The 3D Blueprint File Dilemma: The Inherent Dangers of Digital Creative Expression and A Techno-Logical Approach to Regulation

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ABSTRACT

The technological advancements in 3D printing have led to the proliferation of non-commercial 3D printing in a variety of non-traditional settings. As the digital DNA of 3D-printed objects, blueprint files are capable of creating both myriad and non-myriad real-world objects. As a result, there has been an influx of legal controversy surrounding this technology. The first proverbial "3D-printed chips to fall" are firearms, leaving unsettled the greater issue of government regulation and individual First Amendment rights. The case of Washington v. United States Dep't of State and District Court Judge Robert Lasnik's comments highlight the greater blueprint file debate and the need for a proactive approach to address this issue.

This Article discusses the prevailing individual, state and federal interests at stake, evaluates the current federal regulatory system pertaining to blueprint files, and proposes the creation of a scheduling system that delineates why non-myriad blueprint files require threat levels, based on their propensity as digital instructions, to cause substantial and irreparable harm to the general public and to national security.

INTRODUCTION

The advent and meteoric rise of 3D printers have spawned a new digital landscape full of unchartered legal territory likened to that of the Wild West.[1] As 3D printing technology permeates the homes of everyday American consumers,[2] the prototypical end user is given access to a greater catalogue of additive materials[3] and digital files used to print 3D objects.[4] In conjunction with this growth, e-businesses and the dark-web have followed

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1. Wild West, MERRIAM-WEBSTER, https://www.merriam-webster.com/dictionary/Wild%20West [https://perma.cc/6TMZ-SYD7] (last visited July 19, 2019).

2. *See* MarketsandMarkets, 3D Printing Market Size, Growth, Trend and Forecast to 2023, Marketwatch.com, (Sept. 28, 2018, 11:30 AM), https://www.marketwatch.com/press-release/3d-printing-market-size-growth-trend-and-forecast-to-2023—-by-marketsandmarkets-2018-09-28 [https://perma.cc/5ALK-ME9S].

3. *Id.*

4. *See* Wave of Future: 3D Printing Industry to Quadruple By 2020, RT (May 1, 2015, 6:05 PM), https://www.rt.com/business/253785-3d-printing-industry-growth/ [https://perma.cc/C393-ZHPE].

suit by assembling repositories of easily obtainable indexed files.[5] These digital files, often consisting of readable lines of computer code and CAD (Computer Aided Design) or STL files, will be referred to as blueprint files for purposes of this discussion.[6] A blueprint file for a 3D-printed gun, for example, can sell for as little as twelve dollars on the internet,[7] whereas an average stock gun costs $1,200.[8] In an effort to evade legal recourse, publishers of blueprint files have employed alternative distribution methods by selling memory sticks pre-loaded with the digital data.[9] In light of this development, the dissemination of blueprint files remains susceptible to legal controversy.

With the Court's ruling in *Washington v. United States Department of State*, a United States District Judge merely put a Band-Aid on an otherwise open wound.[10] The plaintiffs,[11] led by Washington State, motioned for a preliminary injunction against the federal defendants, the State Department, claiming that the federal government violated the Administrative Procedure Act ("APA") with its "efforts to immediately remove items from the USML through issuance of a temporary modification."[12] This modification would benefit publishers of blueprint files, namely the private defendants.[13] The plaintiffs argued that the modification was procedurally defective, asserting that "to the extent the temporary modification permits 'any United States person' to use the CAD files at issue, the federal government's action impermissibly conflicts with state and federal laws limiting access to guns."[14] By issuing a preliminary injunction against the private defendants, Judge Robert Lasnik cited the Arms Export Control Act (AECA),[15] and the International Traffic in Arms Regulations (ITAR),[16] as the controlling regulatory law.[17] Under the AECA, blueprint files used to instruct a 3D printer could not be uploaded to the internet, but may "be emailed, mailed,

5. Patrick Tucker, 3D-Printed Gun Designs Are Selling For $12 on The Dark Web, Defense One (July 20, 2017), https://www.defenseone.com/technology/2017/07/3d-printed-gun-file-dark-web-averages-12/139580/ [https://perma.cc/F9XF-24BP].

6. *See generally* What is 3D Printing?, 3DPRINTING.com, https://3dprinting.com/what-is-3d-printing/#How-Does-3D-Printing-Work [https://perma.cc/N5UM-NQ7K] (last visited Mar. 2, 2019).

7. Tucker, supra note 5.

8. *Id.*

9. *See* Mike Sanders, 3D-Printed Guns Find Loophole to Go Back On Sale!, eTeknix.com (Aug. 30, 2018, 12:18 PM), https://www.eteknix.com/3d-printed-guns-find-loophole-go-back-sale/ [https://perma.cc/BC6Q-U5EV].

10. *See* Washington v. U.S. Dep't of State, 318 F. Supp. 3d 1247 (W.D. Wash. 2018).

11. *Id.* at 1274 (including the states of Washington, Oregon, Pennsylvania, California, Colorado, Minnesota, Virginia, Hawaii and the District of Columbia).

12. *Id.* at 1254.

13. *Id.*

14. *Id.*

15. 22 U.S.C.A. § 2778 (LEXIS through Pub. L. No. 115-385) (giving the President the authority to limit the export and import of defense articles).

16. *See* 22 C.F.R. §§ 120-30 (2018).

17. *Washington*, 318 F. Supp. at 1252, 1264.

securely transmitted, or otherwise published[18] within the United States."[19] In the preceding litigation of *Defense Distributed v. U.S. Department of State*,[20] both Defense Distributed and the Second Amendment Foundation challenged the federal governments[21] powers "to regulate its publication of the CAD files on the internet, arguing that the regulation subjected its gun-related speech to a system of prior restraints that was applied in an arbitrary manner in violation of Defense Distributed's First, Second, and Fifth Amendment rights."[22] In citing *Defense Distributed*, the Court in *Washington* delineated the federal government's opposition to the publication of gun blueprint files.[23] The inherent dangers, as the federal government argued, placed both the public's safety and national security in the crosshairs.[24] The dangers proffered by the federal government included the 3D-printed gun's undetectable characteristics by law enforcement, its thermoplastic composition, the potential to provoke international crisis, and the possibility of ending up in the hands of any individual who possesses a commercially available 3D printer.[25]

In their response, the private defendants asserted constitutional protections under the First, Second and Fifth Amendments.[26] The Court in *Washington* broached the First Amendment issue by raising a litany of pertinent legal questions.[27] One such question proffered by the Court impugned the private defendants' constitutional rights to freedom of

18. *Id.* The phrase "otherwise published", which Judge Lasnik did not expound, may refer to an alternative, non-exhaustive list of delivery methods for transmitting gun blueprint files to end users.

19. 22 U.S.C.S. § 2778 (LEXIS through Pub. L. No. 115-385). *See Washington*, 318 F. Supp. at 1264; *see also* Associated Press, *Texas Man Planning to Sell 3D-printed Gun Plans After Ruling*, THE GRIO (Aug. 29, 2018), https://thegrio.com/2018/08/29/texas-man-planning-to-sell-3d-printed-gun-plans-after-ruling/ [https://perma.cc/D8SW-GPGD] ("Wilson said that blueprints purchased through his company's website could be downloaded on a thumb drive and shipped to buyers by standard mail, sent by email or sent by some other secure download transfer.").

20. *See generally* Def. Distributed v. U.S. Dep't of State, 121 F. Supp. 3d 680 (W.D. Tex. 2015), aff'd, 838 F.3d 451 (5th Cir. 2016).

21. *Id.* Federal defendants include the Department of State and the Directorate of Defense Trade Controls (DDTC).

22. *Id. See Washington*, 318 F. Supp. 3d at 1252.

23. *Washington*, 318 F. Supp. at 1252 ("'[E]xport of Defense Distributed's CAD files could cause serious harm to U.S. national security and foreign policy interests' that 'warrant subjecting [the files] to ITAR's export licensing of technical data;' Defense Distributed's 'CAD files constitute the functional equivalent of defense articles: capable, in the hands of anyone who possesses commercially available 3D printing equipment, of 'automatically' generating a lethal firearm that can be easily modified to be virtually undetectable in metal detectors and other security equipment;' 'The State Department is particularly concerned that [Defense Distributed's] proposed export of undetectable firearms technology could be used in an assassination, for the manufacture of spare parts by embargoed nations, terrorist groups, or guerrilla groups, or to compromise aviation security overseas in a manner specifically directed at U.S. persons;' and both the government and the public 'have a strong interest in curbing violent regional conflicts elsewhere in the world, especially when such conflict implicates the security of the United States and the world as a whole.'").

24. *Id.*

25. *Id.*

26. *See* U.S. CONST. amends. I, II, III; *see also Washington*, 318 F. Supp. at 1252.

27. *See generally* U.S. CONST. amend. I. *See Washington*, 318 F. Supp. at 1261 (claiming that "the CAD files are protected speech under the First Amendment, that restrictions on their ability to publish the files constitute a prior restraint that is presumed to be unconstitutional, and that the regulations should be subjected to strict scrutiny.").

speech.[28] Was the federal government attempting to regulate the dissemination of the blueprint files because of the message they convey? In resolving this question, a court of similar jurisdiction would conduct the appropriate level of judicial review under a scrutiny framework.[29] The Court in *Washington*, however, did not wade through this analysis.[30] Instead, the Court viewed the record in its entirety, and presumed that the private defendants had a valid constitutional right to publish the gun blueprint files[31] However, those rights were abridged under the AECA regulations.[32]

In comments made by Judge Lasnik at a Seattle hearing concerning the settlement reached between the State Department and Defense Distributed, Judge Lasnik alluded to a much greater legal dilemma implicating blueprint files.[33] He unequivocally stated that "a solution to the greater problem is so much better suited to the President or Congress."[34] Furthermore, in rebuking United States Department of Justice Attorney Stephen Meyers assertion that current state and federal laws were capable of dealing with the dangers of 3D-printed guns, Judge Lasnik stated that the United States "could end up with other 9-11 situations."[35] Judge Lasnik analogized that "We don't just wait for heroin to be produced and try to find it. Instead, the government tries to stop people from producing the drug."[36] Although thought provoking, these statements led the Court to, proverbially, kick the 3D-printed can down the road.[37]

The *Washington* decision, including its procedural history, offers but a snippet of the emerging legal debate over the regulation of blueprint files.[38] With these considerations in mind, the discussion should extend beyond the

28. *Washington*, 318 F. Supp. at 1261.

29. *See id.* (arguing that the regulations should be subject to strict scrutiny).

30. *Id.* ("Whether or not the First Amendment precludes the federal government from regulating the publication of technical data under the authority granted by the AECA is not relevant to the merits of the APA claims plaintiffs assert in this litigation.").

31. *Id.* at 1263–64 ("The Court declines to wade through these issues based on the limited record before it and instead presumes that the private defendants have a First Amendment right to disseminate the CAD files.").

32. 22 U.S.C.S. § 2778 (LEXIS through Pub. L. No. 115-385). *Washington*, 318 F. Supp. at 1263–64 ("The Court finds that the irreparable burdens on the private defendants' First Amendment rights are dwarfed by the irreparable harms the States are likely to suffer if the existing restrictions are withdrawn and that, overall, the public interest strongly supports maintaining the status quo through the pendency of this litigation.").

33. Caroline Simon, *Federal Judge: 3D-Printable Guns are an Issue for Congress or The President*, USATODAY.COM (Aug. 21, 2018, 3:59 AM), https://www.usatoday.com/story/news/politics/2018/08/21/3-d-weapons-blueprints-guns-plans-internet/1049789002/ [https://perma.cc/3MMF-7YKF].

34. *Id.*

35. Jim Camden, *Judge to Congress, Executive Branch: Face Up to Problems of 3-D Printed Guns*, THEDAILYWORLD.COM (Aug. 22, 2018, 7:00 PM), http://www.thedailyworld.com/nation-world/judge-to-congress-executive-branch-face-up-to-problems-of-3-d-printed-guns/ [https://perma.cc/FGV8-SP59].

36. *Id.*

37. *See* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247, 1263 (W.D. Wash. 2018). The Court leaves unresolved a series of deeply rooted and relevant questions pertaining to CAD files and First Amendment speech, presumably left for a different court to decide.

38. *See* State v. United States Dep't of State, 315 F. Supp. 3d 1202 (W.D. Wash. 2018); *see also* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247 (W.D. Wash. 2018).

confines of 3D-printed firearms.[39] What about 3D-printed explosives, medical devices, prosthetics, pharmaceuticals, drugs and even organs?[40] These items, once only conceivable in the annals of science fiction novels and comic books, are becoming a reality.[41] With these considerations in mind, both the legal, and safety implications addressed in *Washington* and *Defense Distributed,* are concerns applicable to a broader category of 3D-printed items.[42] Blueprint files are analogous to the lifeblood of a 3D printer. Without these digital files, a 3D printer is an empty vessel, devoid of functionality and purpose.[43] The potential for abuse or misuse of blueprint files, stemming from their wide-spread dissemination, raises a series of important legal questions.[44] Should the proximate act of publishing blueprint files require strict federal regulation?[45] Would these regulations comport with an individual's freedom of speech under the First Amendment?[46] Are the current state and federal laws capable of addressing the future threats posed by blueprint files?[47] As Judge Lasnik alluded to in his prior statements, a laissez-faire approach to law enforcement is not a proper means to an end.[48]

Current state and federal regulations are both insufficient and inadequate in addressing the future threats posed by an expanding category of blueprint files.[49] 3D-printed firearms are the first proverbial "chips" to "fall" in the legal debate over blueprint files.[50] As a result, this Article will

39. As a maturing technology, 3D printed firearms have become the poster child for news headlines and legislative discussions throughout the United States. *See infra* Part I. The fascination with prototypes and 3D-printed firearms have spurred the creation of gun blueprint files. However, as the technology matures, applications for 3D printing will expand to encompass a greater category of printable objects. *See* Avi Reichental, *The Future Of 3-D Printing*, FORBES (Jan. 23, 2018, 7:00 AM), https://www.forbes.com/sites/forbestechcouncil/2018/01/23/the-future-of-3-d-printing/#725c854d65f6 [https://perma.cc/4DU6-9AYC].

40. *See* Avi Reichental, *How 3D Printing is Revolutionizing Healthcare as We Know It*, TECHCRUNCH.COM (April 5, 2018), https://techcrunch.com/2018/04/05/bioprinted-organs-skin-and-drugs-how-3d-printing-is-revolutionizing-healthcare-as-we-know-it/ [https://perma.cc/F2LL-U7K8].

41. *See* Molly Friedman, *3D Printing Used to Be A Science Fiction Concept But Now It's A Fact*, NY DAILY NEWS (Dec. 8, 2013, 2:00 AM), https://www.nydailynews.com/life-style/3d-printing-no-longer-science-fiction-article-1.1536608 [https://perma.cc/T7FV-T8S9].

42. *Id.* Thinking beyond the purview of 3D-printed firearms, the public safety concerns delineated by the federal government can be transcribed to a wider category of 3D-printed items such as drugs, medical devices and organs. *See* Def. Distributed v. United States Dep't of State, 121 F. Supp. 3d 680 (W.D. Tex. 2015); *see also* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247 (W.D. Wash. 2018).

43. *What is 3D Printing? The Definitive Guide, Part 1: The Basics*, 3DHUBS.COM, https://www.3dhubs.com/guides/3d-printing/#basics [https://perma.cc/7J8P-YSNW] (last updated 2018) ("The process always begins with a digital 3D model - the blueprint of the physical object.").

44. *See* E&T Editorial Staff, *3D Printing Could 'Increase The Risk of Violence And Murder', Group Warns*, E&T (May 8, 2018), https://eandt.theiet.org/content/articles/2018/05/3d-printing-could-increase-the-risk-of-violence-and-murder-group-warns/ [https://perma.cc/3LA9-FEWC].

45. *See infra* Part III.

46. *See* U.S. CONST. amend. I.

47. *See infra* Part II.

48. Camden, *supra* note 35.

49. *Id.*

50. *Id.* As of early 2019, a majority of the media coverage over blueprint files, including; news articles, litigation, and state legislative initiatives have primarily dealt with 3D-printed firearms. Take for example the hair raising case of Eric Gerard McGinnis. *See* Matt Stevens, *Man With 3-D-Printed Gun Had Hit List of Lawmakers, U.S. Says*, N. Y. TIMES (Feb. 13, 2019), https://www.nytimes.com/2019/02/13/us/3d-printed-gun-lawmakers-hit-list.html [https://perma.cc/ 6R4K-9N9M] ("A Dallas

frequently cite to 3D-printed firearms, as a contextual backdrop, while examining the broader topic of blueprint files. With these considerations in mind, Part I of this Article will identify the individual, state, and federal interests currently at stake. This section will expound upon the motivating factors driving each interest, and examine legislation in opposition to the publication of gun blueprint files.[51] In addition, Part I will explore case law dealing with the limitations of the First Amendment in the digital age, and the resulting implications, affecting blueprint files.[52] Part II of this Article will survey the regulatory mechanisms of the federal government as it pertains to blueprint files, including a discussion of the current federal laws, administrative agency guidance, and law enforcement initiatives.[53] In addition, Part II discussion will travel "down under," to the Australian province of New South Wales, to explore the 2015 gun blueprint file legislation, which criminalizes the possession of blueprint files (with a few noteworthy exceptions).[54]

Finally, Part III of this Article will propose the creation of a blueprint file scheduling system, titled "The Non-Myriad Blueprint File Dissemination Act" (N-MBFDA).[55] The N-MBFDA is a technological approach to blueprint file regulation, which addresses the deficiencies plaguing the current federal regulatory system.[56] This section will articulate the concept behind a blueprint file scheduling system, which is analogous in composition to the Controlled Substances Act (CSA).[57] Part III will further discuss the legal implications and justifications for assigning threat levels to non-myriad blueprint files, based on their propensity, as digital instructions, to cause substantial and irreparable harm to the general public and to national security.[58]

PART I

What could be more whimsical, entertaining, or carefree than attending a Broadway rendition of the Lion King?[59] Such a theatrical production, where the song "The Circle of Life" is orchestrated with bravado, allows the audience to sit back, relax, and forget about real-world issues for two hours

man was sentenced to eight years in prison on Wednesday after the authorities caught him with a partially 3-D-printed rifle and what federal prosecutors described as a hit list of lawmakers in his backpack.") ("When he realized he couldn't legally purchase a firearm, Eric McGinnis circumvented our gun laws by 3-D printing his weapon, eliminating the need for a background check.").

51. *See* discussion *infra* Parts I.C, D.

52. U.S. CONST. amend. I. *See infra* Part I.A.

53. *See* discussion *infra* Parts II.A, B, C.

54. *See infra* Part II.C.

55. *See infra* Part III.A.

56. *See infra* Part II.

57. *See generally* 21 U.S.C.A. § 801 (Westlaw through Pub. L. No. 115-281).

58. *See infra* Part III.A. (adopting a regulatory framework predicated on the likelihood for abuse and misuse of certain blueprint files).

59. See Disney, *About*, THELIONKING, https://www.lionking.com/about [https://perma.cc/WPF4-CTWN] (last visited Feb. 20, 2019).

and thirty minutes.[60] However, one would not ordinarily look beyond the puppetry or into the unassuming prop room backstage, where the forty-seven-year-old Ilya Vett, a puppet specialist, was allegedly manufacturing a 3D-printed gun.[61] Mr. Vett was arrested after company security reported his suspicious activity to the police.[62] According to the police complaint, an NYPD Officer arrived on the scene, and entered Mr. Vett's workshop, where he observed a 3D printer with an SD card inserted into the printer's port.[63] The officer noted that the printer was "powered on, moving, and in operation."[64] Perhaps the most revealing fact about Mr. Vett's arrest was what he later told the detectives.[65] Mr. Vett stated that he had "found the blueprints for printing the gun online," and "downloaded the plans onto the SD card in the printer."[66] At first glance, one might have reasonably assumed that this type of criminal activity, given its technological underpinnings, would have been met with a legal remedy crafted for the twenty-first century.[67] However, Mr. Vett's criminal liability under New York state law was limited to violating New York Penal Law §§ 265.01-b and 265.10(1): criminal possession and manufacturing of a firearm without a permit.[68] Although the charges were later reduced, Mr. Vett was held accountable for his unlawful actions in manufacturing the 3D-printed firearm.[69] However, several unanswered questions remain. What about Mr. Vett's liability for possessing the gun blueprint file, a digital instruction containing the schematics for a potentially deadly, untraceable firearm?[70] What about the individual(s) responsible for publishing and disseminating the gun blueprint

60. *Id.*

61. Matt Stevens, '*Lion King*' *Puppet Specialist Charged With Manufacturing 3-D Printed Gun at Theater*, N.Y. TIMES (Sept. 24, 2018), https://www.nytimes.com/2018/09/24/nyregion/lion-king-3d-printed-gun-arrest.html [https://perma.cc/QF2B-Q2EC].

62. *Id.* ("The police said that company security officials found the gun — or a part of it — when they entered Mr. Vett's office on Friday. Disney's human resources department then informed the police that Mr. Vett might have been printing a firearm, the authorities said.").

63. *Id.*

64. *Id.* ("I observed that the 3-D printer was producing a hard-black plastic object which, based on my training and experience, is shaped like a revolver.").

65. *Id.*

66. *Id.*

67. As of July 2019, no legal remedy exists that specifically targets the possession of blueprint files in New York State. It is yet to be seen whether Bill 111-22, passed in May 2019, will address this issue. *See* Michael Gormley, *State Legislature Bans 'Undetectable' Firearms Such As 3D Printed Guns*, NEWSDAY (May 20, 2019 8:03 PM), https://www.newsday.com/news/region-state/3d-guns-state-assembly-1.31362225 [https://perma.cc/8LPQ-5KD7].

68. *See* N.Y. PENAL LAW § 265.01-b (2019); N.Y. PENAL LAW § 265.10(1) (2019). *See* Tina Moore and Kenneth Garger, *Lion King Prop Maker Busted for Trying to 3-D-Print a Gun*, NEWYORKPOST (Sept. 22, 2018, 9:54 PM), https://nypost.com/2018/09/22/lion-king-prop-maker-busted-for-trying-to-3-d-print-a-gun/ [https://perma.cc/B9HA-NYXX] ("It was after 8 p.m. Saturday when he was finally arraigned in Manhattan Criminal Court. Cops had thrown the book at him, initially charging him with criminal possession of a weapon and felony gun manufacture, sources told The Post. Manhattan prosecutors reduced the charges, leaving Vett facing one count of attempted criminal possession of a firearm — which is still a felony, though at the lowest level. The charge carries anywhere from no jail to a maximum of four years prison."); *see also* State Police Notice, Production of 3-D Printed "Assault Weapons" and "Large Capacity" Magazines, and Production of 3-D Printed Pistols and Revolvers (July 2018), https://troopers.ny.gov/Publications/State%20Police%20Notice.pdf [https://perma.cc/MB3D-KDTJ].

