

2019

Intellectual Property Law and the Right to Repair

Leah Chan Grinvald
Suffolk University Law School

Ofer Tur-Sinai
Ono Academic College

Follow this and additional works at: <https://ir.lawnet.fordham.edu/flr>



Part of the [Consumer Protection Law Commons](#), and the [Intellectual Property Law Commons](#)

Recommended Citation

Leah Chan Grinvald and Ofer Tur-Sinai, *Intellectual Property Law and the Right to Repair*, 88 Fordham L. Rev. 63 (2019).

Available at: <https://ir.lawnet.fordham.edu/flr/vol88/iss1/3>

This Article is brought to you for free and open access by FLASH: The Fordham Law Archive of Scholarship and History. It has been accepted for inclusion in Fordham Law Review by an authorized editor of FLASH: The Fordham Law Archive of Scholarship and History. For more information, please contact tmelnick@law.fordham.edu.

INTELLECTUAL PROPERTY LAW AND THE RIGHT TO REPAIR

By Leah Chan Grinvald* & Ofer Tur-Sinai**

This Article posits that intellectual property law should accommodate consumers' right to repair their products. In recent years, there has been a growing push towards state legislation that would provide consumers with a "right to repair" their products. Currently, twenty states have pending legislation that would require product manufacturers to make available replacement parts and repair manuals. Unfortunately, though, this legislation has stalled in many of the states. Manufacturers have been lobbying the legislatures to stop the enactment of these repair laws based on different concerns, including how these laws may impinge on their intellectual property rights. Indeed, a right to repair may not be easily reconcilable with the United States' far-reaching intellectual property rights regime. For example, requiring manufacturers to release repair manuals could implicate a whole host of intellectual property laws, including trade secrets. Similarly, employing measures that undercut a manufacturer's control of the market for replacement parts might conflict with patent exclusivity.

Nonetheless, this Article holds that intellectual property laws should not be used to prevent a right to repair from being fully implemented. In support of this claim, this Article develops a theoretical framework that justifies a right to repair in a manner that is consistent with intellectual property protection. Based on this theoretical foundation, this Article then explores, for the first time, the various intellectual property rules and doctrines that may be implicated in the context of the current repair movement. As part of this analysis, this Article identifies areas where intellectual property rights could prevent repair laws from being fully realized, even if some of the states

* Associate Dean for Academic Affairs and Professor of Law at Suffolk University Law School.

** Associate Professor of Law, Ono Academic College (Israel). LL.B., Ph.D., Hebrew University of Jerusalem; LL.M., Columbia University. For helpful comments, suggestions, and discussions, the authors are grateful to Katya Assaf, Sarah Burstein, Dylan Gilbert, Eric Goldman, Lital Helman, Cynthia Ho, Steven Jamar, Mark Lemley, Peter Menell, Lateef Mtima, Kali Murray, Lisa Larrimore Ouellette, Aaron Perzanowski, Michael Risch, Sharon Sandeen, Joshua Sarnoff, Jessica Silbey, Michal Shur-Ofry, Ryan Vacca, and Peter Yu, as well as the participants of the 2018 IP Mosaic Roundtable Conference (New Hampshire), the Works-in-Progress Intellectual Property Colloquium (WIPIP) (Houston, 2019), and the Sha'arei Mishpat Law College Faculty Seminar (Israel, 2019). Finally, the authors thank the editors of the *Fordham Law Review* for their careful and thoughtful edits.

pass the legislation, and recommends certain reforms that are necessary to accommodate the need for a right to repair and enable it to take hold.

INTRODUCTION.....	65
I. THE REPAIR SOCIAL MOVEMENT AND RIGHT TO REPAIR	
LEGISLATION.....	71
A. <i>The Repair Social Movement</i>	71
B. <i>Why Now?</i>	73
C. <i>Legislation</i>	76
1. <i>The Model Legislation</i>	77
a. <i>Definitions and Scope</i>	77
b. <i>Mandating Disclosure of Information</i>	78
c. <i>Mandating the Availability of Parts and Tools to Facilitate Repairs</i>	78
d. <i>Mandating Disclosure of Information to Allow Security Protections to Be Reset</i>	79
e. <i>Limiting Contracting Around Repair Law</i>	79
2. <i>Why Has the Legislation Stalled?</i>	80
3. <i>Can State-Based Legislation Be Effectively Implemented?</i>	81
II. NORMATIVE JUSTIFICATIONS FOR A RIGHT TO REPAIR.....	83
A. <i>External Justifications</i>	83
B. <i>Internal Justifications</i>	85
1. <i>Utilitarianism</i>	85
a. <i>Advancement of Progress</i>	86
b. <i>Enabling User Innovation</i>	89
c. <i>Promotion of Information Disclosure</i>	91
2. <i>Nonutilitarian Justifications</i>	93
a. <i>Labor Theory</i>	93
b. <i>Personality Theory</i>	94
c. <i>Social Planning Theory</i>	95
C. <i>Summary</i>	96
III. INTELLECTUAL PROPERTY RAMIFICATIONS FOR A RIGHT TO REPAIR.....	97
A. <i>Repair by Individual Consumers</i>	99
1. <i>Repairing Patented Products</i>	100
a. <i>Exhaustion and the Repair-Reconstruction Dichotomy</i>	100
b. <i>Post-Sale Contractual Restrictions</i>	101
c. <i>Sales Versus Licenses</i>	103
2. <i>Copyright Implications of Repair</i>	104

<i>B. Repair Shops and the Diffusion of Repair Information</i>	106
1. Activity of Independent Repair Shops	107
2. Diffusion of Information	109
<i>C. Enabling Competition in the Market for Replacement Parts</i>	111
1. Patented Replacement Parts	112
2. Trademark Law Implications	116
<i>a. Repair Parts as Registered Trademarks</i>	116
<i>b. Claiming That Parts Are Counterfeit Goods</i>	117
<i>D. Mandating Disclosure of Repair Information and Supply of Replacement Parts</i>	119
1. Replacement Parts	119
2. Information	121
IV. POTENTIAL CRITICISM	124
<i>A. Quality of Repair</i>	124
<i>B. Economic Loss for Manufacturers</i>	125
<i>C. Increase in Counterfeiting or Theft of Intellectual Property</i>	126
CONCLUSION	127

INTRODUCTION

The consumer technology products business is big. In 2018, the Consumer Technology Association reported that the industry generated \$351 billion in retail revenue.¹ A contributing factor to the size of this industry is that almost all consumer products and equipment include some type of technology in the form of an electronic component or computer chip. Your Keurig coffee maker? It has a computer chip.² Your Honda CR-V? It has multiple types of electronics and technology embedded into it.³ The same holds true in

1. CONSUMER TECH. ASS'N, BRINGING INNOVATORS TOGETHER: 2018 CORPORATE REPORT 2–3 (2018), <https://lsc-pagepro.mydigitalpublication.com/publication/?i=495372#> [<https://perma.cc/2D7J-5H6K>]. To put this in perspective, this would account for approximately 3 percent of the overall retail sales in the United States based on 2018 third quarter data. See generally U.S. DEP'T OF COMMERCE, U.S. CENSUS BUREAU NEWS: QUARTERLY RETAIL E-COMMERCE SALES 3RD QUARTER 2018 (2018) (stating that the total retail sales for the third quarter in 2018 were estimated to be \$1340.2 billion).

2. Juliana Kenny, *Keurig Under Fire for Use of DRM in New Coffee Makers*, LAW.COM: INSIDE COUNS. (Mar. 4, 2014, 4:55 AM), <https://www.law.com/insidecounsel/sites/insidecounsel/2014/03/04/keurig-under-fire-for-use-of-drm-in-new-coffee-makers/> [<https://perma.cc/9PR6-L5HJ>].

3. See, e.g., Jeff Plungis, *Honda Delays CR-V Engine Fix but Details Rollout Plans*, CONSUMER REP. (Oct. 30, 2018), <https://www.consumerreports.org/car-repair-maintenance/honda-delays-cr-v-turbo-engine-fix-details-rollout-plans/> [<https://perma.cc/29MN-9942>] (detailing the many parts that contain technology). While this Article focuses primarily on electronics, it will also discuss repair and intellectual property with respect to other goods—

many other areas of consumer products.⁴ As a corollary to this, gone are the days when an at-home do-it-yourselfer could unscrew the back of the coffee maker and fix it with a few tools. With embedded computer chips, software, and other technology, specialized knowledge and tools are now needed to make simple repairs. Therefore, it is likely not surprising that the repair business is big, too. According to some estimates, the repair business constitutes up to 3 percent of the U.S. economy.⁵

Unfortunately for consumers, manufacturers have been taking advantage of this product complexity to stymie the do-it-yourselfer and independent repair shop from making repairs in a variety of different ways. Many manufacturers maintain an “authorized” network of repair shops, which consumers are required to use for repairs during a product’s warranty period.⁶ Joining the network is typically difficult and expensive.⁷ While this practice in itself may be viewed as based on a legitimate concern for quality control, it becomes more troubling when manufacturers couple it with obscure repair information and a refusal to supply replacement parts in the open market.⁸

In addition, some manufacturers utilize their intellectual property rights to tighten their control over the repair market for their products. For example, certain manufacturers place microscopic trademarks on repair parts that are

like cars—given the importance of the issue. To a large extent, the same issues can arise with respect to other goods as well.

4. This Article focuses on all forms of “consumer products” that rely on some form of an electronic chip embedded in or attached to the product. Generally speaking, these products are more difficult to repair than products that do not depend on electronics. While this category includes the ubiquitous smartphones made by Apple and Samsung, there is a wide array of other products that belong to this category, including, for example, electric razors made by Wahl, vacuum cleaners made by Dyson, insulin pumps made by Medtronic, and even farm tractors made by John Deere. Recently, some companies, like Amazon, have begun to create chips that can be inserted into electronic products that did not previously have the capacity to communicate with voice-activated assistants, like Alexa, which makes these products even more technologically complicated. See Laura Stevens, *Amazon to Offer Alexa-Enabled Chip to Electronics Manufacturers*, MARKETWATCH (Sept. 20, 2018, 5:17 PM), <https://www.marketwatch.com/story/amazon-to-offer-alexa-enabled-chip-to-electronics-manufacturers-2018-09-20> [<https://perma.cc/MW3R-RBBN>].

5. See Kyle Wiens, *Copyright Office Ruling Issues Sweeping Right to Repair Reforms*, IFixIT (Oct. 25, 2018), <https://ifixit.org/blog/11951/1201-copyright-final-rule/> [<https://perma.cc/TJF9-ZXVX>] (stating that “repair jobs represent 3% of overall employment” in the United States); see also Alex Fitzpatrick, *Hand Me That Wrench: Farmers and Apple Fight Over the Toolbox*, TIME (June 22, 2017), <http://time.com/4828099/farmers-and-apple-fight-over-the-toolbox/> [<https://perma.cc/EZW9-SJKY>] (stating that Apple makes approximately \$1 billion to \$2 billion per year in fixing iPhones).

6. See generally *Apple Authorized Service Provider Program*, APPLE, <https://support.apple.com/en-hk/aasp-program> [<https://perma.cc/2C4H-J8MK>] (last visited Aug. 22, 2019).

7. See Jason Koebler, *Do You Know Anything About Apple’s Authorized Service Provider Program?*, VICE: MOTHERBOARD (Mar. 16, 2017, 12:21 PM), https://motherboard.vice.com/en_us/article/ypkqxw/do-you-know-anything-about-apples-authorized-service-provider-program [<https://perma.cc/8SCN-FG2U>].

8. See *A “Right to Repair” Movement Tools Up*, ECONOMIST (Sept. 30, 2017), <https://www.economist.com/business/2017/09/30/a-right-to-repair-movement-tools-up> [<https://perma.cc/752Z-CN24>].

not seen (nor are they intended to be seen) by consumers in order to control their importation for repair purposes.⁹ While this may be technically legal, such use of a trademark to suppress repairs exceeds the traditionally accepted purpose for trademarks, which is to promote competition and assist consumers in identifying the source of goods.¹⁰ Furthermore, manufacturers have issued cease-and-desist letters or take down requests when consumers or independent vendors have attempted to spread the knowledge of repair by posting information online.¹¹ Some manufacturers also sue replacement parts manufacturers for patent infringement¹² or utilize the services of the U.S. Customs and Border Protection to seize replacement parts at the border on the premise that the parts are counterfeit.¹³

Consumer frustration with this interference into their personal autonomy is apparent. In the words of one individual at a public hearing on this issue: “it’s my own damn car, I paid for it, I should be able to repair it or have the person of my choice do it for me.”¹⁴ To address this frustration and combat the hostage-taking of consumer product markets, a social movement demanding a “right to repair” has sprung up and has gained steam in the last five years.¹⁵ The movement has several branches, with one branch focused

9. See Jason Koebler, *DHS Seizes iPhone Screens from Prominent Right-to-Repair Advocate*, VICE: MOTHERBOARD (May 11, 2018, 4:26 PM), https://motherboard.vice.com/en_us/article/evk4wk/dhs-seizes-iphone-screens-jessa-jones [<https://perma.cc/LJ36-JFN7>]. For example, Apple routinely places microscopic “Apple” logos on internal iPhone repair parts (parts that consumers do not see because they cannot even open their phones) in order to claim that an independent repairer is “counterfeiting” when using such parts to refurbish or repair an iPhone. See *id.*

10. See S. REP. NO. 79-1333, at 3 (1946) (“One [goal] is to protect the public so it may be confident that, in purchasing a product bearing a particular trade-mark which it favorably knows, it will get the product which it asks for and wants to get.”); Koebler, *supra* note 9; see also Stacey L. Dogan & Mark A. Lemley, *The Merchandising Right: Fragile Theory or Fait Accompli?*, 54 EMORY L.J. 461, 466–67 (2005); William M. Landes & Richard A. Posner, *The Economics of Trademark Law*, 78 TRADEMARK REP. 267, 271 (1988) (“[A] trademark conveys information that allows the consumer to say to himself, ‘I need not investigate the attributes of the brand I am about to purchase because the trademark is a shorthand way of telling me that the attributes are the same as that of the brand I enjoyed earlier.’”); Mark A. Lemley, *The Modern Lanham Act and the Death of Common Sense*, 108 YALE L.J. 1687, 1690 (1999); Glynn S. Lunney, Jr., *Trademark Monopolies*, 48 EMORY L.J. 367, 421, 432 (1999); I. P. L. Png & David Reitman, *Why Are Some Products Branded and Others Not?*, 38 J.L. & ECON. 207, 208–11 (1995).

11. Timothy B. Lee, *When Tech Companies Won’t Provide Service Manuals, This Guy Writes His Own*, WASH. POST (Jan. 13, 2014), <https://www.washingtonpost.com/news/the-switch/wp/2014/01/13/when-tech-companies-wont-provide-service-manuals-this-guy-writes-his-own/> [<https://perma.cc/3G2V-9U6J>] (recounting Kyle Wiens’s experience).

12. See, e.g., *Ford Glob. Techs., LLC v. New World Int’l, Inc.*, No. 3:17-CV-3201-N, 2018 WL 5786157, at *3–5 (N.D. Tex. Nov. 5, 2018) (finding in favor of Ford on summary judgment on the ground of design patent infringement against the manufacturer of similar parts). The authors thank Professor Sarah Burstein for bringing this case to our attention.

13. See, e.g., Koebler, *supra* note 9.

14. U.S. COPYRIGHT OFFICE, SECTION 1201 RULEMAKING: SEVENTH TRIENNIAL PROCEEDING TO DETERMINE EXEMPTIONS TO THE PROHIBITION ON CIRCUMVENTION 3 (2018).

15. See *About Us: The Association*, REPAIR.ORG, <https://repair.org/association> [<https://perma.cc/RD3V-C78R>] (last visited Aug. 22, 2019) (stating that the association was

on pushing a “right to repair” or “fair repair” through state legislatures.¹⁶ Another branch of the movement is focused on amending the Digital Millennium Copyright Act¹⁷ (DMCA), which has provided yet another major legal ground for manufacturers to block repairs.¹⁸ The primary justifications for the legislation offered by the movement include environmental concerns, consumer autonomy, and competition.¹⁹

In the last two years, the movement has seen some success: as of the date of this Article, right to repair bills have been introduced in twenty states.²⁰ These right to repair laws would require manufacturers of consumer electronics (defined rather broadly) to enable consumers and independent repair shops to repair consumer products.²¹ Towards this goal, the legislation would require manufacturers to make available, on fair and reasonable terms, repair information, parts, and tools. As of the date of this Article, no state has voted to enact the legislation. In fact, there are signs that the legislation has stalled in some states.²² One plausible explanation may be that the large

formed in 2013); Adam Wernick, *The ‘Right to Repair’ Movement Wants You to Be Able to Fix Your Own Stuff*, PRI (Dec. 24, 2018, 11:30 AM), <https://www.pri.org/stories/2018-12-24/right-repair-movement-wants-you-be-able-fix-your-own-stuff> [<https://perma.cc/97QJ-PYPE>] (“America’s throw-away culture has expanded in the last decade from everyday products and food to include consumer electronics—from iPhones to big-screen TVs. In response, a ‘Right to Repair’ movement is now advocating for laws that allow people to fix the things they own.”).

16. See *Advocacy: Legislation*, REPAIR.ORG, <https://repair.org/legislation> [<https://perma.cc/BV9L-BVLK>] (last visited Aug. 22, 2019).

17. Pub. L. No. 105-304, 112 Stat. 2860 (1998) (codified in scattered sections of 5, 17, 28, and 35 U.S.C.).

18. See Kyle Wiens, *Forget the Cellphone Fight—We Should Be Allowed to Unlock Everything We Own*, WIRED (Mar. 18, 2013, 9:30 AM), <https://www.wired.com/2013/03/you-dont-own-your-cellphones-or-your-cars/> [<https://perma.cc/3Y2T-PXUZ>]. This branch of the movement has seen some success lately. See *infra* notes 227–31 and accompanying text.

19. *It’s Time for a Common-Sense Perspective*, REPAIR.ORG, <https://repair.org/policy/> [<https://perma.cc/7LPC-G567>] (last visited Aug. 22, 2019); see also *Repair Manifesto*, iFIXIT.COM, <https://www.ifixit.com/Manifesto> [<https://perma.cc/UEK8-AXMU>] (last visited Aug. 22, 2019).

20. Matthew Gault, *Bernie Sanders Calls for a National Right-to-Repair Law for Farmers*, VICE: MOTHERBOARD (May 5, 2019, 5:48 PM), https://www.vice.com/en_us/article/8xzqmp/bernie-sanders-calls-for-a-national-right-to-repair-law-for-farmers [<https://perma.cc/T7QG-BCJD>]. In addition, at least two Democratic Party presidential hopefuls have called for a national right to repair law. While these calls are focused on farmers, the implications for other consumers are promising. See *id.*; Makena Kelly, *Elizabeth Warren Comes Out in Support of a National Right-to-Repair Law for Farm Equipment*, VERGE (Mar. 27, 2019, 12:08 PM), <https://www.theverge.com/2019/3/27/18284011/elizabeth-warren-apple-right-to-repair-john-deere-law-presidential-campaign-iowa> [<https://perma.cc/B4QV-95L4>].

21. *Model State Right-to-Repair Law*, REPAIR ASS’N § 3(a)–(b) (July 24, 2018), <https://repair.org/s/Right-to-repair-Model-state-law-7-24-18.docx> [<https://perma.cc/ME8E-9243>].

22. See Brian Abel, *‘Right to Repair’ Bills Stall in MO, KS*, KSHB (Apr. 25, 2017, 8:12 PM), <https://www.kshb.com/news/local-news/right-to-repair-bills-stall-in-mo-ks> [<https://perma.cc/AZ64-7XP3>]; Ewan Spence, *Apple Fights to Protect Public from Their Dangerous iPhone*, FORBES (May 1, 2019, 6:54 PM), <https://www.forbes.com/sites/>

manufacturers have been lobbying against this legislation.²³ In arguing against the proposed laws, manufacturers have cited intellectual property rights concerns, as well as safety,²⁴ as the main reasons to allow them to retain control over repairs.²⁵

In response, the repair movement continues to stress the importance of enacting a right to repair, while brushing aside, for the most part, any intellectual property concerns.²⁶ To be sure, the repair movement recognizes that a right to repair may impact intellectual property rights. However, on the whole, the movement does not tie the two worlds together and does not sufficiently address the potential clash between the two regimes.²⁷

While the justifications brought by the repair movement in support of the legislation are convincing, the case for a right to repair can be bolstered even further.²⁸ To counter the manufacturers' strong objections, this Article offers an analytical framework that justifies a right to repair in terms that are consistent with intellectual property protection. As a first step in this direction, this Article shows how seemingly external policy considerations supporting repair—like environmental concerns and consumer autonomy—can nevertheless be accounted for, and woven into, intellectual property law and policymaking in a manner that preserves a space for a right to repair. Beyond that, this Article reveals that a right to repair can be supported by internal justifications—i.e., theories that are commonly used to justify intellectual property protection, including ones rooted in utilitarianism and others. Thus, a right to repair could, in fact, be not just compatible with

ewanspence/2019/05/01/apple-iphone-right-to-repair-parts-legislation-fight-dangerous-tim-cook/ [https://perma.cc/96T8-ZA6U].

23. See Alex Fitzpatrick, *Hand Me That Wrench: Farmers and Apple Fight Over the Toolbox*, TIME (June 22, 2017), <http://time.com/4828099/farmers-and-apple-fight-over-the-toolbox/> [https://perma.cc/6EX3-FK96].

24. Both personal and cyber safety have been raised as part of manufacturers' purported concerns. See Spence, *supra* note 22. The repair movement has been attempting to provide a direct rebuttal to these concerns. See, e.g., Louise Matsakis, *Security Experts Unite Over the Right to Repair*, WIRED (Apr. 30, 2019, 9:51 AM), <https://www.wired.com/story/right-to-repair-security-experts-california/> [https://perma.cc/63G8-QH62]. As reported in this *Wired* article, a new group—Securepairs.org—was founded in order to counter the claims that providing repair information would increase the likelihood of cyberattacks. See *Statement of Principles*, SECUREPAIRS.ORG, <https://securepairs.org/statement-of-principles/#obscurity> [https://perma.cc/UFC6-BJG8] (last visited Aug. 22, 2019).

25. See Nicholas Deleon, *Right-to-Repair Laws Could Make It Easier to Get a Phone or Laptop Fixed*, CONSUMER REP. (Mar. 29, 2018), <https://www.consumerreports.org/consumer-protection/right-to-repair-laws-could-make-it-easier-to-get-a-phone-or-laptop-fixed/> [https://perma.cc/YCU9-475P].

26. In fact, the model legislation itself references trade secrets but no other kind of intellectual property. See *Model State Right-to-Repair Law*, *supra* note 21, § 5.

27. See *It's Time for a Common-Sense Perspective*, *supra* note 19 (placing "Fix the DMCA" into a different category from "Policy Objectives").

28. While this Article embraces the term "right to repair," in accord with proposed legislation, this does not necessarily mean to suggest that the nature of consumers' legal entitlement in this context must be structured as a "right" in the strict Hohfeldian sense. For a discussion, see *infra* note 191 and accompanying text.

intellectual property law but rather essential for it to achieve its prescribed goals. This novel theoretical basis for a right to repair can make the case for this right even stronger and help state policymakers to handle the manufacturers' objections on the intellectual property front.

