t]he agency ha[d] simply abandoned, without acknowledgment or analysis, its previous position and ha[d] sub silentio found that the delisting [was] consistent with world peace, national security, and U.S. foreign policy despite explicit, recent findings to the contrary." This decision simply invalidates the agency action but does not prevent the agency from acting again with proper "acknowledgement or analysis.").

*iii. Defense Distributed Today*

With the recent decision, Defense Distributed continues to do a dance it knows all too well. As a self-proclaimed law-abiding organization, the file for the Liberator can no longer be publicly downloaded from its website.<sup>184</sup> Instead, in order to abide by the parameters of the district court's decision, supporters can join LEGIO by making a donation of their choice.<sup>185</sup> Defense Distributed's website describes those who join LEGIO as their "Legionnaires ... the army of Defense Distributed supporters who do not just defend the Second Amendment, but add to its technical development and expansion."<sup>186</sup> Once one becomes a "Legionnaire," he or she can download the files for all of Defense Distributed's 3D printable defense products.<sup>187</sup>

Defense Distributed is permitted to do this because regulations under ITAR only prohibit it from exporting items on the USML; they do not prohibit Defense Distributed from selling some of its products within the United States.<sup>188</sup> Currently, Defense Distributed is not allowed to exercise its First Amendment right and share information it owns and created, for free. However, it is able to sell this same information within the United States.<sup>189</sup> Thus, Defense Distributed cannot be the SoundCloud of downloadable guns, but it can be the iTunes.

These legal battles will continue. The court in the Texas case has already decided that the files at issue are protected speech.<sup>190</sup> However, Defense Distributed will continue to argue until it has a holding that concludes the files are not only protected speech, but that placing them on the USML is not a content-neutral regulation and it is not narrowly tailored to serve a compelling government interest. The district court in the Texas lawsuit inevitably reached the wrong conclusion. ITAR is not a content-neutral regulatory regime since it directly targets specific content of military or defense coding. ITAR does not care about creative video games or educational, mathematical coding, it only targets coding the government has deemed important to national security. While national security is a compelling government interest, and arguably one of the most compelling, it does not create a blank check for the government to regulate away citizens' rights. In order for ITAR to satisfy strict scrutiny, there needs to be a closer analysis of the narrow tailoring of the regulatory regime with respect to source coding, so the innovation of 3D printing in the United States can continue freely, as intended and protected by the First Amendment.

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<sup>184</sup> *About*, DEF. DISTRIBUTED, <https://defdist.org> (last visited Sept. 23, 2019).

<sup>185</sup> *Id.*

<sup>186</sup> *Id.*

<sup>187</sup> *Id.*

<sup>188</sup> FOSTER, *supra* note 173, at 1.

<sup>189</sup> *Id.* at 3.

<sup>190</sup> *Def. Distributed v. U.S. Dep't of State*, 121 F. Supp. 3d 680, 694 (W.D. Tex. 2015).

## IV. GUN PROLIFERATION AND PUBLIC FEAR

The main problem facing the legal argument made in this Comment is not the law itself, but the real fear that Americans have about gun proliferation.<sup>191</sup> Three-dimensional printed firearms enhance this fear.<sup>192</sup> While activists dwell on the claims that these guns are nearly untraceable, easily assembled, and fully functioning, a general lack of understanding of firearms spreads more fear.<sup>193</sup> In order to make peace with the very real threat that guns pose to society, the facts must be understood.

While critics have some valid arguments, not all are warranted or rational. For example, one can currently find websites that teach people how to build guns at home without a 3D printer.<sup>194</sup> It is not illegal for an individual to make his or her own gun at home and keep it for personal use.<sup>195</sup> The law should not make it nearly impossible<sup>196</sup> to share a file that allows an individual to make a gun at

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<sup>191</sup> Daniel Carey, *America's Problem with Guns*, RTE, <https://www.rte.ie/eile/brainstorm/2017/1122/922096-americas-problem-with-guns/> (last updated Feb. 22, 2018, 8:55 PM).