69. *See* Moore and Garger, *supra* note 68.

70. *Id.*

file?[71] What were their motives and intentions?[72] Did New York law intentionally obfuscate liability for these individuals, or was the state legislature simply yielding to the constitutional protections afforded to citizens under the First Amendment?[73] As reported, Mr. Vett's intentions were "making the gun as a gift for his brother, who lives upstate and has a firearms license."[74] However innocuous or ill-contrived Mr. Vett's actions may have been, it is nonetheless important to understand the individual interests at stake, both in publishing and possessing blueprint files.

A. THE FIRST AMENDMENT

The private defendants in *Washington* vehemently argued against enjoinment from publishing gun blueprint files to the internet, stating that, "the CAD files are protected speech, under the First Amendment" because "restrictions on their ability to publish the files constitute a prior restraint, presumed to be unconstitutional."[75] The restrictions, when applied to technical data, carry a potentially significant legal consequence to individual(s) publishing blueprint files.[76] Technical data, whether comprised of lines of code or 3D models with polygons, is viewed by certain individuals and institutions as the embodiment of digital creative expression.[77] In a sense, technical data embodies human ingenuity, and imbues a personal connection, similar to an artist's brush strokes on an empty canvas. For the private defendants, blueprint files may hold varying degrees of meaning, utility, and purpose, which the federal government is attempting to restrict.[78] As with traditional forms of speech, the expressions embodied in blueprint files are of independent thought, immune from interference by the government. The First Amendment states that "Congress shall make no law . . . abridging the freedom of speech."[79]

71. Whether on the open marketplace, or through alternative back channels, publishers of blueprint files remain free from culpability.

72. *See infra* Part I.B.

73. *See* U.S. CONST. amend. I. State regulation of blueprint files could act like a double-edged sword. On the one hand, by specifically targeting publishers of blueprint files, the state can proverbially "cut off the snake's head" and effectuate deterrence. However, the notion of regulating federally protected speech not only binds the states hands in terms of a viable legal remedy but may also deter citizens and business from residing within the state.

74. Stevens, *supra* note 61.

75. Washington v. United States Dep't of State, 318 F. Supp. 3d 1247, 1261 (W.D. Wash. 2018).

76. *Id.* at 1253 ("Technical data on how to produce weapons and weapons parts.").

77. *3D Printing Encourages Commitment and Creativity Among NEIT Students*, STRATASYS.COM, https://www.stratasys.com/~/media/Main/Files/Case%20Studies/Education/Dimension_Printing_New_England_Institute_of_Technology.ashx [https://perma.cc/8SJ2-VPV7] (last visited Feb. 21, 2018) ("Designs are often difficult for people to visualize on a two-dimensional plain. With 3D printing, my students can design something, quickly print it and hold it in their hand. What engages them the most is that they know instantly how they can improve their design after holding it. They get excited and want to do more — we are reinforcing their creativity."); *id.* ("The contribution 3D printing has made goes well beyond the mechanical engineering department, benefiting anyone involved with design. Students from the interior design program love to use it. One of them recently teamed with a CAD student and used Dimension to make a piece of medieval furniture for a project. An architectural student used Dimension to design a four-foot skyscraper.").

78. *Washington*, 318 F. Supp. at 1261.

79. U.S. CONST. amend. I.

Courts have already broached issues arising out of First Amendment challenges that pertain to non-traditional forms of speech, specifically computer code.[80] In *Junger v. Dailey*, the Court contemplated whether encrypted computer source code was protected speech under the First Amendment.[81] The Sixth Circuit concluded that, "Because computer source code is an expressive means for the exchange of information and ideas about computer programming, we hold that it is protected by the First Amendment."[82] Leading up to the Court's holding in *Junger*, the Sixth Circuit cited *Roth v. United States*, reaffirming 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."[83] In viewing the Sixth Circuit's holding, one may at first assume that blueprint files, as technical data, would fall squarely within the Court's rationale.[84] However, an important caveat to this discussion is the distinction drawn between what is presumably covered, and what is protected under the First Amendment.[85] The government may impose regulations and constraints on covered speech to the extent that the regulations comport with the fundamentals of the First Amendment.[86] Beyond its ubiquitous name, blueprint files contain the Digital DNA, or

80. Junger v. Daley, 209 F.3d 481, 484 (6th Cir. 2000) (citing Hurley v. Irish-American Gay, Lesbian and Bisexual Group, 515 U.S. 557, 569 (1995)) ("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. Particularly, a musical score cannot be read by the majority of the public but can be used as a means of communication among musicians. Likewise, computer source code, though unintelligible to many, is the preferred method of communication among computer programers [sic].").

81. *Id.*

82. *Id.* at 485.

83. *Id.* at 484. *See* Roth v. United States, 354 U.S. 476, 484 (1957).

84. Junger, 209 F.3d at 484–85 (As with computer source code, blueprint files could be viewed as "an expressive means for the exchange of information and ideas", which is protected by the First Amendment. Moreover, blueprint files, although unintelligible to some, is "the preferred method of communication among" publishers).

85. *See* Jorge R. Roig, *Decoding First Amendment Coverage of Computer Source Code in the Age of YouTube, Facebook, and the Arab Spring*, 68 N.Y.U. ANN. SURV. AM. L. 319 (2012).

86. *See* U.S. CONST. amend. I; *id.* at 328-31. It is crucial to distinguish "coverage" from "protection": the fact that the First Amendment might cover certain activity does not necessarily mean that such activity is protected by the First Amendment. If the First Amendment "covers" certain conduct that the government seeks to regulate, "the constitutionality of the conduct's regulation must be determined by reference to First Amendment doctrine and analysis." If, on the other hand, a particular activity is not covered by the First Amendment, courts need not consult First Amendment doctrine to determine the constitutionality of its regulation. Thus, the secondary question of First Amendment protection only arises if the initial question of coverage has been answered affirmatively. To say that an activity is "protected" by the First Amendment from government regulation means first that the activity is covered by the First Amendment and second that the regulation attempted by the government is unconstitutional under First Amendment doctrine. First Amendment coverage can also be a matter of degree: it need not cover all activities to the same extent. For example, pure political speech in a public forum—as traditionally embodied by the proverbial soapbox orator—receives full coverage and triggers strict scrutiny. On the other hand, other types of communicative conduct—such as commercial speech, speech of a sexual nature, speech on non-public forums, or what the Court has termed "expressive conduct"—may receive limited (and differing) levels of First Amendment coverage and trigger only intermediate or even lesser levels of scrutiny. To say that the First Amendment covers source code, then, does not mean that the government will not be able to regulate the behavior of computer programmers and users. It only means that the First Amendment will limit the way in which such conduct can be regulated according to the values it embodies.

building blocks, necessary to successfully print 3D objects.[87] The subject of printable content, as covered speech, is briefly discussed by the Court in *Defense Distributed*, with the issue of content-based speech restrictions at the forefront.[88] Noteworthy is the distinction raised by Circuit Judge Jones in her dissent, discussing myriad items.[89] Judge Jones states that "[t]here are CAD files on the Internet and designs, drawings, and technical information about myriad items—jewelry, kitchen supplies, model airplanes, or clothing, for example—that are of no interest to the State Department."[90] Judge Jones argues that blueprint files used to 3D print myriad items are not only benign, but unavailing to government regulation.[91] This distinction draws on the notion that blueprint files are not simply binary lines of code.[92] Blueprint files encompass an additional layer of meaning and utility, absent from the encrypted computer source code seen in *Junger*.[93] While computer source code remains buried within the lines of a computer program, blueprint files breathe life into real-world, 3D-printed objects.[94] However, simply omitting myriad blueprint files from regulation neither cures nor addresses the constitutional infirmities challenged by the private defendants in *Washington*.[95] The Court in *Washington* referred to blueprint files as "computerized instructions", which elicits further inquiry into published instructions.[96] Whether an individual publishes instructions, manuals or computer programs, the courts have parsed the activity of publishing in both traditional and non-traditional settings.[97]

In *Universal City Studios v. Corley*, Eric Corley published a copy of the decryption computer program ("DeCSS") to his web site, geared towards the

87. *See* Anthony Heddings, *How Does 3D-Printing Work?*, HOW-TO GEEK (Nov. 13, 2018, 6:40 AM), https://www.howtogeek.com/362939/how-does-3d-printing-work/ [https://perma.cc/DV4L-UFNS] ("Every object printed on a 3D printer starts with a 3D model. These are usually made in a CAD program designed for working on real-world 3D models, like TinkerCAD, Fusion360, or Sketchup.").

88. Def. Distributed v. United States Dep't of State, 838 F.3d 451, 461 (5th Cir. 2016) ("We are mindful of the fact that the parties and the amici curiae in this case focused on the merits, and understandably so. This case presents a number of novel legal questions, including whether the 3D printing and/or CNC milling files at issue here may constitute protected speech under the First Amendment, the level of scrutiny applicable to the statutory and regulatory scheme here, whether posting files online for unrestricted download may constitute 'export,' and whether the ITAR regulations establish an impermissible prior restraint scheme. These are difficult questions, and we take no position on the ultimate outcome other than to agree with the district court that it is not yet time to address the merits.").

89. *Id.* at 469 (Jones, J., dissenting).

90. *Id.* (asserting that the State Department regulations are "pure content-based regulation.").

91. *See id.*

92. Blueprint files transform intangible lines of code into real-world objects through a "set of instructions in machine language (G-code) for the printer to execute." *See What is 3D Printing?*, *supra* note 43.

93. *See* Junger v. Daley, 209 F.3d 481 (6th Cir. 2000).

94. Def. Distributed v. United States Dep't of State, 838 F.3d 451, 454 (5th Cir. 2016) ("Three-dimensional ("3D") printing technology allows a computer to "print" a physical object (as opposed to a two-dimensional image on paper). Today, 3D printers are sold at stores such as Home Depot and Best Buy, and the instructions for printing everything from jewelry to toys to car parts are shared and exchanged freely online at sites like GrabCAD.com and Thingiverse.com.").

95. *See* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247 (W.D. Wash. 2018).

96. *Id.* at 1259.

97. These settings include: websites, data file formats, magazines, books, pamphlets and oral presentations. *See infra* notes 84-116.

hacker community.[98] The "CSS"[99] in DeCSS is defined as the "encryption technology that motion picture studios place on DVDs to prevent the unauthorized viewing and copying of motion pictures."[100] Corley's hacker community was comprised of:

> Serious computer-science scholars conducting research on protection techniques, computer buffs intrigued by the challenge of trying to circumvent access-limiting devices or perhaps hoping to promote security by exposing flaws in protection techniques, mischief-makers interested in disrupting computer operations, and thieves, including copyright infringers who want to acquire copyrighted material (for personal use or resale) without paying for it.[101]

In granting an injunction that prevented Corley from further publishing DeCSS, including the use of a hyperlink,[102] the Second Circuit stated that, "The Appellants' argument fails to recognize that the target of the posting provisions of the injunction—DeCSS—has both a nonspeech and a speech component, and that the DMCA, as applied to the Appellants, and the posting prohibition of the injunction target only the nonspeech component."[103] DeCSS had the "capacity to instruct a computer to decrypt CSS," which was prohibited under the Digital Millennium Copyright Act ("DMCA").[104] The Second Circuit held that, "The DMCA and the posting prohibition are applied to DeCSS solely because of its capacity to instruct a computer to decrypt CSS. That functional capability is not speech within the meaning of the First Amendment."[105]

In the context of blueprint files, *Corley* provides two important considerations.[106] First, Corley's audience was a derivate of the hacker

98. Universal City Studios, Inc. v. Corley, 273 F.3d 429, 434 (2d Cir. 2001); *see also id.* at 437-39 ("In September 1999, Jon Johansen, a Norwegian teenager, collaborating with two unidentified individuals he met on the Internet, reverse-engineered a licensed DVD player designed to operate on the Microsoft operating system, and culled from it the player keys and other information necessary to decrypt CSS. The record suggests that Johansen was trying to develop a DVD player operable on Linux, an alternative operating system that did not support any licensed DVD players at that time. In order to accomplish this task, Johansen wrote a decryption program executable on Microsoft's operating system. That program was called, appropriately enough, "DeCSS.").

99. CSS is the acronym for Content Scramble System. *See generally* Margaret Rouse and Johnathan Leppert, *Content Scrambling System (CSS)*, TECHTARGET.COM, https://searchsecurity.techtarget.com/definition/Content-Scrambling-System [https://perma.cc/4CBF-VBUR] (last updated April 2005).

100. *Universal*, 273 F.3d at 435-36.

101. *Id.* at 435.

102. *Id.* at 456.

103. *Id.* at 454.

104. *Universal*, 273 F.3d at 451, 454 ("The Appellants vigorously reject the idea that computer code can be regulated according to any different standard than that applicable to pure speech, i.e., speech that lacks a nonspeech component. Although recognizing that code is a series of instructions to a computer, they argue that code is no different, for First Amendment purposes, than blueprints that instruct an engineer or recipes that instruct a cook… We disagree. Unlike a blueprint or a recipe, which cannot yield any functional result without human comprehension of its content, human decision-making, and human action, computer code can instantly cause a computer to accomplish tasks and instantly render the results of those tasks available throughout the world via the Internet. The only human action required to achieve these results can be as limited and instantaneous as a single click of a mouse. These realities of what code is and what its normal functions are require a First Amendment analysis that treats code as combining nonspeech and speech elements, i.e., functional and expressive elements.").

105. *Id.* at 454.

106. *See Universal*, 273 F.3d 429; *see also id.* at 435, 453-54.

community, varied by demographic, which included: scholars, mischief-makers and thieves.[107] The composition of Corley's audience is illustrative of the scope in appeal that published instructional content elicits from a particular subgroup. DeCSS's purported utility extended beyond the confines of a basic user, capturing the attention of individuals with both legitimate and illegitimate interests.[108] Second, Corley's ability to post DeCSS was directly contravened by a content-neutral regulation.[109] The government's targeted regulation of DeCSS was permissible, even when there was an incidental effect to speech.[110] Blueprint files provide a similar paradigm, in that the audience for 3D-printed content is targeted, yet there are subgroups of users who find varying degrees of utility, some of which have divergent interests.[111] However, unlike DeCSS, blueprint files blur the lines between functional and expressive speech, with tangible objects being 3D-printed from digital instructions.[112]

In *United States v. Featherston*, the First Amendment did not protect against instructional teachings related to the building of an explosive device.[113] Alfred Featherston and Charles Riley, members of the Black Afro Militant Movement ("BAMM"), were convicted of teaching BAMM members how to make explosives and incendiary devices, in violation of 18 U.S.C. § 231(a)(1).[114] Section 231(a)(1) states:

> Whoever teaches or demonstrates to any other person the use, application, or making of any firearm or explosive or incendiary device,

107. *Id.* at 435, 439, 452 ("In November 1999, Corley wrote and placed on his web site, 2600.com, an article about the DeCSS phenomenon. His web site is an auxiliary to the print magazine, 2600: The Hacker Quarterly, which Corley has been publishing since 1984.7 As the name suggests, the magazine is designed for 'hackers,' as is the web site. While the magazine and the web site cover some issues of general interest to computer users—such as threats to online privacy—the focus of the publications is on the vulnerability of computer security systems, and more specifically, how to exploit that vulnerability in order to circumvent the security systems. Representative articles explain how to steal an Internet domain name and how to break into the computer systems at Federal Express. Corley's article about DeCSS detailed how CSS was cracked, and described the movie industry's efforts to shut down web sites posting DeCSS. It also explained that DeCSS could be used to copy DVDs. At the end of the article, the Defendants posted copies of the object and source code of DeCSS.").

108. *See Universal*, 273 F.3d at 435; *id.* (assuming that the motivating interests of mischief-makers and copyright infringers are divergent from those of computer-science scholars and computer buffs).

109. *Id.* at 454-55.

110. *Id.* ("Posting DeCSS on the Appellants' web site makes it instantly available at the click of a mouse to any person in the world with access to the Internet, and such person can then instantly transmit DeCSS to anyone else with Internet access. Although the prohibition on posting prevents the Appellants from conveying to others the speech component of DeCSS, the Appellants have not suggested, much less shown, any technique for barring them from making this instantaneous worldwide distribution of a decryption code that makes a lesser restriction on the code's speech component.").

111. *See* Kristin Houser, *Here's What Life Will Be Like With 3D Printers That Can Create Anything*, FUTURISM (Jan. 24, 2018), https://futurism.com/heres-life-like-3d-printers-can-create-anything [https://perma.cc/K84G-MRYN] (For some, "[o]nce 3D printing is incorporated into our daily lives, it will help automate our mundane tasks and give us more time to focus on things we actually want to do."). *See also 'Away from Control' Dimension of 3D Printing Raises IP, Other* Concerns, ITBUSINESSEDGE (Apr. 19, 2016), https://www.itbusinessedge.com/blogs/from-under-the-rug/away-from-control-dimension-of-3d-printing-raises-ip-other-concerns.html [https://perma.cc/XU5D-67BY] (For others, the "dark side" of 3D printing will be used to manufacture weapons and produce counterfeit items).

112. *See* Universal City Studios, Inc. v. Corley, 273 F.3d 429, 451 (2d Cir. 2001).

113. *See* United States v. Featherston, 461 F.2d 1119 (5th Cir. 1972).

114. *See* 18 U.S.C.A. § 231(a) (1) (Westlaw through Pub. L. No. 115-426); *see also Featherston*, 461 F.2d at 1120-21.

> or technique capable of causing injury or death to persons, knowing or having reason to know or intending that the same will be unlawfully employed for use in, or in furtherance of, a civil disorder which may in any way or degree obstruct, delay, or adversely affect commerce or the movement of any article or commodity in commerce or the conduct or performance of any federally protected function.[115]

In challenging their convictions, the appellants proffered two First Amendment contentions.[116] First, the appellants argued that "since the statutory language does not require knowledge or intent, it permits prosecution for the dissemination of ideas without a showing of clear and present danger."[117] Second, 18 U.S.C. § 231(a)(1) was "unconstitutionally applied because the government failed to prove the happening or pendency of a particular civil disorder and thus failed to show a clear and present danger justifying an interference with activity protected by the First Amendment."[118] The Fifth Circuit rejected both of the appellants arguments, stating that, "the words 'clear and present danger' do not require that the government await the fruition of planned illegal conduct."[119] *Featherston* illustrates the role that exigency can play in the government's ability to abridge speech related to the dissemination of instructional material.[120] Under 18 U.S.C. § 231(a)(1), a civil disorder requires knowledge of, or intent for, the instructional information to result in an unlawful act.[121] In terms of blueprint files, non-myriad items, such as firearms and explosives, may pose a similar threat.[122] While it may be difficult to argue that publishers of blueprint files have the requisite intent that their digital instructions will lead civil disorder, there is an inherent danger associated with the free, unabridged dissemination of certain instructional information. Under the guise of digital anonymity, a publisher can share their blueprint file schematics, without regard for the end user's intentions. With gun blueprint files floating around on the internet, bad actors such as criminals, or the mentally unstable, may feel emboldened to 3D-print and manufacture their own weapons. These instances may, in-fact, give rise to a level of "clear and present danger."[123] Moreover, *Featherston's* holding provides support for

115. 18 U.S.C.A. § 231(a)(1).

116. *Featherston*, 461 F.2d at 1122.

117. *Id.*

118. *Id.*

119. *Id.*

120. *See id.* at 1122–23 ("Taken within this factual setting, we hold that there was a sufficient showing of clear and present danger to justify governmental intervention and the prosecution of appellants for teaching the use and manufacture of explosives and incendiary devices, as provided in § 231(a)(1).").

121. 18 U.S.C.A. § 231(a)(1).

122. *See generally* John Hornick, *Dangers and Benefits of 3D Printing*, LEB (Nov. 13, 2018), https://leb.fbi.gov/articles/featured-articles/dangers-and-benefits-of-3d-printing [https://perma.cc/7CSD-TMT4] ("Throughout history, people have disguised or concealed guns in such items as tobacco pipes, cameras, canes, umbrellas, and pocket watches. One of the strengths of 3D printing—customization—makes this practice possible in a broader range of products. Thus, a 3D-printed gun might look like a shoe, hairbrush, or soda can. The look of such a weapon depends only on the designer's imagination, skill in using software and 3D printers, and choice of machine.").

123. *See* United States v. Featherston, 461 F.2d 1119, 1122 (5th Cir. 1972).

Judge Lasnik's comments, detesting a wait-and-see approach to law enforcement.[124]

However, in *Bernstein v. United States Department of State*, Daniel Bernstein, a graduate student, developed "an encryption algorithm he [called] 'Snuffle.'"[125] Similar to the private defendants in *Washington*, Bernstein challenged the provisions of the Arms Export Control Act ("AECA") and the International Traffic in Arms Regulations ("ITAR") that restricted Bernstein's ability to "publish and communicate his ideas on cryptography," without first obtaining a license.[126] Bernstein believed that by imposing registration and licensing procedures, the federal government was applying content-based restrictions that constituted a prior restraint to his speech.[127] In holding that Bernstein's Snuffle source code was protected speech, the District Court stated that, "Instructions, do-it-yourself manuals, recipes, even technical information about hydrogen bomb construction, are often purely functional; they are also speech."[128] Furthermore, the District Court held that Bernstein's claim against the government's administrative licensing scheme was justiciable under the First Amendment, stating that, "the AECA and ITAR, come with a heavy presumption against their validity when they act as a prior restraint on speech."[129] It is noteworthy to mention that the District Court recognized that, "Prior restraints have even been struck down in the face of national security concerns."[130] *Bernstein* yields two important considerations.[131] First, licensing schemes are not infallible to review even when there are cognizable national security concerns.[132] Second, a colorable

124. *Compare id.* at 1119, *with* Simon, *supra* note 33 (the justification for government intervention in Featherston was a prophylactic response to the perceived dangers of teaching the use and manufacture of harmful explosive devices. This threat could no longer be ignored by the government. Digital gun blueprint files pose a similar danger that Judge Lasnik has characterized as a "greater problem." Proactive measures require intervention before the harm can be carried out).

125. Bernstein v. United States Dep't of State, 922 F. Supp. 1426, 1429 (N.D. Cal. 1996) ("He describes Snuffle as a zero-delay private-key encryption system. Bernstein has articulated his mathematical ideas in two ways: in an academic paper in English entitled 'The Snuffle Encryption System,' and in 'source code' written in 'C', a high-level computer programming language, detailing both the encryption and decryption, which he calls 'Snuffle.c' and 'Unsnuffle.c', respectively. Once source code is converted into 'object code,' a binary system consisting of a series of 0s and 1s read by a computer, the computer is capable of encrypting and decrypting data.").