Based on the theoretical discussion of the justifications for a right to repair, this Article then maps the various intellectual property rights that could be implicated by a right to repair. Such a broad exploration is necessary to reveal any potential overshadowing of the state legislation efforts by federal intellectual property laws. For the purposes of the analysis, this Article visualizes the notion of a right to repair as concentric circles, beginning at the core with a personal right to repair one's own products, while each circle adds other elements of such right. After the core, the second circle includes the freedom to engage in other activities that facilitate repairs, including diffusion of repair information and advertising repair businesses. The third circle includes the right to manufacture, import, sell, and use replacement parts in competition with the original manufacturer. Finally, the outer circle includes the right to mandate original manufacturers to disclose repair information and supply replacement parts. Regarding each circle, this Article explores the rules and doctrines that may impede any state-based legislation and offer suggestions as to changes, both within intellectual property law and in the state legislation.²⁹

This Article is the first to examine the current repair movement in the context of U.S. intellectual property laws. Other scholarly and policy articles have touched upon the interface between repairs and intellectual property law, but the majority of these pieces have focused on one particular area of intellectual property law, such as patents or copyright.³⁰ The few papers that have examined this area from a more general viewpoint were written before the rise of the current repair movement.³¹ This Article aims to take a fresh, holistic look at intellectual property and a right to repair in an attempt to reconcile the two. This Article ultimately concludes that intellectual property laws can, and should, be construed in a manner that does not prevent a right to repair from being fully implemented.

29. While there are international implications and the right to repair consumer products is global, this Article will focus mostly on U.S. law, given the space constraints.

30. See, e.g., Joshua D. Sarnoff, White Paper on Protecting the Consumer Patent Law Right of Repair and the Aftermarket for Exterior Motor Vehicle Repair Parts: The PARTS Act, S. 812, H.R. 1879, 115th Congress (Nov. 2017) (unpublished white paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3082289 [https://perma.cc/KE3J-6HNM] (focusing on patent law). The inability to repair one's consumer product is discussed as a consumer harm in a forthcoming article: Christopher Hoofnagle, Aniket Kesari & Aaron Perzanowski, *The Tethered Economy*, 87 GEO. WASH. L. REV. (forthcoming 2019) (manuscript at 30–34).

31. For a prominent treatment of related issues, see generally Pamela Samuelson, *Freedom to Tinker*, 17 THEORETICAL INQUIRIES L. 563 (2016). See also Estelle Derclaye, *Repair and Recycle Between IP Rights, End User License Agreements and Encryption*, in SPARES, REPAIRS AND INTELLECTUAL PROPERTY RIGHTS 21, 21–56 (Christopher Heath & Anselm Kamperman Sanders eds., 2009).

The remainder of this Article proceeds in four parts. Part I explores the repair social movement and analyzes the proposed state legislation and the manufacturers' efforts to forestall it. Part II develops a novel theoretical framework that justifies a right to repair in a manner reconcilable with intellectual property protection. Part III explores various areas of intellectual property law that are implicated by different aspects of a right to repair. Based on the analysis, this Article provides suggestions on where these rules, doctrines, or laws could be reinterpreted, revised, or amended to enable a full implementation of a right to repair. Finally, Part IV provides responses to some of the counterarguments that are raised in the right to repair debate and could be used to criticize this Article's thesis—such as the concern regarding the quality of repairs, the fear that requiring manufacturers to provide repair information or replacement parts would increase counterfeiting, and the potential detrimental economic impact to manufacturers as a result of opening the repair market to competition. A brief conclusion follows.

I. THE REPAIR SOCIAL MOVEMENT AND RIGHT TO REPAIR LEGISLATION

A. *The Repair Social Movement*

In the last few years, a new consumer rights movement focused on a right to repair consumer products has sprouted up.³² The main organization behind the repair movement is the Repair Association, which was officially founded in July 2013 as the Digital Right to Repair Coalition.³³ Its members include industry organizations and companies that have been impacted by the inability to freely repair, reuse, and recycle consumer electronic parts or products.³⁴ In addition to the larger players behind the Repair Association, there are individual consumers and consumer-rights groups.³⁵ These include some unlikely partners, such as farmers. In 2017, the American Farm Bureau Federation adopted a policy to address the right of farmers to fix their own farm equipment and has lobbied for this at the federal level.³⁶ Farmer

32. This movement is new in its focus on consumer products, although it has its roots in the movement to repair automobiles. In fact, the current social movement references the success of the previous movement as the basis for its current strategy. *See The Repair Association*, REPAIR.ORG, <https://repair.org> [<https://perma.cc/9SVX-JDEA>] (last visited Aug. 22, 2019) (“86% of voters in Massachusetts overrode big car companies and passed the Automobile Owners’ Right to Repair in 2012.”).

33. *About Us: History*, REPAIR.ORG, <https://repair.org/history/> [<https://perma.cc/KV86-4R77>] (last visited Aug. 22, 2019).

34. *About Us: Members*, REPAIR.ORG, <https://repair.org/members-1/> [<https://perma.cc/E825-RYCS>] (last visited Aug. 22, 2019).

35. *Benefits*, REPAIR.ORG, <https://repair.org/benefits/> [<https://perma.cc/79XY-Z8LL>] (last visited Aug. 22, 2019).

36. Kaleigh Rogers, *The ‘Right to Repair’ Movement Is Being Led by Farmers*, VICE: MOTHERBOARD (Jan. 31, 2017, 1:15 PM), https://motherboard.vice.com/en_us/article/kbgzg/farmers-right-to-repair [<https://perma.cc/MEV6-W4K5>].

“hacktivists” routinely hack their John Deere agricultural machinery in order to repair their equipment and harvest their crops in a timely fashion.³⁷

This repair movement has gained steam in the last three years, with its success leading twenty states (as of the date of this Article) to introduce legislation that would guarantee consumers a right to repair their electronic equipment.³⁸ The Repair Association has lobbied for their model legislation to be the basis for state laws.³⁹ This Article will parse this model legislation in Part I.C below. As will be seen, the main thrust of the model legislation is to require manufacturers of consumer electronic equipment to make available repair information, tools, and parts.⁴⁰

The movement is inspired—at least to a certain extent—by the successful campaign that led to the passage of a 2012 Massachusetts law providing for the right to repair automobiles.⁴¹ After Massachusetts passed this law, the automobile industry voluntarily agreed to work with independent car repair shops nationwide.⁴² While this voluntary agreement has been successful in providing independent repair shops with the ability to repair cars, this agreement has been frustrated in recent years by tactics employed by car manufacturers that are enabled by the growing use of software, electronic components, and wireless technologies in the car industry.⁴³

To date, no state has passed the legislation, and some reports suggest that the movement has stalled in legislatures.⁴⁴ The reports point to behind-the-scenes lobbying by major manufacturers that would be forced to provide consumers with repair tools, parts, and information under the legislation.⁴⁵

37. *See id.*

38. *See* Gault, *supra* note 20.

39. *Advocacy: Legislation, supra* note 16.

40. *Model State Right-to-Repair Law, supra* note 21.

41. *See* MASS. GEN. LAWS ch. 93K (2019); *see also* Jonathan Ng, *Independent Auto Repair Shops Want Right-to-Repair Law Updated*, BOS. HERALD (June 18, 2019), <https://www.bostonherald.com/2019/06/18/independent-auto-repair-shops-want-right-to-repair-law-updated/> [<https://perma.cc/27JC-DXP6>].

42. *See A “Right to Repair” Movement Tools Up, supra* note 8 (“The hope is that once an important state passes such a law, the country will follow—as was the case in the car industry after Massachusetts in 2012 passed a right to repair law for cars that led to a national memorandum of understanding between carmakers and repair shops.”).

43. *See, e.g.,* Matt Murphy, *Bill Filed to Prevent Skirting Right-to-Repair Law*, METROWEST DAILY NEWS (Sept. 18, 2018, 10:25 AM), <https://www.metrowestdailynews.com/news/20180918/bill-filed-to-prevent-skirting-right-to-repair-law> [<https://perma.cc/HJW3-DFQ5>] (citing to a new bill introduced in the Massachusetts state legislature to prevent car manufacturers from evading the automotive right to repair law through increased use of wireless technology); *see also* Ng, *supra* note 41 (describing how the wireless data transfer of telematics is frustrating independent repair shops). Unfortunately, the current repair movement exempts automobiles from its scope. *See infra* notes 74–75 and accompanying text.

44. *See* Abel, *supra* note 22.

45. Jason Koebler, *Appliance Companies Are Lobbying to Protect Their DRM-Fueled Repair Monopolies*, VICE: MOTHERBOARD (Apr. 25, 2018, 9:00 AM), https://motherboard.vice.com/en_us/article/vbvk3b/appliance-companies-are-lobbying-against-right-to-repair [<https://perma.cc/W8LC-JEYA>].

Companies—such as Apple, Samsung, Dyson, Wahl, and LG—have privately lobbied in an attempt to prevent such legislation’s enactment.⁴⁶ These companies utilize different arguments, ranging from personal injuries caused by incorrect repairs to intellectual property rights concerns.⁴⁷ In response, the repair movement has justified the legislation with a variety of arguments—including environmental, competition, and consumer autonomy concerns.⁴⁸ As discussed below, these justifications from both sides appear to be at cross-purposes, which may account for the lack of state enactment of the pending laws.⁴⁹ Before reaching this discussion, a dive into the reasons behind the current social movement is critical to understanding the justifications motivating the movement.

B. *Why Now?*

Large manufacturers fighting against the ability of consumers to control (and repair) their consumable products is not a new phenomenon. To illustrate, in 1956, after being accused of unfair practices that violated antitrust laws, IBM entered into a consent decree with the U.S. Department of Justice that required IBM to undertake actions that would allow consumers to repair their own machines, or at least choose who undertakes the repair.⁵⁰

Given this, the question becomes, why has the repair movement taken off in such a big way over the last few years? There are a lot of possible explanations to this, but one of the main answers is that almost every consumer product nowadays has some type of electronic chip or other technology embedded in it. This could make it hard, even for a do-it-

46. See, e.g., Letter from Jason L. Brown, Vice President Gen. Counsel & Sec’y, Dyson, Inc., to David Harris, Ill. Gen. Assembly (Apr. 17, 2018), <https://www.documentcloud.org/documents/4446373-DYSON-Illinois-Opposition.html> [https://perma.cc/6XWG-2MGY]; Letter from Rick Habben, Safety Compliance Eng’r, Wahl Clipper Corp., to David Harris, Ill. Gen. Assembly (Apr. 17, 2018), <https://www.documentcloud.org/documents/4446374-Wahl-Opposition-Illinois.html> [https://perma.cc/6ZBU-9DX4]; Letter from John I. Taylor, Senior Vice President, Gov’t Relations, LG Elecs. USA, to David Harris, Ill. Gen. Assembly (Apr. 18, 2018), <https://www.documentcloud.org/documents/4446375-LG-LETTER-HB-4747-2.html> [https://perma.cc/AXA3-6GA6]. Not all companies are anti-repair. For example, Motorola and iFixit, a prominent repair organization, announced a partnership in 2018. Elise Barsch, *Motorola and iFixit—A Match Made in Mobile*, iFIXIT (Oct. 22, 2018), <https://www.ifixit.com/News/motorola-ifixit-partnership> [https://perma.cc/6RBM-XAWE].

47. Letter from Jason L. Brown to David Harris, *supra* note 46; Letter from Rick Habben to David Harris, *supra* note 46; Letter from John I. Taylor to David Harris, *supra* note 46.

48. See *supra* note 19 and accompanying text.

49. See *infra* Part I.C.2.

50. *IBM 1956 Consent Decree*, CONSUMER PROJECT ON TECH., <http://www.cptech.org/at/ibm/ibm1956cd.html> [https://perma.cc/3EBJ-Q3MW] (last visited Aug. 22, 2019) (In the consent decree, the parties agreed “to offer to sell at reasonable and nondiscriminatory prices and terms, to owners of IBM tabulating or electronic data processing machines (whether or not the purchaser receives IBM repair and maintenance service) and to persons engaged in the business of maintaining and repairing such machines and during the period when IBM has such parts and subassemblies available for use in its leased machines, repair and replacement parts and subassemblies for any tabulating machines or electronic data processing machines manufactured by IBM.”).

yourselfer, to fix broken products without any support from the manufacturers.⁵¹

Concomitantly with the “technologization” of consumer products, manufacturers of these products began to tighten their control of the aftermarket and claim that only authorized repair personnel (or the manufacturers themselves) are qualified to repair such products.⁵² Indeed, manufacturers have attempted to control repairs by various means, including refusing to release repair manuals or make repair parts available to independent repair shops and consumers and strictly enforcing authorized repair networks.⁵³ All of these practices have led to the inability to easily obtain inexpensive and accessible repairs, which ultimately serves to channel consumers into throwing away their broken products and buying new ones.⁵⁴

In addition to tight controls on authorized repairs, manufacturers have been actively fighting against repairs at other levels, including use of their intellectual property rights to block repair activities. Among other things, they have brought actions against small independent repair shops in the United States and abroad.⁵⁵ Many of these actions are extrajudicial, as these small repair shops often settle prior to the filing of a lawsuit. However, the few cases that make their way to the courts help illuminate the lengths to which manufacturers will go to control repairs.

Apple’s tactics in a recent case in Norway may reflect a strategy taken by other manufacturers as well.⁵⁶ Apple sued Henrik Huseby, the owner of a small Norwegian repair shop, on grounds of trademark infringement, after Huseby attempted to import sixty-three refurbished iPhone screens and refused to enter into a settlement agreement that would have required him to pay approximately \$3400.⁵⁷ Most small repair shops are unable to finance

51. See *supra* note 4 and accompanying text.

52. See, e.g., Val Galin, *Nikon USA to Stop Distributing Camera Parts to Unauthorized Repair Shops*, TOGTECH, <http://www.togtech.com/nikon-usa-to-stop-distributing-camera-parts-to-unauthorized-repair-shops/> [<https://perma.cc/9AEK-MPZP>] (last visited Aug. 22, 2019).

53. See, e.g., *Apple Authorized Service Provider Program*, *supra* note 6 (listing as a benefit of the service provider program the ability to obtain repair parts: “[o]nly Authorized Service Providers are able to obtain parts directly from Apple in order to complete repairs”).

54. See, e.g., Press Release, Susan Talamantes Eggman, Cal. State Assemblymember, Eggman Introduces Legislation to Create a “Right to Repair” for Electronics (Mar. 7, 2018), <https://a13.asmdc.org/press-releases/20180307-eggman-introduces-legislation-create-right-repair-electronics> [<https://perma.cc/7YU6-C7T6>].

55. See Koebler, *supra* note 9.

56. See Jason Koebler, *Apple Sued an Independent iPhone Repair Shop Owner and Lost*, VICE: MOTHERBOARD (Apr. 13, 2018, 12:03 PM), https://motherboard.vice.com/en_us/article/a3yadk/apple-sued-an-independent-iphone-repair-shop-owner-and-lost [<https://perma.cc/C3GS-XYQQ>]. Similar claims have been made by Apple in the United States. See Mike Masnick, *ICE Starts Raiding Mobile Phone Repair Shops to Stop Repairs with Aftermarket Parts*, TECHDIRT (Apr. 30, 2013, 8:28 AM), <https://www.techdirt.com/articles/20130429/07214322874/homeland-security-participates-trademark-raid.shtml> [<https://perma.cc/PD6L-F6LQ>].

57. See Koebler, *supra* note 56. Mr. Huseby subsequently won his case against Apple. See *id.*

litigation,⁵⁸ and so it is likely that many would pay the \$3400 just to make Apple go away, like Apple's lawyer promised Huseby.⁵⁹ Interestingly, Apple's lawsuit relied on its claim that the refurbished parts were counterfeits.⁶⁰ While different countries have different trademark laws, a refurbished part or product—one that was previously sold, broken, and then repaired by a third party—is not a counterfeit in the United States (and, as ultimately determined in Huseby's case, not in Norway either).⁶¹ Nevertheless, the fact that many manufacturers claim that independent repair shops are "counterfeiting" has a significant deterrent effect on repair shop proprietors because, among other things, counterfeiting may subject them to criminal action.⁶²

This strategy is not limited to trademarks. Manufacturers have routinely utilized other intellectual property rights to control their products and prevent the allegedly unauthorized repairs of those products.⁶³ To illustrate, Ford recently sued the marketer and distributor of its Mustang and F-150 car replacement parts for design patent infringement.⁶⁴ As will be further discussed in Part III below, car manufacturers have been obtaining design patents on exterior parts to control repairs by independent repair shops or do-it-yourselfers.⁶⁵ With a patented replacement part, only Ford is allowed to make, use, offer to sell, sell, or import such part.⁶⁶ This strategy works, as

58. See Leah Chan Grinvald, *Charitable Trademarks*, 50 AKRON L. REV. 817, 832–36 (2017) (explaining that such litigation is expensive, time-consuming, and emotionally draining for small organizations).

59. See Koebler, *supra* note 56.

60. See *id.*

61. See *id.* In the United States, the "first sale" or "exhaustion" doctrine in trademark law generally allows the resale of products without the need for further authorization by the original manufacturer or trademark owner. 4 J. THOMAS MCCARTHY, MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION § 25:41 (5th ed. 2019). See generally *Champion Spark Plug Co. v. Sanders*, 331 U.S. 125 (1947); *Nitro Leisure Prods., L.L.C. v. Acushnet Co.*, 341 F.3d 1356 (Fed. Cir. 2003); *Davidoff & CIE, S.A. v. PLD Int'l Corp.*, 263 F.3d 1297 (11th Cir. 2001).

62. Manufacturing or selling counterfeit products is a crime in the United States and in all countries that are signatories to the Agreement on Trade-Related Aspects of Intellectual Property. See 18 U.S.C. § 2320(a) (2012) (imposing criminal liability on counterfeiters); Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299.

63. For other examples, see *supra* notes 9–13 and accompanying text.

64. See generally *Ford Glob. Techs., LLC v. New World Int'l, Inc.*, No. 3:17-CV-3201-N, 2018 WL 5786157 (N.D. Tex. Dec. 5, 2018). Ford was later awarded damages in a subsequent proceeding. See *Brooks Kushman Obtains Willful Infringement on 13 Design Patents on Behalf of Ford Motor Company*, BROOKS KUSHMAN: CASE STUD. (Dec. 5, 2018), <https://www.brookskushman.com/case-studies/case-studies/ford-global-technologies-llc-v-new-world-international-inc/> [https://perma.cc/797T-CE8K].

65. See *infra* Part III; see also Sarnoff, *supra* note 30.

66. See 35 U.S.C. § 271(a) (2012).

Ford was granted summary judgment on its infringement claims.⁶⁷ Without widely available replacement parts that match the car's overall design, Ford retains the sole control over the availability and pricing of such parts. This likely forces consumers to have their cars repaired at authorized repair shops or pay significantly higher costs for repairs if the parts are made available at independent repair shops.

In sum, different but related factors have contributed to the rise of the current repair movement: the purposeful sabotaging of the ability to repair through withholding of information and parts, the increasing expense paid to fix one's product through authorized channels, and the growing use by manufacturers of their intellectual property rights to suppress repairs. As a response to these factors and the ever-increasing difficulty in obtaining repairs, the repair movement has fought back and lobbied state legislators over the past few years for a right to repair.

C. Legislation

Twenty different state legislatures (as of the date of this Article) have introduced bills that would provide a right to repair electronic products. These states span the United States: from Hawaii to Washington to the New England area, including Massachusetts, New Hampshire, and Vermont.⁶⁸ The legislation introduced in many of these states is based in large part (or in whole, in some instances) on the model legislation proposed by the Repair Association.⁶⁹ Although a few state legislatures have edited the model legislation to fit certain needs of that particular state—for example, California's 2018 bill was originally proposed to be part of the previously enacted Electronic Waste Recycling Act⁷⁰—the core provisions of the model legislation have typically been preserved.⁷¹ Therefore, this Article will focus on these core provisions.

67. See generally *Ford Glob. Techs.*, 2018 WL 5786157 (granting Ford's summary judgment motion on the question of infringement of thirteen design patents Ford owned for "original equipment designs").

68. The twenty states include: California, Georgia, Hawaii, Illinois, Indiana, Massachusetts, Minnesota, Missouri, Montana, North Dakota, Nevada, New Hampshire, New Jersey, New York, Oregon, South Dakota, Vermont, Virginia, Washington, and West Virginia. See Press Release, U.S. PIRG, California Becomes 20th State in 2019 to Consider Right to Repair Bill (Mar. 18, 2019), <https://uspirg.org/news/usp/california-becomes-20th-state-2019-consider-right-repair-bill> [<https://perma.cc/GTC5-6NGC>].

69. See *Advocacy: Legislation*, *supra* note 16 (crediting current state right to repair legislative efforts largely to the influence of the 2012 Massachusetts law); see also *Model State Right-to-Repair Law*, *supra* note 21.

70. Assemb. 2110, 2017–2018 Leg., Reg. Sess. (as introduced by California Assembly, Feb. 8, 2018).

71. See *About Us: The Association*, *supra* note 15 (describing the Repair Association's work to introduce pro-repair legislation in several state legislatures).

1. The Model Legislation

There are four main parts to the model legislation: (1) mandating disclosure of information that will allow repairs; (2) mandating the availability of parts and tools to facilitate repairs; (3) mandating disclosure of information to allow security protections to be reset; and (4) forbidding contracting around such provisions in terms between authorized repair providers and the original equipment manufacturers.⁷² Before each part is discussed, some definitions in the legislation should be flushed out.

a. Definitions and Scope

The scope of the model law is intended to be broad, and the reach of the act is to all “digital electronic equipment,” which is defined as “any product that depends for its functioning, in whole or in part, on digital electronics embedded in or attached to the product.”⁷³ This definition encompasses seemingly every type of product that people use in their daily lives, ranging from our coffee machines to cleaning equipment to our cars. However, the model legislation excludes from its ambit “motor vehicles” (as do many of the state versions). In turn, the definition of “motor vehicle” includes those types of vehicles that transport “persons or property on a street or highway,” but it does not include a motorcycle or a motor home (either an RV or other type of motor home).⁷⁴ This exception may be in recognition of the car industry’s nationwide “memorandum of understanding” that deals with a consumer’s right to repair motor vehicles.⁷⁵ Unfortunately, as noted above, some motor vehicle manufacturers are finding ways around the agreement and the Massachusetts auto repair law. As such, motor vehicle manufacturers may not warrant exclusion from the model legislation.⁷⁶

An additional definition that broadens the scope of the model legislation is the definition of “owner.” The model law defines “owner” as anyone who purchases or leases digital electronic equipment.⁷⁷ This is an important definition because it would prevent manufacturers from evading the legislation by entering lease contracts with customers rather than selling them the equipment.

72. See *Model State Right-to-Repair Law*, *supra* note 21, § 3.

73. *Id.* § 2(b).

74. *Id.* §§ 2(h), 6.

75. See Memorandum of Understanding Between Auto. Aftermarket Indus. Ass’n, Coal. for Auto Repair Equal., All. of Auto. Mfrs. & Ass’n of Glob. Automakers (Jan. 15, 2014), http://www.nastf.org/files/public/OtherReference/MOU_SIGNED_1_15_14.pdf [<https://perma.cc/27YP-7YVJ>].

76. See Murphy, *supra* note 43 (describing the ways in which the car industry is seemingly working its way around this agreement and the Massachusetts repair law).

77. *Model State Right-to-Repair Law*, *supra* note 21, § 2(m).

b. Mandating Disclosure of Information

Section 3(a) of the model legislation requires that original equipment manufacturers disclose “documentation” that is required to diagnose, maintain, or repair digital electronic equipment.⁷⁸ The documentation must be disclosed to either independent repair providers (defined as those who do not have any relationship with the manufacturer) or to owners of digital electronic equipment. This documentation is further defined as “any manual, diagram, reporting output, service code description, schematic diagram, or similar kinds of information.”⁷⁹

The idea behind this requirement is that this information is essential in order to diagnose, maintain, and repair electronic equipment. Yet, it can be quite difficult to obtain this information, even via reverse engineering.⁸⁰ Kyle Wiens, the chief executive officer of iFixit, a repair-related company, has made it a mission to obtain this information and has published the results of reverse engineering in videos called “teardowns.”⁸¹ However, most independent repair shops or owners do not have the time or know-how to conduct extensive reverse engineering for all products.⁸² Therefore, mandating such disclosure will facilitate more independent repairs.

c. Mandating the Availability of Parts and Tools to Facilitate Repairs

Another aspect that stymies repair of digital electronic equipment is the unavailability of tools and parts needed to undertake such repair. Even if a highly motivated owner of such equipment could figure out how to repair her broken phone, it is unlikely that she would be able to do so with standard home repair tools.⁸³ This is because the parts of some digital equipment are either too miniscule to manage with regular tools or because they are simply not available for purchase.⁸⁴ The repair company noted above, iFixit, realized that there was a market for tools that could assist in repairing electronic equipment.⁸⁵ It now not only provides the information for repairing products but also the means to do so through sales of its specialized repair equipment. Replacement parts, however, are a little trickier because

78. *Id.* § 3(a).

