

HOW THE FEDERAL TRADE COMMISSION CAN USE SECTION 5 TO STRENGTHEN THE RIGHT TO REPAIR

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ABSTRACT

Consumers' right to repair their products is under attack. Manufacturers have decimated this long-held right by making parts unavailable, preventing products from working, and imposing software restrictions. Farmers can no longer repair tractors, medical professionals can't fix ventilators, and military officers are stuck with broken equipment. Although competition law would seem to be a natural fit to address this conduct, antitrust law has erected very high hurdles, especially on "*Kodak*" claims involving "aftermarket" service and parts.

This article offers a framework for the Federal Trade Commission (FTC) to challenge this behavior as an "unfair method of competition" under Section 5 of the FTC Act. While such an approach could be applied without limits, I propose modestly extending *Kodak* in a predictable manner consistent with the decision's rationale.

In particular, my application builds on the "gap filler" rationale introduced by Susan Creighton and Thomas Krattenmaker that applies when an element of an antitrust claim is not satisfied. I argue that courts' unwillingness to find market power is addressed by practical indicators like multiple manufacturers' restrictive terms, users' lack of knowledge, and time-sensitive uses, each of which has dramatically increased in the 30 years since *Kodak*.

A competition cause of action is needed because the harms suffered are as severe as any that have appeared in antitrust cases: a loss of lives in hospitals and on battlefields, and a loss of livelihoods for farmers unable to harvest crops. Such a case is buttressed by a lack of procompetitive justifications. Comprehensive inquiries by the FTC and U.S. Food and Drug Administration (FDA) have cast doubt on manufacturers' safety-based rationale. And Section 5's consideration of policy shows how their other primary justification—IP—is not convincing. In particular, an analysis of design patents, trade secrets, trademarks, and copyrights (including the DMCA) reveals how the incentives/access tradeoff strongly supports the latter.

Finally, my framework promises to bridge the divide between "neo-Brandeisians" and other antitrust scholars, as consumer interests overlap with those of workers, user innovators, and independent repair shops. Given repair restrictions' questionable justifications and severe effects on lives and livelihoods, a competition-based tool promises real benefits.

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I. INTRODUCTION

The right to repair products is critical in today’s society. Users need to fix tractors, ventilators, military equipment, and technological devices. With increasing frequency, however, they are not able to do so. Manufacturers have made it extremely difficult to repair products. They have made parts unavailable, prevented products from working, limited access to service

manuals, and relied on intellectual property (IP), software restrictions, and licenses.¹

There are many ways to address this problem. IP law allows defenses based on exhaustion, functionality, and reverse engineering. Anti-tying law prohibits manufacturers from conditioning warranties on using their services.² Competition law would seem to offer a natural antidote since repair restrictions limit a competitive marketplace. But it has not played the robust role that it could. The reason is that the primary instrument for effectuating competition—antitrust law—has erected very high hurdles in front of plaintiffs making right-to-repair claims. The “essential facility” doctrine is moribund in the courts, refusal-to-deal caselaw is not much better, and “tying” claims must satisfy several rigorous elements.

Even worse, the most relevant doctrine has been hamstrung. In *Eastman Kodak Company v. Image Technical Services*, the Supreme Court recognized that a manufacturer of equipment in a competitive “primary” market could have monopoly power in an “aftermarket” for service and parts.³ Why? Because customers might be “locked in” to the manufacturer’s product and therefore have high switching costs, weakening the significance of the primary market.⁴ This theory could be a natural fit for claims challenging a manufacturer’s repair restrictions. But in the years since *Kodak*, courts have significantly limited the ruling, often requiring a change in the service policy after purchase.

Even though courts have restricted antitrust law’s ability to address right-to-repair claims, there should be an available competition-based claim. Into this breach steps Section 5 of the Federal Trade Commission Act, which allows the Federal Trade Commission (FTC) to challenge “unfair methods of competition.”⁵ Section 5 can reach expansively to target conduct lying outside antitrust’s scope. Although such an approach could be applied in a way that has few limits, the framework I offer is designed to modestly expand *Kodak* in a predictable manner that is consistent with the decision’s rationale.