<sup>192</sup> Deanna Paul, *Are They Deadly? Are They Free Speech? Explaining 3-D Printed Guns*, WASH. POST (Aug. 1, 2018), [https://www.washingtonpost.com/news/post-nation/wp/2018/08/01/are-they-deadly-are-they-free-speech-explaining-3-d-printed-guns/?utm\\_term=.845a5e89f02e](https://www.washingtonpost.com/news/post-nation/wp/2018/08/01/are-they-deadly-are-they-free-speech-explaining-3-d-printed-guns/?utm_term=.845a5e89f02e).

<sup>193</sup> *Id.* (explaining concerns around these weapons as: “(1) Homemade guns make weapons accessible to individuals who otherwise would not pass a background check. This includes people typically barred from acquiring firearms by state and federal law, such as minors, the mentally ill and felons. (2) Pure plastic 3-D-printed guns are undetectable by metal detectors. (3) They also have no serial number, eliminating an effective investigative tool for law enforcement. Officials link firearms to weapon supply chains and determine past sellers and purchasers with serial numbers. In 2016, of the nearly 300,000 firearms recovered in the United States, more than 70 percent were able to be traced by the Bureau of Alcohol, Tobacco, Firearms and Explosives National Tracing Center.”); German Lopez, *The Battle to Stop 3D Printed Guns, Explained*, VOX (Aug. 29, 2019), <https://www.vox.com/2018/7/31/17634558/3d-printed-guns-trump-cody-wilson-defcad> (“Guns are already pretty available in the US, with estimates suggesting that there are more firearms in America than there are people.”); Aamer Madhani & Andrew Wolfson, *3D Printed Guns Might Be Inevitable. But Are They a Practical Weapon of Choice for Criminals?*, USA TODAY, <https://www.usatoday.com/story/news/2018/08/01/3-d-guns-serious-threat-u-s-communities/883626002/> (last updated Aug. 2, 2018, 6:53 AM) (“It’s not feasible to print a 100% 3D printed gun, because the plastic that is being printed that is used here is not strong enough to withstand a barrel or the explosion from a bullet.”).

<sup>194</sup> Kristina Davis, *‘Ghost Guns’ Are Easy to Build, Legal and Completely Untraceable*, SAN DIEGO UNION-TRIB. (Aug. 27, 2017), <https://www.sandiegouniontribune.com/news/public-safety/sd-me-ghost-guns-20170825-story.html> (“For the most part, everything else needed to make a working firearm are considered parts, are not regulated and can be readily purchased online.”).

<sup>195</sup> William J. Vizzard, *The Current and Future State of Gun Policy in the United States*, 104 J. CRIM. L. & CRIMINOLOGY 879, 880-83 (2015), <https://scholarlycommons.law.northwestern.edu/jclc/vol104/iss4/5>.

<sup>196</sup> *What Is ITAR?*, GOV’T REL., LLC, <https://gov-relations.com/itar/> (last visited Sept.

home for personal use simply because the file is written in computer code instead of plain English.

It is illegal to file off the serial number of a firearm, sell a firearm on the black market, sell firearms to felons, and engage in many other gun related activities; however, people still take part in these illegal activities.<sup>197</sup> Take for example Michael Andrew Ryan, who “sat down at a computer one day, hopped on the dark Web, called himself ‘Gunrunner,’ and opened for business.”<sup>198</sup> He created an “international weapons operation [that] offered anyone a virtual laundry list of weapons.”<sup>199</sup> He even made the guns hard to trace by removing their serial numbers and then “shipped them to countries where buying these guns was difficult ... [or] banned by law.”<sup>200</sup> Shockingly, this was all happening in Manhattan, a quiet little American town in Kansas with a population of only about fifty-six thousand.<sup>201</sup>