79. *Id.* § 2(c).

80. See Kyle Wiens, *Using Copyright to Keep Repair Manuals Secret Undermines Circular Economy*, GUARDIAN (Dec. 20, 2013, 10:09 PM), <https://www.theguardian.com/sustainable-business/copyright-law-repair-manuals-circular-economy> [https://perma.cc/9TQC-T2X4].

81. *Teardowns*, iFIXIT, <https://www.ifixit.com/Teardown> [https://perma.cc/SN95-RN5M] (last visited Aug. 22, 2019).

82. *About iFixit*, iFIXIT, <https://www.ifixit.com/Info> [https://perma.cc/G692-2C6J] (last visited Aug. 22, 2019).

83. See *A “Right to Repair” Movement Tools Up*, *supra* note 8.

84. See *id.*

85. See David Whitford, *Meet the \$21 Million Company That Thinks a New iPhone Is a Total Waste of Money*, INC., <https://www.inc.com/magazine/201704/david-whitford/ifixit-repair-men.html> [https://perma.cc/DHU2-B3ZG] (last visited Aug. 22, 2019).

their manufacture, sale, and use may infringe upon intellectual property rights.⁸⁶ Considering this, a requirement to make replacement parts available is necessary to facilitate repairs.

d. Mandating Disclosure of Information to Allow Security Protections to Be Reset

Given that virtually all digital electronic equipment uses some type of software, manufacturers' inclusion of security locks on such software has created another problem for repairers. These "electronic security locks" are intended to prevent third parties from accessing the software and are legally allowed under the DMCA's § 1201.⁸⁷ While these locks are typically vulnerable to hacking by those with enough know-how, and hacking is widespread, § 1201 further makes it illegal to hack and disseminate the knowledge of how to hack around software security protections.⁸⁸

Even if hacking is successful, the ability to use the device once the repair is made is not guaranteed. Some manufacturers require the device to confirm that the repair was authorized before the software will start again.⁸⁹ While exemptions to § 1201 may allow hacking for purposes of repair, these exemptions do not address manufacturers' additional security measures after the repairs are made.⁹⁰ A requirement that manufacturers provide the information necessary to reset the lock is highly imperative considering the manufacturers' efforts to prevent independent repairs.

e. Limiting Contracting Around Repair Law

Finally, section 5 of the model legislation seeks to ensure that manufacturers do not attempt to contract around the provisions of the law by including terms in their agreements with their authorized repair providers that would "purport[] to waive, avoid, restrict, or limit an original equipment manufacturer's obligation to comply with this Act."⁹¹ If the original equipment manufacturer attempted to do so, such provision would be "void and unenforceable."⁹²

86. See *infra* Part III. This could actually be the case with respect to repair tools as well.

87. 17 U.S.C. § 1201 (2012).

88. *Id.*

89. See Jason Koebler, *In Groundbreaking Decision, Feds Say Hacking DRM to Fix Your Electronics Is Legal*, VICE: MOTHERBOARD (Oct. 25, 2018, 12:41 PM), https://motherboard.vice.com/en_us/article/xw9bwd/1201-exemptions-right-to-repair [<https://perma.cc/NTA5-8R8F>] (describing Apple's "built-in kill switch that can prevent new MacBook Pros from functioning if they have been repaired by anyone who is not authorized to do so").

90. For example, Apple has begun to require that even after a device is reset and repaired, the device must connect with Apple servers to check that the repair was done by an authorized vendor. See *id.*

91. *Model State Right-to-Repair Law*, *supra* note 21, § 5(b).

92. *Id.*

As discussed above, manufacturers typically maintain an authorized network of repair vendors.⁹³ The typical relationship between the manufacturer and authorized repair vendor is a contractual one. Section 5 of the model legislation is designed to limit the freedom of contract in this context. If manufacturers were able to contract around the provisions of the repair law, they could circumvent the spirit and intent of the law.

However, this provision is not as broad as it needs to be because it does not limit what manufacturers can place in their sales (or lease) contracts with their consumers. Manufacturers are already including limiting provisions in contracts with purchasers or lessees of their equipment.⁹⁴ As will be discussed in Part III below, this is an area that is squarely in the mandate of the state legislatures to address because contract law is state based. States can declare void any contract terms that would purport to limit repair-related activities. If these types of provisions were included in any enacted state repair law, this would go a long way in making a right to repair a reality.

2. Why Has the Legislation Stalled?

Given how large the repair business is for manufacturers, it is not surprising that manufacturers would be upset by any attempt to interfere with their ability to control the repair market. Some larger manufacturers have been active in attempting to forestall the passage of any right to repair law.⁹⁵

In Illinois, for example, the Association of Home Appliance Manufacturers rallied Dyson, Wahl, and LG to send similar letters to seven members of the Illinois House of Representatives, including the representative who introduced the legislation and the Speaker of the House, in opposition to a proposed “fair repair” law.⁹⁶ These letters cited a number of different reasons as to why the proposed fair repair law was unwise to enact, including concerns regarding quality of repair, consumer safety, cybersecurity, and intellectual property.⁹⁷ Facially, these letters are quite persuasive, particularly in their lead arguments regarding consumer and product safety. Given that the legislation is framed as a type of consumer protection law, this may seem to make sense.⁹⁸

In response to the arguments from manufacturers, members of the repair movement cite to consumer autonomy and environmental concerns as

93. See generally *Apple Authorized Service Provider Program*, *supra* note 6.

94. See, e.g., *Terms & Conditions/Health & Safety Information*, SAMSUNG, <https://www.samsung.com/us/Legal/Phone-HSGuide/> [<https://perma.cc/EJ8H-N573>] (last updated May 9, 2018).

95. See Koebler, *supra* note 45.

96. Letter from Jason L. Brown to David Harris, *supra* note 46; Letter from Rick Habben to David Harris, *supra* note 46; Letter from John I. Taylor to David Harris, *supra* note 46.

97. Letter from Jason L. Brown to David Harris, *supra* note 46; Letter from Rick Habben to David Harris, *supra* note 46; Letter from John I. Taylor to David Harris, *supra* note 46.

98. But see *infra* Part IV.A (presenting certain counterarguments).

rebuttals.⁹⁹ With respect to consumer autonomy, the main argument is that a consumer should have the ability to do what they want with their product after purchase.¹⁰⁰ As to the substantial e-waste created by products that cannot be repaired, the Public Interest Research Group, for instance, reported that “New Hampshire throws away 1,500 cell phones every day, and 92 percent end up in [the] waste stream.”¹⁰¹

While these and other arguments that the repair movement has offered to rebut the concerns expressed by manufacturers have merit, these rebuttals have not proven successful.¹⁰² In fact, as of the date of this Article, none of the twenty states that have pending repair laws have passed their bills. The fight for the right to repair is not over, as some state lawmakers have already announced plans to reintroduce failed bills or continue them in their next state legislative sessions.¹⁰³ In addition, the U.S. Copyright Office’s exemptions for 2019–2021, which will be discussed below, also provide some promise.¹⁰⁴ In any event, it seems that the state legislation could use some steam. The way the repair movement has dealt with the manufacturers’ arguments on the intellectual property front, in particular, may not have been satisfactory. Paying due attention to intellectual property law is important for another reason, as explored in the next section.

3. Can State-Based Legislation Be Effectively Implemented?

Even if the state laws pass, there is a good possibility that states could not effectively implement them. The legislation as currently written is framed in consumer protection terms and, on its face, does not account for federal intellectual property law.¹⁰⁵

However, the repair model legislation implicates copyright and patent laws, both of which are in the exclusive jurisdiction of the federal

99. *It’s Time for a Common-Sense Perspective*, *supra* note 19; *Repair Revives End-of-Life Electronics*, REPAIR.ORG, <https://repair.org/the-environment> [<https://perma.cc/FA3B-2J5E>] (last visited Aug. 22, 2019).

100. *See, e.g.*, Bob Sanders, *Heavy Debate Ensues over ‘Right to Repair’ Bill*, NH BUS. REV. (Feb. 13, 2018), <https://www.nhbr.com/March-2-2018/Heavy-debate-ensues-over-right-to-repair-bill/> [<https://perma.cc/6X2X-2MME>].

101. *Id.* (quoting Nathan Proctor, the director of Public Interest Research Group’s (PIRG) right to repair campaign). As a counter to this, the manufacturers have argued that their proprietary software is intended to prevent against overrides that could delete features of products that are intended to be environmentally friendly. *See id.*

102. *See* Abel, *supra* note 22.

103. *See* iFixit Video, *Repair Radio Episode 6: Right to Repair Chat with Rep. Jeff Morris and Kevin Purdy*, YOUTUBE (Apr. 11, 2019), <https://www.youtube.com/watch?v=i51YOXCAXJ0> [<https://perma.cc/29HR-F73T>] (stating that the bill will continue in the next session).

104. *See infra* Part III.A.2.

105. *But see infra* Part III.D.2 (discussing trade secrets as an exception to the lack of direct engagement with intellectual property).

government.¹⁰⁶ Under the federal preemption doctrine, in the case of a conflict between a state law and a federal law, the federal law controls.¹⁰⁷ Courts typically analyze preemption under the Supremacy Clause of Article VI of the U.S. Constitution, which provides that the laws of the United States “shall be the supreme Law of the Land . . . any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.”¹⁰⁸ Thus, when a state law interferes with the underlying goals of a federal law, it may be struck down as preempted.¹⁰⁹ Arguably, the proposed model legislation does not align with various aspects of intellectual property law. This may mean that state laws based on the model legislation, if enacted, could be subject to constitutional challenges in their implementation and enforcement.¹¹⁰ However, in the past, courts have upheld other state-based legislation that similarly attempted to dictate manufacturer actions, even where patent rights were implicated.¹¹¹ For example, the Song-Beverly Act in California requires that manufacturers of various types of electronics who have made express warranties provide “service literature and functional parts.”¹¹² Thus, despite the potential for preemption claims, it is more likely that other

106. 17 U.S.C. § 301(a) (2012) (providing exclusive federal jurisdiction for copyright); 28 U.S.C. § 1338(a) (2012) (providing exclusive federal jurisdiction for patents).

107. See, e.g., Camilla A. Hrdy, *The Reemergence of State Anti-Patent Law*, 89 U. COLO. L. REV. 133, 158 (2018) (“‘Preemption’ generally describes a situation in which federal law ‘preempts,’ or supersedes, a state or local law.”); Dmitry Karshedt, *Contracting for a Return to the USPTO: Inter Partes Reexaminations as the Exclusive Outlet for Licensee Challenges to Patent Validity*, 51 IDEA 309, 317 (2011) (noting that under the preemption doctrine “the federal law controls and the state law is invalidated” in the case of a conflict between federal and state law).

108. U.S. CONST. art. VI, cl. 2; see Hrdy, *supra* note 107, at 158.

109. See, e.g., Hrdy, *supra* note 107, at 158 (noting that “the Federal Circuit currently assesses preemption of state anti-patent law by considering whether the challenged state law interferes with the underlying goals of the Patent Act and is therefore preempted under the Supremacy Clause”). For other sources discussing preemption and intellectual property laws, see generally Dan L. Burk, *Protection of Trade Secrets in Outer Space Activity: A Study in Federal Preemption*, 23 SETON HALL L. REV. 560 (1993); Roger Ford, *The Uneasy Case for Patent Federalism*, 2017 WIS. L. REV. 551; Jeanne C. Fromer, *The Intellectual Property Clause’s Preemptive Effect*, in INTELLECTUAL PROPERTY AND THE COMMON LAW 265 (Shyamkrishna Balganesh ed., 2013); Paul R. Gugliuzza, *Patent Trolls and Preemption*, 101 VA. L. REV. 1579 (2015); Paul Heald, *Federal Intellectual Property Law and the Economics of Preemption*, 76 IOWA L. REV. 959 (1991); Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CALIF. L. REV. 111 (1999); Maureen A. O’Rourke, *Drawing the Boundary Between Copyright and Contract: Copyright Preemption of Software License Terms*, 45 DUKE L.J. 479 (1995); Joan E. Schaffner, *Patent Preemption Unlocked*, 1995 WIS. L. REV. 1081.

110. See, e.g., Gugliuzza, *supra* note 109, at 1607 (discussing the application of the preemption doctrine to state anti-troll patent laws).

111. In fact, Kali Murray traces how states were historically able to enact state anti-patent statutes pursuant to the Tenth Amendment and the states’ “police power” over property and contracts. Kali Murray, *Constitutional Patent Law: Principles and Institutions*, 93 NEB. L. REV. 901, 926–29 (2015).

112. CAL. CIV. CODE § 1793.03 (West 2019). The authors are indebted to Aaron Perzanowski for this insight.

challenges based on intellectual property laws could be used to prevent effective implementation of a right to repair law.

Before discussing such doctrinal challenges, however, this Article engages, first, in an attempt to develop a cohesive theoretical framework for justifying a right to repair. Such a framework bolsters the case for the passage of state right to repair laws and also serves as a basis for this Article's proposed revisions of federal intellectual property law as needed to effectively implement repair legislation.

II. NORMATIVE JUSTIFICATIONS FOR A RIGHT TO REPAIR

The corporations lobbying against the legislation have relied, to a large extent, on their intellectual property rights.¹¹³ The response of the repair advocates has mostly remained on a separate normative level—justifying the legislation by resorting to environmental concerns and arguments rooted in consumer autonomy and competition—and has not tackled the objections on the intellectual property front in a direct manner.¹¹⁴

This Part presents an analytical framework that justifies a right to repair in terms that are reconcilable with intellectual property protection. Reframing and bolstering the arguments for a right to repair in the manner proposed herein is likely to reinforce the case for a right to repair, enable a more meaningful discussion regarding the potential ways to balance the various considerations at stake, and ultimately increase the chances of enacting and implementing effective right to repair legislation.

A. External Justifications

Intellectual property protection is not absolute. The law recognizes that intellectual property rights may entail significant costs and come at the expense of other valuable social interests. In response, the law is often designed in a manner that attempts to balance the benefits of intellectual property rights and other external interests that could be negatively impacted if those rights were too strong.¹¹⁵ Each branch of law that deals with a certain type of intellectual property right has various mechanisms that aim to achieve such a balance. For instance, the fair use doctrine in copyright law is often perceived as a mechanism for balancing copyright protections and free speech concerns.¹¹⁶ Similarly, § 287(c) of the Patent Act prevents patent

113. Letter from Jason L. Brown to David Harris, *supra* note 46; Letter from Rick Habben to David Harris, *supra* note 46; Letter from John I. Taylor to David Harris, *supra* note 46.

114. See *supra* notes 19, 100–01 and accompanying text.

115. Cf. Niva Elkin-Koren, *Copyright in a Digital Ecosystem: A User Rights Approach*, in *COPYRIGHT LAW IN AN AGE OF LIMITATIONS AND EXCEPTIONS* 132, 141 (Ruth L. Okediji ed., 2017) (explaining that copyright limitations and exceptions are often conceived as necessary to “balance author rights against a public interest”).

116. See generally Lee Ann W. Lockridge, *The Myth of Copyright's Fair Use Doctrine as a Protector of Free Speech*, 24 SANTA CLARA COMPUTER & HIGH TECH. L.J. 31 (2007).

owners from suing doctors for infringing medical procedure patents.¹¹⁷ This provision, which significantly limits such patents' effectiveness, is commonly justified by the fundamental need to provide patients with access to medical treatment.¹¹⁸

Therefore, even to the extent that the social interests underlying a right to repair are external to the values underlying intellectual property rights, this does not mean that these interests cannot be accorded significant weight in intellectual property policymaking. Notably, the general values and interests highlighted by the repair movement in support of the proposed legislation—including static efficiency considerations (competition in repair markets), environmental concerns, and consumers' rights in their products—are already accommodated in various contexts within intellectual property law's balancing mechanisms.¹¹⁹ In fact, even the need to enable repairs itself has been recognized to some extent as an interest worthy of consideration within various intellectual property law rules and doctrines.¹²⁰ Part III will explore these areas of the law and examine the need to supplement existing rules and doctrines with additional mechanisms to protect and enable a meaningful right to repair.

Thus, just because a certain value or social interest is external to the logic and nature of intellectual property rights, this does not mean that such value or interest is irrelevant. Nor, for that matter, is it that such interests must always be an afterthought to the protection of intellectual property rights. This understanding itself may be helpful in strengthening the case for a right to repair against the objections raised on the intellectual property front.

Yet, it is possible to go one step further. The next section will demonstrate that a right to repair can be justified from an internal perspective as well. Though this may seem counterintuitive at first glance, a right to repair could

(providing a critical analysis of the role that the fair use defense purportedly plays as a safeguard for protected speech).

117. 35 U.S.C. § 287(c) (2012).

118. For a critical discussion of this provision, see generally Cynthia M. Ho, *Patents, Patients, and Public Policy: An Incomplete Intersection at 35 U.S.C. § 287(c)*, 33 U.C. DAVIS L. REV. 601 (2000).

119. Static efficiency considerations are reflected in intellectual property law in various ways—including, for instance, by limiting the period of exclusivity under various intellectual property regimes in order to restore competition in the market once it expires. Environmental concerns are reflected, for instance, in the implementation of measures by various patent offices around the world to fast-track green patent applications. See, e.g., Antoine Dechezleprêtre & Eric Lane, *Fast-Tracking Green Patent Applications*, WIPO MAG. (June 2013), https://www.wipo.int/wipo_magazine/en/2013/03/article_0002.html [<https://perma.cc/5894-AAZY>] (providing analysis of such programs). In addition, the Clean Air Act employs a mandatory licensing scheme for patented inventions relating to devices for reducing air pollution. See 42 U.S.C. § 7608 (2012). Finally, the need to accommodate consumers' rights in their products is reflected, for instance, in the patent exhaustion doctrine. See, e.g., Amelia Smith Rinehart, *Contracting Patents: A Modern Patent Exhaustion Doctrine*, 23 HARV. J.L. & TECH. 483, 492 (2010) (noting that the “enforcement of . . . resale or use restrictions would create an obstacle to the free use and alienability of personal property”).

120. See *infra* Part III.

be justified by the very same rationales that have traditionally been used to justify intellectual property rights.¹²¹ This understanding makes the case for carving out a space for a right to repair within intellectual property law even more compelling.

B. Internal Justifications

Many theories have been formulated over the years to justify intellectual property protection.¹²² This section will focus primarily on the utilitarian theory—the most popular account of intellectual property rights, pursuant to which the law should be designed to maximize net social welfare.¹²³ As explored below, a strong case for a right to repair can be made under this approach. Conducting the theoretical analysis with the lens of the utilitarian theory of intellectual property is particularly beneficial as the arguments raised by opponents of the state legislation are framed in utilitarian terms as well. The centrality of the utilitarian argument to this Article’s thesis notwithstanding, this Article also briefly discusses the possibility of justifying a right to repair under other theories commonly used in discussions of intellectual property law: the labor theory, the personality theory, and the social planning theory.¹²⁴

1. Utilitarianism

The primary utilitarian justification for the patent and copyright systems focuses on their role in promoting progress by providing an incentive for the development of technological inventions and the creation of original works of authorship.¹²⁵ This notion is embedded in the U.S. Constitution, which

121. Cf. Guy Pessach, *Toward a New Jurisprudence of Copyright Exemptions*, 55 IDEA 287, 293 (2015) (suggesting that “the justifications for structuring copyright’s exemptions as exclusion rights, mirror economic justifications for copyright protection”).

122. See generally William Fisher, *Theories of Intellectual Property*, in NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168 (Stephen R. Munzer ed., 2001).

123. See, e.g., *id.*; see also Gaia Bernstein, *In the Shadow of Innovation*, 31 CARDOZO L. REV. 2257, 2275 (2010) (noting the scholarly convention that the utilitarian theory is the prominent justification for intellectual property rights in the United States).

124. By choosing to focus on the utilitarian approach, we do not mean to imply that utilitarianism is a descriptively or normatively satisfactory account of intellectual property law. In fact, both authors have expressed in various contexts criticism of the utilitarian account of intellectual property. See, e.g., Leah Chan Grinvald, *Making Much Ado About Theory: The Chinese Trademark Law*, 15 MICH. TELECOMM. TECH. L. REV. 53 (2008); Ofer Tur-Sinai, *Beyond Incentives: Expanding the Theoretical Framework for Patent Law Analysis*, 45 AKRON L. REV. 243 (2012) [hereinafter Tur-Sinai, *Theoretical Framework*]; Ofer Tur-Sinai, *Technological Progress and Well-Being*, 48 LOY. U. CHI. L.J. 145 (2016) [hereinafter Tur-Sinai, *Technological Progress*].

125. For sources noting the utilitarian nature of the patent system, see, for example, Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1597 (2003); Robert P. Merges, *Rent Control in the Patent District: Observations on the Grady-Alexander Thesis*, 78 VA. L. REV. 359, 359 (1992); Maureen A. O’Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1177, 1181–82 (2000); Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545, 554 (2012). For the

empowers Congress “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries” (“IP Clause”).¹²⁶ As the analysis below will show, designing intellectual property law in a manner that accommodates the concept of a right to repair and balances the exclusive rights granted to intellectual property owners with the right to repair could promote “Progress” in three interrelated ways: (1) as an essential component of the “Progress of Science and useful Arts” that Congress is mandated to promote under the Constitution; (2) as necessary to enable user innovation; and (3) as a mechanism that enhances the flow of information about technological innovation to the public.

a. Advancement of Progress

Under a utilitarian worldview, the state’s ultimate goal is to enhance human well-being in society.¹²⁷ To promote this goal in the context of the IP Clause, the state needs to not only ensure the development of products and services but also to promote their commercialization and broad diffusion. To the extent that consumers are not getting a chance to access and benefit from such products or services, their impact on human welfare is not fully realized.¹²⁸ As highlighted by Professor Gaia Bernstein, “[a]ttaining the progress objective requires not just innovation but also an adoption process. Progress can be attained only if people adopt and use the new technology.”¹²⁹ Indeed, this notion is reflected in the U.S. Supreme Court’s intellectual

dominance of the utilitarian justification for copyright law, see, for example, Jeanne C. Fromer, *An Information Theory of Copyright Law*, 64 EMORY L.J. 71, 73 (2014). Notably, the utilitarian justification for trademark law is different and focuses on the role of trademarks in reducing consumers’ search costs and in incentivizing businesses to produce consistently high-quality goods and services. See generally Fisher, *supra* note 122. See also *supra* note 10 and accompanying text.

126. U.S. CONST. art. I, § 8, cl. 8.

127. For the link between utilitarianism and the maximization of social welfare, see Matthew Adler & Eric A. Posner, *Happiness Research and Cost-Benefit Analysis*, 37 J. LEGAL STUD. 253, 255–56 (2008) (discussing the moral framework of utilitarianism); William W. Fisher & Talha Syed, *Global Justice in Healthcare: Developing Drugs for the Developing World*, 40 U.C. DAVIS L. REV. 581, 602 (2007) (noting how utilitarianism “urges lawmakers to choose the course of action that is most likely to produce the highest net social welfare”). For a discussion of the criterion of well-being that the state should adopt in the context of innovation law and policy, see generally Tur-Sinai, *Technological Progress*, *supra* note 124.

128. Indeed, some scholars have emphasized the role of both patent and copyright law in incentivizing the commercialization of new products and works, and not just their initial creation. See, e.g., F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 736 (2001) (suggesting a justification for the patent system, which is based on the need to provide “incentive to commercialize” the invention); Adam Mossoff, *How Copyright Drives Innovation: A Case Study of Scholarly Publishing in the Digital World*, 2015 MICH. ST. L. REV. 955 (illuminating the importance of copyright in incentivizing intermediaries to invest in and create distribution mechanisms for copyrighted works).