126. *See* 22 U.S.C.A. § 2778 (LEXIS through Pub. L. No. 115-385); 22 C.F.R. §§ 120-30 (2018). *Bernstein*, 922 F. Supp. at 1430 ("Bernstein asserts that he is not free to teach the Snuffle algorithm, to disclose it at academic conferences, or to publish it in journals or online discussion groups without a license."); Washington v. United States Dep't of State, 318 F. Supp. 3d 1247, 1251–52 (W.D. Wash. 2018).

127. *Bernstein*, 922 F. Supp. at 1430-31.

128. *Id.* at 1435 (citing United States v. The Progressive, Inc., 467 F.Supp. 990 (W.D. Wisc.1979)).

129. U.S. CONST. amend. I; *Bernstein*, 922 F. Supp. at 1438 (discussing constitutionality of provisions in 22 U.S.C. § 2778 (2013), and 22 C.F.R. §§ 120-30 (2018)).

130. *Bernstein*, 922 F. Supp. at 1438 (citing New York Times Co. v. United States, 91 S. Ct. 2140-42, 2149 (1971)) ("In his concurrence to the *per curiam* decision, Justice Stewart suggested a stringent test for permissible prior restraints, allowing them only when 'disclosure … will surely result in direct, immediate, and irreparable damage to our Nation or its people.'").

131. *Bernstein*, 922 F. Supp. at 1438.

132. *See id.* at 1438 (citing *New York Times*, 403 U.S. at 713, 714 (1971) ("Prior restraints have even been struck down in the face of national security concerns… (dissolving retraining order against newspaper publication of Pentagon Papers that included classified information). In *New York Times* the national security asserted was too vague a justification for prior restraints.").

claim, challenging a licensing procedure related to technical information, will be given deference by the courts.[133] However, *Washington* has shown that the balancing of hardships and public interest may tip the scales in favor of upholding government regulations.[134] In the course of conducting a balancing test, there are two dichotomous factors motivating publishers of blueprint files.[135]

B. INDIVIDUAL INTERESTS

The first motivating factor is the utilitarian-transformative interest.[136] The Robin Hoods[137] of the digital era are certain publishers of blueprint files who view themselves as supplying the general public with the building blocks, or digital DNA, necessary to 3D print at a *de minimis* cost.[138] Take for example Cody Wilson,[139] former founder and director of Defense Distributed, a nonprofit organization.[140] The organization's mission, as stated in *Defense Distributed*, is:

> For the purpose of promoting popular access to arms guaranteed by the United States Constitution by facilitating global access to, and the collaborative production of, information and knowledge related to the 3D printing of arms; and by publishing and distributing such information and knowledge on the Internet at no cost to the public.[141]

Mr. Wilson is a gun activist, who advocates against "the imposition of state controls over human flourishing and creativity, freedom,

133. *Id.* ("Since Snuffle is speech that is potentially subject to the prior restraint of licensing, and under the AECA that restraint is unreviewable, plaintiff's prior restraint claim is colorable.").

134. *See* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247, 1263 (W.D. Wash. 2018).

135. Usurping the traditional notions of free speech in the digital age.

136. *See generally* Richard A. Posner, *Utilitarianisms, Economics, and Legal Theory*, 8 J. LEGAL STUD. 103, 104 (1979) ("Utilitarianism, as ordinarily understood and as I shall use the term in this paper, holds that the moral worth of an action (or of a practice, institution, law, etc.) is to be judged by its effect in promoting happiness—'the surplus of pleasure over pain'—aggregated across all of the inhabitants (in some versions of utilitarianism, all of the sentient beings) of 'society' (which might be a single nation, or the whole world).").

137. Robin Hood, MERRIAM-WEBSTER, https://www.merriam-webster.com/dictionary/Robin%20Hood [https://perma.cc/48GD-JBAJ] (last visited Mar. 2, 2019) ("A person or group likened to a heroic outlaw. Especially one that robs the rich and gives to the poor.").

138. Empowering end-users to 3D-print from schematics that may otherwise be unobtainable; either due to substantial accusation costs of the blueprint files or a general unavailability in the marketplace.

139. Cody Wilson was forced to resign from Defense Distributed due to sexual assault allegations. *See generally* Russell Brandom, *Cody Wilson Has Resigned as CEO of Defense Distributed*, THE VERGE (Sept. 25, 2018, 12:24 PM), https://www.theverge.com/2018/9/25/17901274/cody-wilson-resigned-ceo-defense-distributed-sexual-assault [https://perma.cc/BG6T-EEGC].

140. *See generally* DEFENSE DISTRIBUTED, *About*, https://defdist.org/ [https://perma.cc/A68D-UULY] (last visited Mar. 2, 2019) ("Defense Distributed was founded as the first private defense contractor in service of the general public. Beginning with 2012's Wiki Weapon project, DD has advanced the state of the art in small scale, digital, personal gunsmithing technology ever since. Since 2013, DD has protected its technical advancements on First and Second amendment grounds in the federal courts. Our most famous victory is a settlement with the US State Department over ITAR classifications of small arms technical data. We continue the fight today, learn our latest legal news through LEGIO. Thank you for your support.").

141. *See id.*; Def. Distributed v. United States Dep't of State, 838 F.3d 451, 454 (2016).

individuality."[142] In May 2013, Mr. Wilson published a widely controversial gun blueprint file to the internet.[143] The gun blueprint file was for a plastic pistol design called the Liberator.[144] The Liberator blueprint file was subsequently downloaded over 100,000 times before the Department of State intervened and restricted its further publication.[145] Mr. Wilson characterizes his motives in the following light, stating that, "I'm not making guns for you," but, "I'm shipping the possibility to make it for yourself."[146] In *Defense Distributed*, the Court summarized the universal appeal to end users seeking to obtain gun blueprint files, stating such files are "without cost to anyone located anywhere in the world, free of regulatory restrictions."[147]

Juxtaposed to Mr. Wilson's zealous advocacy for universal access to 3D-printed firearms is the Four Thieves Vinegar Collective, an organization whose mission is to provide "Free Medicine for Everyone."[148] Four Thieves Vinegar, characterized by some as anarchist scientists, have developed the Apothecary MicroLab.[149] The Apothecary MicroLab is described as a "DIY automated chemistry robot that you download and 3D print and assemble, using common hardware, electronics, and chemistry components. With the MicroLab and the right chemicals, you can synthesize a variety of lifesaving drugs."[150] Responding to Mylan's price gauging of the lifesaving auto-injector "EpiPen," Four Thieves Vinegar undertook actions to remedy the purported injustice.[151] Four Thieves Vinegar developed a DIY 3D-printed

142. Abigail Brooks, *Who Is Cody Wilson, the Man Behind the 3D Printed Gun?*, CNN MONEY (Aug. 1, 2018, 1:01 PM), https://money.cnn.com/2018/08/01/technology/3d-printed-gun-cody-wilson-defense-distributed/index.html [https://perma.cc/V4XP-CTDK].

143. *See* Ryan W. Neal, *Blueprints For 'Liberator,' World's First 3D Printed Gun, Downloaded 100,000 Times In Two Days*, INTERNATIONAL BUSINESS TIMES (May 9, 2013, 3:47 PM), https://www.ibtimes.com/blueprints-liberator-worlds-first-3d-printed-gun-downloaded-100000-times-two-days-1248979 [https://perma.cc/MWK5-WELZ] ("Lawmakers are worried that, because the Liberator is made from plastic, it will pass unnoticed through metal detectors. There is also nothing keeping the Liberator out of dangerous hands.").

144. *Id.*; *see also* Matthew Wellington, *The Liberator 3D Printed Gun*, 3D PRINT HEADQUARTERS (May 14, 2013), https://3dprinthq.com/the-liberator-3d-printed-gun/ [https://perma.cc/NUA3-XDKD].

145. *See* Adam Popescu, *Cody Wilson: The Man Who Wants Americans to Print Their Own 3D Guns*, THE GUARDIAN (June 6, 2016, 6:40 PM), https://www.theguardian.com/us-news/2016/jun/06/cody-wilson-3d-guns-printing-firearms-lower-receivers [https://perma.cc/289W-WHY5] ("Wilson wants to circumvent the big gun makers and give people their own way to build weapons, a position which has made him a major voice in gun-web rights and, in a counterintuitive twist, in the free speech movement.").

146. *Id.*

147. Def. Distributed v. United States Dep't of State, 838 F.3d 451, 454-55 (5th Cir. 2016) ("Defense Distributed's files allow virtually anyone with access to a 3D printer to produce, among other things, Defense Distributed's single-shot plastic pistol called the Liberator and a fully functional plastic AR–15 lower receiver.").

148. FOUR THIEVES VINEGAR, *Our Mission*, https://fourthievesvinegar.org/our-mission [https://perma.cc/6V9M-JM7N] (last visited Mar. 5, 2019) ("People are disenfranchised from access to medicine for various reasons. To circumvent these, we have developed a way for individuals to manufacture their own medications.").

149. *See* Cory Doctorow, *Four Thieves Vinegar Collective: DIY Epipens Were Just the Start, Now It's Home Bioreactors to Thwart Big Pharma's Price Guaging*, BOING BOING (July 27, 2018, 7:18 AM), https://boingboing.net/2018/07/27/theft-to-prevent-murder.html [https://perma.cc/JV6F-GH3Z].

150. *Id.* ("Such additional uses of the Apothecary Microlab include synthesizing homemade medication for HIV, opiate overdoses, and pharmaceutical abortions.").

151. PROGRESSTH, *Epipen Goes From $300 to $30 to $3 with Opensource And 3D Printing* (Oct. 10, 2016), http://www.progressth.org/2016/10/epipen-goes-from-300-to30-to-3-with.html [https://perma.cc/6N3B-H5W5] ("While the US government held a hearing regarding Mylan's EpiPen pricing

EpiPencil, costing only thirty dollars.[152] The utilitarian-transformative interest, motivating individuals and organizations alike, carries a socioeconomic impact bound by a common thread that links publishers of blueprint files.[153] The ability to empower through technological innovation can result in reduced transaction costs, while increasing accessibility to otherwise inaccessible digital files vital to the 3D printing process.[154] Spanning beyond the confines of the United States, ProgressTH, a Bangkok-based design lab that promotes 3D printing innovations, states that, "Activism can mean many things. While it is important at times for people to raise their voices in protest, it is equally as important for them to roll up their sleeves and create with their own two hands the change they want to see in the world."[155]

The conventional wisdom that blueprint files are nothing more than non-symbolic, purely functional computer code with no expressive value are contravened by their transformative affects.[156] This is particularly evident in the realm of 3D-printed prosthetic devices.[157] Individuals like Jose Delgado Jr. ("Delgado") have benefitted both personally and financially from the

in which a package containing two of the devices costs a whopping $600, little appears to have been done except provide the public with the belief that "something" will eventually be done by what is a clear case of price gouging.") ("With 3D printing, our own innovation lab has found it possible to cut costs even further. We are developing an opensource design of the autoinjector used for the EpiPencil. Costs for the PLA plastic used in printing out prototypes reveals an expected price of around $3 for the finished product.").

152. *Id. See also* 3DERS.ORG, *$600 EpiPen price hike inspires DIY 3D printed EpiPencil that costs just $3* (Oct. 10, 2016), http://www.3ders.org/articles/20161011-600-epipen-price-hike-inspires-diy-3d-printed-epipen-that-costs-just-3-dollars.html [https://perma.cc/KC6X-VY6X].

153. *See* Daniel Oberhaus, *Meet the Anarchists Making Their Own Medicine*, Vice (July 26, 2018, 12:03 PM), https://www.vice.com/en_us/article/43pngb/how-to-make-your-own-medicine-four-thieves-vinegar-collective [https://perma.cc/LB2A-LTTY] ("I think it's absolutely imperative that information about how to make your own medicines should be as easily accessible as possible to everyone who might have even a passing interest. The goal of the group is to make it possible for people to be able to do these things on their own. The idea that someone could download the instructions, read the list of materials, order them, read the instructions for how to assemble it and program it, upload the code, order precursor chemicals, and then manufacture medicine.").

154. *See* Heidi Milkert, *3D Printing: The Next 5 years*, 3DPRINTING.COM (Mar. 28, 2015), https://3dprint.com/54120/3d-printing-future-2/ [https://perma.cc/N7L3-XVX9] (As a disruptive technology, "Inventors now have everything they need. People can now design on their own home computer and print it out—not pay thousands of dollars to have larger companies make prototypes. Manufacturers may end up touching it in the production phase, but not early on. 3D printing is bringing innovation to the general public.").

155. *See* PROGRESSTH, *About*, http://www.progressth.org/p/about-progress-thailand.html [https://perma.cc/FFR6-WR3Q] (last visited Mar. 5, 2019); PROGRESSTH, *supra* note 151.

156. *See* Def. Distributed v. U.S. Dep't of State, 121 F. Supp. 3d 680, 691 (W.D. Tex. 2015), *aff'd sub nom.* Def. Distributed v. U.S. Dep't of State, 838 F.3d 451 (5th Cir. 2016) ("As an initial matter, Defendants argue the computer files at issue do not constitute speech and thus no First Amendment protection is afforded … Defendants, however, maintain the computer files at the heart of this dispute do not warrant protection because they consist merely of directions to a computer.").

157. *See* Jed Lehman, *3D Printed Prosthetics Are Helping Amputees Save Money*, GLITCHMIND (May 21, 2019), https://glitchmind.com/3d-printed-prosthetics/ [https://perma.cc/Z4CZ-DNQX] ("3D printed prosthetics have been disrupting traditional ways of manufacturing for quite some time. Now relatively mainstream, 3D printing reduces costs for artificial limb production to a substantially lower price than they once were. The positives of 3D printing prostheses go beyond the cost. The time to produce a prosthetic limb has shown to be drastically reduced with the advent of software based production. Designs can now be intricately fine tuned to suit the style of the person.").

dissemination of blueprint files.[158] As the recipient of an e-NABLE 3D-printed prosthetic hand, Delgado's transaction costs have been substantially reduced.[159] While the e-NABLE 3D-printed prosthetic hand costs only fifty-dollars to produce, Delgado's Myoelectric Prosthesis, not printed by a 3D printer, costs an astonishing $42,000.[160] The company responsible for the e-NABLE prosthetic hand, Enabling the Future, encourages its volunteers to "Find the files and assembly instructions you need to build a hand!", directly from their website.[161] While the utilitarian-transformative interest in publishing blueprint files has created a plethora of good will and socioeconomic incentive, there are always two sides to the proverbial 3D-printed coin. Residing deep in the bowels of today's technologically-dependent society[162] lies a second, more sinister motivating factor; the illicit-exploitative interest.

The prevalence of illicit activity, under the guise of technological anonymity, has grown increasingly pervasive in today's society.[163] Due to the technological advancements, and the cost-saving initiatives in the field of 3D printing, individuals seeking to exploit these developments, either for nefarious reasons or pecuniary gain, have an increasing opportunity to do so.[164] The incentives, stemming from an unabridged right to publish

158. DEALING WITH DIFFERENT, *The Future is Here: 3D Printed Prosthetics*, https://dealingwithdifferent.com/3d-printing-prosthetics/#.W8iZbvZFzmE [https://perma.cc/5MKS-SSJG] (last visited Mar. 6, 2019).

159. *Id.*; ENABLING THE FUTURE, *Build A Hand*, http://enablingthefuture.org/upper-limb-prosthetics/ [https://perma.cc/FGU2-TV2H] (last visited Mar. 6, 2019).

160. Jeremy Simon, *Man Compares His $50 3D Printed Hand to His $42K Prosthesis*, 3D UNIVERSE (Apr. 19, 2014), https://3duniverse.org/2014/04/19/jose-delgado-jr-compares-his-new-3d-printed-hand-to-his-more-expensive-myoelectric-prosthesis/ [https://perma.cc/WH58-LDS3] ("I believe that 3D printing is a transformational technology. Jose's experience is a great example of that. 3D printing completely changed the possibilities for one man, and at 1/10 of 1% of the cost of other devices, those possibilities are becoming more readily available to anyone, anywhere."); *id.* Coined the "Cyborg Beast", the e-NABLE 3D-printed prosthetic hand's fifty-dollar price tag is inclusive of the cost of materials.

161. ENABLING THE FUTURE, *supra* note 159 ("The e-NABLE community has developed a collection of different 3D-printable assistive devices that are free for download and fabrication by anybody who would like to learn more about the designs or fabricate a device for somebody in need."); *see generally* ENABLE COMMUNITY FOUND., *e-NABLE Phoenix Hand v2* (Mar. 30, 2016), https://www.thingiverse.com/thing:1453190/#files [https://perma.cc/9F74-WB38] (referencing the e-NABLE Phoenix Hand v2, where there is a breakdown of the digital components and instructions to 3D-print and assemble a prosthetic hand).

162. *See generally* Vivek Wadhwa, *Laws and Ethics Can't Keep Pace with Technology*, MIT TECH. REV. (Apr. 15, 2014), https://www.technologyreview.com/s/526401/laws-and-ethics-cant-keep-pace-with-technology/ [https://perma.cc/TLH2-M9NW].

163. *See* Geeks Guide To The Galaxy, *Crime Has Gone High-Tech, And The Law Can't Keep Up*, WIRED (Mar. 21, 2015, 7:00 AM), https://www.wired.com/2015/03/geeks-guide-marc-goodman/ [https://perma.cc/AYT9-VLPA].

164. *See* Jelmer Luimstra, *Criminals Use 3D Printers to Mass-Produce Skimming Devices*, 3DPRINTING.COM (Mar. 24, 2014), https://3dprinting.com/news/criminals-use-3d-printers-mass-produce-skimming-devices/ [https://perma.cc/V4LB-V2A8] ("Financially it's probably everyone's worst nightmare: getting skimmed. Criminals create self-made devices, which they fit around, onto or into an ATM's card slot. In combination with some other tactics, these criminals are actually able to extract important data from credit and debit cards, which they use to loot people's bank accounts. Since a couple of years, these fraud criminals also use 3D printers to print out their skimming devices. This means 3D printing techniques actually help criminals to improve their work. Using such techniques, they can modify their design in a much quicker way or create a totally new design. It also enables them to make 3D printouts on demand, which they can print out directly in case authorities have detected and removed a

blueprint files, may result in an unwelcomed consequence.[165] John Hornick, of Finnegan Henderson, Farabow, Garrett & Dunner, LLP, a leading intellectual property law firm, has identified the prospective outgrowth in illicit, criminal activity that could result from the institutionalized, wide spread utilization of 3D-printing technology.[166] Mr. Hornick has delineated five potential hindrances to law enforcement, labeled "The Five Is:"

> As powerful personal 3D printers become common, as independent service bureaus open their doors and install better and better printers, and as industrial customers begin to realize they can make replacement parts, and other products, in-house, democratization of manufacturing will increase and migrate away from control. When anyone can 3D print things with virtually any functionality, away from control, many laws will suffer the Five Is (pronounced "five eyes"):
>
> > Illegal activity: When anyone can 3D print things with virtually any functionality, illegal activity away from control will proliferate.
> > Identification: Such activity, which is away from control, will be increasingly difficult to identify.
> > Impractical or Impossible: It will be increasingly impractical or impossible to enforce the law against such activity.
> > Impotent: Such laws will become increasingly impotent; they will exist and be enforceable for 3D printing within control, but will be largely irrelevant for 3D printing away from control.
> > Thus, as democratization of manufacturing increases away from control, applicable laws are likely to become increasingly irrelevant.[167]

As the impetus to 3D printing, regulation of blueprint files may invariably be the key to countering the side effects of the "The Five Is," mitigating the diminished capabilities of law enforcement.[168] Mr. Hornick underscores the types of actors spurred by the illicit-exploitative interest, stating that, "Thieves are already using these machines to 3D print new types of crime. Counterfeiters, drug dealers, black marketeers, gangsters, terrorists,

current skimming device on an ATM cash point. A new skimmer, called Gripper, is now being active online and the mysterious person asks people to join his international network.").

165. *See* Brian Krassenstein, *3 Dangers Society Faces From 3D Printing*, 3DPRINT.COM (July 16, 2015), https://3dprint.com/81526/3d-print-dangers/ [https://perma.cc/439R-BFL9] ("Ultimately 3D printing could be one of these technologies, with impacts on society which will touch us all for the better, while also enabling new avenues for evil in this world to prevail … By creating non-toxic filament that's mixed with certain chemicals, they were able to fabricate tiny implants which could be placed into the human body for a slow and steady release of specific drugs. The same philosophy could be used by illegal drug manufacturers to print out pills in all different shapes, sizes and colors, catering to children or adults. Not only would this possibly make illegal drugs more appealing to younger individuals, but the entire process of creating such pills could be automated and streamlined.").

166. John F. Hornick, *3D Printing and Public Policy*, 51 LES. NOU. 94, 95 (2016). *Id.* at 95–96 ("Some 3D printing away from control will be intentionally illegal. There will always be bad guys and 3D scanners and printers are great tools for counterfeiting almost anything. Some will scan objects without regard to IP rights, product safety, export control laws, or taxation and either use, sell, or freely share the digital blueprints. Some will use tools that mask design files, such as the Disarming Corruptor, so that they can be exchanged without regard to laws they may violate. Others will trade illegal digital blueprints peer-to-peer and on the Internet. Others will upload and download them on black market websites, such as Pirate Bay, or on the Dark Web (the World Wide Web is only about 5 percent of the Internet). Some of the intentional activity will not be away from control, so stakeholders may try to stop it, as they try to stop counterfeiting of other products today, but even today this is hard to do because counterfeiters operate in the shadows.").

167. *Id.* at 95.

168. *See id.*

and other criminals will not be far behind."[169] In further hindrance to law enforcement initiatives lie alternative technical avenues for blueprint file publishers to conceal their activities,[170] such as Disarming Corruptor.[171] This menacing phrase refers to a piece of software that disguises certain elements of a blueprint file, "in order to let them slip through filters and firewalls which are designed to block entry of content into repositories."[172] Disarming Corruptor, created by designer Matthew Plummer-Fernandez, is described as a:

> Free piece of software designed to "corrupt" and "repair" an STL file used to 3D print. It's based on seven key values that can be tweaked to distort the file. Anyone that knows those key values can reverse the process and reveal the file's original and true nature; any tweaks in the wrong direction will further corrupt the file.[173]

Mr. Plummer-Fernandez's efficacy in promoting Disarming Corruptor acts as a double-edged sword. Although Disarming Corruptor may act as a safeguard to protect end users from unwarranted restrictions or government intrusion, thus leveling the playing field, it can also be employed to skirt law enforcement initiatives.[174] By using basic encryption technology, Disarming Corruptor can "take your 3D Yoda figurine, weapon, or other piece of

169. Hornick, *supra* note 166, at 96 ("Law enforcement worries about 3D printing away from control because 3D printing could become the devil's playground. Like anything else, 3D printing has a dark side and some people will be called to it. Guns have already been 3D printed, some within control and some away from control."); *see also* Jayanth Murali, *Dangerous Side of 3D Printing Technology*, DECCAN CHRONICLE (Oct. 29, 2018, 1:39 AM), https://www.deccanchronicle.com/nation/current-affairs/291018/dangerous-side-of-3d-printing-technology.html [https://perma.cc/AXT4-UH93] ("3D printing of drugs and pharma has taken off as well. Scientists have already developed a "chemputer" that can print medicines such as ibuprofen on demand.").