In the first two days after posting, the Liberator’s file was downloaded more than one hundred thousand times.<sup>202</sup> After the first injunction was removed, Defense Distributed posted the file again, and in only five days, over a million downloads had taken place.<sup>203</sup> It is important to note that each individual who downloaded the file can be traced with significant accuracy by the IP address he or she used to download the file.<sup>204</sup> However, if an individual downloaded the file from the dark web, he or she is nearly untraceable.<sup>205</sup> Furthermore, if the file

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24, 2019) (stating ITAR does not make it illegal to share the file, rather it requires the person sharing the file and the person using it or adapting it to register with the DDTC which costs at least \$2,250. This amount is too large of a burden for someone to exercise their First Amendment rights).

<sup>197</sup> Davis, *supra* note 195; Madhani & Wolfson, *supra* note 194.

<sup>198</sup> Thom Patterson, *Inside the Illegal Online Weapons Trade*, CNN (Aug. 10, 2016), <https://www.cnn.com/2016/08/10/us/declassified-illegal-online-weapons-trade/index.html> (“For those who are unaware of the dark Web—aka the deep Web or darknet—it’s the hidden part of the Internet. It’s not searchable on Google or other search engines. And it’s not just about guns. On the dark Web it’s possible to buy or sell just about anything—including child porn or illegal drugs or stolen social security or credit card numbers, or even names on Ashley Madison accounts.”).

<sup>199</sup> *Id.*

<sup>200</sup> *Id.*

<sup>201</sup> *Id.*

<sup>202</sup> Greenberg, *supra* note 20.

<sup>203</sup> *About*, DEF DISTRIBUTED, <https://defdist.org/> (last visited Sept. 15, 2019).

<sup>204</sup> *Tracked Downloading Torrents*, BITTORRENTVPN (May 15, 2017), <https://www.bittorrentvpn.com/exposed-downloading-torrents/>.

<sup>205</sup> Patterson, *supra* note 199; Andy Greenberg, *It’s About to Get Easier to Hide on the Dark Web*, WIRED (Jan. 20, 2017), <https://www.wired.com/2017/01/get-even-easier-hide-dark-web/> (“While anyone who knows a dark website’s address can visit it, no one can figure out who hosts that site, or where. It hides in plain sight. But changes coming to the anonymity tools underlying the dark net promise to make a new kind of online privacy possible. Soon anyone will be able to create their own corner of the internet that’s not just anonymous and untraceable, but entirely undiscoverable without an invite.”).

continues to be downloaded in exchange for payment, Defense Distributed can refuse to provide the names of those who download the file.<sup>206</sup> This illustrates that banning the sharing of files for 3D printed guns will only shift the problem from an untraceable gun, to untraceable downloads, modifications, sharing, and printing.<sup>207</sup> But, a system that allows this activity and subjects it to less stringent regulations to allow the government to keep track of who is breaking the law while still protecting citizens' First Amendment rights would be more effective at deterring crime than simply banning the activity altogether.<sup>208</sup>

Another argument advanced by critics is the slippery slope argument.<sup>209</sup> More specifically, the public fears that permitting the free sharing of these files will allow anyone to print a usable firearm with the click of a button.<sup>210</sup> While this may sound like a rational fear, the argument above still applies here; banning something will not solve the problem.<sup>211</sup> In fact, history has shown the complete opposite; bans only make a problem worse.<sup>212</sup> Imagine if all of the innovation

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<sup>206</sup> See generally Michael Kan, *3-D Printed Gun Files Now Online, But There's a Catch*, PCMAG (Aug. 28, 2018), <https://www.pcmag.com/news/363381/3d-printed-gun-files-now-online-but-theres-a-catch> (explaining how, on one hand, the court's ruling prevents Wilson from uploading files to the internet, but, on the other, allows Wilson to send the same data within the US, which typically occurs after someone purchases the data from Wilson who then sends it via a mailed thumb drive, email, or other secured means).