129. See Bernstein, *supra* note 123, at 2259.

property jurisprudence. In *Kewanee Oil Co. v. Bicron Corp.*,¹³⁰ for instance, the Court explained that patent laws promote progress by incentivizing inventors to make a productive effort that will ultimately “have a positive effect on society through the introduction of new products and processes of manufacture into the economy, and the emanations by way of increased employment and better lives for our citizens.”¹³¹ Thus, even under a traditional view of the IP Clause, there is a justification for a right to repair as a measure enhancing consumers’ ability to benefit from the innovative products brought about by technological progress.

Yet, once the traditionally narrow and simplistic perception of progress is replaced with a more holistic one, the justification for a right to repair as an essential component of a balanced intellectual property regime can be bolstered even further. The term “Progress” in the IP Clause is traditionally conceived as representing a modernist perception, under which constant innovation and creation are regarded as necessary to maintain perpetual growth and satisfy consumers’ demand for new products and services.¹³² Such a concept of progress represents political ideologies of economic liberalism, capitalism, and consumerism.¹³³ But in recent years, various intellectual property scholars have challenged this simplistic account of progress and proposed alternate constructions of this term that are broader and more holistic.¹³⁴

Professor Margaret Chon, for example, rejects the view of progress as a “liberating upward trajectory” and advances a postmodern view of progress, which incorporates “ecologically-based limits to economic growth, as well as the need for the redistribution of existing material wealth within present and between present and future generations.”¹³⁵ Chon posits that “the incentives provided by copyrights and patents are only second-order concerns which serve a higher purpose—the ‘Progress’ project—which preserves and nurtures a commons of knowledge.”¹³⁶ Ultimately, Professor

130. 416 U.S. 470 (1974).

131. *Id.* at 480.

132. See Tur-Sinai, *Technological Progress*, *supra* note 124, at 147.

133. *Id.*

134. See *infra* Part II.B.2.c. To a large extent, the social planning theory discussed below as part of the nonutilitarian theories can also be viewed as a richer version of utilitarianism, as it views the law as means to advance the state of society, though its vision of a desirable society exceeds the conceptions of “social welfare” traditionally embraced by utilitarians. See *infra* note 181 and accompanying text.

135. Margaret Chon, *Postmodern “Progress”: Reconsidering the Copyright and Patent Power*, 43 DEPAUL L. REV. 97, 100, 127 (1993).

136. *Id.* at 104. For other critical accounts of the modernist notion of progress underlying intellectual property policymaking and scholarship, see, for example, Estelle Derclaye, *Eudemonic Intellectual Property: Patents and Related Rights as Engines of Happiness, Peace, and Sustainability*, 14 VAND. J. ENT. & TECH. L. 495, 508–19 (2012) (arguing that the progress ideology is parochial); Simone A. Rose, *The Supreme Court and Patents: Moving Toward a Postmodern Vision of “Progress”?*, 23 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1197, 1207 (2013) (criticizing the measuring of societal progress by technological advancement and economic growth while failing to adequately balance “other equally

Chon maintains that “[a]n idea of progress that rejects sheer material growth as its *sine qua non* changes the focus of our intellectual property laws from competition policy to the complicated interface between science and society.”¹³⁷ Similarly, Professors Brett Frischmann and Mark McKenna argue that “the IP Clause leaves open a number of ways to conceive of Progress,”¹³⁸ in support of their claim that a normative commitment to intergenerational justice is compatible with the IP Clause.¹³⁹

This Article shares with these scholars the principal view that the constitutional mandate to promote “the Progress of the Science and useful Arts” should not be reduced to enabling market incentives to drive technological innovation and artistic creation. Furthermore, not only should “Progress” be construed in a broader, more holistic way but it should also be interpreted in a dynamic manner. The notion of “Progress” envisioned by the framers of the Constitution in the eighteenth century is not necessarily equal to the type of “Progress” that would benefit society in the twenty-first century. Notably, as the world is facing a potential major environmental crisis due to climate change,¹⁴⁰ intellectual property laws should be applied in a way that is consistent with and sensitive to environmental outcomes.¹⁴¹

important measures of progress such as improving public health, sustainability, and access to basic research tools”).

137. Chon, *supra* note 135, at 145.

138. Brett Frischmann & Mark P. McKenna, *Intergenerational Progress*, 2011 WIS. L. REV. 123, 123.

139. *Id.* at 138. For other works that offer a critical examination of the concept of “Progress,” see generally Barton Beebe, Bleistein, *The Problem of Aesthetic Progress and the Making of American Copyright Law*, 117 COLUM. L. REV. 319 (2017) (exploring whether copyright law ought to seek to promote aesthetic progress); Jessica Silbey, *Promoting Progress: A Qualitative Analysis of Creative and Innovative Production*, in SAGE HANDBOOK FOR INTELLECTUAL PROPERTY 515 (Matthew David & Deborah Halbert eds., 2015) (investigating the concept of “progress” envisioned by subjects of a qualitative empirical study); Ned Snow, *The Regressing Progress Clause: Rethinking Constitutional Indifference to Harmful Content in Copyright*, 47 U.C. DAVIS L. REV. 101 (2013) (discussing the potential value of the content-restrictive function of the Progress Clause).

140. See, e.g., Michael A. Carrier, *An Antitrust Framework for Climate Change*, 9 NW. J. TECH. & INTELL. PROP. 513, 513 (2011) (“Climate change is one of the most important issues of the twenty-first century.”); Megha Shah, *Grassroots Enforcement of EISA: The Need for a Citizen Suit Provision in the Energy Independence and Security Act of 2007*, 77 GEO. WASH. L. REV. 488, 488 (2009) (noting that former U.N. Secretary General Ban Ki-moon described climate change as “the defining challenge of our age”); see also J. B. Ruhl & James Salzman, *Climate Change Meets the Law of the Horse*, 62 DUKE L.J. 975, 977–78 (2013) (“Climate change is here. Its impacts are present in the current landscape, and, barring miraculous developments in politics and technology, it will be a part of the future for our generation and for many to follow.”).

141. For scholarly discussions acknowledging the need to incorporate environmental considerations into intellectual property policymaking, see, for example, Jonathan H. Adler, *Eyes on a Climate Prize: Rewarding Energy Innovation to Achieve Climate Stabilization*, 35 HARV. ENVTL. L. REV. 1 (2011); Estelle Derclaye, *Should Patent Law Help Cool the Planet?: An Inquiry from the Point of View of Environmental Law*, Part 2, 31 EUR. INTELL. PROP. REV. 227 (2009); Gregory N. Mandel, *Promoting Environmental Innovation with Intellectual Property Innovation: A New Basis for Patent Rewards*, 24 TEMP. J. SCI. TECH. & ENVTL. L. 51 (2005); Joshua D. Sarnoff, *The Patent System and Climate Change*, 16 VA. J.L. & TECH.

Once we embrace a broader and more dynamic construction of the term “Progress” and a correspondingly broader reading of the IP Clause, it is easy to justify a right to repair as a notion that is at least compatible with the rationales underlying intellectual property law. Such a right is likely to enable consumers to enjoy goods and services in a fuller and more meaningful way, which entails more autonomy and involves less dependency upon the original suppliers of such goods and services. Consumers’ enjoyment of the relevant products could also be expected to last for longer periods, assuming that more consumers will choose to repair their products under a regime of competition in repair markets than when these markets are controlled by original manufacturers.¹⁴² Altogether, with a right to repair in place, consumers are likely to derive more utility from their consumption of technological goods—what ultimately serves the underlying utilitarian goal of enhancing overall well-being.¹⁴³ In addition, a legal regime enabling repairs could have a positive impact on the natural environment that certainly aligns with a more holistic concept of “Progress.”¹⁴⁴

Many of the arguments noted above have been brought up by the right to repair advocates in support of the legislation. What has been missing is the link to intellectual property law. As demonstrated, such arguments can serve as the basis for an internal justification of the right to repair—one that views such a right as a vital component of an intellectual property regime that aims to promote “Progress.”

b. Enabling User Innovation

Even under a narrower concept of “Progress” that focuses on the need to incentivize the development of novel technological products and the creation of original works of authorship, a right to repair can still be justified as necessary to facilitate and encourage user innovation. As demonstrated in the work of Professor Eric von Hippel and others, “users of products and services—both firms and individual consumers . . . are increasingly able to innovate for themselves.”¹⁴⁵ Indeed, in today’s innovation landscape,

301 (2011); Ofer Tur-Sinai, *Patents and Climate Change: A Skeptic’s View*, 48 ENVTL. L. 211 (2018).

142. See, e.g., Mostafa Sabbaghi et al., *The Current Status of Consumer Electronics Repair Industry in the U.S.: A Survey-Based Study*, RESOURCES, CONSERVATION & RECYCLING, Jan. 2017, at 137, 143–44 (discussing price sensitivity of consumers and repair).

143. Interestingly, recent studies in the field of psychology point to the relation between a “maker identity” (i.e., being involved in do-it-yourself activities) and subjective well-being. See, e.g., Ann F. Collier & Heidi A. Wayment, *Psychological Benefits of the “Maker” or Do-It-Yourself Movement in Young Adults: A Pathway Towards Subjective Well-Being*, 19 J. HAPPINESS STUD. 1217 (2018). Inasmuch as this is true, it adds another layer of support to the argument that having a right to repair may enhance the value that consumers derive from their products.

144. See *supra* notes 140–41 and accompanying text.

145. ERIC VON HIPPEL, *DEMOCRATIZING INNOVATION* 1 (2005). For a list of examples of user innovation, see Katherine J. Strandburg, *Users as Innovators: Implications for Patent Doctrine*, 79 U. COLO. L. REV. 467, 468–69 (2008).

innovation in many technological fields is often originated from users of technology who develop new products and services to satisfy their own needs, rather than to sell them.¹⁴⁶ While this is beneficial to the individuals engaging in the practice of innovation, such innovative activity can also yield significant benefits to society.¹⁴⁷ The innovations created often spread to peers and to commercial firms that may adopt them as the basis for valuable market products.¹⁴⁸

Yet, in order to enable and encourage user innovation, the intellectual property system must preserve a space for users to tinker, experiment, and otherwise engage with their products in various ways.¹⁴⁹ In this vein, users should also be free to engage in repairs of technological products without fear of infringement liability.¹⁵⁰ A right to repair, in other words, is an essential component of a legal environment conducive to user innovation.

More concretely, while repairing a product, a user could come up with ideas for improvements, variations, or spin-offs of the same product or be inspired to design something new. One famous example for an innovation born out of repair is the first operative airplane built by the Wright brothers at the beginning of the twentieth century.¹⁵¹ The brothers, working alone from their bicycle repair shop, solved the problem of “controlled flight” that had occupied the minds of many engineers throughout the years.¹⁵² The solution was found while Wilbur, one of the brothers, was toying in their store with a rectangular bicycle inner-tube box.¹⁵³ Wilbur concluded that “by connecting the motion of a flying machine’s wings in relation to one another, twisting the axis of the wings in the same way a box twists,” a pilot could control the aircraft.¹⁵⁴ This led to the successful development of the first airplane and is considered a foundation to modern-day aeronautics.¹⁵⁵

In addition to innovations related to the product itself, opening repair markets for competition could also increase innovation in the repair industry. Consumers and independent repair shops might come up with new methods

146. See Strandburg, *supra* note 145, at 469. For other prominent works exploring user innovation, see generally VON HIPPEL, *supra* note 145; William W. Fisher III, *The Implications for Law of User Innovation*, 94 MINN. L. REV. 1417 (2010); Samuelson, *supra* note 31; Andrew W. Torrance & Eric von Hippel, *The Right to Innovate*, 2015 MICH. ST. L. REV. 793.

147. See Strandburg, *supra* note 145, at 469.

148. *Id.*

149. For the importance of the right to tinker, see generally Samuelson, *supra* note 31.

150. With respect to the link between repair and user innovation, see Strandburg, *supra* note 145, at 494–95.

151. See Katherine White, *What If Bicycles Held the Secret to Human Flight?*, HENRY FORD, <https://www.thehenryford.org/explore/stories-of-innovation/what-if/wright-brothers/> [https://perma.cc/URE5-2NNF] (last visited Aug. 22, 2019); see also Brittany McCrigler, *The Wright Way: Repair Teaches Engineering*, iFIXIT (Mar. 21, 2013), <https://www.ifixit.com/News/the-wright-way-to-teach-engineering> [https://perma.cc/4H77-J3UW].

152. White, *supra* note 151.

153. *Id.*

154. *Id.*

155. See, e.g., *id.*; see also McCrigler, *supra* note 151 (noting other “bike repair concepts” that are mirrored in the airplane built by the Wright brothers).

of repair, develop or improve repair tools, and create user-generated tips, manuals, and kits that could significantly benefit others.¹⁵⁶ More generally, repairing a product requires observation and the acquisition of knowledge. Thus, while engaging in repair, users are likely to increase their technological savviness and mechanical skills and acquire knowledge and tools that could prove helpful at a later point as they come across an opportunity to be involved in an innovative endeavor.¹⁵⁷

To conclude, a right to repair can directly lead to further innovation and, thus, can be justified from the perspective of dynamic efficiency underlying intellectual property laws. Once again, the justification for a right to repair can be predicated on the same rationales that are normally used to justify the exclusive rights of intellectual property owners.

c. Promotion of Information Disclosure

A third way by which a right to repair fits in the utilitarian justification for intellectual property rights has to do with the disclosure function of patents. One of the economic justifications of patent law under the utilitarian overarching framework is the “incentive to disclose” theory.¹⁵⁸ Under this theory, patents contribute to progress by incentivizing disclosure of information that would have otherwise remained secret. This theory is often framed in terms of a “bargain” between the inventor and the state.¹⁵⁹ To enjoy the period of exclusivity offered by the state, the inventor must disclose certain information related to her invention that ultimately becomes part of

156. For examples of repair tools and manuals, see iFIXIT, <https://www.ifixit.com/> [<https://perma.cc/92AF-3WY9>] (last visited Aug. 22, 2019).

157. Consider, again, the Wright brothers, whose innovative techniques in engineering are commonly attributed to their hands-on experience in repair.

158. For sources describing the incentive to disclose theory, see, for example, Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1028–29 (1989); Wendy J. Gordon, *Intellectual Property*, in THE OXFORD HANDBOOK OF LEGAL STUDIES 617, 632 (Peter Cane & Mark Tushnet eds., 2003); Ouellette, *supra* note 125, at 571–81; Julie S. Turner, *The Nonmanufacturing Patent Owner: Toward a Theory of Efficient Infringement*, 86 CALIF. L. REV. 179, 189–90 (1998).

159. The notion of the “patent bargain” refers to the “bilateral relationship between the inventor and the state, under whose terms the inventor must disclose in exchange for protection of a property right in the invention.” Shubha Ghosh, *Patents and the Regulatory State: Rethinking the Patent Bargain Metaphor After Eldred*, 19 BERKELEY TECH. L.J. 1315, 1338 (2004); see also Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 553 (2009) (“The accepted understanding in patent policy and doctrine is that disclosure of a patented invention to the public—and its dedication to the public after the expiration of the patent term—is part of a quid pro quo the patentee must provide to gain the broad patent right.”); Gordon, *supra* note 158, at 632 (discussing the notion of patent as a “bargain”: “the government gives the possibility of exclusivity and in exchange the patent applicant gives disclosure”). In the Supreme Court’s words, “the quid pro quo [for the patent grant] is disclosure of a process or device in sufficient detail to enable a person skilled in the art to practice the invention once the period of the monopoly has expired.” *Universal Oil Prods. Co. v. Globe Oil & Refining Co.*, 322 U.S. 472, 484 (1944).

the public domain.¹⁶⁰ As stated by the Supreme Court in *Kewanee Oil Co. v. Bicron Corp.*:

When a patent is granted and the information contained in it is circulated to the general public and those especially skilled in the trade, such additions to the general store of knowledge are of such importance to the public weal that the Federal Government is willing to pay the high price of 17 years of exclusive use for its disclosure, which disclosure, it is assumed, will stimulate ideas and the eventual development of further significant advances in the art.¹⁶¹

The current disclosure obligations do not mandate a patent applicant to disclose information that would enable repair of a patented product but only “the manner and process of making and using the invention.”¹⁶² Arguably, to use the invention meaningfully, a user must have information that would enable repairs if needed. Yet the statutory disclosure obligations have never been construed as encompassing a duty to supply repair information.

Regardless, looking at a right to repair from the perspective of the “incentive to disclose” theory highlights another way that repairs may promote “Progress.” Enabling the repair of a patented product by consumers and independent repair shops may result in a wider diffusion of knowledge about the technological features of the invention embedded in said product. Thus, a right to repair could complement the existing patent disclosure requirements in facilitating a flow of information regarding technological innovation to the public. To better serve this aim, repairers should also be allowed to disseminate repair information publicly through manuals, do-it-yourself videos, etc. Notably, repair information that is supplied by manufacturers or independently uncovered by users would remain accessible to the public even if the intellectual property owner ceases production and distribution of the product and stops offering repair services with respect thereto.¹⁶³ Continuous availability of such information could be important

160. As part of the disclosure requirement, the inventor must adequately disclose three separate elements: (1) enough information to indicate that the inventor is in possession of the claimed invention (the “written description” requirement), (2) the manner and process of making and using the invention, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same (the “enablement” requirement), and (3) the best mode contemplated by the inventor of carrying out his invention (the “best mode” requirement). 35 U.S.C. § 112 (2012); *see also* 3 DONALD S. CHISUM, CHISUM ON PATENTS §§ 7–9 (2019); Fromer, *supra* note 159, at 546.

161. *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 481 (1974).

162. *See Ariad Pharmaceuticals, Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1344 (Fed. Cir. 2010).

163. *Cf.* Ariel Katz, *The First Sale Doctrine and the Economics of Post-Sale Restraints*, 2014 BYU L. REV. 55, 111 (maintaining that enabling works to remain accessible to the public is one of the benefits of the first sale doctrine in copyright law).

not only from the narrow perspective of the ability to repair the specific product but also as a stimulant for follow-on innovation.¹⁶⁴

2. Nonutilitarian Justifications

In addition to the utilitarian justification, a right to repair can be justified from the perspective of certain nonutilitarian theories that have often been used in theoretical discussions of intellectual property law: labor theory; personality theory; and social planning theory. The next paragraphs will briefly survey these theories and the potential insights that can be drawn from them with respect to the justifications for a right to repair.

a. Labor Theory

The labor theory, based on the work of John Locke,¹⁶⁵ is one of the principal theories used to justify property rights in general¹⁶⁶ and intellectual property rights in particular.¹⁶⁷ Under the labor theory, the right of every person to the fruits of her labor is limited by two provisos: (1) “there is enough, and as good, left in common for others”;¹⁶⁸ and (2) the laborer does not waste resources by taking more than she needs for her own use, including use by means of exchange with others.¹⁶⁹

Using intellectual property rights to block consumers from repairing their own products and to secure control over the repair industry does not align with these provisos.¹⁷⁰ Generally speaking, the broader the scope of intellectual property rights, and the more control their owners are given over secondary markets—the narrower the opportunities are of others to labor and earn sustenance, contrary to the first proviso.¹⁷¹ As to the second proviso, a legal regime that does not allow for independent repairs of consumer

164. *Kewanee Oil Co.*, 416 U.S. at 481 (“[D]isclosure . . . will stimulate ideas and the eventual development of further significant advances in the art.”).

165. See generally JOHN LOCKE, *TWO TREATISES OF GOVERNMENT* (1690), reprinted in *TWO TREATISES OF GOVERNMENT AND A LETTER CONCERNING TOLERATION* 100 (Ian Shapiro ed., 2003).

166. See, e.g., J. W. HARRIS, *PROPERTY AND JUSTICE* 182–212 (1996); STEPHEN R. MUNZER, *A THEORY OF PROPERTY* 254–91 (1990); JEREMY WALDRON, *THE RIGHT TO PRIVATE PROPERTY* 19 (1988).

167. See generally, e.g., Lawrence C. Becker, *Deserving to Own Intellectual Property*, 68 CHI.-KENT L. REV. 609 (1993); Benjamin G. Damstedt, *Limiting Locke: A Natural Law Justification for the Fair Use Doctrine*, 112 YALE L.J. 1179 (2003); Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533 (1993); Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287 (1988); Tur-Sinai, *Theoretical Framework*, *supra* note 124.

168. LOCKE, *supra* note 165, at 112–13.

169. *Id.* at 121.

170. See also Joshua D. Sarnoff, *Patent-Eligible Inventions After Bilski: History and Theory*, 63 HASTINGS L.J. 53, 85–88 (2011) (discussing Locke’s proviso in the context of subject matter eligibility).

171. Damstedt, *supra* note 167, at 1187.

products would most certainly result in waste if consumers chose not to repair their products and instead bought new ones. In such a case, the social value of the product is not fully realized. Therefore, a right to repair consumer products may be a critical component of an intellectual property system under the labor theory.

b. Personality Theory

The right to repair can also be justified under the personality theory of property, which is based on Hegel's work.¹⁷² According to the personality theory, private property is necessary as a means for developing and realizing one's personality.¹⁷³ Under Hegel's theory, a person cannot begin to realize her self-identity until she is given an opportunity to exercise her will on external objects in her surroundings.¹⁷⁴ For a person to enjoy freedom of action with respect to assets and a sense of security with respect to the continuity of her relationship with them and be able to uniquely identify herself based on her relationship with such assets, she should be provided a certain level of control over the assets—which is the reason that the institution of private property is necessary.¹⁷⁵ The personality theory has been used to justify rights in tangible property as well as in intellectual property.¹⁷⁶

Entrusting control over repair of consumer products to original manufacturers denies consumers an important aspect of product ownership—the ability to control the “destiny” of their own property and to decide how to handle it when it is malfunctioning. These aspects could be essential for a consumer's ability to preserve a sense of autonomy and realize their self-identity under the personality theory.¹⁷⁷ In addition, consumers who choose to repair their products on their own could benefit from “exercise of competence, meaningful engagement, and self-expression.”¹⁷⁸ At the same

172. See generally G. W. F. HEGEL, *PHILOSOPHY OF RIGHT* (S. W. Dyde trans., Dover Philosophical Classics 2005) (1821).

173. *Id.*

174. *Id.*

175. *Id.*; see also Brian M. Hoffstadt, *Dispossession, Intellectual Property, and the Sin of Theoretical Homogeneity*, 80 S. CAL. L. REV. 909, 934, 948 (2007); Hughes, *supra* note 167, at 330; Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 972 (1982). Notably, the trend toward licensing, leasing, and other business models that do not provide individuals with full ownership of products they use undermines their ability to develop their personality in this manner. See generally AARON PERZANOWSKI & JASON SCHULTZ, *THE END OF OWNERSHIP: PERSONAL PROPERTY IN THE DIGITAL ECONOMY* (2016). The authors are indebted to Jessica Silbey for this insight.

176. See, e.g., Becker, *supra* note 167; Hughes, *supra* note 167; Tur-Sinai, *Theoretical Framework*, *supra* note 124.

177. See, e.g., Samuelson, *supra* note 31, at 565 (noting the “intellectual privacy and autonomy interest” in investigating and exploring consumer products as an essential feature of the “freedom to tinker” which the author advocates).

178. See generally Andrew Torrance & Eric von Hippel, *Protecting the Right to Innovate: Our Innovation “Wetlands,”* in *THE NEW PRODUCTION OF USERS: CHANGING INNOVATION*

time, carving out a space for a right to repair consumer products does not seem to harm the personality interests of owners of intellectual property rights that are embodied in such products. In fact, when the owner of the rights is a corporation rather than a private individual, the personality interest is largely irrelevant.¹⁷⁹ For all of these reasons, the personality theory can also bolster the arguments in favor of a right to repair.

c. Social Planning Theory

Another theoretical justification for intellectual property law is the “social planning theory.”¹⁸⁰ As described by Professor William Fisher, who coined this term, this approach is rooted in the proposition that the law “can and should be shaped so as to help foster the achievement of a just and attractive culture.”¹⁸¹ “Social justice” is another related concept that is used by scholars who view intellectual property law as a mechanism for social engineering.¹⁸² Surely, there is a need to agree on a particular vision of a just society that needs to be promoted. The concepts of distributive justice¹⁸³ and

COLLECTIVES AND INVOLVEMENT STRATEGIES 45 (Sampsa Hyysalo et al. eds., 2016) (noting that these factors are evident in connection with user innovation).