170. *See* Hornick, *supra* note 166, at 96; Murali, *supra* note 143 ("A time would come when there would be no necessity for the drug dealers to peddle drugs as it would boil down to emailing digital blueprints.").

171. *See* Liat Clark, *Disarming Corruptor Distorts 3D Printing Files for Sharing of Banned Items*, ARS TECHNICA (Nov. 5, 2013, 9:35 AM), https://arstechnica.com/information-technology/2013/11/disarming-corruptor-distorts-3d-printing-files-for-sharing-of-banned-items/ [https://perma.ccD6ZM-CE7F]; *see also* MATTHEW PLUMMER-FERNANDEZ, *Disarming Corruptor*, https://www.plummerfernandez.com/works/disarming-corruptor/ [https://perma.cc/VRA6-3E2J] (last visited Mar. 7, 2019) ("In a time of prolific online surveillance, crackdowns on file-sharing, and a growing concern for the 3D printing of illegal items and copyright protected artefacts, DC is a free software application that helps people to circumvent these issues. Inspired by encryption rotor machines such as the infamous Enigma Machine, the application runs an algorithm that is used to both corrupt STL files into a visually-illegible state by glitching and rotating the 3D mesh, and to allow a recipient to reverse the effect to restore it back to its original form. The file recipient would need both the application and the unique seven-digit settings used by the sender, entering the incorrect settings would only damage the file further.").

172. Murali, *supra* note 169.

173. Clark, *supra* note 171.

174. *Id.* (Mr. Plummer-Fernandez discussed the purported uses of Disarming Corruptor and how it could be utilized by the community: "'If it is used mainly for sharing guns, I wouldn't know. The files aren't shared via servers in my basement; they are shared on Thingiverse and the like. My goal is to give people a level of protection and privacy against patent trolls, repressive governments, NSA algorithms, and all the other parties that might come looking for them. Technologies must serve the interest of the people, not only of those in control, and I'd like to believe it is up to these file-sharing communities to self-regulate their archive of files.' It's an idealistic outlook, that those communities might seek to block the printing of those harmful or illegal items that inspired the software's creation in the first place. Nevertheless, as a tool, the Disarming Corruptor is a leveler for the design community that seeks to ensure no one individual, body, or company has a monopoly over any shape they can imagine.").

contraband and disguise it as something else."[175] Blueprint files are not immune to the transgressions of their users. The lengths an individual user may go through to conceal the contents of blueprint files further illustrates the inherent value placed on these digital instructions.[176]

Moving beyond the purview of criminal enterprise, blueprint files may act as a conduit, not only to convey technical information, but also to teach and instruct laypersons how to manufacture potentially deadly weapons or illicit contraband.[177] Thus, embedded within the illicit-exploitative interest resides a secondary consideration—the topic of crime-facilitating speech.[178] In determining whether blueprint files fall within this category of speech, Professor Eugene Volokh discusses the implications of drawing such a distinction:

> It may be appealing, for instance, to categorically deny First Amendment protection to murder manuals or to bomb-making information, on the ground that the publishers know that the works may help others commit crimes, and such knowing facilitation of crime should be constitutionally unprotected. But such a broad justification would equally strip protection from newspaper articles that mention copyright-infringing Web sites, academic articles that discuss computer security bugs, and mimeographs that report who is refusing to comply with a boycott.[179]

These considerations, weighed by the Court in *Featherston*, elucidate the topic of chilling speech to prevent teachings that encourage dangerous or illicit activity.[180] Professor Volokh expounds upon this premise, stating that, "If one wants to protect the latter kinds of speech, but not the contract murder manual, one must craft a narrower rule that distinguishes different kinds of crime-facilitating speech from each other."[181] The regulation of blueprint files may pose a similar challenge, in terms of crafting a narrowly tailored rule which carefully distinguishes between different categories of blueprint files, without usurping traditional notions of free speech.[182] One possible solution, as discussed in Part III of this Article, is to devise a flexible scheduling system that regulates the publication of blueprint files based on

175. Ian Paul, *Disarming Corruptor' Disguises 3D Printing Designs to Fight The Man*, PCWORLD (Nov. 5, 2013, 6:44 AM), https://www.pcworld.com/article/2060822/disarming-corruptor-disguises-3d-printing-designs-to-fight-the-man.html [https://perma.cc/9239-PRMZ] ("Disarming Corruptor could very well spur the next step in keeping 3D designs from attracting too much attention while still sharing them online.").

176. *See* A3DP, *Why Is 3D Printing Important?*, ALLABOUT3DPRINTING.COM (June 24, 2013), http://allabout3dprinting.com/why-is-3d-printing-important-2/ [https://perma.cc/5JAE-YUTV] ("3D printing opens up a world of opportunities previously only available to medium-to-large size businesses and factory's. Imagine, you have an idea for something, it is something simple that you can "design" yourself or have someone else do it for little cost; instead of having to submit to a patent company and pay them and they then search for a manufacturer that is willing to take the risk to produce your idea, you can do it yourself. It is similar to an author self-publishing a book or an independent movie.").

177. *See* Wired, *DIY Guns: The Legal Win That Makes It Easier Than Ever to Make Guns*, YOUTUBE (July 10, 2018), https://www.youtube.com/watch?v=qJAi2DYCo8U [https://perma.cc/ M5LN-PN54].

178. *See* Eugene Volokh, *Crime-Facilitating Speech*, 57 STAN. L. REV. 1095 (2005).

179. *Id.* at 1104.

180. *See* United States v. Featherston, 461 F.2d 1119 (5th Cir. 1972).

181. Volokh, *supra* note 178, at 1105. *See* Noah Feldman, *The First Amendment Protects Plans for 3-D Guns*, BLOOMBERG (Aug. 1, 2018, 12:47 PM), https://www.bloomberg.com/opinion/articles/ 2018-08-01/3-d-printed-guns-are-protected-by-first-amendment#footnote- [https://perma.cc/4M8-4D VS]; *see also infra* Part III.

182. *See infra* Part III.

their propensity, as digital instructions, to cause substantial and irreparable harm to the public.[183] By restricting a publisher's ability to disseminate certain types of blueprint files, crime-facilitating speech is targeted by impeding the end users' capacity to print dangerous 3D objects.[184] However, it is important to note that the courts have struggled to clarify the types of speech that are deemed crime-facilitating.[185] Remarkably, Professor Volokh notes that, "No Supreme Court case squarely deals with crime-facilitating speech."[186]

In *McCoy v. Stewart*, Jerry McCoy was convicted of participating in a criminal syndicate by furnishing advice to members of a street gang.[187] Under Arizona law, McCoy was guilty of "Furnishing advice or direction in the conduct, financing or management of a criminal syndicate's affairs with the intent to promote or further the criminal objectives of a criminal syndicate."[188] After the Arizona Court of Appeals affirmed McCoy's conviction, McCoy petitioned the District Court for a writ of *habeas corpus*, which was granted.[189] In reversing McCoy's conviction, both the District Court and the Ninth Circuit held that McCoy's speech was protected under the First Amendment.[190] Furthermore, the Ninth Circuit stated that McCoy's speech "was mere abstract advocacy that was not constitutionally proscribable because it did not incite 'imminent' lawless action."[191] In response, the Director of the Arizona Department of Corrections petitioned for a writ of certiorari to review the decision of the Ninth Circuit.[192] Although the Supreme Court ultimately denied the petition, in *Stewart v. McCoy*, Justice Stevens filed a separate statement to clarify the state of the law pertaining to incitement of violence.[193] Citing *Brandenburg v. Ohio*, Justice Stevens wrote:

> The principle identified in our Brandenburg opinion is that "the constitutional guarantees of free speech and free press do not permit a State to forbid or proscribe advocacy of the use of force or of law violation

183. *Id.*

184. *See* Hornick, *supra* note 166; Volokh, *supra* note 178.

185. *See* Volokh, *supra* note 178, at 1128 ("The Supreme Court has never announced a specific doctrine covering crime-facilitating speech, and none of the more general doctrines, such as strict, is up to the task.").

186. *See id.* at 1128-29 n. 132-36 (citing Florida Star v. B.J.F., 491 U.S. 524, 541-42 (1989); United States v. Aguilar, 515 U.S. 593, 606 (1995); Scales v. United States, 367 U.S. 023, 264-65 (1961); Haig v. Agee, 453 U.S. 280, 309-10 (1981); NAACP v. Claiborne Hardware Co., 458 U.S. 886 (1982)).

187. *Compare* Stewart v. McCoy, 537 U.S. 993, 994 (2002) (Stevens, J., respecting the denial of certiorari), *with* McCoy v. Stewart, 282 F.3d 626 (9th Cir. 2002).

188. *McCoy*, 537 U.S. at 994; *see also Stewart*, 282 F.3d at 628 ("Jerry Dean McCoy was indicted in Arizona Superior Court on one count of participating in a criminal street gang in violation of A.R.S. § 13-2308, a class 2 felony. The prosecution alleged that McCoy, formerly a member of a California street gang called 'Toonerville,' advised a street gang who called themselves the 'Bratz' or 'Traviesos' on at least two separate occasions on how to operate their gang: once at a barbeque at Bratz member Eddie Rodriguez's house, and once at a party held at the residence of another Bratz member. A jury convicted him. The trial judge sentenced McCoy to fifteen years of imprisonment, citing as aggravating circumstances his criminal history and that he was on parole at the time of the offense.").

189. *Id.* at 993.

190. *Id.* at 994.

191. *Id.*

192. *Id.* at 993.

193. *Id.* at 994.

> except where such advocacy is directed to inciting or producing imminent lawless action and is likely to incite or produce such action." While the requirement that the consequence be "imminent" is justified with respect to mere advocacy, the same justification does not necessarily adhere to some speech that performs a teaching function. As our cases have long identified, the First Amendment does not prevent restrictions on speech that have "clear support in public danger." Long range planning of criminal enterprises-which may include oral advice, training exercises, and perhaps the preparation of written materials-involves speech that should not be glibly characterized as mere "advocacy" and certainly may create significant public danger. Our cases have not yet considered whether, and if so to what extent, the First Amendment protects such instructional speech. Our denial of certiorari in this case should not be taken as an endorsement of the reasoning of the Court of Appeals.[194]

Justice Stevens's statements in *McCoy*[195] underscore the murkiness surrounding speech that involves a teaching function, potentially moving beyond the bounds of mere advocacy.[196] Furthermore, the precedent from *Brandenburg*[197] conflates the issue of immanency, leaving one to question whether an exigency, or impending action, is a prerequisite to chilling certain forms of speech.[198] Publishers of blueprint files may argue that their digital files are mere tools of advocacy, inert, and devoid of a teaching function.[199] From this vantage point, end users are not diametrically absorbing the intricacies of each blueprint file that they download.[200] There is neither retention of information, nor a redeeming value beyond the blueprint files syntax. On the other hand, blueprint files can be viewed as a digital delivery system, filled with repositories of instructional data,[201] specifically intended to guide and instruct. End users are engaged in a step-by-step, methodical process with the ultimate goal of bringing their creations to life. Each successive step takes the end user closer to a finished product. Once complete, the 3D-printng process starts over. Since this process is repeatable,

194. *Id.* at 995. *See* Brandenburg v. Ohio, 89 S. Ct. 1827 (1969).

195. *McCoy*, 537 U.S. at 995.

196. *See id.* at 995.

197. *Brandenburg*, 89 S. Ct. 1827.

198. *See* Volokh, *supra* note 178, at 1107 ("Speech that advocates, praises, or condones crime can help provide the desire, and, if the speech urges imminent crime, the rage. Crime-facilitating speech helps provide the knowledge and helps lower the risk of being caught.").

199. *See* Beau Jackson, *Unpacking America's Downloadable 3D Printed Guns*, 3D PRINTING INDUSTRY (Aug. 1, 2018, 4:38 PM), https://3dprintingindustry.com/news/unpacking-americas-downloadable-3d-printed-guns-137357/ [https://perma.cc/Z6MV-YE6X] ("In Wilson's own words, in an interview for CBS, he says "I believe that I am championing the Second Amendment in the 21st century. I think access to a firearm is a fundamental human dignity, its a fundamental human right.").

200. *See generally* 3DHUBS.COM, *3D Printing STL Files: A Step-By-Step Guide*, https://www.3dhubs.com/knowledge-base/3d-printing-stl-files-step-step-guide [https://perma.cc/678E-DXKZ] (last updated 2018). It is hard to imagine users memorizing the layout of each digital 3D model or the data points comprising of each .STL file.

201. *See* A3DP, *What Is A 3D Printer Design File?*, ALLABOUT3DPRINTING.COM (July 12, 2013), http://allabout3dprinting.com/what-is-a-3d-printer-design-file/ [https://perma.cc/S79M-WNH4] ("A 3D Printer Design File is simply a file filled with the information that tells your 3D Printer what to print. The file tells your printer how to use the filament to print the object that you want. You can create your own Design File with Software or you can download it. A 3D Printer Design File is commonly in the STL file format. The object in the file is commonly referred to as a 3D Model; this is the file format that can be used by most CAD (Computer-aided Design) software.").

the utilization of blueprint files can be viewed as part of a training exercise.[202] However, certain non-myriad blueprint files, for items such as 3D-printed firearms, explosives, and drugs, may extend beyond the bounds of advocacy.[203] As Justice Stevens alluded to, certain forms of speech, such as training exercises, may lead to significant public danger.[204] The doctrine of "Incitement to Imminent Lawless Action,"[205] discussed by Justice Stevens in *McCoy*,[206] and its predecessor, "Clear and Present Danger,"[207] delineated in *Schenck v. United States*,[208] offer but a pretext into determining whether certain forms of facilitative speech rise to the level of unlawfulness. "Incitement to imminent lawless action" is defined as speech that is "directed to inciting or producing imminent lawless action and is likely to incite or produce such action."[209] Under the First Amendment jurisprudence, this is unprotected speech.[210] To understand the level of immanency associated with publishing certain non-myriad blueprint files, there are two secondary considerations to explore. The first consideration is the ease in accessibility. Obtaining blueprint files can be both a cost-efficient[211] and a time-saving endeavor.[212] The on-demand approach to blueprint file procurement streamlines the search process, and removes external pressures.[213] Blueprint files are

202. *See* Dibya Chakravorty, *What is 3D Printing? – Simply Explained*, ALL3DP, https://all3dp.com/1/what-is-3d-printing/ [https://perma.cc/BAD7-89YJ] (last visited July 24, 2019) (The workflow process includes a staging, planning, and execution phase to ensure that the digital file(s) comport with all necessary printing requirements).

203. *See Krassenstein*, supra note 165.

204. Stewart v. McCoy, 123 S. Ct. 468, 469-70 (2002).

205. *See Brandenburg*, 395 U.S. 444; *see also* DAVID L. HUDSON, JR., INCITEMENT TO IMMINENT LAWLESS ACTION § 3:2, Westlaw (database updated Oct. 2012).

206. *McCoy*, 537 U.S. at 995.

207. *See* Schenck v. United States, 39 S. Ct. 247 (1919); 16A AM. JUR. 2D *Const. Law* § 515 (last updated Feb. 2019) ("The clear and present danger doctrine, first formulated in an early case, provides protection for utterances so that the printed or spoken word may not be the subject of a previous restraint or subsequent punishment, unless its expression creates a clear and present danger of bringing about a substantial evil which either the federal or state government has the power to prohibit. The doctrine, simply stated, is that speech alone may neither be forbidden nor penalized, unless it presents a clear and present danger of some serious substantive evil."); Martin H. Redish, *Advocacy of Unlawful Conduct and the First Amendment: In Defense of Clear and Present Danger*, 70 CALIF. L. REV. 1159 (1982) ("Since the early days of the twentieth century, theorists of free speech have grappled with the problem of determining how much protection the first amendment gives to speech which -advocates unlawful conduct. On the one hand, speech urging criminal conduct appears to be of limited social value and may well lead to significant social harm. On the other hand, regulation of unlawful advocacy has often been employed as a means of suppressing unpopular social ideas and political groups, and attaching criminal penalties to such speech could substantially impair the flow of free and open discourse.").

208. *See Schenck*, 39 S. Ct. 247.

209. *Brandenburg*, 89 S. Ct. at 1829.

210. Hudson, Jr., *supra* note 205, at 1.

211. *See* Tucker, *supra* note 5.

212. Marketplaces such as Pinshape allow users to quickly conduct a filtered search and purchase 3D print files. *See* PINSHAPE, https://pinshape.com/ [https://perma.cc/92EU-HGNX] (last visited July 24, 2019) ("We've curated a great selection of premium and free STL files from our community of 70,000+ Makers and Designers for you to download and print. Find something 3D printable or sell/share your designs today!").

213. Even in the shadow of the government, end users can search repositories of blueprint files while leaving a minimal digital footprint. *See* Jason Koebler, *Trying to Ban 3D-Printed Guns Will Only Make Them More Popular*, MOTHERBOARD (July 31, 2018, 3:35 PM), https://motherboard.vice.com/en_us/article/wjkzz4/the-self-defeating-legal-panic-over-3d-printed-guns-is-5-years-too-late [https://perma.cc/MQ6R-765Q] (explaining that, "[t]his is called the Streisand Effect and is one of the most

relatively inexpensive, considering their intrinsic value and the important role that they play in the 3D printing process.[214] Furthermore, accessibility blurs the contours between criminal and non-criminal conduct by providing blanket availability to end users, irrespective of motive or intent.[215] For criminals motivated by the illicit-exploitative interest, blueprint files are viewed as the "brains" of the operation, laying the groundwork for mass reproduction of non-myriad items, such as firearms or contraband.[216] The second consideration is the facilitation of knowledge. Regardless of an end user's skill level, blueprint files elevate an individual's ability to create otherwise complex, real-world objects.[217] Blueprint files imbue technical knowledge onto the end user through practical application.[218] Because blueprint files contain the technical "guts" of a 3D object, end users are not bound to search for ancillary instructional material.[219] Taken together, the secondary considerations, outlined above, may accelerate the degree of immanency and unlawfulness associated with blueprint files, enabling criminals to remain under the radar and skirt law enforcement initiatives.[220]

As the debate for gun control rages on in the United States, polling shows that a majority of Americans are in favor of regulating the publication of gun blueprint files.[221] Facebook, traditionally a proponent of individual user's rights,[222] entered the fray in August 2018 by systematically restricting users' ability to search for gun blueprint files across the platform.[223]

predictable rules of the internet. Whenever the government (or a celebrity, or a company) tries to censor something, they immediately make it exponentially more popular and widespread than it was in the first place.").

214. *See* Joseph Flynt, *How Much Does 3D Printing Cost?*, 3D INSIDER (Feb. 27, 2019), https://3dinsider.com/3d-printer-cost/ [https://perma.cc/M4W3-TT7Y] (explaining various cost-effective ways to print 3D). *See also Why is 3D Printing Important?*, 3D SUPPLY GUYS, https://3dsupplyguys.com/blogs/3d-printing-education/why-is-3d-printing-important [https://perma.cc/38K3-VJ5K] (last visited July 24, 2019) (discussing how printing a prototype is more cost effective and rapid than contracting a manufacturer to do the same job).

215. Blueprint files are essentially colorblind to the end user's ultimate intentions.

216. Imagine an uninterrupted supply chain of weapon schematics used to manufacture arsenals of undetectable firearms.

217. *See* GAMBODY BLOG, *8 Benefits of 3D Printing at Home*, (Mar. 1, 2016), https://www.gambody.com/blog/benefits-3d-printing-home/ [https://perma.cc/RQ8F-TCGU] ("When we talk about additive manufacturing many of us think about the advantages 3D printing at home has for us, as simple consumers. In theory, 3D printing offers the possibility to print almost everything we want. From office supplies to, home décor items, to toys and even shoes, 3D printing could just be the revolution many of us waited for so long.").

218. *See id.*

219. *Id.*

220. *See* Stevens, *supra* note 50.

221. Edward Graham, *Voters Oppose Digitized 3D Gun Blueprints*, MORNING CONSULT (Aug. 8, 2018), https://morningconsult.com/2018/08/08/voters-oppose-digitized-3d-gun-blueprints-support-laws-for-self-made-firearms/ [https://perma.cc/RL7N-NKJN] ("The poll, conducted Aug. 2-6 among 1,994 registered voters, found 64 percent of respondents don't think people should be able to post blueprints for 3D-printed guns online. Neither political ideology nor gun ownership were factors in voters' views of 3D-printable weapons. Majorities of Democrats, independents and Republicans were all against posting the blueprints online and in favor of regulating self-made guns.").

222. *See* Nathaniel Smithson, *Facebook Inc.'s Mission Statement & Vision Statement (An Analysis)*, PANAMORE INSTITUTE (Feb. 25, 2019), http://panmore.com/facebook-inc-vision-statement-mission-statement [https://perma.cc/LQ8K-9RAH].

223. *See* Jonathan Vanian, *Facebook Gives The Boot to 3D-Printed Gun Blueprints*, FORTUNE (Aug. 9, 2018), http://fortune.com/2018/08/09/facebook-3d-printed-gun-blueprints/ [https://

Specifically, Facebook banned links and website posts that shared detailed information regarding 3D-printed guns.[224] However, in July 2019, Facebook partially reversed course by lifting it's moratorium and allowing "legitimate gun shops and online vendors" to "offer instructions for printing so-called "downloadable guns" in places where it is legal to do so."[225] The competing individual interests associated with publishing blueprint files give reason to pause and consider the legal ramifications that may result from regulating such speech.[226] Although it is apparent that there are strong individual interests in retaining an unabridged right to disseminate blueprint files,[227] this right is not automatically guaranteed.[228] The dangers posed by certain non-myriad items, particularly firearms, have drawn strong reactions from both state and city officials.

C. STATE GOVERNMENT INTERESTS

A constituency of state government officials and city representatives, spanning coast to coast, have become increasingly outspoken critics of gun blueprint files.[229] While it is important to acknowledge the long-standing political divide and hotly-contested debate over gun control in the United States, gun blueprint files have drawn particular scrutiny pertaining to public safety.[230] In *State v. United States Department of State*, eight states and Washington, D.C., filed suit against the Trump Administration, opposing a settlement that allowed Defense Distributed to publish computer aided design (CAD) files used for the production of 3D-printed firearms.[231]

perma.cc/6PCY-HS45] (It should be noted that prior to the ban on gun blueprint files, Facebook's community standards included policies intended to "limit the sale of guns on its service.").