<sup>207</sup> See Patterson, *supra* note 199 (showing how one man sold guns internationally on the Dark Web); see also Greenberg, *supra* note 206 (explaining how difficult it is to track online guns sales on the Dark Web).

<sup>208</sup> See Milan Bharadwaj, *BHARADWAJ: Gun Control Is Ineffective and Infeasible*, CAVALIER DAILY (Mar. 13, 2018), <http://www.cavalierdaily.com/article/2018/03/bharadwaj-gun-control-is-ineffective-and-infeasible> (citing numerous studies showing how weapon buy-backs and gun control legislation have not reduced gun related crime).

<sup>209</sup> See Jon Christian, *The 3D Printed Gun Scare Never Actualized*, THE OUTLINE (Jan. 27, 2017), <https://theoutline.com/post/963/3d-printed-gun-scare?zd=1&zi=dqh5ugyu> (stating that the authors could find not even a single case where a printed gun was used in a crime; therefore, the bugaboo of massive amounts of untraceable weapons used to perpetuate numerous crimes is purely speculative).

<sup>210</sup> *Id.* (explaining that printable guns, although able to fire rounds, are primitive and some even are prone to exploding in the user's hands).

<sup>211</sup> *Id.*; Mark Thornton, *Alcohol Prohibition Was a Failure*, CATO INST. POL'Y ANALYSIS (July 17, 1991), <https://www.cato.org/publications/policy-analysis/alcohol-prohibition-was-failure>.

<sup>212</sup> See Christian, *supra* note 210; see also Thornton, *supra* note 212 ("National prohibition of alcohol (1920-33)—the 'noble experiment'—was undertaken to reduce crime and corruption, solve social problems, reduce the tax burden created by prisons and poorhouses, and improve health and hygiene in America. The results of that experiment clearly indicate that it was a miserable failure on all counts. The evidence affirms sound economic theory, which predicts that prohibition of mutually beneficial exchanges is doomed to fail. The lessons of Prohibition remain important today. They apply not only to the debate over the war on drugs but also to the mounting efforts to drastically reduce access to alcohol and tobacco and to such issues as censorship and bans on insider trading, abortion, and gambling.").

and modification of 3D firearm printing was being done on the dark web.<sup>213</sup> If this was the case, individuals would not know what modifications were being made, how the guns were being perfected, what people were printing, and, most importantly, who was doing the printing.<sup>214</sup> Essentially, the public would be unaware of what guns were being created and placed into society.<sup>215</sup> Regulation of this technology needs to focus on the actual printing and creation of the firearm on one side, and registration that prioritizes sharing and data distribution on the other.<sup>216</sup> There needs to be a robust regulatory scheme that is narrowly tailored and protects the flow of information but still allows the public to see what changes and advancements are being made to these potentially untraceable firearms.<sup>217</sup>

Printed guns are also not as much of a risk as critics would like to believe.<sup>218</sup> In fact, despite the number of times the Liberator file was downloaded, not a single 3D printed gun has been linked to the commission of a deadly crime.<sup>219</sup> This is most likely due to the gun's various flaws.<sup>220</sup> The file currently available prints a gun that has the capacity to shoot only one bullet, requires more than just plastic parts, and needs a metal firing pin to operate.<sup>221</sup> Furthermore, the gun is not necessarily completely functional.<sup>222</sup> Three-dimensional printing is not as simple as pressing a button.<sup>223</sup> The few printed guns the police have confiscated were either nonfunctional or could have exploded in the shooter's hands while firing because of poor manufacturing.<sup>224</sup> In fact, in some instances guns have exploded in individuals' hands and harmed the shooters.<sup>225</sup>

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<sup>213</sup> See generally Christian, *supra* note 210.

<sup>214</sup> See generally *2019 3D Printed Gun Digest - Everything You Need to Know*, ALL3DP (July 19, 2019), <https://all3dp.com/1/3d-printed-gun-firearm-weapon-parts/> (explaining that anonymous file sharing makes it difficult for law enforcement to keep up).