179. For discussion, see Tur-Sinai, *Theoretical Framework*, *supra* note 124, at 285; *see also* David McGowan, *Copyright Nonconsequentialism*, 69 MO. L. REV. 1, 6–7 (2004) (noting that rights-holding firms lack the individuality commonly associated with theories of personal autonomy).

180. *See* Fisher, *supra* note 122, at 173.

181. *See id.* at 172 (noting that the social planning approach “is similar to utilitarianism in its teleological orientation, but dissimilar in its willingness to deploy visions of a desirable society richer than the conceptions of ‘social welfare’ deployed by utilitarians”); *see also* Chidi Oguamanam, *Beyond Theories: Intellectual Property Dynamics in the Global Knowledge Economy*, 9 WAKE FOREST INTELL. PROP. L.J. 104, 128 (2009) (noting that the social planning theory “has been espoused by an array of voices under different but related conceptual alignments”); Madhavi Sunder, *IP³*, 59 STAN. L. REV. 257, 285 (2006) (discussing intellectual property’s social effects and the conception of this law as a tool for crafting cultural relations). *See generally* Grinvald, *supra* note 124 (analyzing Chinese trademark law under the lens of the social planning theory).

182. *See generally* Steven D. Jamar & Lateef Mtima, *A Social Justice Perspective on Intellectual Property, Innovation and Entrepreneurship*, in ENTREPRENEURSHIP AND INNOVATION IN EVOLVING ECONOMIES: THE ROLE OF LAW 78 (Megan M. Carpenter ed., 2012); Lateef Mtima, *Copyright Social Utility and Social Justice Interdependence: A Paradigm for Intellectual Property Empowerment and Digital Entrepreneurship*, 112 W. VA. L. REV. 97 (2009).

183. *See generally* KEITH AOKI, SEED WARS: CONTROVERSIES AND CASES ON PLANT GENETIC RESOURCES AND INTELLECTUAL PROPERTY (2008); Fisher, *supra* note 122 (listing distributive justice as one of the features of a just and attractive culture); Mtima, *supra* note 182 (discussing the use of intellectual property law as an engine for the socioeconomic advancement of marginalized communities); Haochen Sun, *Can Louis Vuitton Dance with HiPhone?: Rethinking the Idea of Social Justice in Intellectual Property Law*, 15 U. PA. J.L. & SOC. CHANGE 389 (2012); *see also* ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY 102–36 (2011) (demonstrating how intellectual property law embodies distributive justice considerations); Sunder, *supra* note 181, at 264 (integrating concerns for distributive justice as part of his “cultural analysis of intellectual property” theory).

a need to balance between competing stakeholders are often raised in this context.¹⁸⁴

It is easy to understand how a right to repair could be justified from the perspective of social planning theory. Such a right could advance the position of individual consumers vis-à-vis original manufacturers of consumer goods. The more competitive the repair market, the easier it would be for consumers to obtain inexpensive and accessible repairs. In some cases, this may result in a consumer's decision to keep a repaired product rather than throw it away and buy a new one. Keeping their products functioning longer may be economically significant for consumers; technologically complex products are generally more expensive to replace. For example, fixing a smartphone may cost around \$200, whereas buying a new smartphone may cost upwards of \$550.¹⁸⁵ Thus, by recognizing the legitimate interests of consumers in accessing a well-functioning repair market for their products, a right to repair could advance greater socioeconomic equality. At the same time, enabling the owners of independent repair shops to keep their jobs is also a step towards a more just society. Beyond the economic savings, a legal regime that enables and encourages independent repairs is likely to increase consumers' sense of autonomy while decreasing their dependency on original manufacturers. Finally, a culture that encourages repairs of broken products is certainly more attractive than one where people are tempted to throw away their products and replace them, particularly in light of the current environmental concerns.

C. Summary

The foregoing analysis has demonstrated that a right to repair is supported both by external considerations and internal justifications underpinning intellectual property law. In essence, the right to repair could be conceived as necessary to enable intellectual property law to achieve its prescribed goals.

Notably, many of the justifications raised by advocates of the right to repair legislation (and presented originally as external justifications) can be integrated within, and presented as components of, the internal justifications

184. See, e.g., Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283, 378–81 (1996) (recommending certain reforms in copyright law, including employment of compulsory licensing systems more often, to balance the interests of artists and consumers in their works); Oguamanam, *supra* note 181, at 129 (“The social planning school of thought aspires towards a regime of intellectual property rights that advances a balanced cultural and a balanced competing stakeholders’ vision of intellectual property.”).

185. See Tuan Do, *The Real Production Costs of Smartphones*, TECHWALLS (Mar. 10, 2019), <https://www.techwalls.com/production-costs-of-smartphones/> [<https://perma.cc/HZ64-92F3>]; Brant Ranj, *This Is the Cheapest Place to Repair a Cracked Screen for Older iPhones—and It Isn't the Apple Store*, BUS. INSIDER (Sept. 20, 2018, 9:41 AM), <https://www.businessinsider.com/amazon-home-services-repair-cracked-iphone-screen-for-cheap-2018-6> [<https://perma.cc/75DM-GHAH>] (discussing the different prices for repairing a cracked iPhone screen).

as well. The discussion above has illustrated, for example, that enabling repairs of protected products in an effort to minimize waste could be viewed as a vital component of an intellectual property regime that is designed to promote “Progress.”¹⁸⁶ In addition, for similar reasons, repairs are a necessary exception to the scope of intellectual property protection under the labor theory.¹⁸⁷ As another example, considerations related to consumer autonomy and the need to respect consumers’ property rights are integral to the analysis under the personality theory.¹⁸⁸

Tying these seemingly external justifications with the fundamental notions underlying intellectual property law highlights the importance of acknowledging, and carving out a space for, a right to repair within intellectual property law. However, as justified as a right to repair may be, it is important to ensure that its implementation would not weaken intellectual property protection to a suboptimal level.

Taking control of the repair business out of the hands of manufacturers will undoubtedly affect their profits. For the most part, this should not undercut the ability of intellectual property systems to achieve their prescribed policy goals.¹⁸⁹ Yet, adequate balancing between the considerations at stake is more nuanced and context dependent. For instance, one relevant consideration that may impact the proper balancing is whether any duty is imposed on the manufacturers (i.e., a duty not to interfere with a right to repair or an even more active duty) or we are merely dealing with a consumer’s privilege. This and other considerations will guide us in Part III where we take a close look at intellectual property law and analyze the extent to which it is compatible with a right to repair. Such an exploration is necessary to ensure that once a right to repair is established, manufacturers could not use their intellectual property rights to undercut consumers’ ability to effectively exercise such right. While exploring the different branches of intellectual property law, Part III identifies certain rules and doctrines that already accommodate, to some extent, the need for a right to repair and examine whether such rules and doctrines satisfactorily balance the considerations at stake. In contexts where current doctrine does not sufficiently take into account the need to enable repairs, we will evaluate the possibility of construing or amending the law to better accommodate this need.

III. INTELLECTUAL PROPERTY RAMIFICATIONS FOR A RIGHT TO REPAIR

To account for the factors noted above in Part II and other relevant policy considerations, the discussion in Part III will frame the right to repair as

186. *See supra* Part II.B.1.a.

187. *See supra* notes 165–71 and accompanying text.

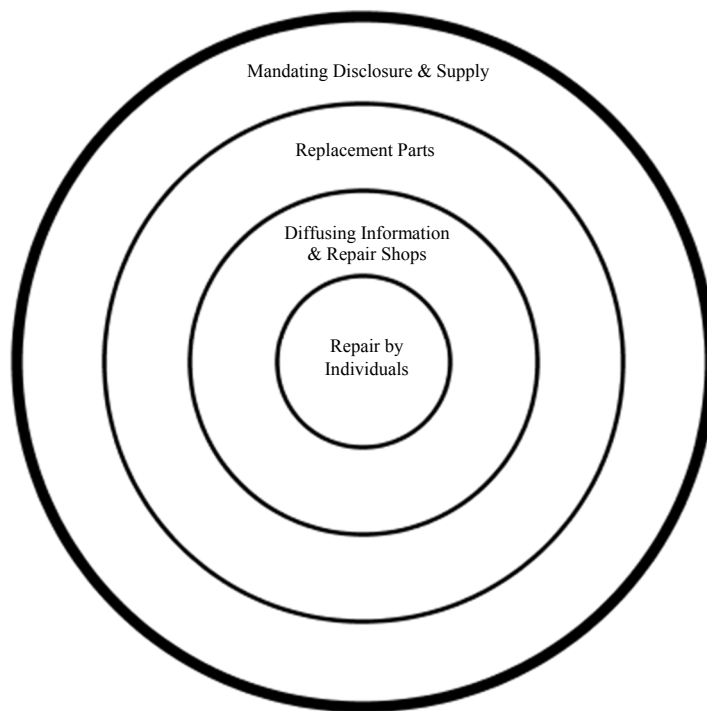
188. *See supra* notes 177–79 and accompanying text.

189. *See infra* Part IV.B.

encompassing four different concentric circles.¹⁹⁰ The analysis will first discuss the core aspect of a right to repair: the right of individual consumers to engage in the activity of repairing their own products. It will then move to outer circles. The second circle represents the ability to engage in other activities that facilitate repairs, including diffusion of repair information and advertising repair businesses. The next circle contains the freedom to manufacture, import, sell, and use replacement parts. The final outer circle encompasses the right to mandate original manufacturers to disclose repair information and supply replacement parts.

This Article's proposals regarding the narrower circles may be perceived as more modest and be more politically feasible than the ones portrayed in the outer circles. Thus, holding the discussion in such a modular manner accommodates the possibility that some readers might support the arguments made in connection to inner circles, even if they are not persuaded by this Article's recommendations with respect to outer ones.

Figure 1



190. While we find this division into four different layers useful in illuminating certain common characteristics of different activities taken in the context of repair, this Article's recommendations are not dependent on it.

A. Repair by Individual Consumers

At the very core of the right to repair is a right of individual consumers to engage in repair activities. In this context, all the justifications underlying a right to repair are directly applicable, including the need to preserve consumer autonomy and the potential contribution of independent repair activity to “Progress” in the different manners explored above. At the same time, enabling repair by consumers does not require the original manufacturers to do much. In this sense, it might be tempting to characterize the nature of consumers’ legal entitlement to repair as a “privilege,” in the Hohfeldian sense of the term, rather than a right.¹⁹¹ Yet, the term “right” seems to be more accurate, even with respect to this core layer. For the consumers’ entitlement to repair to be meaningful, it must be correlated with a duty of the original manufacturers to *not* interfere with the exercise of the right (for instance, by way of enforcing intellectual property rights against individual consumers who repair their own products).¹⁹²

Within this core layer, manufacturers are under no duty to take any affirmative actions to facilitate repairs. This, coupled with the importance of enabling the core activities, makes balancing manufacturers’ interests and consumers’ interests in this context clearly in favor of repair. Furthermore, enabling repairs does not negatively impact the primary market for any protected invention embodied in the product, which was already sold once, presumably by or under the authorization of the manufacturer. Thus, measures to secure this layer of the right to repair can be implemented without fear of reducing intellectual property incentives to a suboptimal level.¹⁹³

The proposed model legislation does not deal with this core layer of the right to repair at all, although it should not be taken for granted. As the following analysis demonstrates, repairing a product may implicate patent and copyright law issues.¹⁹⁴ While it is unclear to what extent manufacturers

191. See Wesley Newcomb Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 YALE L.J. 710 (1917); Wesley Newcomb Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 YALE L.J. 16 (1913).

192. See *infra* Part III.A.2 (discussing copyright law and 17 U.S.C. § 1201 (2012)).

193. See *infra* Part IV.B.

194. Notably, neither trademark law nor trade secret law is seemingly implicated by this layer and therefore not addressed in this section. Trademark law requires that the original trademark be “used in commerce.” 15 U.S.C. § 1127 (2012). Where the owner of the product makes the repairs herself, courts have held that there has been no use in commerce and, therefore, trademark law is not brought into question. *Karl Storz Endoscopy-Am., Inc. v. Surgical Techs., Inc.*, 285 F.3d 848, 856 (9th Cir. 2002) (“We do, however, recognize the right of property owners to repair or alter trademarked goods without implicating the Lanham Act. For example, if the owner chooses to buy aftermarket spare parts and do the repairs himself, there is no sale of a trademarked good in commerce, and hence no trademark infringement.”). Similarly, trade secret law is not implicated in this scenario—assuming that the owner of a product is utilizing information and know-how that is publicly available or she is able to obtain herself through reverse-engineering. See 18 U.S.C. § 1839(3) (2012).

would take action against individual consumers, the fact that consumers are exposed to potential legal liability is still problematic.¹⁹⁵ Therefore, there is a need to examine how intellectual property law may stymie consumer freedom and how courts or legislation could resolve this issue.

1. Repairing Patented Products

a. Exhaustion and the Repair-Reconstruction Dichotomy

Under § 271 of the Patent Act, “whoever without authority makes, uses, offers to sell, or sells any patented invention . . . during the term of the patent therefor, infringes the patent.”¹⁹⁶ Repairing a patented product entails a use of the invention and, therefore, counts as patent infringement unless otherwise permitted.¹⁹⁷

Fortunately, patent law recognizes a right to repair to a considerable extent.¹⁹⁸ Under the doctrine of patent exhaustion, an authorized sale of a patented item exhausts the patentee’s rights with respect to that item and leaves the purchaser and subsequent owners free to use or resell it without fear of an infringement lawsuit.¹⁹⁹ As part of the “use” of the product, its owner can repair it, if necessary. Yet, courts have drawn a distinction between repair and reconstruction. While repair is permissible, the reconstruction of a patented product amounts to the making of a new article and thus constitutes patent infringement.²⁰⁰ Courts have struggled in drawing the line between repair and reconstruction.²⁰¹

195. Informal demand letters are used to intimidate individuals and create a “chilling effect.” See generally Leah Chan Grinvald, *Policing the Cease-and-Desist Letter*, 49 U.S.F. L. REV. 411 (2015) (discussing how cease-and-desist letters are used to intimidate individuals and small entities into acceding to intellectual property rights demands made by larger entities).

196. 35 U.S.C. § 271(a) (2012).

197. This is true with respect to both a utility patent and a design patent. *Id.*

198. In addition to the right to repair that exists due to the exhaustion doctrine discussed below, another possibility to shield repair activity from a patent owner’s control could be to classify the invention’s use as private and noncommercial. But the United States, unlike other countries, does not have a “private use” exception to patent infringement—so this is not a realistic possibility. See Roger D. Blair & Thomas F. Cotter, *An Economic Analysis of Seller and User Liability in Intellectual Property Law*, 68 U. CIN. L. REV. 1, 3 (1999) (noting that U.S. patent law is “inconsistent with the practice in some other countries, which exempts from liability the private, noncommercial use of patented inventions”).

199. See, e.g., *Impression Prods., Inc. v. Lexmark Int’l, Inc.*, 137 S. Ct. 1523, 1529 (2017); *Bowman v. Monsanto Co.*, 569 U.S. 278, 283 (2013); *Quanta Comput., Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 625 (2008).

200. For a leading case, see *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336 (1961).

201. See *Mallinckrodt, Inc. v. Medipart, Inc.*, 976 F.2d 700, 709 (Fed. Cir. 1992) (“Although the rule is straightforward its implementation is less so, for it is not always clear where the boundary lies: how much ‘repair’ is fair before the device is deemed reconstructed.”); Mark D. Janis, *A Tale of the Apocryphal Axe: Repair, Reconstruction and the Implied License in Intellectual Property Law*, 58 MD. L. REV. 423, 425 (1999) (“The

Given the gray line between what is considered a repair versus reconstruction, consumers' ability to operate freely has been limited. But as the line between repair and reconstruction is a judicially constructed one, recognizing the strong justifications for a right to repair can lead to a shift in the way this line is drawn. In doing so, courts could ultimately classify more uses as permissible repairs rather than as "reconstruction," which would provide consumers more freedom in repairing their products.

b. Post-Sale Contractual Restrictions

But what if the patent owner prohibits independent repairs as part of the sale or license agreement with the consumer? The Samsung Galaxy smartphone's terms and conditions contain an example of a contract provision that could be construed as prohibiting repairs: "[a]ny changes or modifications to your mobile device not expressly approved by Samsung could void your warranty for this equipment and void your authority to operate this equipment."²⁰² Similarly, farm equipment sold by John Deere is accompanied by a license agreement that prevents consumers from accessing the software embedded in the equipment and prohibits any repairs other than those made by an authorized repair provider.²⁰³

For many years, the Federal Circuit treated exhaustion as a default rule that may be contracted around, which enabled patent owners to enforce post-sale restrictions through patent infringement lawsuits.²⁰⁴ However, the Supreme Court held in its recent landmark decision *Impression Products, Inc. v. Lexmark International, Inc.*²⁰⁵ that an authorized sale of a patented item exhausts all patent rights with respect to that item, regardless of any restrictions on use that the patentee purports to impose.²⁰⁶ In other words, violations of such restrictions no longer have remedies in patent law.²⁰⁷

Nevertheless, the Court in *Impression Products* did not rule out the possibility that the patent owner could enforce post-sale restrictions (including non-repair clauses) under contract law in state court.²⁰⁸ An action for a breach of contract is surely not as effective or as rewarding as a patent

repair-reconstruction dichotomy has baffled and annoyed courts for decades, often driving courts to employ 'loose language.'").

202. *Terms & Conditions/Health & Safety Information*, *supra* note 94.

203. See Jason Bloomberg, *John Deere's Digital Transformation Runs Afoul of Right-to-Repair Movement*, FORBES (Apr. 30, 2019), <https://www.forbes.com/sites/jasonbloomberg/2017/04/30/john-deeres-digital-transformation-runs-afoul-of-right-to-repair-movement/> [https://perma.cc/2Q93-AUQQ].

204. See *Mallinckrodt*, 976 F.2d at 701 ("Use in violation of a valid restriction may be remedied under the patent law, provided that no other law prevents enforcement of the patent.").

205. 137 S. Ct. 1523 (2017).

206. *Id.* at 1532–33.

207. See Rinehart, *supra* note 119, at 486.

208. See *Impression Prods.*, 137 S. Ct. at 1335.

infringement lawsuit.²⁰⁹ Still, the possibility of being sued may deter consumers and repair businesses from exercising their right to repair. Thus, it is important to find ways to decrease this concern.²¹⁰

One possible way to deal with this is to look to certain contract law doctrines to strike down post-sale restrictions on repair, particularly when the contract at hand is a standard form contract, involving parties of unequal bargaining power, rather than an agreement between commercial parties dealing at arm's length.²¹¹ Among such doctrines, the public policy exception to contract enforcement or the unconscionability doctrine may prove particularly relevant.²¹² The downside to simply relying on these doctrines is that there is a great uncertainty involved in their application, which leaves consumers exposed to potential liability. Moreover, in order to invalidate a contract, a consumer would need to be prepared to dispute the terms.²¹³

209. To begin with, the contractual route cannot be used against entities with which the patent owner does not have privity of contract. *See, e.g.,* Robert P. Merges, *The End of Friction?: Property Rights and Contract in the "Newtonian" World of On-Line Commerce*, 12 BERKLEY TECH. L.J. 115, 119 (1997) ("Parties must be in privity with each other for a contract to be formed."). In addition, the remedies for a breach of contract are generally not as broad as the remedies for patent infringement. *See, e.g.,* Omri Ben-Shahar, *Contract Versus Property Damages*, 12 ACADEMIA SINICA L.J. 1, 7–8 (2013) ("In patent law, the shift from contract to infringement remedies could also increase the magnitude of damages."). Even after the Supreme Court's decision in *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006), which made it more difficult for patent plaintiffs to obtain injunctions, injunction is still a common remedy in patent infringement lawsuits. *See, e.g.,* Megan M. La Belle, *Against Settlement of (Some) Patent Cases*, 67 VAND. L. REV. 375, 402 (2014) ("[E]ven after *eBay*, permanent injunctions remain the norm in patent cases when there is a finding of infringement."). In contrast, under contract law, specific performance is deemed an extraordinary remedy, awarded at the court's discretion. *See, e.g.,* Alan Schwartz, *The Case for Specific Performance*, 89 YALE L.J. 271, 272 (1979). The shift from infringement remedies to contract remedies could also decrease the magnitude of monetary damages available to the plaintiff. *See* Ben-Shahar, *supra*, at 7–8. Among other things, while contract monetary remedies are limited to expectation damages, in a patent infringement suit, the court may award punitive damages and recovery of attorney's fees as well. *See* 35 U.S.C. §§ 284–285 (2012); *see also* Ben-Shahar, *supra*, at 8 (noting, in addition, the longer statute of limitations available under patent law).

210. A threat of litigation through cease-and-desist letters would likely be enough to deter any individual consumer. *See generally* Grinvald, *supra* note 195.

211. For an example of such a uniform contract, see *supra* note 202 and accompanying text.

212. For relevant discussion, see Daniel Laster, *The Secret Is Out: Patent Law Preempts Mass Market License Terms Barring Reverse Engineering for Interoperability Purposes*, 58 BAYLOR L. REV. 621, 693–97 (2006). In addition to these doctrines, in certain instances, rules regarding contract formation may enable a court to avoid enforcement. Notably, the patent misuse doctrine is irrelevant in such cases, where the enforcement of post-sale restrictions under patent law is already barred under the exhaustion doctrine and the only question is whether the patentee should be allowed to enforce such restrictions under contract law. *See infra* note 219 and accompanying text.

213. The problem here is that many of these standard-form contracts now include mandatory arbitration clauses, which prevent consumers from banding together in a class action lawsuit against manufacturers for any such abusive contractual terms. *See, e.g., Legal Policies: Conditions of Use*, AMAZON, <https://smile.amazon.com/gp/help/customer/>

It may be more effective if states were to declare post-sale restrictions on repair void and unenforceable. This can be done as part of the same state legislation that deals with the right to repair. In fact, as discussed in Part I.C, the proposed model legislation already includes a provision along these lines that applies in a more limited context. Under section 5(b) of the proposed legislation, “any provision in [the terms of a contract between an authorized repair provider and an original equipment manufacturer] that purports to waive, avoid, restrict, or limit the original equipment manufacturer’s obligations to comply with this Act shall be void and unenforceable.”²¹⁴ The right to repair legislation could be more widely applicable and effective if it explicitly provides that consumers have a right to repair their products; while section 5(b) should be expanded to provide that any restriction on the right to repair would be void and unenforceable in any type of transfer contract.²¹⁵

c. Sales Versus Licenses

One important limitation of the use of the exhaustion doctrine as a safe harbor for repair activities has to do with the distinction between sales and licenses embedded in patent exhaustion jurisprudence and reaffirmed by the Court in *Impression Products*. In contrast to an authorized sale of a patented product, a mere license of same product does not trigger exhaustion.²¹⁶ Therefore, if a firm manages to structure its transactions with its consumers in a manner that does not entail full transfer of ownership—for instance, by adopting subscription-based or leasing business models—then the exhaustion doctrine would not apply. Such a firm could continue to impose effective limitations on the use of its products, including no-repair clauses.²¹⁷

In light of this distinction, it is likely that certain businesses would try to hide the true economic nature of a transaction and disguise it as a mere license when it is actually a sale. The need to ensure that intellectual property rights would not be used to circumvent the right to repair increases the urgency of developing tests that enable courts to distinguish between de facto sales and other transactions that are authentically not sales.