224. *Id.* ("The social networking giant said that it would ban websites that display and share detailed information on building 3D-printed weapons, according to BuzzFeed News, which first reported the news on Thursday. A Facebook spokesperson told Fortune in an email that the move to ban sites from distributing the controversial blueprints falls in line with the company's existing policies intended to limit the sale of guns on its service.").

225. *See* Laurence Dodd, *Facebook Lifts Ban on Spreading 3D Printed Gun Blueprints*, THE TELEGRAPH, (July 12, 2019), https://www.telegraph.co.uk/technology/2019/07/12/facebook-lifts-ban-sharing-3d-printed-gun-blueprints/ [https://perma.cc/2MNS-GYEX].

226. *See supra* Part I.B (discussing both the utilitarian-transformative and illicit-exploitive individual interests. The repercussions associated with the chilling of speech, such as blueprint files, raises the issue of censorship and evokes a "police state mentality.").

227. *See* Brooks, *supra note* 142.

228. *See* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247 (W.D. Wash. 2018).

229. *See* Tess Owen, *States Are Suing to Get 3D Gun Blueprints Offline That Have Already Been Downloaded Thousands of Times*, VICE NEWS (July 30, 2018), https://news.vice.com/en_us/ article/8xbm4k/states-are-suing-to-get-3d-gun-blueprints-offline-that-have-already-been-downloaded-thousands-of-times [https://perma.cc/MBX7-VHF5].

230. *Id.* ("We believe the settlement terms and proposed rules are deeply dangerous and could have an unprecedented impact on public safety," the letter reads. "In addition to helping arm terrorists and transnational criminals, the settlement and proposed rules would provide another path to gun ownership for people who are prohibited by federal and state law from possessing firearms.").

231. *Id. See* State v. United States Dep't of State, 315 F. Supp. 3d 1202 (W.D. Wash. 2018); Daniel Wilson, *States Sue to Block Federal 3D Gun Printing Settlement*, LAW360 (July 30, 2018, 8:00 PM), https://www.law360.com/articles/1068151/states-sue-to-block-federal-3d-gun-printing-settlement [https://perma.cc/7B9J-9AN6] ("The State of Washington, joined by Connecticut, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania and the District of Columbia sued to block a June 29 settlement between the U.S. Department of State and Defense Distributed from going into effect.").

Statements made by Washington State Attorney General Bob Ferguson in conjunction with the pending litigation raised a litany of public safety concerns. The statements read in-part:

> I have a question for the Trump administration: Why are you allowing dangerous criminals easy access to weapons? These downloadable guns are unregistered and very difficult to detect, even with metal detectors, and will be available to anyone regardless of age, mental health or criminal history. If the Trump administration won't keep us safe, we will.[232]

Furthermore, in a joint letter from twenty-one state attorneys general addressed to U.S. Attorney General Jeff Sessions and Secretary of State Mike Pompeo, the delegation of state attorneys general implored the federal government to withdraw from the settlement.[233] The state attorneys general stated that, "The settlement and the related proposed rules are inconsistent with the government's longstanding position and recklessly disregard public safety and security."[234]

In July 2018, New York Governor Andrew Cuomo sent a cease-and-desist letter to Defense Distributed, stating that, "You are directed to cease and desist from publishing 3D-printable gun files for use by New York residents."[235] Governor Cuomo poignantly illustrated the concerns of New York State, asserting that, "With one click of a button, your plans will enable criminals – even terrorists – to access completely unregulated weapons that could be used to harm New Yorkers."[236] Moreover, in citing *Copart Indus. v. Consolidated Edison Co. of N.Y.*,[237] Governor Cuomo asserted that, "New York has the legal right to abate a public nuisance that, like these gun blueprints, places the public's health, safety, and property at risk."[238] It is interesting to note the comparison elucidated by Governor Cuomo, equating the

232. Wilson, *supra* note 231.

233. Letter from Maura Healey et al., Att'y Gen. of the Commonwealth to Mass., to Mike Pompeo, Secretary of State, and Jeff Sessions, Att'y Gen., Multistate Letter re 3D Firearms Final (July 30, 2018), https://www.mass.gov/files/documents/2018/07/30/7.30.18%20Multistate%20Letter%20re%203D%20Firearms%20Final.pdf [https://perma.cc/QU3Z-HVSJ].

234. *Id.*

235. Letter from Andrew M. Cuomo, Governor of N.Y., to Def. Distributed, GAMC Cease and Desist (July 31, 2018), https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/GAMC_Cease_and_Desist.pdf [https://perma.cc/UKS6-7UFC]; *see also* Press Release, N.Y. Governor Andrew M. Cuomo, Governor Cuomo Issues Cease and Desist Letter to Block Distribution of 3D Gun Plans After Trump Administration Lifts Ban (July 31, 2018), https://www.governor.ny.gov/news/governor-cuomo-issues-cease-and-desist-letter-block-distribution-3d-gun-plans-after-trump [https://perma.cc/JAB6-N47R].

236. *Id.*

237. *See* Copart Indus., Inc. v. Consol. Edison Co. of New York, 41 N.Y.2d 564 (N.Y. 1977); Letter from Andrew M. Cuomo, Governor of N.Y., to Def. Distributed, GAMC Cease and Desist (July 31, 2018), https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/GAMC_Cease_and_Desist.pdf [https://perma.cc/UKS6-7UFC] ("It is well-settled that a governmental entity may bring an action to abate a public nuisance or the 'conduct or omissions which offend, interfere with or cause damage to the public in the exercise of rights common to all, in a manner such as to offend public morals, interfere with use by the public of a public place or endanger or injure the property, health, safety or comfort of a considerable number of persons.'").

238. Kenneth Lovett, *Plans for 3D-Printed 'Ghost Guns' Go Online Wednesday as Gov. Cuomo and Other Pols Look to Keep Them Out of New York*, DAILY NEWS, (Jul. 31, 2018, 4:35 PM), https://www.nydailynews.com/new-york/ny-pol-trump-cuomo-ghost-guns-20180731-story.html [https://perma.cc/MWS9-YTQY].

damaging effects of noxious emissions from Consolidated Edison Co. of N.Y., with the publication of gun blueprint files by Defense Distributed.[239] By associating gun blueprint files with criminals and terrorists, Governor Cuomo creates a nexus between both the illicit-exploitative interest, and the wide-spread accessibility of blueprint files, drawing a proverbial line in the sand in terms of acceptable speech New York State is willing to tolerate.[240] If unencumbered, the implications associated with the dissemination of gun blueprint files provide credence for the notion that blueprint files are not merely tools of advocacy.[241] Bad actors may rise out of the woodwork, emboldened by the opportunity to manufacture guns and contraband away from control.[242]

State legislative initiatives—such as Bill A01213,introduced by New York State Assembly member Linda B. Rosenthal ("Rosenthal")—illustrate the palpable concerns felt by state constituents regarding the use of blueprint files.[243] In response to a prior settlement between the State Department and Defense Distributed, Assembly member Rosenthal states that, "Allowing individuals to download the plans to print an assault weapon in the privacy of their own homes undermines our efforts as a state to protect our citizens, and makes each and every one of us less safe."[244] Furthermore, Rosenthal asserts that, "Publication of online instructions could result in the proliferation of guns throughout our communities, and make each of us more vulnerable to gun violence."[245] Although Rosenthal's concerns over gun blueprint files echo the sentiments of Governor Cuomo, they pale in comparison to the pre-emptive, actionable legislative measures taken by a neighboring state.[246]

In November 2018, New Jersey Governor Phil Murphy signed into law State Bill S2465, amending N.J.S.2C:39-1, which made it illegal in New Jersey to "purchase parts to manufacture or distribute information to print 'ghost guns,' homemade or 3D printed firearms that are untraceable by law enforcement."[247] The pertinent portion of Bill S2465, relating to the publication of gun blueprint files, is discussed in Section 3(l)(2):

239. *See id.*

240. *See supra* Part I.B.

241. *See* Hornick, supra note 122 (facilitating criminal conduct that rises above mere advocacy).

242. Hornick, *supra* note 166.

243. B. A01213, N.Y. Assemb. (N.Y. 2013), https://nyassembly.gov/leg/?bn=A.1213&term=2017 [https://perma.cc/5HEL-WE7A]; Press Release, Linda B. Rosenthal, Assemblymember Linda B. Rosenthal Bill Would Ban Possession of 3D Printed Guns in New York State (July 25, 2018), https://nyassembly.gov/mem/Linda-B-Rosenthal/story/82789 [https://perma.cc/G3MT-ZVXE]; *see also* Wilson, *supra* note 231.

244. Rosenthal, *supra* note 243; *see also* Wilson, *supra* note 231.

245. Rosenthal, *supra* note 243.

246. *See infra* notes 247–49.

247. SB 2465 § 2465 3(l)(2) (codified as N.J. STAT. 2C:39-9(l)(2) (2018); Press Release, Insider NJ, Governor Murphy Signs Legislation Making "Ghost Guns" Illegal in New Jersey (Nov. 8, 2018, 3:06 PM), https://www.insidernj.com/press-release/governor-murphy-signs-legislation-making-ghost-guns-illegal-new-jersey/ [https://perma.cc/H6KX-YCX7]; *see also* WND, *New Jersey Cited for Free-Speech Violations in 3D-Gun Case* (Nov. 12, 2018, 7:51 PM), https://www.wnd.com/2018/11/new-jersey-cited-for-free-speech-violations-in-3d-gun-case/#PlEDXj2w4g8Zc6hh.99 [https://perma.cc/2RBW-5CER].

> A person to distribute by any means, including the Internet, to a person in New Jersey who is not registered or licensed as a manufacturer as provided in chapter 58 of Title 2C of the New Jersey Statutes, digital instructions in the form of computer-aided design files or other code or instructions stored and displayed in electronic format as a digital model that may be used to program a three-dimensional printer to manufacture or produce a firearm, firearm receiver, magazine, or firearm component.[248]

It is noteworthy to mention the omnibus language incorporated in Section 3(l)(2) of Bill S2465, which defines the term "distribute" to include the following: "sell, or to manufacture, give, provide, lend, trade, mail, deliver, publish, circulate, disseminate, present, exhibit, display, share, advertise, offer, or make available via the Internet or by any other means, whether for pecuniary gain or not, and includes an agreement or attempt to distribute."[249] New Jersey's broad strokes approach to regulating gun blueprint files has not been without controversy, as seen in *Defense Distributed v. Grewal*.[250] Shortly after the passage of Bill S2465, Defense Distributed and the Second Amendment Foundation filed a motion for a "temporary restraining order seeking to block enforcement of the law", arguing, in-part, that, "Section 3(l)(2) of that law creates an unconstitutional speech crime." [251] Although the defendants' motion to dismiss was granted due to a lack of personal jurisdiction on the part of the plaintiffs, the competing state and individual interests remained a pronounced topic of contention.[252]

Looking beyond the litigation in *Grewal*, it is important to recognize that New Jersey has established a state-based precedent for gun blueprint files, explicitly delineating the methods of dissemination that are contravened by state law and deemed unlawful.[253] New Jersey's legislative action homes in on the issues raised in *Washington* by shifting the paradigm and focusing specifically on the delivery methods by which blueprint files are circulated.[254] In a sense, New Jersey has devised a regulatory framework by requiring both registration and licensing procedures, which could be modified to encompass future categories of non-myriad blueprint files, such as drugs.[255]

On a micro level, state concerns over gun blueprint files have trickled down to local communities and representatives from major cities across the United States.[256] Specifically, in a joint letter with over thirty mayors, Seattle

248. SB 2465 § 2465 3(l)(2) (codified as N.J. STAT. 2C:39-9(l)(2) (2018).

249. *Id.*

250. *See* No. 1:18-CV-637-RP, 2019 WL 369151 (W.D. Tex. Jan. 30, 2019), https://images.law.com/contrib/content/uploads/documents/399/21757/3Dguns.pdf [https://perma.cc/V6GT-KTFH]; Brief for Plaintiffs, at 1, Def. Distributed v. Grewal, (W.D. Tex. Jan. 30, 2019) (No. 1:18-CV-637-RP), 2019 WL 369151, https://www.courtlistener.com/recap/gov.uscourts.txwd.960934/gov.uscourts.txwd.960934.52.0.pdf [https://perma.cc/DS4Z-VTRS].

251. *Id.*; *see also* Eugene Volokh, *Lawsuit Challenging New Jersey Ban on Distributing "Digital Instructions" for 3D Printing Guns*, REASON: THE VOLOKH CONSPIRACY (Nov. 8, 2018, 5:22 PM), https://reason.com/volokh/2018/11/09/lawsuit-challenging-new-jersey-ban-on-di [https://perma.cc/6W44-L9BQ].

252. *See Grewal*, 2019 WL 369151.

253. *Id.*

254. *See* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247 (W.D. Wash. 2018).

255. *See* B. S2465, 2C:39-9, N.J.Laws 10, *supra* note 247.

256. *See infra* notes 256–68.

Mayor Jenny Durkan invoked a call to action, urging 3D printing manufacturers "to help prevent their products from being used to create homemade, unregulated, and untraceable guns with downloadable blueprints."[257] Mayor Durkan's letter read in-part, "As mayors representing communities across the country, we write with grave concern about the recent news that blueprints for making fully functional guns using 3-D printers could be promulgated widely on the internet."[258] Moreover, city representatives from both Philadelphia and Los Angeles have expressed safety concerns over the precipitous advancements in 3D printing technology, and the utilization of gun blueprint files by community members.[259] These concerns have led to a litany of proposals, fervent city council advocacy, and pre-emptive measures.[260]

In Philadelphia, a ten-member city council passed Bill No. 130584 in 2013.[261] Bill No. 130584 amended Title 10 of the Philadelphia Code, adding the new Chapter 10-2000, which prohibits "the use of a three-dimensional printer in order to manufacture a firearm, under certain terms and conditions."[262] Interestingly, although Bill No. 130584 specifically targets individuals manufacturing 3D-printed guns, it overlooks the broader issue of dissemination of blueprint files.[263] The terms "distribution and possession" are also absent from the language contained in § 10-2001 definitions.[264] Councilman Kenyatta Johnson, sponsor of Bill No. 130584, laments the fundamental issue facing communities, stating that, "As technology progresses, three-dimensional printers will become more advanced, less expensive and more commonplace. As instructions for the manufacture of guns via 3D printing technology are already available on the Internet, we could be looking at a recipe for disaster."[265] While Philadelphia is the first city in the United States to outlaw the manufacturing of 3D-printed guns, legitimate public safety concerns have also migrated to the west coast.[266]

257. Kamaria Hightower, *Mayor Durkan Leads More Than 30 U.S. Mayors in Calling on 3D Printer Manufacturers to Stop Their Products from Being Used to Create Homemade, Unregulated, and Untraceable Gun*, SEATTLE.GOV (Sept. 26, 2018), https://durkan.seattle.gov/2018/09/mayor-durkan-leads-more-than-30-u-s-mayors-in-calling-on-3d-printer-manufacturers-to-stop-their-products-from-being-used-to-create-homemade-unregulated-and-untraceable-guns/ [https://perma.cc/LCG4-SQR7].

258. *See id.*

259. *See* Alexis Kleinman, *Philadelphia Is The First U.S. City To Ban 3D-Printed Guns*, HUFFPOST.COM (Nov. 26, 2013, 2:49 PM), https://www.huffingtonpost.com/2013/11/26/3d-gun-philadelphia_n_4344733.html [https://perma.cc/2JN2-YRPX]; *see also* Dakota Smith and Emily A. Reyes, *L.A. Councilman Wants to Make It Illegal to Download Blueprints For A Printable Gun*, L.A. TIMES (Aug. 3, 2018, 1:25 PM), https://www.latimes.com/local/lanow/la-me-ln-englander-print-guns-20180802-story.html [https://perma.cc/UKP9-D8DS].

260. *See* Kleinman, *supra* note 259; *see also* Smith and Reyes, *supra* note 259.

261. B. 130584, Phila. City Council (Phila. 2013), https://phila.legistar.com/LegislationDetail.aspx?ID=1479457&GUID=8BFF8519-E1D9-4626-A9A1-02C930028F5F&Options=ID|Text|&Search= [https://perma.cc/62CV-MGKF].

262. *Id.*

263. *Id.*

264. *Id.*

265. Jake Mann, *Philadelphia's 3D-Printed Gun Ban May Lead to More Government Regulation*, AOL.COM (Dec. 2, 2013, 1:45 PM), https://www.aol.com/article/finance/2013/12/02/how-does-phillys-3d-printed-gun-ban-affect-the-ind/20779878/ [https://perma.cc/9B5Y-9R4T].

266. *See* Kleinman, *supra* note 259.

City Councilman Mitch Englander of Los Angeles proposed a "city-wide ban on the possession, distribution, or download of '3D weaponry print files' that is similar to the ban on 'child porn.'"[267] Councilman Englander states that, "Essentially, now with the 3D printers, you can download the instructions that simply send a print command … to a 3D printer and you can print virtually any kind of gun, if you can get your hands on the blueprints."[268] At first, one may shrug their shoulders in reaction to Councilman Englander's thought provoking, yet head scratching analogy between gun blueprint files and child porn. However, such an analogy may be grounded in legitimate safety concerns over the circulation of content that poses a significant and substantial risk to public welfare.[269] Whether or not child porn and digital weapon schematics evoke a similar nexus, their harmful side effects cannot be easily dismissed. Councilman Englander's proposal adheres more closely to New Jersey's Bill S246, Section 3(l)(2), as opposed to Philadelphia's Bill No. 130584, by specifically targeting both the possessory interests and distribution rights attached to blueprint files.[270] It is evident from the outspoken statements and legislative proposals put forth by both city and state officials that public safety concerns over blueprint files are of paramount importance.[271] These palpable concerns are not solely confined to a single state, but, rather, have drawn substantial interest from both local communities and state legislatures from around the United States.[272]

Although gun blueprint files have coalesced many of the state's interests around protecting public safety, in an effort to prevent the criminality associated with untraceable firearms, state involvement has not yet reached a fever pitch.[273] It has yet to be seen whether other non-myriad blueprint files, less susceptible to the bi-partisan politics associated with guns, will receive a more unified response from the states.[274] Keeping in mind that

267. Awr Hawkins, *L.A. Councilman Seeks Ban on '3D Weaponry Blueprint Files' Similar to Ban on 'Child Porn'*, BREITBART (Aug. 6, 2018), https://www.breitbart.com/local/2018/08/06/3d-weaponry-ban-child-porn/ [https://perma.cc/4PHJ-VFD6]; *see also* Mitchell Englander (@Mitchell_Englander), TWITTER (Aug. 3, 2018, 1:57 PM), https://twitter.com/Mitch_Englander/status/1025440636340658176?s=20 [http://perma.cc/D376-FW22].

268. *Id.*

269. *See* Elizabeth Chou, *LA Leaders Want to Make It Illegal to Own and Distribute Blueprints for 3D-Printed Guns*, LA DAILYNEWS (Aug. 3, 2018, 3:28 PM), https://www.dailynews.com/ 2018/08/03/la-leaders-want-to-make-it-illegal-to-own-and-distribute-blueprints-for-3d-printed-guns/ [https://perma.cc/7YQC-73W6] ("Technology is emerging every single day," Englander said. "These 3D printers are available and rapidly growing in American households as we speak. They can be accessible to the public, to children. And anybody can literally go to sleep at night, download the documents, print them and wake up in the morning, and they have a gun that can kill people.").

270. *Compare id.* (stating that such a ban "would mean you cannot download, possess, distribute, sell, these digital files, and if you do, and they're in your possession, in the city of LA, it would become a misdemeanor"), *with* SB 2465 § 2465 3(l)(2) (codified as N.J. STAT. 2C:39-9(l)(2) (2018)).

271. *See supra* notes 233–68 (discussing the dangers associated with an unabridged right to disseminate gun blueprint files and the potentially deadly consequences that may afflict the average citizen).

272. *Id.*

273. *Id.*

274. Consider the opioid epidemic that has plagued the United States and the potential impact 3D-printed drugs could play in perpetuating the crisis.

public safety is the predominant motivating factor driving state discourse, states are also inclined to walk a fine line between strict regulation, innovation and economic growth.[275] For example, in 2015, it was announced that New York State would invest $125 million to build "the world's first industrial-scale 3D printing facility."[276] Granted, although the private-public partnership between New York State and Norsk Titanium—"a leading provider of aerospace 3D printing technology"—is for commercial enterprise,[277] it still begs the question of whether states, such as New York, are sending an incongruent message to publishers of blueprint files. Are individuals who print away from control[278] and utilize blueprint files bound by a double standard, one that promotes technological innovation, while at the same time limiting individual freedoms in order to promote public safety? States may ultimately have to tread lightly in discerning between these two competing interests. However, the ultimate balancing act lies with the federal government.

D. FEDERAL GOVERNMENT INTERESTS

On a macro level, the federal government's interests in regulating the dissemination of blueprint files can be summarized as a balancing act between individual and state interests, with national security concerns at the forefront of the discourse.[279] All three branches of the federal government[280] have participated—to varying degrees—in the on-going debate over gun blueprint files.[281] Under the executive branch, in July 2018, the Department of Justice reached a settlement with both Defense Distributed and the Second Amendment Foundation, allowing "plans for 3D gun parts [to] be

275. By limiting the reaches of a disruptive innovation, such as 3D-printing, the States may inhibit their ability to attract new technological investments. *See* Daniel Castro, *Should Government Regulate Illicit Uses of 3D Printing?*, THE INFO. TECH. & INNOVATION FOUND. (May 2013), http:// www2.itif.org/2013-regulate-illicit-3d-printing.pdf [https://perma.cc/T2JX-NCLZ] ("The most important lesson from past policy debates on copying technologies, whether they are analog or digital, is not to try to block the technology itself. We have likely only begun to touch the potential of 3D printing, and while some current and potential uses are of concern, it has a vast array of legitimate and beneficial uses that should be explored.").

276. Andrea Shalal, *New York State to Build Large-Scale 3D Printing Plant*, REUTERS (Oct. 5, 2015, 10:25 PM), https://www.reuters.com/article/norsk-titanium-usa/new-york-state-to-build-large-scale-3d-printing-plant-sources-idUSL1N1211UT20151005 [https://perma.cc/FZJ3-4Q7K?type= image].

277. Kira, *Norsk Titanium to Expand Aerospace Metal 3D Printing in U.S. And Beyond*, 3DERS (Apr. 8, 2016), http://www.3ders.org/articles/20160408-norsk-titanium-expand-aerospace-metal-3d-printing-us-and-beyond.html [https://perma.cc/54MA-YASA]; *see also* Diana Macovei, *New York State to Invest $125 Million in Building World's First Industrial-Scale 3D Printing Facility*, 3DDECONFERENCE.COM (Oct. 13, 1015), https://3ddeconference.com/3d-printing/new-york-state-to-invest-125-million-in-building-worlds-first-industrial-scale-3d-printing-facility/ [https://perma.cc/D8P 8-AE2N] ("They said the plant is slated to be fully operational by the end of 2016 when it will be able to 'print' large components for aircraft manufacturers and weapons makers at much lower cost than current technologies.").