<sup>215</sup> See generally Christian, *supra* note 210.

<sup>216</sup> *Id.*

<sup>217</sup> *Id.*

<sup>218</sup> Madhani & Wolfson, *supra* note 194 (“It’s not feasible to print a 100% 3D printed gun, because the plastic that is being printed that is used here is not strong enough to withstand a barrel or the explosion from a bullet... Industrial 3D printers cost \$20,000 to \$100,000, and many companies that rent use of their printers explicitly prohibit users from manufacturing weapons.”)

<sup>219</sup> See Christian, *supra* note 210.

<sup>220</sup> *Id.* (“The Liberator was prone to exploding when fired.”).

<sup>221</sup> *2019 3D Printed Gun Digest - Everything You Need to Know*, *supra* note 215.

<sup>222</sup> *Id.*

<sup>223</sup> John Stossel, *The Right to Print Arms*, REASON (Apr. 17, 2019, 12:00 AM), <https://reason.com/2019/04/17/the-right-to-print-arms/>.

<sup>224</sup> See Christian, *supra* note 210; *2019 3D Printed Gun Digest - Everything You Need to Know*, *supra* note 215.

<sup>225</sup> See Christian, *supra* note 210; Jeremy Straub, *3D Printing Guns at Home Is Dangerous—Mostly for the Person Shooting It*, FAST COMPANY (Jan. 10, 2019), <https://www.fastcompany.com/90290217/3d-printing-guns-at-home-is-dangerous-mostly-for-the-person-shooting-it>.

With all of this in mind, the most important reality is that current law does not stop the distribution of this file.<sup>226</sup> As the government highlighted at the preliminary injunction hearing, Defense Distributed is permitted to distribute the file domestically, for free.<sup>227</sup> However, it must do so using alternative methods of distribution that are not considered to be “exports.”<sup>228</sup> If Defense Distributed wants to continue to use the internet to distribute its files, it must not distribute them for free.<sup>229</sup> In 2017, the file for the Liberator was available for purchase, but only upon request.<sup>230</sup> The website asked for ten dollars; however, the individual was able to choose how much he or she wanted to pay.<sup>231</sup> The availability of this workaround may seem counterintuitive, but it also illustrates that if 3D firearms pose as much of a threat as critics suggest, the crisis would be significantly more prevalent.<sup>232</sup>

## V. PERMISSIBLE REGULATION

If there is still a desire to regulate 3D printed firearms, there are better ways of doing so than regulating the free flow of information and innovation. There are various states that have already taken the lead in this area and have started promulgating their own laws that regulate 3D printed weapons as well as the source coding for the weapons. Florida, Rhode Island, Maine, Washington, and Connecticut have all introduced legislation in their respective state legislatures to regulate different aspects of 3D firearms; however, none of the proposed legislation regulates the actual transfer of the file.<sup>233</sup>

The different types of legislation introduced in Florida, Rhode Island, Maine, and Washington prohibit the actual printing of 3D printed firearms.<sup>234</sup> All the proposed laws also require there to be an actual manufacture, assembly, or

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<sup>226</sup> Christian, *supra* note 210.

<sup>227</sup> *See Id.*; *Def. Distributed v. U.S. Dep’t of State*, 121 F. Supp. 3d 680, 695 (W.D. Tex. 2015).

<sup>228</sup> *Def. Distributed*, 121 F. Supp. 3d at 686.

<sup>229</sup> *First Amendment — Technology — Fifth Circuit Declines to Enjoin Regulation of Online Publication of 3D-Printing Files. — Defense Distributed v. United States Department of State*, 838 F.3d 451 (5th Cir. 2016), 130 HARV. L. REV. 1744, 1744-45 (2017).

<sup>230</sup> Christian, *supra* note 210.

<sup>231</sup> *See* Christian, *supra* note 210; Marrian Zhou, *3D Printed Gun Controversy: Everything You Need to Know*, CNET (Sept. 25, 2018), <https://www.cnet.com/news/the-3d-printed-gun-controversy-everything-you-need-to-know/>.