To be sure, even if a transaction is not classified as a sale and no exhaustion is triggered, the ability to enforce post-sale restrictions on repair via patent law is not guaranteed. As noted above, such restrictions could be invalid as

display.html?ie=UTF8&nodeId=508088&ref_=footer_cou [https://perma.cc/L4N7-U7FE] (last updated May 21, 2018) (specifying arbitration, except for small claims actions).

214. See *Model State Right-to-Repair Law*, *supra* note 21.

215. The term “void and unenforceable” is important because it allows for consumers to disregard any such terms without having to cause any contract terms that fall into this category to be voided.

216. *Impression Prods., Inc. v. Lexmark Int’l, Inc.*, 137 S. Ct. 1523, 1534 (2017).

217. See Aaron Perzanowski, *Lexmark and the Future of Sales*, END OWNERSHIP (June 1, 2017), <http://www.theendofownership.com/blog/2017/6/1/thoughts-on-impression-products-v-lexmark> [https://perma.cc/KZU6-2U4Q] (“Another potential concern is that companies like Lexmark will stop selling products altogether and move to lease, rental, or subscription models that don’t entail transfers of ownership to consumers.”).

far as contract law is concerned.²¹⁸ Moreover, in light of the strong policy considerations favoring repair, courts should consider such restrictions to be patent misuse.²¹⁹ To the extent post-sale restrictions constitute patent misuse, a patentee who imposes such restrictions cannot enforce their patent.²²⁰ Thus, this doctrine may serve as a tool to preserve a right to repair in the face of non-repair clauses, even for users that are not protected by exhaustion. Finally, certain contractual restrictions that seek to inhibit competition in repair markets may run afoul of federal antitrust laws as unlawful agreements in restraint of trade.²²¹

2. Copyright Implications of Repair

Copyright law already recognizes, to a limited extent, the notion of a right to repair at this core layer. Section 117(c) of the Copyright Act provides an exemption to owners or lessees of computers that allows them to make copies of software in order to maintain or repair the machine without infringing upon the copyright of the software.²²²

Unfortunately, though, there is another layer in the Copyright Act that is incompatible with a right to repair. Section 1201 of the DMCA prevents anyone from disabling a technological protection measure that a copyright owner has placed on a work in order to protect its copyrighted software (a “digital lock”).²²³ In practice, almost any type of consumer technological product includes software, which in turn, likely includes such a digital lock.²²⁴ Consumers cannot disable the digital lock without being liable under § 1201, even if the purpose for such hack was to diagnose, maintain, or repair the product. If the disabling is done willfully and for commercial gain, the circumventer may be criminally liable.²²⁵

218. See *supra* notes 211–15 and accompanying text.

219. Patent misuse can be raised as a defense in patent litigation when the patentee takes unfair advantage of its patent rights. See, e.g., Gaia Bernstein, *The Rise of the End User in Patent Litigation*, 55 B.C. L. REV. 1443, 1467 (2014).

220. See, e.g., Mark A. Lemley, *The Economic Irrationality of the Patent Misuse Doctrine*, 78 CALIF. L. REV. 1599, 1613 (1990) (“If a patentee has misused his patent, the courts will neither enjoin an infringement of that patent nor award damages to the patentee.”).

221. See 15 U.S.C. § 1 (2012) (“Every contract . . . in restraint of trade or commerce . . . is declared to be illegal.”); see also *infra* note 324 (discussing antitrust implications of a refusal to sell or license replacement parts).

222. 17 U.S.C. § 117(c) (2012); see Lateef Mtima, *So Dark the Con(Tu) of Man: The Quest for a Software Derivative Work Right in Section 117*, 70 U. PITT. L. REV. 1, 23–24 (2008) (noting that “section 117 functions as one of the chief mechanisms through which the public interest in software programs is balanced against the copyright holders’ property rights in such programs”).

223. 17 U.S.C. § 1201 (2012).

224. See, e.g., Kenny, *supra* note 2 (describing the digital lock on newer Keurig coffee machines).

225. 17 U.S.C. § 1204.

Fortunately, § 1201 provides a safety valve in that it authorizes the U.S. Copyright Office to adopt exemptions to these strict prohibitions.²²⁶ These exemptions are short-term fixes and are only valid for three years, although they can be renewed.²²⁷ With the exemptions announced in 2018, the repair movement scored a victory in persuading the Copyright Office to officially recognize repair as a reason to circumvent digital locks.²²⁸ The 2018 exemptions, valid until 2021, allow users to access software provided that they circumvent the digital lock to diagnose, repair, or maintain certain devices in which the software is embedded.²²⁹ However, the types of devices that these exemptions cover are limited to “motorized land vehicles,” smartphones, or “home appliance[s] or home system[s],” such as refrigerators or thermostats.²³⁰ The list excludes, for instance, aircraft and boats, but includes increasingly ubiquitous voice-assisted home devices such as Amazon’s Alexa.²³¹

While the 2018 exemptions are exciting news for the repair movement and provide individual consumers with greater freedom in this core layer, a major downside is that these exemptions are temporary. In order for the exemptions to continue beyond three years, the Copyright Office needs to renew them.²³² On past occasions, the Copyright Office has decided not to renew much-needed exemptions, including the “unlocking” exemption that had been provided from 2006 to 2012 to allow consumers to connect their wireless

226. *Id.* § 1201.

227. *Id.*

228. See Mitch Stoltz, *New Exemptions to DMCA Section 1201 Are Welcome, but Don’t Go Far Enough*, ELECTRONIC FRONTIER FOUND. (Oct. 26, 2018), <https://www.eff.org/deeplinks/2018/10/new-exemptions-dmca-section-1201-are-welcome-dont-go-far-enough> [<https://perma.cc/784V-NBW8>].

229. 37 C.F.R. § 201.40 (2019).

230. *Id.* § 201.40(b)(9)–(10) (“Computer programs that are contained in and control the functioning of a lawfully acquired smartphone or home appliance or home system, such as a refrigerator, thermostat, HVAC or electrical system, when circumvention is a necessary step to allow the diagnosis, maintenance or repair of such a device or system, and is not accomplished for the purpose of gaining access to other copyrighted works”).

231. See Chaim Gartenberg, *New Copyright Exemptions Let You Legally Repair Your Phone or Jailbreak Voice Assistants*, VERGE (Oct. 25, 2018, 3:58 PM), <https://www.theverge.com/circuitbreaker/2018/10/25/18024332/us-copyright-office-right-to-repair-dmca-exemptions> [<https://perma.cc/6DQE-6HAF>]; Hamza Shaban, *‘Right to Repair’ Advocates Claim Major Victory in Smartphone Copyright Exemption*, WASH. POST (Oct. 26, 2018), <https://www.washingtonpost.com/technology/2018/10/26/right-repair-advocates-claim-major-victory-new-smartphone-copyright-exemption/> [<https://perma.cc/Y6BG-E7ER>].

232. 17 U.S.C. § 1201(a)(1)(D) (2012) (“The Librarian shall publish any class of copyrighted works for which the Librarian has determined, pursuant to the rulemaking conducted under subparagraph (C), that noninfringing uses by persons who are users of a copyrighted work are, or are likely to be, adversely affected, and the prohibition contained in subparagraph (A) shall not apply to such users with respect to such class of works for the ensuing 3-year period.”); see also *Frequently Asked Questions About the Section 1201 Rulemaking*, COPYRIGHT.GOV, <https://www.copyright.gov/1201/2018/faqs.html> [<https://perma.cc/2HZK-9EHP>] (last visited Aug. 22, 2019).

devices to an alternative network.²³³ Therefore, this partial victory for the repair movement may end up being temporary.²³⁴ As evident by this Article's thesis, the authors support a renewal of this exemption or, preferably, that Congress enacts these (or even more encompassing) exemptions through legislation.

One other limitation of the repair exemptions is that they do not explicitly authorize consumers to use independent repair shops to take advantage of their ability to repair.²³⁵ Indeed, the "anti-trafficking" provisions of § 1201 may be implicated once the broken machine is given to a repair shop, given that these shops are likely turning to instruction manuals provided by third parties online. Trafficking in anti-circumvention information is prohibited and the Copyright Office is not authorized to provide an exemption in this respect.²³⁶ While the 2018 exemptions are not restricted, by their terms, to individual consumers,²³⁷ the Copyright Office clarified that "[g]iven the legal uncertainty in this area, services electing to proceed with circumvention activity pursuant to the exemption do so at their peril."²³⁸ This limitation hampers consumers' ability to use the exemption, as many do not have the skill, time, or will to repair their own products. Part III.B discusses this issue further while examining the second circle of activities comprising the right to repair.

B. Repair Shops and the Diffusion of Repair Information

The second layer of the right to repair expands it in two different ways. First, it expands the identity of the persons entitled to repair—this layer encompasses not only consumers but also independent repair shops. Second, this layer broadens the scope of permitted activities—it includes not only repair itself but also advertising repair activities and the diffusion of repair information through any type of medium (for example, instructional videos on YouTube or instructional manuals on websites).

Admittedly, expanding the scope of the right to repair to include independent repair shops is not supported by some of the policy justifications discussed above—including the autonomy argument, the related personality

233. See Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 77 Fed. Reg. 65,260, 65,264–66 (Oct. 26, 2012) (describing the history and subsequent narrowing of the unlocking exemption). It took an act of Congress to overturn the denial of the exemption. See Unlocking Consumer Choice and Wireless Competition Act, Pub. L. No. 113-144, 128 Stat. 1751 (2014) (codified as amended at 17 U.S.C. § 1201 note (2012 & Supp. V 2018)).

234. See generally Aaron Perzanowski, *The Limits of Copyright Office Expertise*, 33 BERKELEY TECH. L.J. 733, 755–56 (2018) (explaining the origins of the triennial rulemaking process).

235. See U.S. COPYRIGHT OFFICE, *supra* note 14, at 222–25.

236. See *infra* notes 254–57 and accompanying text.

237. In fact, the 2018 regulation attempted to stay neutral and instead deleted the term "authorized owner" that was originally included in the previous exemptions as the entity able to take advantage of the exemptions. See U.S. COPYRIGHT OFFICE, *supra* note 14, at 225.

238. *Id.*

theory justification, and certain aspects associated with human flourishing discussed under the utilitarian account.²³⁹ However, independent repair shops must be included in the scope of the right to repair if consumer autonomy in their choice of vendor is to be preserved.²⁴⁰ It is likely that most consumers would rather have their products fixed by professionals. Therefore, to promote the policy goals supporting a right to repair, independent repair shops must be allowed to conduct their business. In addition, enabling activity by independent repair shops has unique social benefits—most importantly, repair shops boost the economic vitality of the U.S. economy. According to some estimates, “repair jobs represent three percent of overall employment” in the country.²⁴¹

Once the right to repair is expanded to include consumers and repair shops, they should also be enabled to advertise their services and share repair information—as advertising and information sharing are essential to exercising the right to repair in a meaningful manner. Permitting these activities is not likely to have a significant detrimental effect on incentives to innovate as these activities do not cut into the primary market for any protected intellectual creations embodied in the product. In addition, similar to the core layer of repair activities, no active duty is imposed on the original manufacturers in this context. Therefore, ensuring that intellectual property rights do not interfere with these activities is justified. Interestingly, once again, the proposed model state legislation does not address these activities, despite the fact that, as with the core circle, intellectual property law—particularly copyright law and trademark law—could impose a roadblock to the full exercise of a right to repair in this domain.

1. Activity of Independent Repair Shops

Independent repair shops undertake a number of activities that make them vulnerable to intellectual property liability, beyond actual repair.²⁴² First, in advertising their services, many independent repair shops use the manufacturers’ trademarks. For example, many independent repair shops use the lowercase “i” to designate that they fix iPhones or other Apple products. Others, like iPad Rehab, use the trademark in the name of the business.²⁴³ Another advertising method is to use trademarks in business descriptions. If repair shops cannot use a brand’s trademark in advertising,

239. See *supra* note 182 and accompanying text.

240. If the only choice a consumer has is to have their product repaired by an authorized repair vendor, then their ability to make a fully free choice has been taken away by the manufacturers.

241. Wiens, *supra* note 5.

242. With respect to the repair itself, the discussion in Part III.A does not change much once we expand the privilege to repair patented products from the consumers themselves to repair shops.

243. See Koebler, *supra* note 9.

how would consumers know that they could bring their branded products to the independent repair shop?

If trademark law could be used to prevent this form of commercial speech, competition for repair services would be slim to none. Fortunately, trademark law already recognizes the need to carve out a space where trademarks are used by third parties to advertise, in order to combat potentially anticompetitive behavior by trademark owners.²⁴⁴ Courts have developed the doctrine of “nominative fair use,” under which third parties are able to utilize trademarks to the extent necessary to communicate information regarding their businesses to consumers.²⁴⁵ In *R. G. Smith v. Chanel, Inc.*,²⁴⁶ the Ninth Circuit case that originated this doctrine of nominative fair use, the defendant was found to have made noninfringing use of Chanel’s No. 5 mark.²⁴⁷ The defendant permissibly used the mark “Chanel No. 5” for a competitive need—to compare its product to that of Chanel’s.²⁴⁸ This nominative fair use doctrine has gained acceptance, and courts have held that using original manufacturers’ word marks in similar contexts—including by repair shops and parts resellers—is noninfringing.²⁴⁹

The problem remains, though, when manufacturers still attempt to enforce their trademarks in these situations.²⁵⁰ Independent repair shops, particularly small businesses or sole proprietorships, are likely to be similarly situated to consumers in terms of resources to fight back. Additionally, independent

244. See, e.g., *Toyota Motor Sales, U.S.A., Inc. v. Tabari*, 610 F.3d 1171, 1176–77 (9th Cir. 2010) (“Prohibition of such truthful and non-misleading speech does not advance the Lanham Act’s purpose of protecting consumers and preventing unfair competition; in fact, it undermines that rationale by frustrating honest communication between the Tabaris and their customers.”).

245. See Alexandra J. Roberts, *Trademark Failure to Function*, 104 IOWA L. REV. 1977, 1997 (2019) (describing the nominative fair use defense).

246. 402 F.2d 562 (9th Cir. 1968).

247. *Id.* at 563.

248. *Id.* at 568. (“As we have noted, the most effective way (and in some cases the only practical way) in which others may compete in satisfying the demand for the product is to produce it and tell the public they have done so, and if they could be barred from this effort appellees would have found a way to acquire a practical monopoly in the unpatented product to which they are not legally entitled.”). As an additional layer, Smith had only used the “word” mark of the Chanel trademark and not the stylized mark, which a later Ninth Circuit opinion would hold is valuable in the analysis as to whether the defendant is only using as much of plaintiff’s mark as is necessary. See *New Kids on the Block v. News Am. Publ’g, Inc.*, 971 F.2d 302, 308 (9th Cir. 1992) (“Both *The Star* and *USA Today* reference the New Kids only to the extent necessary to identify them as the subject of the polls; they do not use the New Kids’ distinctive logo or anything else that isn’t needed to make the announcements intelligible to readers.”).

249. See, e.g., *Toyota Motor Sales*, 610 F.3d at 1176–77 (holding that Toyota is not entitled to a wholesale injunction against a broker of genuine Lexus cars).

250. See Susan Frohling, *OEM Trademarks in the Aftermarket: Exploring the Boundaries*, IPWATCHDOG (Sept. 19, 2018), <https://www.ipwatchdog.com/2018/09/19/oem-trademarks-aftermarket-exploring-boundaries/id=101163/> [https://perma.cc/6QPA-M5ZW] (discussing such cases where manufacturers attempted to enforce their trademarks). In addition, there is a split among the circuits as to how the nominative fair use is utilized and whether some level of confusion is still allowed. See MCCARTHY, *supra* note 61, § 23:11.

repair shop owners would not always know that these types of claims are not grounded in current trademark law. Therefore, there is still a need for some type of legal clarity regarding the scope of trademark rights and the consequences for unfounded claims of infringement. Some relief might come in the form of a state law providing a cause of action to address “abusive threats” made by manufacturers.²⁵¹

Notably, where repair shops and resellers use the original manufacturer’s logo (or “stylized” mark), courts more readily find trademark infringement.²⁵² In today’s image-heavy world, an independent repair shop’s use of a manufacturer’s logo is likely essential for it to compete with authorized repair shops.²⁵³ Regardless, this issue is left aside for another day given that the use of the word marks is allowed, and it is questionable whether the *sole* use of logos is essential to effectively competing in the repair market.

2. Diffusion of Information

Another activity that repair shops and proponents of a right to repair undertake is the diffusion of information on how to repair, including how to disable security locks and reset them. Unfortunately, § 1201 of the DMCA acts as a roadblock in this context. Sections 1201(a)(2) and 1201(b) (the “anti-trafficking” provisions) prohibit the distribution of information about the ways to disable a digital lock.²⁵⁴ This prevents repair shops from posting content online and distributing information related to disabling digital locks. In addition, distributors are exposed to criminal liability if they distribute the information willfully and for commercial gain.²⁵⁵ In its announcement of the § 1201 exemptions, the Copyright Office was explicit that it was not authorized to provide any exemptions from § 1201(a)(2) or § 1201(b).²⁵⁶ This means that even to the extent consumers or independent repair shops are permitted to undertake repairs, they are often not allowed to share information on how to do so.²⁵⁷

251. See Grinvald, *supra* note 195, at 449.

252. See, e.g., *Hypertherm, Inc. v. Precision Prods., Inc.*, 832 F.2d 697, 701 (1st Cir. 1987) (upholding an injunction in part on the defendant’s use of plaintiff’s trade dress).

253. Another issue is whether a repair shop or other e-recycler can utilize the trademark on the repaired product. For the most part, trademark law recognizes the right to use the original trademark in these instances, up until the point where the product is so extensively reconditioned that it is materially different from the original product. See, e.g., *Nitro Leisure Prods., L.L.C. v. Acushnet Co.*, 341 F.3d 1356, 1360–64, 1367 (Fed. Cir. 2003) (explaining the “material difference” test).

254. 17 U.S.C. § 1201(a)(2), (b) (2012).

255. See *id.* § 1204.

256. U.S. COPYRIGHT OFFICE, *supra* note 14, at 5 (“The anti-trafficking provisions provide vital protections to copyright owners, and Congress did not authorize the Librarian to grant exemptions from them.”).

257. Wiens, *supra* note 5.

The Copyright Office recognizes this significant concern.²⁵⁸ But Congress is the only body of government that could revise the law to provide for an exemption from the DMCA anti-trafficking provisions that would cover the activity of independent repair shops even if they use online manuals.²⁵⁹ Such legislation has been introduced in the past, and the repair movement's goal is to create momentum to enact it in the future.²⁶⁰ This Article's thesis supports this direction.

Notably, § 107 of the Copyright Act (the "fair use" provision) recognizes that there are certain uses of copyrighted works that should be considered noninfringing.²⁶¹ The diffusion of information regarding repairs, even if it incorporates copyrighted material (for example, software code) may constitute fair use—provided that it does not relate to the disabling of a digital lock. The fair use provision may assist companies like iFixit, that routinely create their own instructional videos showing how to fix the hardware of electronic products, to continue making such videos available to the public.²⁶² The problem for smaller independent repair shops or individuals that may wish to act similarly is that relying on fair use provides cold comfort as manufacturers can still claim that the distribution of copyrighted materials does not qualify as fair use. This concern is heightened by the uncertainty involved in fair use determinations.²⁶³ As mentioned above, these claims typically come in the form of cease-and-desist letters.²⁶⁴ If repair shops or individuals receiving such a letter decide neither to cease nor desist, they open themselves up to expensive and lengthy litigation. Therefore, unless

258. U.S. COPYRIGHT OFFICE, *supra* note 14, at 5 ("In this proceeding, proponents of the vehicle repair exemption again request provision for third-party assistance, arguing that limiting the exemption to individual owners threatens to render it effectively meaningless for those who lack the technical knowledge to access and manipulate increasingly complex embedded computer systems. The Acting Register is sympathetic to these concerns and has attempted to draft the exemption language in a manner that accommodates such assistance to the extent it does not implicate the anti-trafficking provisions."). In addition, the Acting Register recommended removing the current exemption language requiring that circumvention be "undertaken by the authorized owner." *Id.* at 224. While the statutory language is far from clear, and the courts have yet to address this issue, there is at least a plausible argument that some forms of third-party assistance involving circumvention will not rise to the level of a prohibited "service" in all instances.

259. *See id.* at 5 ("The Office continues to believe that legislation permitting third-party assistance in appropriate circumstances would benefit stakeholders and provide valuable clarity to the overall statutory scheme.").

260. Wiens, *supra* note 5. The Act did not make it out of subcommittee. *See* Unlocking Technology Act of 2015, H.R. 1587, 114th Cong. (2015).

261. 17 U.S.C. § 107 (2012); *see also* *More Information on Fair Use*, U.S. COPYRIGHT OFF., <https://www.copyright.gov/fair-use/more-info.html> [<https://perma.cc/7NE5-BU9R>] (last visited Aug. 22, 2019).

262. *See Repair Guides*, IFIXIT, <http://www.ifixit.com/guide> [<https://perma.cc/ZNG2-ABS4>] (last visited Aug. 22, 2019).

263. *See, e.g.*, Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 U. PA. L. REV. 549, 575 (2008) (reporting that 30.4 percent of preliminary injunction decisions and 24.1 percent of bench trial opinions found in favor of fair use).

264. *See supra* note 11 and accompanying text.

action is taken at the federal level to provide a safe harbor from liability for diffusion of repair-related information,²⁶⁵ it is likely that the diffusion of such information will be limited and only undertaken by those who are less adverse to litigation.²⁶⁶

C. Enabling Competition in the Market for Replacement Parts

The third circle necessary for an effective right to repair regime is a right to make, import, sell, and use replacement parts in competition with the original equipment manufacturer. Repairing a product often entails the need to replace certain parts or components. Thus, consumers and independent repair shops must have access to replacement parts. Yet, without competition in the market for replacement parts, consumers and repair shop owners are entirely dependent on the supply of parts by the original manufacturer.²⁶⁷ If no such parts are available in the market, consumers have no choice but to have their products repaired by the original manufacturer or its authorized agents.²⁶⁸ Even if the original manufacturer supplies replacement parts in the market, monopolistic pricing of such parts on its behalf may result in consumers avoiding repairs altogether or using different replacement parts, if available. In the latter case, the desire to avoid paying the high costs of original parts may result in a lower-quality repaired product. Altogether, then, a right to repair can only be implemented effectively if original manufacturers do not control the markets for replacement parts. As further discussed below, opening the market for repair parts to competition is not likely to deprive original manufacturers of legitimate profits that are necessary to incentivize them to develop new products. Notably, with respect to this circle of activities as well, manufacturers are under no duty to perform any affirmative action.

265. See, e.g., PERZANOWSKI & SCHULTZ, *supra* note 175, at 176–77; Wiens, *supra* note 18.

266. See, e.g., *Universal City Studios, Inc. v. Corley*, 273 F.3d 429 (2d Cir. 2001). For example, iFixit hosts user-generated how-to guides, including those related to software. See, e.g., Aaron Cooke et al., *How to Install macOS Mojave on Unsupported Macs*, iFixIT, <https://www.ifixit.com/Guide/How+to+install+macOS+Mojave+on+Unsupported+Macs/115162> [<https://perma.cc/79BV-Z6G6>] (last visited Aug. 22, 2019).

267. For example, the car repair shops were in this situation prior to the 2014 nationwide memorandum of understanding. See Kyle Wiens, *You Gotta Fight for Your Right to Repair Your Car*, ATLANTIC (Feb. 13, 2014), <https://www.theatlantic.com/technology/archive/2014/02/you-gotta-fight-for-your-right-to-repair-your-car/283791/> [<https://perma.cc/K52R-WTV4>].

268. Interestingly, the growing availability of 3D printing technology may alleviate this concern to an extent: 3D printing of replacement parts by individuals may be hard to detect and not worth pursuing, thus avoiding effective enforcement by intellectual property owners. For discussion of 3D printing and intellectual property, see generally Deven R. Desai & Gerard N. Magliocca, *Patents, Meet Napster: 3D Printing and the Digitization of Things*, 102 GEO. L.J. 1691 (2014); Timothy R. Holbrook & Lucas S. Osborn, *Digital Patent Infringement in an Era of 3D Printing*, 48 U.C. DAVIS L. REV. 1319 (2015); Mark A. Lemley, *IP in a World Without Scarcity*, 90 N.Y.U. L. REV. 460 (2015).