278. *See* Hornick, *supra* note 166.

279. *See Washington*, 318 F. Supp. at 1252 (stating that 3D-printed guns could wind up in the "hands of anyone who possesses a commercially available 3D printer equipment"). *Compare* Part I.B, *with* Part I.C.

280. *See* USA.GOV, *Branches of the U.S. Government*, https://www.usa.gov/branches-of-government [https://perma.cc/Z84U-AABB?type=image] (last visited July 24, 2019).

281. *See infra* notes 282–309. For purposes of this discussion, I will be referring to the judicial branch and judiciary interchangeably.

distributed freely online."[282] However, notably absent from the settlement was President Trump's approval.[283] With litigation spanning two presidential administrations—the Obama and Trump Whitehouses—President Trump weighed in on the issue, tweeting that, "I am looking into 3D Plastic Guns being sold to the public. Already spoke to NRA, doesn't seem to make much sense!"[284] According to Deputy Press Secretary Hogan Gidley, "The administration supports the law and that it will continue to look at all options available to us to do what is necessary to protect Americans while also supporting the First and Second Amendments. . . . The President is committed to the safety and security of all Americans and considers this his highest responsibility."[285] The pertinent section of federal law that Deputy Press Secretary Gidley is referring to is 18 U.S.C. § 922(p) (1) and (2) of the Undetectable Firearms Act of 1988, which prohibits the manufacturing of firearms undetectable by walk-through metal detectors or x-ray machines.[286] Interestingly, although 18 U.S.C. §§ 922(p) (1) and (2) covers the manufacturing and assembly of ghost guns, § 922(p) neither mentions digital instructions, such as blueprint files, nor defines them as a "major component".[287] Given their relative importance in the 3D printing process, their absence gives reason for pause.[288] The judiciary has weighed in on the issue, balancing individual hardships and public interest.[289]

Under the judiciary, both the United States District Courts and the Courts of Appeals have grappled over the subject of gun blueprint files, with

282. *See* State v. United States Dep't of State, 315 F. Supp. 3d 1202 (W.D. Wash. 2018); *see also* Mike Ciandella, *Department of Justice Rules That Plans for 3D Printed Gun Parts Are Protected Under Free Speech*, THE BLAZE (July 11, 2018), https://www.theblaze.com/news/2018/07/11/department-of-justice-rules-that-plans-for-3d-printed-gun-parts-are-protected-under-free-speech [https://perma.cc/ SKG7-SNMZ].

283. Todd Beamon, *WH: Trump Backs Delay on 3D Guns*, NEWSMAX.COM (Aug. 1, 2018, 3:42 PM), https://www.newsmax.com/politics/3d-guns-donald-trump-blueprints/2018/08/01/id/874975/ [https://perma.cc/EX72-D9C5] ("The Justice Department made a deal on releasing the blueprints on 3-D guns without President Donald Trump's approval — and he welcomed a federal judge's decision to delay the move to 'give more time to review the issue.'"). *Id.* ("The president is glad this effort was delayed to give more time to review the issue," Sanders told reporters at the White House briefing. "This administration supports the decades-old legislation already on the books that prohibits the ownership of a wholly plastic gun.").

284. Donald J. Trump (@realDonaldTrump), TWITTER (July 31, 2018, 8:03 AM), https://twitter.com/realDonaldTrump/status/1024264286418489345?s=20 [https://perma.cc/2FTN-3RHL]; Denis Slattery, *President Trump's Stance on 3D-Print Guns 'Doesn't Seem to Make Much Sense'*, DAILY NEWS (July 31, 2018, 9:40 AM), http://www.nydailynews.com/news/politics/ny-pol-trump-guns-printable-tweet-20180731-story.html [https://perma.cc/9VXH-EYCH].

285. Deanna Paul et al., *Federal Judge Blocks Posting of Blueprints for 3-D-Printed Guns Hours Before They Were to be Published*, THE WASHINGTON POST (July 31, 2018), https://www.washingtonpost.com/news/morning-mix/wp/2018/07/31/in-last-minute-lawsuit-states-say-3-d-printable-guns-pose-national-security-threat/?utm_term=.f92a16d37be6 [https://perma.cc/HQR8-8RME?type=image]; *see also* Allie Malloy and Betsy Klein, *White House Supports Existing Law, Says 3D Guns Are Already Illegal*, CNN (July 31, 2018, 9:41 PM), https://www.cnn.com/2018/07/31/politics/trump-3-d-printed-guns/index.html [https://perma.cc/T4AA-7KVA].

286. 18 U.S.C.A. § 922(p) (1), (2) (Westlaw through Pub. L. No. 116-5). *See* Stephen Gutowski, *The ATF Explains the Law Surrounding 3D-Printed* Guns, THE WASHINGTON FREE BEACON (Aug. 6, 2018, 10:25 AM), https://freebeacon.com/issues/atf-explains-law-surrounding-3d-printed-guns/ [https://perma.cc/B2KL-HSTH?type=image].

287. 18 U.S.C.A. § 922(p) (1), (2) (Westlaw through Pub. L. No. 116-56).

288. *Id.*

289. *See* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247, 1261 (W.D. Wash. 2018) ("To the extent the private defendants' speech is impacted, their First Amendment interests are considered in the balancing of hardships and public interest section below."); *id.* at 1263.

the dissent in *Defense Distributed* acknowledging the harsh realities of chilling speech, stating that, "The panel opinion justifies the prior restraint on speech because any harm to Defense Distributed would be 'temporary.' But irreparable harm occurs whenever a constitutional right is deprived, even for a short period of time."[290] In *Washington*, the Court discussed the balancing of hardships and public interest, first by discussing the executive branch's ability to regulate CAD files, stating:

> Against the likelihood that the States will suffer the various harms discussed above, the federal defendants identify no hardship of their own, but argue that the public interest in allowing the Executive to exercise its discretion in determining how best to promote national security weighs against preliminary injunctive relief. That discretion must, however, be exercised through the procedures established by Congress and not in an arbitrary and capricious manner.[291]

The executive branch's augmentation of existing firearms regulations—the United States Munitions List (USML)—was essentially overborne by congressionally delegated powers.[292] However, for the private defendants, the Court acknowledged a more substantive argument, namely the risk of impairment to the First Amendment.[293] Without wading through an exhaustive First Amendment analysis, the Court ultimately determined that "[T]he irreparable burdens on the private defendants' First Amendment rights are dwarfed by the irreparable harms the States are likely to suffer if the existing restrictions are withdrawn and that, overall, the public interest strongly supports maintaining the status quo through the pendency of this litigation."[294] With the holding in *Washington*, there are three important takeaways to consider.[295] First, the District Court left unanswered the overarching question of whether blueprint files (as digital instructions) are categorically a protected class of speech, based on their composition.[296] Second, the Court acknowledged that there are cognizable, legitimate national security concerns associated with the dissemination of gun blueprint

290. Def. Distributed v. United States Dep't of State, 865 F.3d 211, 213-14 (5th Cir. 2017) (Elrod, J., dissenting) ("The loss of First Amendment freedoms, for even minimal periods of time, unquestionably constitutes irreparable injury. Even if the panel opinion's 'temporary harm' theory were valid, the deprivation here has been anything but short. Instead, as Judge Jones's panel dissent notes, because of the lack of a preliminary injunction, Defense Distributed has been effectively muzzled for over three years.").

291. *Washington*, 318 F. Supp. 3d at 1263.

292. *See generally* 22 C.F.R. § 121.1.

293. *See* U.S. CONST. amend. I.; *Washington*, 318 F. Supp. at 1263.

294. *Washington*, 318 F. Supp. at 1264.; *see also* Def. Distributed v. United States Dep't of State, 838 F.3d 451, 458 (5th Cir. 2016) ("Ordinarily, of course, the protection of constitutional rights would be the highest public interest at issue in a case. That is not necessarily true here, however, because the State Department has asserted a very strong public interest in national defense and national security. Indeed, the State Department's stated interest in preventing foreign nationals—including all manner of enemies of this country—from obtaining technical data on how to produce weapons and weapon parts is not merely tangentially related to national defense and national security; it lies squarely within that interest.").

295. *Washington*, 318 F. Supp. 1247.

296. *Id.* at 1263 ("The First Amendment argument raises a number of challenging issues. Is computer code speech? If yes, is it protected under the First Amendment? To answer those questions, one would have to determine what the nature of the files at issue here is: are they written and designed to interact solely with a computer in the absence of the intercession of the mind or will of the recipient or is it an expressive means for the exchange of information regarding computer programming and/or weapons manufacturing?").

files.[297] As a consequence, the Court validated a limited restraint to speech, by restricting dissemination over the internet.[298] Such validation may create a lasting precedent, applicable to other categories of non-myriad blueprint files, such as drugs. Third, Judge Lasnik's out of court statements illustrate that the judiciary is more inclined to defer to Congress or the president as the ultimate arbiter in deciding the appropriate regulatory measures and response to blueprint files.[299] Whether such measures entail augmenting existing federal laws, or implementing new legislation, gun blueprint files have spurred active congressional discourse.[300]

Under the legislative branch, members of Congress have introduced legislation onto both the House and Senate floors, in the hopes of addressing national security concerns posed by gun blueprint files. For example, Florida Senator Bill Nelson sponsored Senate Bill 3304, titled "3D Printed Gun Safety Act of 2018."[301] By amending Chapter 44 of 18 U.S.C., Senate Bill 3304 would "prohibit the publication of 3D printer plans for the printing of firearms, and for other purposes."[302] Section 2, Findings, contains several important delineations, including:

> (2) Recent technological developments have allowed for the 3D printing of firearms and firearm parts, including parts made out of plastic, by unlicensed individuals in possession of relatively inexpensive 3D printers.
> (4) The availability of online schematics for the 3D printing of firearms and firearm parts increases the risk that dangerous people, including felons, domestic abusers, and other people prohibited from possessing firearms under Federal law, will obtain a firearm through 3D printing.
> (10) The proliferation of 3D-printed firearms threatens to undermine the entire Federal firearms regulatory scheme and to endanger public safety and national security. By making illegal the publication of certain computer code that can be used automatically to program 3D printers and create firearms—the only means of combating this unique threat—Congress seeks not to regulate the rights of computer programmers under the First Amendment to the Constitution of the United States, but rather to curb the pernicious effects of untraceable—and potentially undetectable—firearms.[303]

Of these findings, subsection ten encapsulates the crux of the blueprint file dilemma by laying out the essential elements that bridge both ends of the

297. *Id.* at 1261 ("The portability and ease of a manufacturing process that can be set up virtually anywhere would allow those who are, by law, prohibited from manufacturing, possessing, and/or using guns to more easily evade those limitations. The publication of the technical data would subvert the domestic laws of states with more restrictive firearm controls and threaten the peace and security of the communities where these guns proliferate. In addition, the States have certain public safety, law enforcement, and proprietary interests that were not of particular concern to the United States when considering the effects the technical data would have if exported to other countries.").

298. *Id.* at 1262 ("It takes virtually no imagination to perceive the direct connection between removing the CAD files from the USML, the internet publication of the technical data, and the likelihood of the irreparable injuries plaintiffs have identified.").

299. *See supra* notes 33–37 (discussing Judge Lasnik's out of court statements deferring to the President or Congress for a better solution).

300. *See infra* notes 301–08.

301. 3D Printed Gun Safety Act of 2018, S.3304, 115th Cong. (2017-2018).

302. *Id. See* 18 U.S.C.A. § 922 (Westlaw through Pub. L. No. 116-56).

303. 3D Printed Gun Safety Act of 2018, S. 3304, 115th Cong. (2018).

argument.[304] Particularly of interest are the phrases "[U]ndermine the entire Federal firearms regulatory scheme" and "[T]he only means of combating this unique threat."[305] Such language elucidates the scope of concerns felt by many state representatives over gun blueprint files. If left unabated, gun blueprint files could result in a snowballing effect of criminal activity, driven by the illicit-exploitative interest.[306] Section 3, Prohibition, adopts a narrowly crafted rule that focuses on the publisher's actions:

> It shall be unlawful for any person to intentionally publish, over the Internet or by means of the World Wide Web, digital instructions in the form of Computer Aided Design files or other code that can automatically program a 3-dimensional printer or similar device to produce a firearm or complete a firearm from an unfinished frame or receiver.[307]

Although not as robust as New Jersey's Bill S2465, Senate Bill 3304 follows a similar line of thought in terms of controlling the flow of digital files between individuals.[308]

In striking a delicate balance between individual and state interests, Judge Lasnik's statement that "a solution to the greater problem is so much better suited to the President or Congress",[309] places the onus on the federal government to reevaluate its current laws and regulatory procedures. In order to heed Judge Lasnik's call to action, the federal government must stop relying on decades old, outmoded laws that fail to address this unique, and technologically advanced problem.[310] The primacy of national security rests with identifying the next wave of non-myriad blueprint files, evaluating the associated risks of printing away from control,[311] and fashioning a flexible regulatory framework that comports with an individual's constitutional guarantees. Gun blueprint files have provided an early test case into whether the federal government is ready and able to react to the threats posed by blueprint files. Although the jury is still out, in order to evaluate the federal governments preparedness with regards to the widespread use of blueprint files, it is important to review current federal regulations, administrative guidance, and enforcement agency protocols.

PART II

A survey of current federal government regulatory mechanisms pertaining to 3D printing and blueprint files reveals a harsh reality. Although there is a limited, albeit gestating, record, the insights gleaned provide sufficient reason to give pause. Broadly speaking, the current scope of federal regulations pertaining to 3D printing is focused on the assembly and

304. *Id.* (including language that specifically targets the "publication of certain computer code").
305. *Id.*
306. *See supra* Part I.B.
307. 3D Printed Gun Safety Act of 2018, S.3304, 115th Cong. (2017-2018).
308. *Compare id.*, *with* B. S2465, N.J.S. 10 (N.J. 2018).
309. Simon, *supra* note 33.
310. *See infra* Part II.
311. Hornick, *supra* note 122.

manufacturing of components for large scale commercial operations.[312] To understand how federal regulations, administrative agencies, and law enforcement have dealt with the proliferation of 3D printing technology, it is worth briefly exploring the following 3D printing categories: Drugs, Implantable Devices & BioPrinting, Firearms and Myriad Objects.[313]

A. DRUGS, IMPLANTABLE DEVICES & BIOPRINTING

In December 2017, the U.S. Food and Drug Administration (the "FDA") issued a guidance document titled, "Technical Considerations for Additive Manufactured Medical Devices," discussing 3D-printed pharmaceuticals and implant devices in the healthcare industry.[314] Characterized as a "leapfrog guidance,"[315] the document is considered a living work, offering initial thoughts that the FDA Commissioner Scott Gottlieb M.D. says will be "likely to evolve as the technology develops in unexpected ways."[316] In terms of printing away from control,[317] the FDA Commissioner Gottlieb acknowledges:

> With that caveat, however, comes the admission that many things are still being worked out by the FDA. For example, the administration says it is still considering how best to approach the matter of "nontraditional manufacturing facilities" like hospital operating rooms or university laboratories, where 3D printers can be used to create on-the-spot 3D printed medical devices.[318]

Commissioner Gottlieb's statements foreshadow a potentially ominous scenario that could play out across communities in the United States one day. Particularly, the notion of unsanctioned medical procedures and drug manufacturing at nontraditional facilities.[319] Thinking beyond hospital

312. *See* 3DENGR.COM, *Federal Regulations for 3D Printing* (Dec. 15, 2014), https://www.3dengr.com/federal-regulations-for-3d-printing.html [https://perma.cc/YE24-A48C]; *see also* John Linton, *Three of the Biggest 3D Printing Companies*, INVESTOPEDIA (Aug. 15, 2015), https://www.investopedia.com/articles/investing/081515/three-biggest-3d-printing-companies.asp [https://perma.cc/7C8J-CWW4].

313. *See* U.S. FOOD & DRUG ADMIN., *3D Printing of Medical Devices*, https://www.fda.gov/medical-devices/products-and-medical-procedures/3d-printing-medical-devices [https://perma.cc/EX4E-8DER] (last visited July 24, 2019); I3D MFGT, *Three-Dimensional Printing for the Defense & Firearms Industries*, https://www.i3dmfg.com/industries/firearms/ [https:// perma.cc/H33V-Q689] (last visited July 24, 2019); Gareth Branwyn, *Over 100 3D Printing Projects for Your Home*, MAKE (Nov. 19, 2015, 1:06 PM), https://makezine.com/2015/11/19/over-100-3d-printing-projects-for-your-home/ [https://perma.cc/7GVC-487T].

314. U.S. FOOD & DRUG ADMIN., TECHNICAL CONSIDERATIONS FOR ADDITIVE MANUFACTURED MEDICAL DEVICES: GUIDANCE FOR INDUSTRY AND FOOD AND DRUG ADMINISTRATION STAFF (2017), https://www.fda.gov/media/97633/download [https://perma.cc/PJ8W-PLTK]; *see generally* FOOD & DRUG ADMIN., *About*, https://www.fda.gov/ [https://perma.cc/328F-WK9M] (last visited Apr. 1, 2019).

315. *See* Rachael E. Hunt & Allyson B. Mullen, *FDA Issues Final Guidance on Additive Manufactured ("3D-Printed") Devices*, FDA L. BLOG (Jan. 3, 2018), http://www.fdalawblog.net/2018/ 01/fda-issues-final-guidance-on-additive-manufactured-3d-printed-devices/ [https://perma.cc/9CXM-UMYJ].

316. Benedict, *FDA Publishes Guidance on 3D Printing of Medical Products*, 3DERS.ORG (Dec. 5, 2017), https://www.3ders.org/articles/20171205-fda-publishes-guidance-on-3d-printing-of-medical-products.html [https://perma.cc/MWK5-ZBP9].

317. Hornick, *supra* note 122.

318. Benedict, *supra* note 316.

319. *Id.* ("Hospital operating rooms or university laboratories."); *see also* Reed Smith LLP, *The Drug Revolution, 3D Printing Drugs at Home*, LEXOLOGY: DRUG AND DEVICE LAW (Aug. 27, 2018),

operating rooms or university laboratories, printing away from control[320] may invite criminal activity to occur at non-commercial, residential locations.[321] The scenario of drug manufacturing defects with minimal accountability is a hair-raising concept, one that should not be taken lightly.[322]

In terms of digital files used at traditional manufacturing facilities, the FDA guidance document refers to "Build Preparation Software," "Design Manipulation Software," and "Software Workflow," stating in particular that, "When possible, final device files for printing should be maintained and archived or referenced in robust, standardized formats that are able to store AM-specific information so that the information can be retrieved when needed."[323] Although the guidance document refers to "Cybersecurity," it delineates no safety protocols or consequences of unauthorized access to these files.[324] Although the FDA has not commented directly on the Four Thieves Vinegar DYI "Apothecary MicroLab," or its 3D printing of an EpiPencil,[325] the FDA has stated that 3D printing an EpiPencil was a "potentially dangerous practice."[326] Moreover, the FDA has acknowledged the future capabilities of 3D bioprinting, including the possibility of "eventually [being] used to develop replacement organs."[327] The future availability of medical device blueprint files, whether sanctioned or not, could lead to the monetization of certain high valued medical schematics, resulting

https://www.lexology.com/library/detail.aspx?g=014245e6-2bc1-45ab-9dc8-2fc6321dffe4 [https://perma.cc/US6G-TNY5].

320. Hornick, *supra* note 122.

321. *Id.*

322. Matt Jacobson, *Guest Post – The Drug Revolution, 3D Printing Drugs at Home*, DRUG & DEVICE LAW BLOG (Aug. 27, 2018), https://www.druganddevicelawblog.com/2018/08/guest-post-the-drug-revolution-3d-printing-drugs-at-home.html [https://perma.cc/J6E2-5QYG] ("Manufacturing defects are an infrequently litigated product liability claim where FDA-approved drugs are at issue. However, in the case of 3D printing homemade drugs, it may very well be the main focus of litigation. If a person makes a drug in his or her house using a 3D printer, who does that person blame if the drug causes injury?").

323. Food & Drug Admin., *supra* note 314.

324. *Id.*

325. *See* Doctorow, *supra* note 149.

326. *See* Jacobson, *supra* note 322 ("As to 3D printing drugs at home, how the FDA intends to approach this subject is very unclear. A lot of questions are raised with no answers as of yet. If manufacturing occurs at a non-traditional 'manufacturing' site, such as a person's home, how will or should the FDA regulate that site? Should the site be subject to all of the FDA's requirements and standards and will the FDA take enforcement action because a 3D printed drug is technically adulterated when it is not manufactured under quality compliant conditions? Will instructions to print drugs have to be FDA approved? Will the FDA regulate the printer or just the finished product? To resolve these and other issues, the FDA may need to modify its regulations, and in the short term issue a few guidance documents and exercise its enforcement discretion for some FDA rules and regulations. FDA's requirements will be key for safety, but also for preemption purposes, which may depend on the FDA imposing requirements on 3D printing of medications.").

327. *See* Tim Fryer, *Hotel Artemis: Prints of Thieves*, E&T.COM (July 19, 2018), https://eandt.theiet.org/content/articles/2018/07/hotel-artemis-prints-of-thieves/ [https://perma.cc/ER8C-DAWY] ("A gunshot-riddled internal organ stops becoming such a big issue when you can just print out another one."). *Id.* ("One of the technologies employed at Hotel Artemis is 3D printing of organs, specifically in this case the printing of the hero's brother's liver. Could this be a reality by the year 2028, when this film is set? It's not as improbable as it may sound.").

in a derivative black market.[328] Regardless of whether such innovations come to fruition in the next few years or decade(s), the FDA cannot remain indisposed or stagnant in response to the threats posed by printing away from control[329] in nontraditional manufacturing facilities.