<sup>232</sup> Christian, *supra* note 210.

<sup>233</sup> *See* H.R. 1131, 129th Leg., Reg. Sess. (Me. 2019); S. 956, 2019 Leg. (Fla. 2019); H.R. 6696, 2019 Leg. (Conn. 2019); S. 5061, 66th Leg., Reg. Sess. § 3 (Wash. 2019).

<sup>234</sup> *See* H.R. 1131, 129th Leg., Reg. Sess. (Me. 2019); S. 956, 2019 Leg. § 1 (Fla. 2019); H.R. 6696, 2019 Leg. (Conn. 2019); S. 5061, 66th Leg., Reg. Sess. § 4 (Wash. 2019).

printing of the firearm, and for the firearm to be “fully functioning” and untraceable.<sup>235</sup> These laws therefore address the true problems with 3D printed guns. Yet, they leave the free flow of source coding untouched and allow individuals to exchange files, make changes, and innovate. These proposed laws are a better solution because they operate within the realm of permissible regulation and do not infringe on one’s constitutional rights.

## VI. CONCLUSION

Coding is speech. If one thing is clear from existing law, it is that if burning a flag,<sup>236</sup> spending money on independent political expenditures,<sup>237</sup> nude art,<sup>238</sup> or violent video games,<sup>239</sup> and wearing armbands in protest<sup>240</sup> are all considered speech, coding computer software must also be speech. The only aspect that differentiates this speech from the speech related to 3D printed firearms, is the content of the code. If Defense Distributed produced a file to 3D print a Barney figurine, a hat, or an artificial limb, it would not be in the middle of a legal battle for its constitutionally protected right to share a code online. The content of the code is the difference.

Now, this Comment does not advocate that all of ITAR is impermissible. The government is free to regulate the actual export of arms and other defense items. In fact, the government must regulate the export of certain defense items for national security purposes. This Comment recognizes the dangers of striking down ITAR and allowing the unregulated export of firearms and other weapons; however, there is no danger greater than allowing a blatant infringement of Americans’ First Amendment rights. Allowing ITAR to continue to regulate the free flow of ideas like source coding is a slippery slope. Regulation of source coding under ITAR is content-based and it regulates a method of speaking about items on the munitions list simply because the items are designated as military items. The content of the communications is what the regulation seeks to regulate, which makes this aspect of ITAR a clear example of a content-based regulation. What will Americans allow to be regulated next? Blogs that talk about custom changes to existing firearms, websites that teach one how to build a firearm at home, or even seminars that allow people to discuss different aspects of gunmanship? Despite any permissible regulations on First Amendment rights, the courts have been clear that any content-based restriction on protected speech

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<sup>235</sup> See H.R. 1131, 129th Leg., Reg. Sess. (Me. 2019); S. 956, 2019 Leg. § 1 (Fla. 2019); H.R. 6696, 2019 Leg. (Conn. 2019); S. 5061, 66th Leg., Reg. Sess. § 2 (Wash. 2019).

<sup>236</sup> *Texas v. Johnson*, 491 U.S. 397, 398 (1989).

<sup>237</sup> *Citizens United v. FEC*, 558 U.S. 310, 319 (2010).

<sup>238</sup> *Miller v. California*, 413 U.S. 15, 18 (1973).

<sup>239</sup> *Brown v. Entm’t Merchs. Ass’n*, 564 U.S. 786, 789 (2011).

<sup>240</sup> *Tinker v. Des Moines Indep. Cmty. Sch. Dist.*, 393 U.S. 503, 504 (1969).

is presumptively unconstitutional.

In conclusion, ITAR is a content-based regulatory regime that, at least with respect to its regulation of source code for 3D printed files, should be struck down. Three-dimensional printing technology, source coding, and open-source innovation are not the future, but how the world expresses scientific, political, and artistic ideas in the present.