Interestingly, this aspect as well is not addressed in the model legislation, which focuses on the duty of the original equipment manufacturer to make parts available on fair and reasonable terms. Yet, under the model legislation, an original equipment manufacturer is under no obligation to supply a part if such part is no longer available.²⁶⁹ Thus, at its unilateral discretion, the original manufacturer may stop supplying parts for a certain product—for instance, when the warranty for all units sold expires and later models are available. In such cases, the manufacturer's duty to supply parts under the proposed legislation would fade away. This reinforces the importance of enabling competition in markets for replacement parts. Unfortunately, manufacturers often resort to patent law or trademark law to forestall competitors from producing and selling competitive replacement parts. Both areas of law are addressed below.²⁷⁰

1. Patented Replacement Parts

Courts dealing with the patent exhaustion doctrine have clarified that repair may entail the replacement of spent elements and, yet, still be permissible.²⁷¹ However, a challenge arises when the replacement part itself is protected by a utility or design patent. Even though the sale of the product exhausts the rights of the patentee with respect to every patented part embedded in the product,²⁷² exhaustion does not permit the purchaser to make additional copies of patented items.²⁷³ Thus, when parts are protected

269. See *Model State Right-to-Repair Law*, *supra* note 21, § 3(a).

270. While copyright law could also be implicated by attempting to provide a space for competitive replacement parts, the concerns are more theoretical in nature and have not been raised in actual arguments.

271. In *Aro Manufacturing Co. v. Convertible Top Replacement Co.*, the defendant replaced the worn-out fabric of the patentable convertible top on his car and the Supreme Court classified it as a permissible repair. 365 U.S. 336, 345–46 (1961); see Sarnoff, *supra* note 30, at 3 (“The consumer repair right [under the patent exhaustion doctrine] is very broad. It includes restoring or rebuilding damaged original parts, as well as substituting new replacement parts.”).

272. While the exhaustion doctrine has been developed in the context of utility patents, it is most likely applicable to the exact same extent with respect to design patents as well. 35 U.S.C. § 171(b) (2012) clarifies that “[t]he provisions of this title relating to patents for inventions shall apply to patents for designs, except as otherwise provided.” Admittedly, § 171(b) refers to the provisions of the statute, whereas the doctrine of patent exhaustion is entirely judge-made. Yet, absent case law that provides otherwise, it is likely that such a major patent law doctrine that has been developed in cases dealing with utility patents is also applicable in the context of design patents. Most importantly, the policy considerations that underlie the exhaustion doctrine, including the desire to accommodate free use and alienability of patented goods released into the stream of commerce, are equally applicable in both contexts. For a recent case supporting this conclusion, see *Automotive Body Parts Ass’n v. Ford Global Technologies, LLC* for an explanation that “[t]here is no case dividing patent law this way—i.e., creating separate exhaustion doctrines for utility and design patents.” 293 F. Supp. 3d 690, 706 (E.D. Mich. 2018), *aff’d*, 930 F.3d 1314 (Fed. Cir. 2019).

273. See, e.g., *Bowman v. Monsanto Co.*, 569 U.S. 278, 284 (2013) (clarifying that “the doctrine restricts the patentee’s rights only as to the ‘particular article’ sold, it leaves untouched the patentee’s ability to prevent a buyer from making new copies of the patented

by patents and they need to be replaced in the course of repair, it is only the patent holder who can make and supply those parts.²⁷⁴ Registration of a patent over a part of a product could, thus, be used to circumvent the application of the exhaustion doctrine that would otherwise sanction repair of the product.²⁷⁵

Unfortunately, this is not a mere theoretical concern. In recent decades, the U.S. Patent and Trademark Office (PTO) has increasingly granted design patents to original equipment manufacturers for components of their products.²⁷⁶ This practice has risen since 1980, following *In re Zahn*,²⁷⁷ in which the Court of Customs and Patent Appeals held that even fragments of parts of products can be protected by design patents.²⁷⁸ Design patents are not only granted—they are also successfully asserted in litigation. This practice has attracted criticism in connection with motor vehicles, where replacement parts (such as doors, headlights, bumpers, etc.) are often needed to repair a car that was damaged in a collision.²⁷⁹ The growth in registrations of such partial-product exterior design patents has accelerated since 2005.²⁸⁰ In response to this, a bipartisan group of lawmakers introduced the Promoting Automotive Repair, Trade, and Sales Act of 2017 (PARTS Act) in

item” (citation omitted)); *see also* Julie E. Cohen & Mark A. Lemley, *Patent Scope and Innovation in the Software Industry*, 89 CALIF. L. REV. 1, 31 (2001) (“The patentee retains the rights to prevent anyone else, including the buyer, from making, using, or selling additional copies of the patented item.”); Rinehart, *supra* note 119, at 484 n.4 (“Under current law, the patent owner retains his right to exclude purchasers of the articles from making the patented invention anew.”).

274. One of the arguments brought up in *Automotive Body Parts Ass’n* was that design patents over components of a larger product are exhausted upon the first authorized sale of such a product. 293 F. Supp. 3d. at 694. The court rejected this argument while refusing to formulate a special exhaustion doctrine in design law that would be different than the one employed in the context of utility patents. *Id.*

275. *See* Sarnoff, *supra* note 30, at 1–2 (“Partial-product and fragment design patents effectively override the exhaustion doctrine They do so by prohibiting refurbishment or new manufacture of parts that would be used to repair the overall products”).

276. *See id.* (noting the growing practice of granting partial-product design patents for repair parts to original equipment manufacturers).

277. 617 F.2d 261 (C.C.P.A. 1980).

278. *Id.* at 268; *see* Sarnoff, *supra* note 30, at 11 (noting that the Court of Customs and Patent Appeals “revised the common and widespread understanding that design patents were limited to the entire appearance of entire products”).

279. *See, e.g.*, Sarnoff, *supra* note 30, at 4 (noting that the practice of granting and asserting partial product design patents “effectively overrides” the right to repair pursuant to the exhaustion doctrine); Dennis Crouch, *Design Patents and Repair Parts*, PATENTLY-O (Mar. 22, 2010), <https://patentlyo.com/patent/2010/03/design-patents-and-repair-parts.html> [<https://perma.cc/Rf44-ZRfK>] (noting that “many automobile body parts are protected through design patent” and “[t]his allows the original manufacturers control over the repair-parts market as well”). Surely, design patents for small parts of larger products were registered and asserted in other industries as well. For examples, *see* Sarah Burstein, *Costly Designs*, 77 OHIO ST. L.J. 107, 123 n.95 (2016).

280. KEEP AUTO PARTS AFFORDABLE, <http://www.KeepAutoPartsAffordable.org/> [<https://perma.cc/6GBY-Q7S6>] (last visited Aug. 22, 2019) (portraying a graph showing a significant increase in the number of design patents on collision repair parts from 2005 to 2015).

Congress.²⁸¹ The PARTS Act would create a narrow exception from design patent infringement for collision repair parts for cars.²⁸² Under the proposed legislation, while limiting the possibility of enforcing partial-product design patents against independent suppliers of parts or parties who use those parts for legitimate repairs, the patent owner could still assert the patent against competitors who incorporate the design into their own cars.

This Article supports that proposed legislation. Such an exception from patent infringement could also be useful in connection with other types of products, including electronics. While competition in the market for replacement parts is considered vital in the car industry, it should be reinforced in nonautomotive replacement parts markets too.

An alternative course of action is to avoid granting patents for repair parts at all. This measure, which may seem more radical than an exception from infringement liability, could actually be implemented without the need to amend the Patent Act. Two arguments could be made under the current statutory scheme to support the exclusion of partial-product design patents.²⁸³ The first argument is that designs of partial products do not qualify as subject matter protected under the Patent Act. Pursuant to 35 U.S.C. § 171(a), patent protection can only be awarded to a “design for an article of manufacture.”²⁸⁴ Arguably, a component of a larger product, which is never sold to be used by itself and whose only value is for restoring the original appearance of such larger product, should not be considered an “article of manufacture” for purposes of the Act.²⁸⁵

281. S. 812, 115th Cong. (2017); H.R. 1879, 115th Cong. (2017). Similar legislation was introduced in the 114th Congress. S. 560, 114th Cong. (2015); H.R. 1057, 114th Cong. (2015); see also KEEP AUTO PARTS AFFORDABLE, *supra* note 280.

282. The bill proposes to reduce the period during which car companies can enforce their design patents against sellers or users of such parts from fifteen years to thirty months from the date the car is first placed on the market. Alternative suppliers could manufacture, test, and import such components for legitimate repairs even during such thirty-month period without it being considered infringing. S. 812, 115th Cong. § 2 (2017); H.R. 1879, 115th Cong. § 2 (2017).

283. See generally Sarnoff, *supra* note 30, at 4–5 (arguing that Congress has never authorized such patents).

284. 35 U.S.C. § 171(a) (2012).

285. See Sarnoff, *supra* note 30, at 1, 5 (noting that Congress has authorized design patents only for the overall appearance of “articles of manufacture” and not for parts of such articles, and explaining that “[t]his is because ornamental designs for functional products are perceived in their entirety as part of the overall functional products that they help to form”); see also Sarah Burstein, *The Patented Design*, 83 TENN. L. REV. 161, 208 (2015) (noting that the patented design should be conceptualized as the design as applied to a particular type of product, while defining product as “something sold by an enterprise to its customers”). While parts could be sold in the marketplace separately from the entire products they comprise, if this is only done when needed to repair the larger product, such parts should not be considered “articles of manufacture.”

The second argument could be that the design of a partial product is not ornamental, as is required by the Act.²⁸⁶ This is clearly the case when it comes to designs for internal parts of a product, which no one buys for their appearance.²⁸⁷ Yet, this can also be true with respect to exterior parts. The claim that partial-product designs lack ornamentality was recently made by the Automotive Body Part Association (ABPA) in litigation against Ford.²⁸⁸ The Eastern District of Michigan rejected this claim.²⁸⁹ The ABPA argued that when a car is damaged, its owner simply wants parts that would restore the car to its original look.²⁹⁰ As consumers that seek to repair their vehicles do not select parts for their design, the design is not a “matter of concern” and does not deserve patent protection.²⁹¹ The court rejected this argument, noting that the “matter of concern” inquiry is not necessarily constrained to the perspective of a vehicle owner at the time that she is buying a replacement part—as opposed to the time she initially buys the car.²⁹² The ABPA also argued that, as part of the ornamentality requirement, a design for an article of manufacture could not be solely dictated by the function of the article; yet designs of body parts are dictated by the need to both physically fit onto the car and match its overall aesthetic.²⁹³ The court rejected this argument as well and refused to import the aesthetic-functionality doctrine from trademark law to design law.²⁹⁴

The court may have been too quick in rejecting the ABPA’s non-ornamentality claim. A detailed analysis of the arguments made in this litigation exceeds the scope of this Article, but two interrelated observations are in order. First, the fact that parts are not sold as separate items in the market other than for purposes of repair seems to be a relevant factor in the inquiry, and the court may not have accorded it sufficient weight. Second, it is not clear that, in interpreting the law, the court gave sufficient attention to

286. The requirement that a design would be ornamental is stated in 35 U.S.C. § 171(a): “[w]hoever invents any new, original and ornamental design for an article of manufacture may obtain a patent therefor, subject to the conditions and requirements of this title.”

287. See Burstein, *supra* note 279, at 135 (“No one buys a tractor because of the appearance of its internal gears.”).

288. *Auto. Body Parts Ass’n v. Ford Glob. Techs., LLC*, 293 F. Supp. 3d 690, 699, 701 (E.D. Mich. 2018), *aff’d*, 930 F.3d 1314 (Fed. Cir. 2019). An alternative argument raised by the ABPA was that the patents in question are “unenforceable . . . because the patent rights are exhausted upon the first authorized sale of the vehicle.” *Id.* at 694. This argument was rejected by the court for reasons explored above. See *supra* notes 272–75 and accompanying text.

289. *Auto. Body Parts Ass’n*, 293 F. Supp. 3d at 699.

290. *Id.*

291. *Id.*

292. *Id.* at 699–701.

293. *Id.* at 701; *cf.* Registered Designs Act 1949, 12, 13 & 14 Geo. 6 c. 88 § 7 (Eng.) (providing that the right in a registered design of a component part which may be used for the purpose of the repair of a complex product so as to restore its original appearance is not infringed by the use for that purpose of any design protected by the registration).

294. *Auto. Body Parts Ass’n*, 293 F. Supp. 3d at 702. The claim that the designs are dictated by their need to physically fit the car was rejected on a factual basis, as there is a pool of available designs that could fit. *Id.* at 703.

underlying policy considerations. In addition to the policy arguments made above in support of competition in markets for repair parts, patent protection for repair parts does not promote the decorative arts or provide other public benefits. The original manufacturers have a strong incentive to develop new designs for their products in order to induce buyers to choose them over the alternatives at the purchase stage.²⁹⁵ Moreover, once a design for a product is disclosed to the public, so too is the design of each one of its parts.²⁹⁶ Altogether, then, independent design protection for parts, on top of the protection for the design of the entire product, “provides nothing more to the public—it merely provides a windfall to the [product]’s manufacturer.”²⁹⁷ Such protection, which results in increased prices and insurance premiums, comes at the expense of consumers, who have already paid “patented prices” when they purchased their original products.²⁹⁸

2. Trademark Law Implications

Like their overuse of patent law, manufacturers have also overused trademark law to protect replacement parts, which can have similarly stifling effects on competition for such parts or for repair services. This occurs where manufacturers obtain trademarks on parts themselves, such as grilles on the front of vehicles.²⁹⁹ Another use of trademark law to stifle competition in the repair market is the practice of claiming that refurbished replacement parts are counterfeits when they are actually authentic parts.³⁰⁰

a. Repair Parts as Registered Trademarks

In the instances where manufacturers have obtained trademarks on parts of products, this Article makes a simple recommendation: do not grant the trademark.³⁰¹ In order to be registered as trademarks, product parts require evidence that consumers view the product part as a source indicator (and not

295. See Sarnoff, *supra* note 30, at 20 (“[P]atent law provides its incentives to produce improved designs, through the *first* sale of the *entire* purchased product that embodies a partial-product or fragment design patent.”).

296. See Burstein, *supra* note 279, at 137 (demonstrating this with respect to a car design, which once disclosed to the public, also discloses the design of the car’s fender).

297. See *id.* (noting that design patents for repair parts are undoubtedly valuable to their owners but have low or negative social value).

298. See Sarnoff, *supra* note 30, at 1, 3.

299. See, e.g., The mark consists of a configuration of a vehicle grille, Registration No. 3,453,754 (Ford Motor Company registration for the design of an automobile grille); The mark consists of a configuration of a vehicle taillight design, Registration No. 3,440,628 (Volvo Car Corporation registration for the design of car taillights) (cancelled due to lack of renewal).

300. Koebler, *supra* note 56.

301. This Article is not suggesting a full exemption of car parts from trademark protection but rather a more circumspect examination of such trademarks.

simply a car part).³⁰² Based on a review of PTO actions for Ford's grille design and Volvo's back taillight design, trademark examiners appear to be skeptical of claims of product parts' distinctiveness as trademarks and their lack of functionality.³⁰³ As the document files of these two trademark registrations indicate, the trademark examiners initially rejected the applications.³⁰⁴ In both instances, however, the trademarks were eventually granted after a lengthy back-and-forth between the manufacturers and the trademark examiners.³⁰⁵ While it is unclear how often the manufacturers enforce their registered parts trademarks against makers of compatible products, it is clear that some are doing so.³⁰⁶ If successful, manufacturers can claim exclusivity over a replacement part for as long as the manufacturer continues to use the part because trademark rights exist indefinitely as long as the parts are used in commerce.³⁰⁷ Further, having a registered trademark assists the manufacturers in keeping competitive look-alike parts from entering the country with the help of the U.S. Customs and Border Protection (CBP) as discussed next.

b. Claiming That Parts Are Counterfeit Goods

Manufacturers use trademark law to prevent the importation of replacement parts that contain manufacturers' trademarks or appear similar to the part that is registered as a trademark. In these instances, it is the government that is enforcing the trademark on behalf of the manufacturers, but it is no less problematic for the repair industry. For example, the CBP routinely seizes replacement parts manufactured by LKQ Corporation, an

302. In trademark law parlance, this is called "acquired distinctiveness." Product configurations fall into the category of requiring proof of acquired distinctiveness. *See* Wal-Mart Stores, Inc. v. Samara Bros. 529 U.S. 205, 211 (2000).

303. *See* The mark consists of a configuration of a vehicle grille, U.S. Trademark Application Serial No. 78/759,403 (filed Nov. 22, 2005), Office Action Outgoing, June 1, 2006, <http://tsdr.uspto.gov/documentviewer?caseId=sn78759403&docId=OOA20060601142531#docIndex=22&page=1> [<https://perma.cc/TQ34-FLTA>] (denying trademark registration because Ford's proposed mark is not inherently distinctive); The mark consists of a configuration of a vehicle taillight design, U.S. Trademark Application Serial No. 78/759,251 (filed Nov. 22, 2005), Office Action Outgoing, May 26, 2006, <http://tsdr.uspto.gov/documentviewer?caseId=sn78759251&docId=OOA2006052622322#docIndex=18&page=1> [<https://perma.cc/8SZQ-K6N9>] (denying Volvo's trademark application because the mark appears to be functional).

304. *See* The mark consists of a configuration of a vehicle grille, Registration No. 3,453,754; The mark consists of a configuration of a vehicle taillight design, Registration No. 3,440,628.

305. *See* The mark consists of a configuration of a vehicle grille, Registration No. 3,453,754; The mark consists of a configuration of a vehicle taillight design, Registration No. 3,440,628.

306. *See, e.g.,* Chrysler Corp. v. Vanzant, 44 F. Supp. 2d 1062, 1071–72 (C.D. Cal. 1999).

307. *See* BARTON BEEBE, TRADEMARK LAW: AN OPEN-SOURCE CASEBOOK 282 (6th ed. 2018) ("The registration may be renewed indefinitely provided that the registrant complies with the requirements of Lanham Act §§ 8 & 9, 15 U.S.C. §§ 1058 & 1059.").

automobile parts supplier, on the basis that the parts are “counterfeit.”³⁰⁸ LKQ manufactures replacement parts that look like those of Ford, Honda, and other car manufacturers. Some of these parts also happen to be registered as trademarks, which provides the CBP the authority to detain the imports.³⁰⁹ LKQ recently filed a lawsuit against the Department of Homeland Security (the department that oversees the CBP), arguing that these seizures, which negatively impact its business, were made on an incorrect application of trademark law.³¹⁰ LKQ argued that the CBP detained shipments that were not counterfeit even though the original manufacturers claimed that they were.³¹¹ Unfortunately, LKQ’s suit was eventually dismissed, in part based on a lack of jurisdiction by the federal district court.³¹²

The CBP has also detained and seized refurbished replacement products imported into the United States by independent repair shops on the grounds that they are counterfeit.³¹³ However, refurbished replacement parts or products are generally not considered counterfeit, as they are goods that have been previously sold and then repaired to extend their utility.³¹⁴ The Supreme Court has held that refurbished parts or products, to the extent that they do not mislead consumers into thinking they are new and original, are acceptable uses of another’s trademark.³¹⁵

This has not stopped the CBP from detaining such products at the border. And even after such seizures occur, the manufacturers are seemingly not educating the CBP that the seized products are not counterfeit.³¹⁶ In these instances, if manufacturers were not granted registered trademarks on product parts, the CBP would likely not seize similar-looking imported parts (at least when they do not bear some other trademark).³¹⁷ In any event, a practical approach to resolving this particular issue, as long as such

308. See *LKQ Corp. v. U.S. Dep’t of Homeland Sec.*, 369 F. Supp. 3d 577, 587 (D. Del. 2019) (listing the plaintiff’s allegations).

309. See, e.g., The mark consists of a configuration of a vehicle grille, Registration No. 3,453,754; The mark consists of a configuration of a vehicle taillight design, Registration No. 3,440,628.

310. Tiffany Hu, *Auto Parts Supplier Sues CBP for Seizing “Lawful” Parts*, LAW360 (Feb. 8, 2018, 3:31 PM), <https://www.law360.com/articles/1010399/auto-parts-supplier-sues-cbp-for-seizing-lawful-parts> [<https://perma.cc/R9JR-UDPV>].

311. *LKQ Corp.*, 369 F. Supp. 3d at 582.

312. See *id.* at 580 (granting the motion to dismiss based on lack of jurisdiction and failure to state a claim).

313. See Koebler, *supra* note 9.

314. See *Nitro Leisure Prods., L.L.C. v. Acushnet Co.*, 341 F.3d 1356, 1362 (Fed. Cir. 2003) (discussing the differences between new and refurbished goods: “[t]here is an understanding on the part of consumers of used or refurbished products that such products will be degraded or will show signs of wear and tear and will not measure up to or perform at the same level as if new”).

315. *Champion Spark Plug Co. v. Sanders*, 331 U.S. 125, 129 (1947).

316. See Koebler, *supra* note 9 (citing a CBP public affairs officer who related that the normal process after an initial detention by the CBP is to check with the trademark owners to confirm whether the goods are counterfeit); see also *LKQ Corp.*, 369 F. Supp. 3d at 587.

317. See Leah Chan Grinvald, *Resolving the IP Disconnect for Small Businesses*, 95 MARQ. L. REV. 1491, 1543–47 (2012).

trademarks are being registered, could perhaps be for CBP officers to demand that manufacturers provide more concrete evidence that refurbished products are infringing—either that they are materially different and are likely to cause confusion or that they are counterfeit.³¹⁸ The burden should be on the manufacturer to make a compelling case, not on the importer.³¹⁹

D. Mandating Disclosure of Repair Information and Supply of Replacement Parts

The fourth circle deals with certain affirmative duties that should be placed on original manufacturers in order to ensure an effective implementation of the right to repair. This is perhaps the most controversial component of the right to repair and is the focus of the model state legislation. Under section 3(a) of the proposed model legislation, “an original equipment manufacturer shall make available, for purposes of diagnosis, maintenance, or repair . . . on fair and reasonable terms, documentation, parts, and tools, inclusive of any updates to information or embedded software.”³²⁰ The reason that this provision might be controversial is that it mandates affirmative action on the part of manufacturers that could run counter to their intellectual property rights. The question is whether the proposed legislation, even if it passes, is sufficient without a provision for these legal measures in intellectual property law as well. This section will examine this question—first, with respect to replacement parts and then with respect to repair information.

1. Replacement Parts

To the extent that the measures proposed in Part III.C are not implemented in full—i.e., repair parts are not excluded from patent or trademark protection and there is no applicable exemption from infringement liability—there is a risk that the supply of parts by the manufacturer would be insufficient to meet demand and the parts that are supplied would not be offered at competitive prices. This is where the proposal included in the model state legislation becomes relevant. As noted above, the proposed bill would impose a duty on original manufacturers to make parts available on fair and reasonable terms, so long as such parts are available.³²¹ Notably, this proposal is drafted broadly, without regard to whether the parts are protected by patents or trademarks. Perhaps it could be limited to parts that are subject to patent or

318. Emails filed in the LKQ lawsuit show that some manufacturers provide little more than conclusive statements as to the counterfeit nature of the imported products. *See* Marquez Exhibit 1, LKQ Corp. v. U.S. Dep’t of Homeland Sec., 369 F. Supp. 3d 577 (D. Del. 2019) (1:18-cv-00225-GMS), ECF No. 11-1.

319. Of course, if such a proposal were adopted, the details of this would need to be further thought through, for example, to ensure that counterfeiters could not easily abuse this exemption.

320. *Model State Right-to-Repair Law*, *supra* note 21, § 3(a).