B. FIREARMS

Under the direction of the Bureau of Alcohol, Tobacco, Firearms and Explosives (the "ATF"), enforcement of domestically manufactured 3D-printed firearms falls under the Undetectable Firearms Act (the "UFA"), which "makes it illegal to manufacture, import, sell, ship, deliver, possess, transfer, or receive any firearm that is not detectable by a metal detector."[330] In an effort to modernize the UFA, New York Representative Steve Israel submitted a proposal to amend 18 U.S.C. § 922 (p).[331] Although ultimately unsuccessful, the Undetectable Firearms Modernization Act (the "UFMA") would criminalize certain types of 3D-printed guns, specifically "undetectable firearm receivers made by individuals" and "undetectable ammunition magazines by individuals."[332] In evaluating the preparedness of the ATF as it relates to effective 3D-printed gun regulation, the ATF acknowledges that, "[T]hese laws do not limit the technology or processes that may be used to produce firearms. However, ATF enforces existing statutes and investigates any cases in which technological advances allow individuals to avoid complying with these laws."[333] The ATF's online resource guide, although insightful, is sparse and lacking in terms of a substantive discussion pertaining to the dangers posed by 3D-printing and gun blueprint files.[334]

One potential avenue of regulation, posited by Professor Josh Blackman, is through the filtering of CAD files on the internet.[335] Professor Blackman states the following:

328. *See* Richard Wordsworth, *Could 3D-Printed Organs be Medicine's Next Grisly Black Market?*, WIREDUK (Sept. 26, 2016), https://www.wired.co.uk/article/printed-organs-black-market [https://perma.cc/NYC8-ZMA2] ("The question is how the bad guys will find ways to use [these technologies] in unsafe, unregulated ways."). *Id.* ("His concern lies in the languorous workings of today's medical regulatory bodies. If 3D-printing technologies arrive and are disseminated quickly, then healthcare providers will flood the market with affordable (and potentially miraculous) treatments. If they arrive in fits and starts, other interests will try to plug the gap.").

329. *See* Hornick, *supra* note 122.

330. 18 U.S.C.A. § 922(p) (Westlaw through Pub. L. No. 116-5). *See generally* BUREAU OF ALCOHOL, TOBACCO, FIREARMS AND EXPLOSIVES, *About*, https://www.atf.gov/about [https:// perma.cc/BQH6-A2X4] (last visited Apr. 1, 2019) ("ATF protects the public from crimes involving firearms, explosives, arson, and the diversion of alcohol and tobacco products; regulates lawful commerce in firearms and explosives; and provides worldwide support to law enforcement, public safety, and industry partners.").

331. Undetectable Firearms Modernization Act, H.R.1474, 113th Cong. (2013-2014), https://www.congress.gov/bill/113th-congress/house-bill/1474 [https://perma.cc/9NL5-KS47].

332. *Id.*

333. BUREAU OF ALCOHOL, TOBACCO, FIREARMS AND EXPLOSIVES, *What Say Does ATF Have in The Technology Used to Produce Firearms?*, https://www.atf.gov/firearms/qa/what-say-does-atf-have-technology-used-produce-firearms [https://perma.cc/XW8V-BS2F] (last updated Sept. 23, 2016).

334. *See* BUREAU OF ALCOHOL, TOBACCO, FIREARMS AND EXPLOSIVES, *Q&As: 3-D Printing of Firearms* (Nov. 13, 2013), https://www.atf.gov/resource-center/docs/111313-hq-3-d-printing-technology-firearmspdf/download [https://perma.cc/6CVM-6GHU].

335. Josh Blackman, *V. The Regulation of 3D Guns*, 6 TEX. FIREARMS L. 11 (2017).

> A similar provision, whether mandated by the government, or implemented voluntarily could be used to police downloading 3D blueprints for guns. Any uploads of a banned blueprint that has signatures of being a 3D gun, could be flagged, and filtered. Anyone who attempts to download the file could be reported to the authorities. Already, popular 3D printing file-sharing sites have removed all 3D guns. Thingiverse, a database of downloadable 3D files, has banned 3D gun blueprints.336

However, Professor Blackman explains that internet based filtering systems, many of which currently exist and are used to police copyright infringement, can be circumvented by encryption applications such as Disarming Corruptor.[337] Moreover, such filtering systems rely on compliance from third-party internet service providers ("ISP(s)"), creating an added layer of bureaucratic red tape that can further hinder enforcement.[338] As Professor Blackman states, "[I]nformation cannot be controlled. DEFCAD, if shut down, will spawn countless other mirror sites that can replicate the files. Filtering will not work, and will only serve to over-broadly sweep in constitutionally protected expressions."[339]

To Professor Blackman's point, if the dissemination of information cannot be controlled, why not introduce a targeted deterrence, such as a licensing scheme that systematically accounts for individual activity.[340] With a sufficient barrier in place, an individual's ability to publish blueprint files can be constrained, curtailing wide spread circulation. With these considerations in mind, both the ATF and Professor Blackman's statements paint an uncertain future for gun blueprint file regulation. The heavy burdens bestowed upon the federal government in devising an effective gun blueprint file regulatory scheme are daunting. Effective regulation should include an accounting of an individual's possessory interests, means of acquisition, and dissemination, which will allow the ATF to enforce both the technology and processes involved in 3D printing.

C. MYRIAD OBJECTS

In the realm of myriad objects, such as "jewelry, kitchen supplies, model airplanes, or clothing",[341] blueprint files run rampant on internet sharing sites, such as Thingiverse.[342] These communities, dedicated to the independent learning of 3D printing enthusiasts, allow individuals to

336. *Id.*

337. *Id.*; *see also* Gutowski, *supra* note 286.

338. *See* Blackman, *supra* note 335.

339. *Id.*

340. *See infra* Part III (proposing a flexible scheduling system).

341. *See* Def. Distrib. v. U.S. Dep't of State, 838 F.3d 451, 469 (5th Cir. 2016) (Jones, J., dissenting).

342. *See* THINGIVERSE, *About*, https://www.thingiverse.com/about/ [https://perma.cc/Q85R-2Y2A] (last visited Apr. 1, 2019) ("MakerBot's Thingiverse is a thriving design community for discovering, making, and sharing 3D printable things. As the world's largest 3D printing community, we believe that everyone should be encouraged to create and remix 3D things, no matter their technical expertise or previous experience. In the spirit of maintaining an open platform, all designs are encouraged to be licensed under a Creative Commons license, meaning that anyone can use or alter any design.").

download blueprint files under a Creative Commons License.[343] Other sites offer a similar shared experience, but permit publishers to charge a fee for their blueprint file designs.[344] Whether a hobbyist or a professional designer, 3D-printed myriad objects imbue symbolic speech, epitomizing the essence of freedom of expression under the First Amendment.[345] Protections against the unauthorized use of myriad blueprint files mainly reside with intellectual property laws, particularly copyright infringement claims by publishers.[346] However, beyond blueprint file intellectual property protections, lie product safety concerns associated with 3D-printed content.

In particular, the Federal Trade Commission (the "FTC") and the Consumer Product Safety Commission (the "CPSC") enforce product labeling and quality control of certain 3D-printed items.[347] A 2017 CPSC report highlights potential dangers of home-based 3D printing:

> With new advances in technology, a consumer can easily "scan" an object and "print" it using a relatively inexpensive printer. The costs of the printers and the time to print a product are declining, which leads to greater consumer use of printers and a wider range of products manufactured and used in the home. Entrepreneurs may establish micro-manufacturing facilities in their homes that contain several printers making products for sale. The safety implications for product printing include the composition of the filament (the printing material), the high temperature of the printing process, chemical and particulate emissions during printing, and the safety and durability of the final product during consumer use.[348]

Self-manufactures, seeking pecuniary gain by selling their 3D-printed items, have to account for both the integrity of the blueprint file designs, and product defects that may stem from inaccuracies caused during the 3D printing process.[349] Moreover, "People using 3D printers for a home-based

343. *See* CREATIVE COMMONS, *Frequently Asked Questions: What is Creative Commons and What Do You Do*, https://creativecommons.org/faq/#what-is-creative-commons-and-what-do-you-do [https://perma.cc/FU68-NP32] (last visited Apr. 1, 2019).

344. *See, e.g.*, PINSHAPE, https://pinshape.com/3d-marketplace?page=4 [https://perma.cc/K3MS-UMW7] (last visited Apr. 1, 2019).

345. *See* U.S. CONST. amend. I.

346. *See* Kyle Dolinsky, *CAD's Cradle: Untangling Copyrightability, Derivative Works, and Fair Use in 3D Printing*, 71 WASH. & LEE L. REV. 591, 595 (2014); *Id.* at 643–44 ("Because it is analogous to a technical drawing, the design drawing component of a CAD file will be copyrightable under the same rules as any pictorial, graphical, or sculptural work"); *see also Expert Q&A on Protecting Designs in a 3D Printing World*, PRAC. L. INTELL. PROP. & TECH. (Westlaw 2014) ("While it is notoriously difficult to protect fashion items under copyright, designers are exploring the kinds of 3D-printed items that should be suitable for protection, such as belt buckles, key pulls, sunglasses and jewelry. These items are protectable under US copyright law as long as the design: Has at least minimal originality. Is conceptually separable from the useful function of the item. In the US, a copyright owner may send Digital Millennium Copyright Act (DMCA) takedown notices to internet service providers to remove internet postings of any design or other copyrightable content that infringes copyright rights without fair use or another viable defense.").

347. *See* FED. TRADE COMM'N., *About the FTC*, https://www.ftc.gov/about-ftc [https://perma.cc/6W64-YHPJ] (last visited Apr. 1, 2019); *see also* CONSUMER PROD. SAFETY COMM'N., *About CPSC*, https://www.cpsc.gov/About-CPSC/ [https://perma.cc/LEF7-KSGT] (last visited Apr. 1, 2019).

348. Consumer Prod. Safety Comm'n, *Potential Hazards Associated with Emerging and Future Technologies* (Jan. 18, 2017), https://www.cpsc.gov/s3fs-public/Report%20on%20Emerging%20Consumer%20Products%20and%20Technologies_FINAL.pdf [https://perma.cc/3QHT-9RGK].

349. 3D Printing: Overview, *Product Liability Considerations*, PRAC. L. INTELL. PROP. & TECH. (Westlaw 2019) ("This can create challenges for courts to determine which party is responsible for a

or other small business also may need to comply with state consumer protection laws and regulations, some of which may be more stringent than federal laws and regulations."[350] Unlike 3D-printed firearms, myriad objects pose no greater risk to society than a wood carving or jewelry displayed at an arts and crafts fair.[351] As Circuit Judge Jones poignantly stated in her dissent in *Defense Distributed*, myriad objects "are of no interest to the State Department", as the content being challenged was "technical data referring to firearms."[352] Transitioning back to areas of government interest, it is worth taking a brief detour to observe how one Australian province has legislated the issue of gun blueprint files, crafting a unique set of defenses that resonate with the individual interests outlined in Part I of this Article.[353]

D. CASE STUDY: NEW SOUTH WALES GUN BLUEPRINT FILE REGULATION

Looking through the lens of the Australian province of New South Wales ("NSW"), the NSW parliament was astutely "aware of the [3D printing] technology–and exactly how easy and affordable it is to use in making weaponry."[354] In 2015, the NSW parliament amended the Firearms Act 1996[355] ("The Firearms Act") and the Weapons Prohibition Act 1998[356], creating a new offense for residents who are in possession of gun blueprint files.[357] The Firearms and Weapons Prohibition Legislation Amendment Bill 2015 creates "a new offence of possessing digital blueprints for the manufacture of firearms on 3D printers or electronic milling machines," with a maximum penalty of imprisonment for up to fourteen years.[358] In parsing the bill's language, sections 51F, "Possession of digital blueprints for manufacture of firearms," and 51G, "Defences for offences under section

specific product or its design. These self-manufacturers could expose themselves to potential product liability risk if injuries result from their: Development of defective designs for use with 3D printers, Printing of self-invented defective products or parts, [and] Sale of self-invented products or parts accompanied by deficient warnings or instructions.").

350. *Id.*

351. Myriad objects are instrumentalities of creative expression unburdened by the presumption of risk associated with 3D-printed firearms.

352. *See* Def. Distrib. v. U.S. Dep't of State, 838 F.3d 451, 469 (5th Cir. 2016) (Jones, J., dissenting).

353. *See supra* Part I.B.

354. Bridget O'Neal, *New South Wales, Australia: Parliament Passes Law Banning Possession of 3D Files for Guns*, 3DPRINT.COM (Nov. 20, 2015), https://3dprint.com/106940/australia-ban-3d-files-guns/ [https://perma.cc/6QVS-MB7D] ("While it is stated that the Attorney General could authorize learning institutions or researchers to make 3D printed guns, they believe banning this activity for citizens is the best course of action due to accessibility, affordability and extreme unpredictability due to no standards in manufacturing–not to mention the fact that 3D printed guns don't have serial numbers and can't be traced."); *see also* Asha McLean, *3D Printable Firearm Blueprint Possession Now Carries Jail Time in NSW*, ZDNET.COM (Nov. 23, 2015, 1:34 AM), https://www.zdnet.com/article/3d-printable-firearm-blueprint-possession-now-carries-jail-time-in-nsw/ [https://perma.cc/9Y7K-9U24].

355. Firearms Act 1996 (NSW), https://www.legislation.nsw.gov.au/inforce/2b38053f-9e7d-4358-ba20-155e7ec4be78/1996-46.pdf. [https://perma.cc/7FK5-5EH6].

356. Weapons Prohibition Act 1998 (NSW), https://www.legislation.nsw.gov.au/#/view/act/1998/127/full. [https://perma.cc/SC3J-KP65].

357. Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW), https://www.legislation.nsw.gov.au/bills/5bb4f02b-1f1e-48b2-aa93-955574e699f6 [https://perma.cc/BG5S-RLU4]; McLean, *supra* note 354.

358. Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW 2015).

51F," provide several important insights into the bill's underpinnings and the drafters' reasoning.[359] Section 51F (3) states in-part:

> [D]igital blueprint means any type of digital (or electronic) reproduction of a
> technical drawing of the design of an object.
> [P]ossession, of a digital blueprint, includes the following:
> (a) possession of a computer or data storage device holding or containing the blueprint or of a document in which the blueprint is recorded,
> (b) control of the blueprint held in a computer that is in the possession of another person (whether the computer is in this jurisdiction or outside this jurisdiction).[360]

It is important to note the absence of the term "distribute" from section 51F, which is present in New Jersey's Bill S246.[361] Whether the omission is by design or unintentional, the NSW bill focusses on two key elements: possession and control.[362] The NSW bill takes into account the mode of transmission, means of storage, and most importantly, the origination of the gun blueprint file.[363] Accountability is at the heart of section 51F, with the bill's reach extending beyond the confines of the NSW's jurisdiction.[364] Moreover, the control element creates a chain of responsibility, linking the gun blueprint file back to the original publisher.[365] The publisher is held accountable for transmitting the gun blueprint file, irrespective of the possessor's intent.[366] The NSW bill effectively cuts through the web of digital anonymity, holding each party accountable for their actions.

Unlike New York Penal Law §§ 265.01-b and 265.10(1), the NSW parliament devised a proactive regulatory approach to combating the transmission of blueprint files used to produce 3D-printed firearms.[367] Under the NSW bill, the puppeteer from the Lion King, Mr. Vett,[368] would be held criminally liable for possession of a USB flash drive that contained the gun blueprint file.[369] Moreover, the NSW bill exposes the original publisher to criminal liability.[370] By focusing regulatory efforts on possession and control, the NSW government is deterring intentional, widespread dissemination of gun blueprint files.[371]

359. *Id.*

360. *Id.*

361. *Compare id.*, *with* B. S2465, N.J.S. 10 (N.J. 2018).

362. Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW).

363. *Id.* (elucidating the terms "control" and "possession" to hold accountable the originator(s) of gun blueprint files).

364. *Id.*

365. *Id.*

366. *Id.*

367. *Compare* Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW), *with* N.Y. PENAL LAW § 265.01-b (Consol. 2019); N.Y. PENAL LAW § 265.10(1) (Consol. 2019).

368. *See supra* notes 61-69.

369. *Id.*

370. *See* Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW), https://www.legislation.nsw.gov.au/bills/5bb4f02b-1f1e-48b2-aa93-955574e699f6.

371. *See* McLean, *supra* note 354.

Moving beyond section 51F's possessory interest, the NSW bill also delineates several "Defenses" for residents caught with gun blueprint files.[372] Under section 51G, these "Defenses" include: Innocent production, dissemination or possession, Public benefit, and Approved research.[373] Interestingly, section 51G (1) establishes a dual prong test in assessing a resident's innocence, by imparting both knowledge and reasonableness requirements.[374] Section 51G (1) essentially dispels a plea of ignorance, cutting through an individual's motives, and revealing any illicit-exploitative interests.[375] Section 51G (2) states that "It is a defense to a prosecution for an offence under section 51F if the defendant proves that the digital blueprint concerned came into the defendant's possession unsolicited and the defendant, as soon as the defendant became aware of its nature, took reasonable steps to get rid of it."[376] It would be difficult for Mr. Vett to assert a defense of ignorance under Section 51G (2).[377] First, Mr. Vett was not in possession of a valid firearms manufacturing license, an exception to liability under section 51F (2).[378] Second, Mr. Vett told police that he intentionally sought out the gun blueprint file over the internet, and downloaded its contents onto a storage device.[379] Third, Mr. Vett did not take reasonable measures to delete the gun blueprint file once he gained possession.[380] Finally, Mr. Vett knowingly inserted the USB drive into the printer's port, with the stated intention of 3D printing a firearm as a gift for his brother.[381] The totality of Mr. Vett's actions, including his possessory interest in the gun blueprint files, falls squarely in line with the criminal liability delineated under the NSW bill. Section 51G (2) effectively filters out an individual's good motives from the bad, leaving behind the sediments of the illicit-exploitative interest.[382]

Furthermore, the utilitarian-transformative interest is narrowly served through sections 51G (3), (4), (5) and (6), that deal with public interest and approved research.[383] In evaluating whether one's conduct is of public benefit, sections 51G (4) and (5) take a facts-oriented, strict adherence approach, sidelining any motivating factors.[384] The NSW bill permits possession of gun blueprint files under state sanctioned activities, such as for administering law, monitoring compliance, and conducting investigations.[385]

372. Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW).

373. *Id.*

374. *Id.*

375. *Id.*

376. *Id.*

377. *Id.* at § 51G(2).

378. Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW 2015); *see also supra* Part I.

379. *See supra* Part I.

380. *Id.*

381. *Id.*

382. Firearms and Weapons Prohibition Legislation Amendment Bill 2015, § 51G(2) (NSW).

383. *Id.* at §§ 51G(3)-(6).

384. *Id.* at §§ 51G(4) and (6).

385. *Id.* at § 51F.

Other valid possessory interests lie with approved research.[386] Under section 51G (6) (a), approved research must be approved in writing by the Attorney General, and includes "assistance in conducting scientific, medical, educational, military or law enforcement research." [387] While section 51G (6) permits certain forms of research, it also strips away at individual autonomy and limits independent application.[388] By requiring a citizen to seek the pre-approval of research or narrow the scope of their application, the NSW is essentially placing a series of hurdles that impede independent thought and creativity. However, these tradeoffs, in the eyes of the NSW parliament, may seem necessary to effectively protect its citizens.[389] According to a spokeswoman for the NSW Deputy Premier and Minister for Justice and Police Troy Grant, "the state government wants to be prepared for any dangers caused by up and coming technologies now in and in the future" and "In amending the Firearms Act and Weapons Prohibition Act, the NSW government wants to be on the front foot of any emerging technologies that pose a threat to our community." [390]

The NSW bill provides an intriguing insight into gun blueprint file legislation taken by a foreign jurisdiction, one worthy of further consideration when evaluating the United States federal regulatory scheme. However, looking beyond a unitary piece of legislation, one that addresses only a single category of non-myriad blueprint file, lies a greater legal dilemma. How can the federal government effectively reconcile its laws to account for an expanding class of non-myriad blueprint files, and implement a regulatory scheme that does not get outmoded by technological change? In thinking about a potential solution to the greater blueprint file dilemma, the federal government has already drawn up plans, currently in use to regulate the possession, manufacturing, use and distribution of controlled substances.[391] Why not adopt a similar framework for non-myriad blueprint files?

PART III

PROPOSAL: THE 3D NON-MYRIAD BLUEPRINT FILE DISSEMINATION ACT

To combat the threats of tomorrow, one may have to look to the past for a solution. The potential challenges associated with regulating an ever growing class of non-myriad blueprint files invoke a similar challenge faced by President Nixon in the late 1960's, in combating the drug epidemic that

386. *Id.* at § 51G(6).

387. *Id.* at § 51G(6)(a).

388. Firearms and Weapons Prohibition Legislation Amendment Bill 2015, § 51G(6) (NSW).

389. *See* O'Neal, *supra* note 354.

390. O'Neal, *supra* note 354.

391. *See* 21 U.S.C. § 812 (2019).

plagued the nation.[392] Albeit, blueprint files have not yet fully reared their head in terms of breadth and scale as compared to drugs, their reach is widening as home-based 3D printing technology proliferates in the marketplace.[393] However, irrespective of this consideration, there are several noticeable similarities between the two worth discussing.

The first similarity is the transactional construct.[394] With an illegal prescription drug transaction, there are dual party interests at play, the supplier and the buyer.[395] Similarly, transmission of non-myriad blueprint files occurs between a publisher and an end user.[396] Both scenarios establish a dynamic relationship for transactions that take place either in-person, or over the internet. Second is the opportunity for abuse and misuse. Illegally obtained narcotics and prescription drugs have led to the creation of black markets, providing drug users with entre to a virtual candy store stocked with highly addictive drugs.[397] However, unbeknownst to a buyer can be the issues of quality, unintended side effects, and the risk of overdose.[398] In a similar

392. *See* Kenneth Baumgartner, *Introduction: Controlled Substances Handbook*, THOMPSON INFO. SERV. (2015); *see also* ADDICTION RESOURCE, *The War on Drugs: Who Started It?* (Mar. 23, 2018), https://addictionresource.com/war-on-drugs/ [https://perma.cc/6TYH-EFC3] ("The 'War on drugs' is an American term, coined by President Richard Nixon in a press conference given on June 18, 1971. President Nixon declared drug abuse 'public enemy number one.' He sent a message to Congress about committing more federal resources to the 'prevention of new addicts and the rehabilitation of those who are addicted.' Nixon's war on drugs (which began in 1969), was a campaign of prohibition of illicit drugs, military aid, and intervention with the aim being to reduce the illegal drug trade."); SMARTDRUGPOLICY, https://www.smartdrugpolicy.org/nixon-and-the-start-of-the-drug-war-1969-1974 / [https://perma.cc/PVY2-94SH] (last visited July 24, 2019) ("In 1970, the Comprehensive Drug Abuse Prevention and Control Act of 1970 was created and became the main legal foundation for drug regulation in the U.S. It consolidated all previous laws regulating the production and distribution of narcotics, stimulants, depressants, hallucinogens, and any other chemical substance considered to have a potential for abuse. To enforce the Act, a new agency was created in 1973, the Drug Enforcement Administration (DEA), into which the former BNDD was merged.").

393. *See* Lucas Mearian, *Low Cost 3D-Printers Driving Massive Growth*, COMPUTERWORLD (Sept. 3, 2015, 3:00 AM), https://www.computerworld.com/article/2987607/low-cost-3d-printers-driving-massive-growth.html [https://perma.cc/W8HU-3JY7]; *see also* Laura Ferguson, *The 3D Printing Revolution*, TUFTSNOW (Oct. 19, 2018), https://now.tufts.edu/articles/3d-printing-revolution [https://perma.cc/BF6K-54CB].