321. *Id.* (“Nothing in this section requires an original equipment manufacturer to make available a part if the part is no longer available to the original equipment manufacturer.”).

trademark protection, provided that in other cases independent suppliers would have sufficient information to manufacture parts on their own.

However, mandating supply of patented parts may be in direct conflict with the basic notions of patent law. As the Supreme Court held in *Continental Paper Bag Co. v. Eastern Paper Bag Co.*,³²² excluding others is the essence of the patent, and the patent holder is not required to license its invention to others, even if it does not practice the invention on its own.³²³ Thus, even if the duty to supply parts would be construed broadly—as allowing the patentee to license others to make and sell parts, rather than necessarily doing it all on its own—such duty does not align with the privilege that the patentee has under patent law to determine the extent to which it wishes to work its invention.³²⁴

This direct conflict between the proposed state legislation and patent policy may pose a difficulty in passing the legislation. Furthermore, even if the legislation passes in some states, it could be subject a constitutional challenge under the federal preemption doctrine.³²⁵ However, as noted above, California state law already requires manufacturers to provide such parts in certain circumstances (albeit interpreted narrowly by the Ninth Circuit to mean that such parts are required to be provided only to authorized repair networks).³²⁶

Another route to ensure supply of patented parts is through compulsory licenses. However, the United States has been, for many years, a vigorous opponent of compulsory licenses in patent law.³²⁷ This is not likely to change

322. 210 U.S. 405 (1908).

323. *Id.* at 425; *see also* 35 U.S.C. § 271(d) (2012) (instructing the courts not to deny infringement remedies to a patentee for a refusal “to license or use any rights to the patent”).

324. A patentee’s refusal to sell or license could nevertheless count as an antitrust violation in certain circumstances. *See, e.g.,* *Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195 (9th Cir. 1997) (finding that Kodak’s refusal to sell replacement parts to independent service organizations constitutes an illegal attempt to monopolize the market for service of Kodak photocopiers). Most importantly, in an earlier round of the litigation, the Supreme Court held that even though an equipment manufacturer lacked significant market power for its equipment, it could have sufficient market power in the secondary market for repair parts to be liable under the antitrust laws for its anticompetitive conduct in the aftermarket. *See Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 465–71 (1992). In his dissent, Justice Antonin Scalia reasoned that once customers are committed to the particular brand by having purchased a product, they are “locked in” and no longer have any realistic alternative to turn to for repair parts. *Id.* at 496 (Scalia, J., dissenting). *But see generally In re Indep. Serv. Orgs. Antitrust Litig.*, 203 F.3d 1322 (Fed. Cir. 2000) (rejecting the imposition of antitrust liability on Xerox for refusing to sell patented parts and license patented and copyrighted software to independent service organizers that compete with Xerox in the aftermarket); *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147 (1st Cir. 1994) (declining to impose antitrust liability on a computer manufacturer for its refusal to license its diagnostic software to third-party maintenance providers).

325. *See supra* notes 107–10 and accompanying text.

326. *See* CAL. CIV. CODE § 1793.03 (West 2019); *Bahr v. Canon U.S.A., Inc.*, 656 F. App’x 276, 277 (9th Cir. 2016).

327. *See Dawson Chem. Co. v. Rohm & Haas Co.*, 448 U.S. 176, 215 n.21 (1980) (noting that “[c]ompulsory licensing of patents often has been proposed, but it has never been enacted

in the near future and, thus, the prospect of implementing this measure is rather slim. At the very least, courts should exercise their discretion under *eBay Inc. v. MercExchange, L.L.C.*³²⁸ to avoid granting injunctions in infringement actions against alternative parts providers or users.

In contrast to patent law, trademark law requires the manufacturer to continue using the mark in commerce if the replacement part is to remain protected by a trademark.³²⁹ This means that the manufacturer is required to make the products that include the part or else the manufacturer will lose the trademark.³³⁰ If the manufacturer continues to produce trademarked parts, then state legislation could be quite helpful to compel manufacturers, on anticompetitive and consumer protection grounds, to make their parts available to independent repair shops and consumers on a reasonable basis.³³¹

2. Information

The federal and state governments mandate disclosure of information on a routine basis, particularly where there are concerns of anticompetitive or deceptive practices—or on the grounds of consumer protection. For example, securities law mandates the disclosure of certain information when offering any type of investment to the public.³³² Another example that is more relevant to the model right to repair legislation is the Massachusetts Automotive Repair Law,³³³ which requires all motor vehicle manufacturers who sell cars in the state to provide the same diagnostic and repair

on a broad scale”); WILLIAM CORNISH & DAVID LLEWELYN, *INTELLECTUAL PROPERTY: PATENTS, COPYRIGHT, TRADE MARKS AND ALLIED RIGHTS* 296 (6th ed. 2007) (noting the hostility of the United States with respect to compulsory licensing); John H. Barton, *Patents and Antitrust: A Rethinking in Light of Patent Breadth and Sequential Innovation*, 65 ANTITRUST L.J. 449, 458 (1997) (noting that the idea of compulsory licensing is strongly opposed in the United States); Howard F. Chang, *Patent Scope, Antitrust Policy, and Cumulative Innovation*, 26 RAND J. ECON. 34, 43 n.18 (1995) (noting that compulsory licensing “remains disfavored in patent law”); Donna M. Gitter, *International Conflicts over Patenting Human DNA Sequences in the United States and the European Union: An Argument for Compulsory Licensing and a Fair-Use Exemption*, 76 N.Y.U. L. REV. 1623, 1681 (2001) (describing the “traditional antipathy in U.S. law toward any incursions on a patent holder’s monopoly”). Nevertheless, there are a few concrete compulsory license arrangements in various contexts—for example with respect to the exploitation of certain inventions in the field of atomic energy. See 42 U.S.C. § 2183 (2012).

328. 547 U.S. 388 (2006).

329. 15 U.S.C. § 1127 (2012).

330. *Id.*

331. *Cf.* MASS. GEN. LAWS ch. 93K (2019) (requiring car manufacturers to provide diagnostic repair information and tools for repair to independent repair facilities).

332. For an example, see *Updated Investor Bulletin: Crowdfunding for Investors*, U.S. SEC. & EXCHANGE COMMISSION (May 10, 2017), https://www.sec.gov/oiea/investor-alerts-bulletins/ib_crowdfunding.html [https://perma.cc/S2DX-HBM8].

333. GEN. ch. 93K § 2.

information to owners and independent repair shops (for a reasonable price).³³⁴

The biggest roadblock here, in terms of intellectual property law, is trade secret law. A trade secret is defined as information that: (1) its owner has taken reasonable steps to keep secret, and (2) derives an actual or potential independent economic value from being a secret.³³⁵ Trade secret law is unique in intellectual property law in that, until recently, trade secret protection relied solely on state law.³³⁶ In 2016, Congress enacted the Defend Trade Secrets Act³³⁷ (DTSA), but the legislation does not preempt or displace state law.³³⁸ This means that state-based definitions of a trade secret (either through legislation or through judicial interpretation) can continue to coexist with a federal definition.³³⁹

The implications of trade secret law are directly acknowledged by the model legislation in section 5(a), according to which: “[n]othing in this Act shall be construed to require an original equipment manufacturer to divulge a trade secret to an owner or an independent service provider except as necessary to provide documentation, parts, and tools on fair and reasonable terms.”³⁴⁰ The model legislation refers to the definition of “trade secret” in the applicable state legislation (or in its absence, to the federal definition). The language of section 5(a) appears to treat information that is related to diagnostics, maintenance, or repair as information that cannot be protected as trade secrets and, therefore, can be released to independent repair shops.

If states were to adopt this language, the law could be perceived as modifying trade secret law. It is unsurprising, then, that many of the proposed bills do not adopt this carve-out. Instead, they state: “[n]othing in this Act shall be construed to require an original equipment manufacturer to divulge a trade secret” (or similar language to this effect).³⁴¹ While the lack of a carve-out may make the proposed law more politically palatable, it does draw into question whether manufacturers can simply claim trade secret

334. *Id.*

335. See UNIF. TRADE SECRETS ACT § 1(4) (amended 1985), 14 U.L.A. 538 (2005); see also 18 U.S.C. § 1839(3) (2012).

336. Sharon K. Sandeen & Christopher B. Seaman, *Toward a Federal Jurisprudence of Trade Secret Law*, 32 BERKELEY TECH. L.J. 829, 833 (2017) (“The May 11, 2016 enactment of the DTSA created a federal civil cause of action for trade secret misappropriation for the first time. For over 175 years, state law governed civil trade secret principles in the U.S. . . .”).

337. Pub. L. No. 114-153, 130 Stat. 376 (2016) (codified as amended in scattered sections of 18, 28, and 34 U.S.C.).

338. See 18 U.S.C. § 1838 (Supp. 2018).

339. Sandeen & Seaman, *supra* note 336, at 905 (noting that on its face, the federal definition appears to be narrower in how it defines “information”).

340. *Model State Right-to-Repair Law*, *supra* note 21, § 5(a). The Massachusetts Automotive Repair Law also excludes from its reach that which manufacturers claim to be a trade secret. MASS. GEN. LAWS ch. 93K, § 3 (2019) (“Nothing in this chapter shall be construed to require a manufacturer to divulge a trade secret.”).

341. See, e.g., H.R. 1649, 29th Leg., Reg. Sess. § 8 (Haw. 2018); H.R. 3030, 100th Gen. Assemb., Reg. Sess. § 35 (Ill. 2017).

protection for all pertinent repair information. This would diminish the effectiveness of right to repair laws. While there have been no official claims of such occurrences under motor vehicle right to repair laws, such as the Massachusetts Automotive Repair Law, allegations of such actions and the potential for future actions have spurred conversations around amendments to the law in Massachusetts.³⁴²

Thus, even if states were successful in passing any such laws in the coming years, the absence of a carve-out for repair information as a trade secret could enable manufacturers to evade the legislation. Surely, to be classified as a “trade secret,” the information must meet the applicable statutory requirements, including that the owner has taken reasonable measures to keep the information secret.³⁴³ When information is readily shared with authorized dealers (and their repair personnel) all over the country, a plausible argument could be that the owner has not taken reasonable measures to protect the secrets.

Unfortunately, repair shops that do not have information supplied to them due to the manufacturers’ assertion of a trade secret exemption may not have the means to initiate litigation challenging this assertion. The straightforward way to resolve this would be to adopt the model legislation language regarding trade secrets or to delete the exemption for trade secrets altogether, as was proposed in California.³⁴⁴ If the language regarding trade secrets needs to remain as-is in order for states to pass the law, states could prevent the abuse of this loophole by imposing civil liabilities on manufacturers who knowingly violate the law. Thus, states might impose liability for manufacturers who falsely assert that certain information is protected as a trade secret.³⁴⁵ For example, the 2018 proposed repair law in California would have authorized city, county, and the state government to impose increasingly higher civil fines on a daily basis per infraction.³⁴⁶ Provisions

342. H.R. 293, 191st Gen. Court, 1st Sess. (Mass. 2019) (“An Act to enhance, update and protect the 2013 Motor Vehicle Right to Repair Law and Consumer Rights.”); Murphy, *supra* note 43.

343. See UNIF. TRADE SECRETS ACT § 1 (amended 1985), 14 U.L.A. 537 (2005).

344. Assemb. 2110, 2017–2018 Leg., Reg. Sess. (as introduced by California Assembly, Feb. 8, 2018).

345. Both the Defend Trade Secrets Act and the Uniform Trade Secrets Act (which has served as the basis for trade secrets legislation in many states) include remedies provisions that are designed to impose consequences for the wrongful assertion of trade secrets. See 18 U.S.C. § 1836(b)(3)(D) (2012) (awarding reasonable attorney’s fees); UNIF. TRADE SECRETS ACT § 3(b) (amended 1985), 14 U.L.A. 634 (2005) (awarding damages for “willful and malicious misappropriation”). On whether such provisions actually deter bad faith assertions of trade secrets, see Eric Goldman, *Court Benchslaps Trade Secret Plaintiff and Counsel for Bad Faith Litigation—RBC Bearings v. Caliber, TECH. & MARKETING L. BLOG* (Aug. 18, 2016), <https://blog.ericgoldman.org/archives/2016/08/court-benchslaps-trade-secret-plaintiff-and-counsel-for-bad-faith-litigation-rbc-bearings-v-caliber.htm> [https://perma.cc/EJ5L-YAUD].

346. Some other proposed bills also include civil penalties that range from \$500 to \$5000 per violation—but authorize only the state attorney general to take action. See H.R. 3030, 100th Gen. Assemb., Reg. Sess. (Ill. 2017); H.R. 2122, 2017–2018 Leg., Reg. Sess. (Kan.

like this one might increase the likelihood that manufacturers would comply with the law.

IV. POTENTIAL CRITICISM

Part IV addresses a few potential lines of criticism against this Article's proposal to stop intellectual property law from sabotaging a right to repair. Concerns regarding the quality of repair and an increase in counterfeiting or piracy are drawn directly from arguments made by opponents of the repair movement. This Article also addresses a potential criticism about the economic loss for the original manufacturers in the event of an effective right to repair regime. While opponents are likely driven by concerns about lower profits, opponents never directly address this argument—but this Article attempts to do so here.³⁴⁷

A. *Quality of Repair*

As part of their objection to the proposed right to repair legislation, original manufacturers expressed concern that the quality of repairs would be compromised if performed by consumers and independent repair shops.³⁴⁸ Hence, a potential criticism of this Article's thesis could be that strengthening the right to repair in the manners recommended herein would ultimately decrease the quality of repairs.

This concern is not substantiated because repairs under the proposed legislation would be made in a competitive market. Consumers would likely switch to alternative repair services, such as repair services offered by the original manufacturer or its authorized agents, if independent repair shops could not make quality repairs.³⁴⁹ Absent any concrete market failures, the invisible hand of the market can presumably be trusted in this context. In fact, opening repair markets for competition could result in the development of new repair tools and methods as well as in better diffusion of repair information, which could very well increase quality of independent repairs. It is likely that the more the original manufacturers support repair businesses rather than fighting them—for example, by offering replacement parts and repair manuals under fair and reasonable terms—the better the quality of repairs would be.

2017). As one of us has argued in a previous article, it may be difficult to obtain assistance from the state attorney general unless one is able to bring complaints from a large number of repair shops in that particular state. See Grinvald, *supra* note 195, at 448.

347. Andy Metzger, *Proposal Expands 'Right to Repair' Movement to Electronics in Mass.*, TELEGRAM.COM (Sept. 27, 2017, 10:41 AM), <https://www.telegram.com/news/20170927/proposal-expands-right-to-repair-movement-to-electronics-in-mass> [https://perma.cc/7FTC-SESL] (“They have a very strong economic interest in monopolizing repair . . .” (quoting Gay Gordon-Byrne, executive director of the Repair Association)).

348. See, e.g., Letter from Rick Habben to David Harris, *supra* note 46.

349. There are a number of resources consumers may use to ensure that they are using reputable, quality repair shops, including Better Business Bureau ratings and other consumer reviews.

In any event, even to the extent that the concern regarding the quality of repairs is valid, it does not mean that the right to repair should be curtailed. To a large extent, the manufacturers' argument in this context is paternalistic, and consumers should be allowed to choose "bad repairs" for lower prices over "good repairs" for higher prices.³⁵⁰ Original manufacturers can decrease the cost of their repair services to make them more attractive to consumers, or they can make authorized repair services more available. Inasmuch as repair of certain products implicates safety concerns—for instance, when the repairs are not made in a controlled environment—this can be addressed in the legislation itself, through tort law, or by direct regulation of the relevant practices.

B. Economic Loss for Manufacturers

Another criticism of the legislation and this Article's proposals could be that they would result in economic loss for the original equipment manufacturers, which would ultimately negatively impact their incentives to innovate and create new products for the benefit of society.

Maintaining control over the markets for repair services and replacement parts most likely serves the economic interests of original manufacturers, at least in the short run. Yet, we should not deviate from the principle of fair competition and simply grant manufacturers exclusive control over such markets. Absent a strong justification to deviate from society's default norm, competition must be preserved in repair and replacement parts markets. Such a justification does not seem to exist. In particular, there is no indication that manufacturers would not profit at a level that provides them sufficient incentive to invent and create new products absent control of the aftermarket for their goods.

Where the costs of research and development exceed the primary market profits for a specific product, perhaps such a product should never have been developed to begin with. In these cases, there is no justification to promote development of the product through the promise of rent-seeking in the aftermarket. In any event, costs of research and development should be reflected in the pricing of the product rather than recovered in other markets. Manufacturers should not be allowed to predatorily price their products low and their repair services and replacement parts high to recoup on the unnaturally low product price.³⁵¹

350. Clearly, though, consumers may not always get to decide on these matters. With respect to auto parts, for instance, insurance companies may play a large role in choosing the quality level of repairs.

351. See, e.g., *Predatory or Below-Cost Pricing*, FED. TRADE COMMISSION, <https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/single-firm-conduct/predatory-or-below-cost> [<https://perma.cc/5TTW-PC2Q>] (last visited Aug. 22, 2019) ("Consumers are harmed only if below-cost pricing allows a dominant competitor to knock its rivals out of the market and then raise prices to above-market levels for a substantial time."). To be sure, some companies may increase product prices to make up for lost revenues in the markets for repair and replacement parts. It is hard to predict the economic effects of

Notably, a business that makes efforts to facilitate repairs by its customers may actually experience a growth in business in the long run, inasmuch as the ability to repair a product is an important factor in consumers' market choices. As a side note, any decline in profits as a result of maintaining competition in the markets for repair services and replacement parts may push manufacturers to find other creative ways, which are simultaneously beneficial to society, to boost their profits. Finally, it is important to remember that the connection between the scope of intellectual property protection and the level of incentives provided by the system is not necessarily linear.³⁵² Thus, even though some of the proposals made in this Article may narrow the scope of certain intellectual property rights in limited contexts, this would not necessarily result in a corresponding decrease in incentives to innovate.

C. Increase in Counterfeiting or Theft of Intellectual Property

Another criticism of the repair legislation is that its enactment will enable an increase in counterfeiting or the theft of intellectual property. For example, in its letter to Illinois legislators, Wahl Clipper Corporation stated,

Our manufacturing location helps us protect our confidential information and provides a competitive advantage. If our competitors, who mainly make their clippers in Asia, obtained this confidential information because of [the proposed repair law], it would impact our ability to compete on a global scale and diminish an advantage of manufacturing in Illinois. . . . As you can see, [intellectual property] is a very critical issue for us.³⁵³

With respect to Wahl's specific assertion of the increased ability to steal its intellectual property, it is clear that Wahl is referring to its trade secrets in how it manufactures its clippers. As a point of fact, this type of trade secret is not contemplated as being within the ambit of the repair legislation as it is not related to repairing clippers. The idea that information relating to repair, along with parts and tools, would increase intellectual property theft is simply a scare tactic and part of the rhetoric that does not seem to have a basis in reality. While counterfeiting of all types of products is a reality, the repair information will not increase what is already happening.

Counterfeiters could use repair information to improve the quality of their counterfeits, as they will have access to a better understanding of how the products work. However, this too is unlikely to happen. Counterfeiters are

maintaining competition in those markets. Yet, absent clear evidence that control of such markets is vital for preserving an optimal level of incentives, one cannot defend the use of intellectual property rights to suppress competition in repairs.

352. See Michal Shur-Ofry, *IP and the Lens of Complexity*, 54 IDEA 55, 96 (2013) ("The expectations that each increase in the scope of IP will lead to a proportionate increase in the level of innovation; that each limitation of that scope will result in a corresponding decrease in innovation; or that we can promote external socially desired values simply by limiting or calibrating the scope of intellectual property protection—are unrealistic.").

353. Letter from Rick Habben to David Harris, *supra* note 46.

not interested in making high quality products.³⁵⁴ The business model of counterfeiting is premised on making products that are as minimally effective as necessary to deceive consumers.³⁵⁵ More investment is put into making sure the product mimics the look of the real thing than in making sure it functions like the real thing.³⁵⁶ This way, counterfeiters can maximize their return more effectively. In addition, counterfeiters decide which products to counterfeit based on the demand for such products by consumers. In Wahl's case, the company claims to own 60 percent of the market share for clippers.³⁵⁷ If Wahl experiences any increase in counterfeiting of its clippers, it is not due to releasing repair information but it is due instead to its clippers' apparent popularity.

There is a purpose behind this rhetoric, aside from scare tactics. If manufacturers, like Wahl, claim that there will be an increase in counterfeiting, this assists in their conversations with the CBP. The CBP is active in partnering with manufacturers and encourages continuous manufacturer involvement by providing information and training.³⁵⁸ This type of narrative regarding a correlation between increased repair information and an increase in counterfeits would give manufacturers an additional tool to strengthen the basis on which the CBP already aggressively detains and seizes replacement parts and other shipments.³⁵⁹

CONCLUSION

The right to repair movement has been steadily gaining ground over the last few years and it is the authors' hope that the momentum continues. This Article focuses on the interface between a right to repair and intellectual property rights. This Article's general thesis is that intellectual property law should not prevent a right to repair from being fully implemented in the United States. Indeed, the theoretical model developed in our Article

354. See Shane Hickey, *Whether You're Unaware or Don't Care, Counterfeit Goods Pose a Serious Threat*, GUARDIAN (Dec. 2, 2018, 3:00 PM), <https://www.theguardian.com/technology/2018/dec/02/whether-youre-unaware-or-dont-care-counterfeit-goods-pose-a-serious-threat> [<https://perma.cc/BJ8B-XFBT>] (describing counterfeit children's toys that contained high levels of toxic chemicals).

355. See Thorsten Staake, Frederic Thiesse & Elgar Fleisch, *Business Strategies in the Counterfeit Market*, 65 J. BUS. RES. 658, 661–62 (2012) (describing five groups of counterfeiters based on the types of counterfeit goods produced; four out of the five groups all created counterfeits of high visual quality—meaning they looked like the original product—but they had varying degrees of functional quality).

356. See *id.* at 663–64 (discussing the business strategies of each group of counterfeiters); see also Hickey, *supra* note 354 (relating anecdotes regarding substandard functioning of counterfeit products).

357. Letter from Rick Habben to David Harris, *supra* note 46.

358. See CBP, CBP PUB. NO. 0136–0311, INTELLECTUAL PROPERTY RIGHTS ENFORCEMENT: HOW BUSINESSES CAN PARTNER WITH CBP TO PROTECT THEIR RIGHTS 7, https://www.cbp.gov/sites/default/files/assets/documents/2017-Jan/ipr_guide.pdf [<https://perma.cc/44K2-9FDG>] (last modified on Jan. 31, 2018).

359. See *id.* at 2 (“CBP intercepts counterfeit and pirated goods that harm the U.S. economy and threaten the security, health, and safety of Americans.”).

supports a right to repair and leads to the conclusion that the implementation of such a right is fully consistent with intellectual property protection. In fact, it can be justified by the very same policy considerations that are often used to justify intellectual property rights. However, from a doctrinal point of view, this Article's analysis points out that the concept of a right to repair and the proposed state legislation that seeks to secure it are not accommodated by the United States' far-reaching intellectual property regime. This Article's framing of a right to repair in four concentric circles illustrates the specific areas where intellectual property law is implicated by—and may impede—a right to repair. This Article has attempted to design practical solutions to these potential hurdles, such as repair-friendly interpretations of patent and trademark law doctrines. For example, the courts could default in favor of repair in close cases of repair versus reconstruction. Another beneficial measure could be to prevent intellectual property owners from asserting design patents or trademarks over replacement parts against those who are using them for repair purposes. This Article also joins in the repair movement's push to fix the DMCA by removing the provisions prohibiting the circumvention of digital locks (and in particular, the provisions that make transmission of relevant repair information illegal). To supplement such reforms, this Article also recommends certain fine-tuning of the proposed state legislation. For instance, legislatures should include language voiding contract provisions that negate a consumer's right to repair her products. It is the authors' hope that all of this will assist in eliminating intellectual property law as a barrier to implementing a nationwide right to repair.