394. *See* NARCONON, *Drugs—It's All About the Money!*, https://www.narconon.org/drug-information/drug-dealing.html [https://perma.cc/ZUV6-74TR] (last visited July 24, 2019); Bruce D. Johnson, *Patterns of Drug Distribution: Implications and Issues*, NCBI (Sept. 11, 2007), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1975811/ [https://perma.cc/G6GL-H9HF].

395. *See id.*

396. *See* 3DPRINTING, *Overview of the Best 3D Marketplaces*, https://3dprinting.com/3d-marketplace/ [https://perma.cc/83XZ-T3N7] (last visited July 24, 2019) ("Often, a 3D printing marketplace website offers the possibility for a 3D designer to have his or her own shop-in-shop where the designer can upload suitable files and sell them via the 3D marketplace website (or give them away for free). The 3D printing marketplace provides server resources, infrastructure and a guarantee of safe settlement for payments.").

397. *See* Katie Rucke, *Former FDA Staffer Claims Prescription Drug 'Black Market' Going Unreported*, MPN NEWS (May 5, 2014), https://www.mintpressnews.com/former-fda-staffer-claims-prescription-drug-black-market-going-unreported/190064/ [https://perma.cc/M7ET-BQX7] ("The various medications all have varying street prices, which are largely dependent on the type of high a person can get from that medication. Harris says this high profitability rate from the largely opiate-heavy prescriptions on the drug market has caught the attention of drug dealers, who either try to obtain the pills themselves from a physician or ask someone else to do so.").

398. *Id.*; *see* ZAGGOCARE, *Dangers of Black Market Medications – More Common Than you Think* (Sept. 19, 2016), https://zaggocare.org/dangers-of-black-markets-medications-more-common-than-you-think/ [https://perma.cc/VF8Y-UTUF]; Jenna Mitchell, *The Danger of "Impure" Street Drugs*, ELEMENTS BEHAVIORAL HEALTH (Apr. 2, 2015), https://www.recoveryplace.com/blog/the-danger-of-impure-street-drugs/ [https://perma.cc/EFU3-3Z3P] ("Illicit drugs bought on the street are commonly 'impure'

sense, publishers of non-myriad blueprint files supply the digital black market with non-myriad blueprint files, such as weapon parts, enabling end users to print away from control.[399] While a drug user may turn to third parties to evade legal recourse,[400] an end user can circumvent law enforcement and the process of undergoing a background check to acquire a firearm by simply downloading gun schematics, and printing a gun on demand.[401] In both scenarios, each party may feel emboldened, with an opportunity to operate under the radar.

The third similarity is unnegotiable pecuniary gain.[402] For suppliers of illegally obtained narcotics and prescription drugs, the pecuniary gain often outweighs the associated risk of selling drugs.[403] As long as there is financial incentive and a demand in the marketplace, there is no reason for a supplier

and have the ability to leave users with unexpected side effects in as little as one use. It's often impossible to tell if a drug is what it's said to be, how strong the dose actually is, or if it also contains another drug or substance to 'help' its street value."); DRUGABUSE.COM, *Risk of Counterfeit and Laced Drugs*, https://drugabuse.com/addiction/counterfeit-drugs/ [https://perma.cc/3AAQ-7MHZ] (last visited July 24, 2019) ("With illegal drug manufacturing in full swing, it can be difficult or even impossible to know what exactly you're getting. Drug dealers and online drug retailers may cut, lace, or mix drugs with other substances or adulterants during the production process to increase bulk and dilute purity-keeping costs down and profits up. Furthermore, some prescription drug users are buying their pills from disreputable online sources and unwittingly receiving fake drugs as a result.") ("This dangerous combination of unknowns adds up to enormous unpredictability in drug purity and composition, as well as the effects the substance will produce. Additionally, if you take drugs that are diluted or fake, you may take more to feel the desired effects, which increases your risk of overdose.").

399. *See* Hornick, *supra* note 166; *see also* Tucker, *supra* note 5.

400. *See* DAT, *Online Black Market for Illegal Drugs is Booming*, https://www.drugaddictiontreatment.com/addiction-in-the-news/drug-crimes/online-black-market/ [https://perma.cc/EPE3-DNAG] (last visited July 24, 2019) ("In the age of the Internet, illegal drug sellers have found a new way of distribution. Avoiding street traffic, violence, and face-to-face sales, distributors and buyers can keep their anonymity, purchase from a wide selection of substances, and have the substances delivered safely straight to them. Law enforcement is having a difficult time tracking down and cracking this new era of drug distribution. One website that has confounded the law is the 'Silk Road,' somewhat of a Craigslist that sells multiple items, but mostly illegal or controlled drugs.").

401. *See* Brady Handgun Violence Prevention Act of 1993, 18 U.S.C. § 922(d)(4) (1993); *see also* NICS Improvement Amendments Act of 2007, H.R. Res. 2640, 110th Cong. (2008); CRIMINALWATCHDOG, *What You Need to Know about Background Checks for Guns*, https://www.criminalwatchdog.com/faq/background-checks-for-guns [https://perma.cc/2CHG-z2SQ] (last visited July 24, 2019); Matthew Schwartz, *Texas Man With 3D-Printed Gun And 'Hit List' Of Lawmakers Sentenced To 8 Years*, NPR (Feb. 14, 2019, 7:36 AM), https://www.npr.org/2019/02/14/694641578/texas-man-with-3d-printed-gun-and-hit-list-of-lawmakers-sentenced-to-8-years [https://perma.cc/A35S-X29J] ("Eric Gerard McGinnis was not supposed to have a gun. After a violent altercation with his girlfriend, a Texas judge barred him in 2015 from possessing a firearm. A year later, McGinnis tried to buy a gun anyway, but the purchase wouldn't go through after a background check revealed the court order. According to the U.S. Attorney's Office, McGinnis obtained a barrel, stock, upper receiver and grip — and then used a 3D printer to create the gun's firing mechanism. He assembled the parts into a short-barrel AR-15 style rifle and headed out into the woods with what federal attorneys called a 'hit list' of Democratic and Republican lawmakers, including their office and home addresses. The list was titled, '9/11/2001 list of American Terrorists.'") ("'When he realized he couldn't legally purchase a firearm, Eric McGinnis circumvented our gun laws by 3D-printing his weapon, eliminating the need for a background check,' said Erin Nealy Cox, U.S. attorney for the Northern District of Texas.").

402. *See* NARCONON, *supra* note 394.

403. *Id.*; *see* Sam Becker, *Illegal Drug Dealers: How Much Money Do They Really Make?*, *CHEATSHEET* (Oct. 16, 2016), https://www.cheatsheet.com/money-career/drug-trade-dealers-money.html/ [https://perma.cc/37WU-PDTA]; Erin Rose, *The True Lives of Low-Level Drug Dealers: "What's The Point Of Surviving If You Can't Live,* SALON (Mar. 9, 2014, 2:58 PM), https://www.salon.com/2014/03/09/the_true_lives_of_low_level_drug_dealers_whats_the_point_of_surviving_if_you_cant_live/ [https://perma.cc/66AS-6S9X].

to give pause, or wonder how their actions affect others.[404] Similarly, publishers of non-myriad blueprint files are often unware, detached participants in regards to how their blueprint files are used; once a file is uploaded and a fee is paid, the publishers' hands are washed clean.[405] In both scenarios, seller's remorse is non-existent.

The fourth and final similarity is the substantial risk of harm to public safety and national security.[406] Without hesitation, the federal government had an overwhelming interest in stemming the tide of drug abuse during the late 1960's and early 1970's.[407] The narcotics and drug epidemic was fueled by a systemic and nationwide crisis, one that gradually built up over time.[408] Concerns over the public's general welfare created an exigent circumstance, one that the federal government could no longer ignore.[409] Transitioning to the twenty-first century, a similar concern has taken shape, only this time through a digitally connected format.[410] Both state and federal representatives from across the United States have identified a new source, non-myriad blueprint files, as creating potential risk for substantial harm to both the general public and to national security.[411] Without a uniformed approach to the regulation of non-myriad blueprint files, these concerns will remain unabated, potentially leading to a much greater problem. [412]

404. *See* DRUG ENFORCEMENT ADMIN., *Heroin dealer who caused overdoses gets over 27 years in prison* (July 30, 2018), https://www.dea.gov/press-releases/2018/07/30/heroin-dealer-who-caused-overdoses-gets-over-27-years-prison [https://perma.cc/XH6T-7NCH] ("Drug dealers ruin lives," Agent in Charge Barden said. "Whether they are destroying our communities, destroying families, causing violence and mayhem, or dealing lethal drugs without care for their common man, they ruin lives.").

405. *See* Meagan Redman et. al, *Entrepreneur Behind Fight for Sharing 3D Printed Gun Blueprints On Why He's Advocating for 'The People's Right to Keep and Bear Arms'*, ABC NEWS (Aug. 9, 2018, 3:31 PM), https://abcnews.go.com/US/man-fight-sharing-printed-gun-blueprints-hes-advocating/ story?id=57117087 [https://perma.cc/2YPV-MQQL] ("Providing this information is wrong. He's also ethically responsible for what other people do with this information," Franco said. "You provided these people with information that could potentially cause another tragedy."); *see also* Champe Barton, *As Social Networks Crack Down, 3D-Printed Gun Community Moves to New Platforms*, THE TRACE (July 25, 2019), https://www.thetrace.org/2019/07/3d-printed-guns-social-media-ban/ [https://perma.cc /W8PB-85U5].

406. *See* Washington v. United States Dep't of State, 318 F. Supp. 3d 1247, 1252 (W.D. Wash. 2018); *see also* Cyrus Farivar, *Court: With 3D Printer Gun Files, National Security Interest Trumps Free Speech*, ARS TECHNICA (Sept. 21, 2016, 2:52 PM), https://arstechnica.com/tech-policy/2016/09/ court-groups-3d-printer-gun-files-must-stay-offline-for-now/ [https://perma.cc/8R7N-4HZY].

407. *See* Lisa N. Sacco, *Drug Enforcement in the United States: History, Policy, and Trends*, CONG. RES. REP. (Oct. 2, 2014), https://fas.org/sgp/crs/misc/R43749.pdf [https://perma.cc/8LB7-YFHY].

408. *See* Thomas M. Quinn & Gerald T. McLaughlin, *The Evolution of Federal Drug Control Legislation*, 22 CATH. U. L. REV. 586 (1973).

409. *See generally* PBS FRONTLINE, *Thirty Years of America's Drug War, A Chronology*, https://www.pbs.org/wgbh/pages/frontline/shows/drugs/cron/ [https://perma.cc/8P4S-ATFH] (last visited July 24, 2019) ("In late 1960s recreational drug use becomes fashionable among young, white, middle class Americans. The social stigmatization previously associated with drugs lessens as their use becomes more mainstream. Drug use becomes representative of protest and social rebellion in the era's atmosphere of political unrest.") ("Psychiatrist Dr. Robert DuPont conducts urinalysis of everyone entering the D.C. jail system in August of 1969. He finds 44% test positive for heroin.").

410. *See supra* Part I. C & D.

411. *Id.*

412. *See* Jamiles Larty, *3D-Printed Guns: Activists Urge Government to Block Blueprints*, THE GUARDIAN (July 25, 2018, 12:46 PM), https://www.theguardian.com/us-news/2018/jul/25/3d-printed-guns-blueprints-activists-urge-government-block [https://perma.cc/G5US-6TF4] ("It is dangerous, irreparable and … raises issues of national defense and national security of the highest order," the groups

With these similarities in mind, the Controlled Substances Act (the "CSA"), 21 U.S.C. § 812 provides a working framework for a potential solution to the greater blueprint file dilemma.[413] In 1970, Congress "overhauled the federal drug abuse control laws," by merging all existing federal laws into a single, unified statute.[414] Specifically, congressional findings, delineated under 21 U.S.C. § 801(2), stated that, "The illegal importation, manufacture, distribution, and possession and improper use of controlled substances have a substantial and detrimental effect on the health and general welfare of the American people."[415] These findings resonate with concerns conveyed by many state and federal constituents over gun blueprint files, including those brought up by the governors of New York and New Jersey.[416] As 3D printing technology evolves, the indoctrination of other non-myriad blueprint files, such as drugs and organs, will only add to these findings.[417]

Thinking prospectively, and in light of these considerations, this Article proposes the adoption of a regulatory framework titled "The Non-Myriad Blueprint File Dissemination Act" (the "N-MBFDA") as a solution to the greater blueprint file dilemma. Envisioned as a flexible and adaptive regulatory scheme,[418] the N-MBFDA will establish a digital nexus between the federal government, publishers, and end users.[419] The premise behind the N-MBFDA lies with the notion that non-myriad blueprint files require threat levels, based on their propensity as digital instructions, to cause substantial and irreparable harm to the general public and to national security. By centralizing the flow of non-myriad blueprint file information, the federal government can proactively identify, monitor, and assess the threats posed by wide-spread dissemination of certain digital instructions used for 3D printing.[420] Wide reaching safety concerns over a single category of non-myriad blueprint file have already permeated each branch of the federal government, leaving behind a trail of uncertainty. Court cases such as *Washington*, and Judge Lasnik's statements, have left unanswered the

said of a June settlement by the Trump administration that would allow for the data files to be freely downloaded as of 1 August."); *see also* Hornick, *supra* note 166.

413. *See* 21 U.S.C.A. § 812 (Westlaw through Pub. L. No. 116-5); *see also* JOAN FLYNN, INTRODUCTION: CONTROLLED SUBSTANCES HANDBOOK (2018), Westlaw.

414. FLYNN, *supra* note 413.

415. 21 U.S.C.A. § 801(2) (2019).

416. *See supra* Part I.C (discussing in-part how New York has a "legal right to abate a public nuisance that, like these gun blueprints, places the public's health, safety, and property at risk.").

417. *See* 3DSTARTPOINT, *3D Printed Organs: Current Research and How They Will Work*, https://3dstartpoint.com/3d-printed-organs-research/ [https://perma.cc/F7JT-RBVK] (last visited July 24, 2019); FUTURISM, *3D Bioprinting is the Future of Transplants*, https://futurism.media/3d-bioprinting-is-the-future-of-transplants [https://perma.cc/NJD9-NPGX] (last visited July 24, 2019); Kristen Brown, *The Future of Pharmaceuticals is Custom-Printing Drugs*, GIZMODO (Sept. 27, 2017, 5:00 PM), https://gizmodo.com/the-future-of-pharmaceuticals-is-printing-custom-drugs-1818846684 [https://perma.cc/2QKR-PD9Q].

418. *See infra* notes 421–28.

419. A modular, flexible approach to regulating the dissemination of certain high-risk, non-myriad blueprint files.

420. *Cf.* Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW).

"solution to the greater problem."[421] The contravention of an individual's constitutional rights poses a substantial challenge to the federal government in the digital age, one permissible only under strict and compelling grounds. Similar to the CSA, the N-MBFDA will ensure uniformity between the federal government and the states, by creating a single, unified statute that encompasses multiple categories of 3D-printable content. The adoption of a scheduling system establishes an evaluative mechanism by which the federal government can either control or de-regulate non-myriad blueprint files, taking into consideration changes in technology. The N-MBFDA is a narrowly crafted regulatory scheme, intended only to limit the dissemination of non-myriad blueprint files identified by the federal government as posing a substantial threat to the general public and to national security.

In determining whether a particular non-myriad blueprint file falls within the bounds of regulation, a two-factor evaluative test will be employed, taking into consideration the following criteria: generally accepted uses and the potential for abuse and misuse through aggregate reproduction. To illustrate, take for example an AR-15 style rifle blueprint file.[422] The generally accepted uses for this style rifle may include firearms training, collecting and firearms sporting events.[423] These communities may have a legitimate, valid interest in utilizing the AR-15 style rifle blueprint file. However, in evaluating the potential for abuse and misuse through aggregate reproduction, less legitimate uses unveil themselves. Criminal elements[424] may take advantage of the blueprint file's availability for nefarious reasons, including illegal firearms manufacturing.[425] An influx of undetectable, AR-15 style ghost guns could potentially lead to a degradation in both state and federal law enforcement. In light of public safety and national security concerns, the federal government may assign a relatively high threat level for the AR-15 style rifle blueprint file.

421. *See* Washington v. U.S. Dep't of State, 318 F. Supp. 3d 1247 (W.D. Wash. 2018) (holding that due to the irreparable harms that States are likely to suffer, an unabridged right to disseminate digital files for creating guns cannot be guaranteed).

422. *See* Andy Greenberg, *I Made an Untraceable AR-15 'Ghost Gun' in My Office—and It Was Easy*, WIRED (June 3, 2015, 7:00 AM), https://www.wired.com/2015/06/i-made-an-untraceable-ar-15-ghost-gun/ [https://perma.cc/6ASW-UNFF].

423. *See INSIDE THE X RING, The AR-15. Part 3: Civilian Appeal* (June 21, 2013), http://insidethexring.com/tag/civilian-use-for-ar-15/ [https://perma.cc/2L57-E383] ("For most, the AR-15 is the closest thing available to owning an M16. It's like owning a working part of American History. The feelings of nostalgia that exists for 'The Guns that Won the West' are exactly what the AR-15 will illicit in the not too distant future. Historical significance & collectability are great reasons to own an AR."); Mark Chesnut, *10 Reasons To Own An AR-15*, AMERICAS1STFREEDOM (July 1, 2016), https://www.americas1stfreedom.org/articles/2016/7/1/10-reasons-to-own-an-ar-15/ [https://perma.cc/P54H-7A8Y].

424. Either through organized crime or by individual actors.

425. *See* Micah Rate, *New Jersey Man Indicted For Manufacturing, Selling 'Ghost Guns'*, BEARING ARMS (Apr. 13, 2018), https://bearingarms.com/micah-r/2018/04/13/new-jersey-man-indicted-manufacturing-selling-ghost-guns/ [https://perma.cc/W8VT-AYXS] ("In January, law enforcement arrested 56-year-old New Jersey man George Carleton for selling a ghost gun in Hammonton, NJ. When police raided his home, they found an arsenal of illegal weapons. In total, law enforcement discovered 17 more ghost guns, over a dozen unregistered firearms, and the tools necessary for Carleton to manufacture even more weapons for sale.").

Based on the present threat level, the N-MBFDA will follow the CSA's "five schedule control scheme,"[426] comprised of multiple scheduling tiers for the following non-myriad blueprint files: firearms, explosives, drugs, implantable medical devices, prosthetics and organs. The N-MBFDA will be subject to administrative oversight, with the creation of a new federal agency whose goal is to make the necessary determinations as to the relativeness of certain non-myriad blueprint files within each scheduling tier. The N-MBFDA will leave unencumbered and unregulated myriad blueprint files, including, but not limited to, the following: jewelry, kitchen supplies, model airplanes, clothing, etc. The entities authorized to handle regulated non-myriad blueprint files for sanctioned use[427] will be subject to both registration and licensing requirements modeled after the DEA's "Diversion Control Division."[428] These procedures will ensure accountability by creating a digital fingerprint of registrants, and establishing a database to effectuate enforcement, and deter illegal conduct.

CONCLUSION

In today's technologically rich society, the proliferation of 3D printing has redefined how individual creativity and ingenuity can transform the intangible into reality. Breathing life into a real-world object from a digital file is no longer a fantasy. Often lost in the aura and excitement of technological innovation are hidden threats, the byproduct of inattentiveness to change. Blueprint files are a vital ingredient to the 3D printing process, harnessing the true creative potential yielded by each individual user. However, with the ability to print real-world objects on demand, and away from control,[429] hidden dangers arise. For each non-myriad blueprint file transferred, each 3D printer primed and powered on, the potential risk for substantial and irreparable harm to the general public and to national security remains unabated.

Under Article I, Section 8, clauses 8 and 18 of the United Stated Constitution, "The Congress shall have Power to … provide for the common

426. *See* 21 U.S.C.A. § 812 (2019).

427. Similar in construct to the sanctioned uses delineated in the NSW bill. *See* Firearms and Weapons Prohibition Legislation Amendment Bill 2015 (NSW).

428. *See* Diversion Control Division, REGISTRATION PROCEDURES, DRUG ENFORCEMENT AGENCY, https://www.deadiversion.usdoj.gov/drugreg/process.htm [https://perma.cc/Z3JU-9GAZ] (last visited July 24, 2019) ("Many of the narcotics, depressants, and stimulants manufactured for legitimate medical use are subject to abuse and have, therefore, been brought under legal control. Under federal law, all businesses that import, export, manufacture, or distribute controlled substances; all health professionals licensed to dispense, administer, or prescribe them; and all pharmacies authorized to fill prescriptions must register with the DEA. Registrants must comply with regulatory requirements relating to drug security and recordkeeping. The DEA is also obligated under international treaties to monitor the movement of licit controlled substances across U.S. borders and to issue import and export permits for that movement. Diversion investigations involve, but are not limited to, physicians who sell prescriptions to drug dealers or abusers; pharmacists who falsify records and subsequently sell the drugs; employees who steal from inventory and falsify orders to cover illicit sales; prescription forgers; and individuals who commit armed robbery of pharmacies and drug distributors.").

429. *See* Hornick, *supra* note 122.

Defense and general Welfare of the United States"[430] and "To make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers, and all other Powers vested by this Constitution in the Government of the United States, or in any Department or Officer thereof."[431] Congress has the responsibility to represent the interests of its constituents by identifying national "issues or problems which need legislative action."[432] The subject matter of blueprint files falls squarely within these strictures.[433] Constituencies from across the United States have voiced their public safety and national security concerns, and Congress has the power to act.[434] A solution to the greater blueprint file dilemma requires an understanding of the changing technological landscape, and the foresight to devise a regulatory scheme that will effectively combat the threats and challenges of tomorrow.

430. U.S. CONST. art. I, § 8, cl. 8.

431. U.S. CONST. art. I, § 8, cl. 18.

432. *See* Eric Petersen, *Roles and Duties of a Member of Congress: Brief Overview*, Cong. Res. Serv. (Nov. 9, 2012), https://fas.org/sgp/crs/misc/RL33686.pdf [https://perma.cc/JGG6-KW8R] ("The Member survey found that the three most frequently mentioned duties and activities were the drafting and introduction of legislation; helping constituents solve problems; and representing the interests of their districts and constituents.") ("Broadly, a system of representative government assumes that the will of the people is consulted and accommodated when making public policies that affect them. Consequently, representational activity is present in all of the roles of a Member of Congress. Representational activity is seen in the legislative process, constituent service, oversight, and investigation duties that Members carry out. In Congress, Members are elected to represent the interests of the people in their congressional district or state. In addition, they represent regional and national interests in matters which might come before Congress.").

433. *See id.*; *see also* supra Part I.

434. *Id.*