1. FTC, NIXING THE FIX: AN FTC REPORT TO CONGRESS ON REPAIR RESTRICTIONS 17–18 (May 2021).

2. Magnuson-Moss Warranty Act § 102(c) (providing exception where service provided without charge or warrantor has received waiver from Federal Trade Commission). *See, e.g., FTC Takes Action Against Harley-Davidson and Westinghouse for Illegally Restricting Customers’ Right to Repair*, FED. TRADE COMM’N (June 23, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/06/ftc-takes-action-against-harley-davidson-westinghouse-illegally-restricting-customers-right-repair-0>.

3. 504 U.S. 451, 476–77 (1992).

4. *Id.* at 476.

5. 15 U.S.C. § 45(a)(1).

In particular, my application of Section 5 builds on the “gap-filler” rationale that Susan Creighton and Thomas Krattenmaker proposed for settings in which one of the elements of an antitrust claim is not satisfied.⁶ The element I target here is market power, as courts’ unwillingness to find this factor satisfied can be addressed by practical indicators of market power based on consumers’ lack of choice. I propose five settings in which this market-power gap can be filled: (1) multiple manufacturers’ restrictive terms; (2) control over a separate level of the distribution chain; (3) users’ lack of knowledge of restrictions; (4) revealed market power over time; and (5) time-sensitive uses.

My Section 5 framework offers several benefits. First, it extends the right to repair to settings in which there is a harm to competition that today’s antitrust courts frequently do not recognize. The harms suffered by users are as severe as any that have appeared in antitrust cases: a loss of lives in hospitals and on military battlefields, and a loss of livelihoods for farmers unable to harvest crops. Given the harms already suffered and users’ practical lack of choice when confronted with repair restrictions, Section 5’s expansion to embrace the functional presence of market power offers benefits.

Second, the framework allows the FTC to consider procompetitive justifications for the restriction. Sometimes there will be justifications based on safety or IP, and the agency needs to be able to consider them.⁷ Based on the evidence gathered through the FTC’s exhaustive analysis of the issue, many of these reasons typically will not be sufficient to justify the restrictions. But at least the agency can examine them.

Finally, the proposed use of Section 5 can serve as a bridge between the “neo-Brandeisians”⁸ and other antitrust scholars. Section 5 ranges beyond antitrust in a way that can help consumers, and the limited expansion I propose here takes into account the concerns with and potential overreach of the approach. In short, the framework promises to revive competition law in a way that would help users across the economy.

II. FOUR CASE STUDIES

In the past few years, the right to repair has exploded into public consciousness. The briefest overview of the past decade includes:

6. Susan A. Creighton & Thomas G. Krattenmaker, *Appropriate Role(s) for Section 5*, 8 ANTITRUST SOURCE 1 (2009).

7. For this reason, an approach based on automatic—or “per se”—illegality would not be appropriate.

8. See generally *infra* note 290 and accompanying text.

- Massachusetts voters in 2012 supporting a right to repair for automobiles,⁹ followed by manufacturers extending the provisions to the rest of the country.¹⁰
- The FTC’s 2019 workshop¹¹ and 2021 report detailing the types of repair restrictions, addressing explanations, and offering proposals to increase consumer choice.¹²
- President Biden’s 2021 executive order to promote competition¹³ that targeted “repair markets” and called for the FTC and Defense Department to act.¹⁴
- Colorado’s enactment of right-to-repair legislation for wheelchair users¹⁵ and the New York legislature’s passage of a bill providing repair rights for electronic devices, both in June 2022.¹⁶

Four case studies reveal the uniquely anticompetitive effects of and questionable justifications for restrictions on the right to repair.

9. H.B. 4362 § 2(c)(i), 187th Leg., 2012 Reg. Sess. (Mass. 2012) (requiring manufacturers to “make available . . . all diagnostic repair tools” that they “make[] available to [their] dealers”).

10. AAI, CARE, Alliance of Automobile Manufacturers & Association of Global Automakers, MEMORANDUM OF UNDERSTANDING, <https://wanada.org/wp-content/uploads/2021/01/R2R-MOU-and-Agreement-SIGNED.pdf> (last visited Apr. 25, 2022). Legislation has been introduced to ensure that “as cars become more technologically advanced,” independent repair shops continue to have access to “[a]ll tools and equipment, wireless transmission of repair and diagnostic data, and access to on-board diagnostic and telematic systems needed to repair a vehicle.” *U.S. Rep. Bobby Rush Introduces ‘Right to Equitable and Professional Auto Industry Repair’ Act*, MOTOR, Feb. 7, 2022, <https://www.motor.com/2022/02/u-s-rep-bobby-rush-introduces-right-to-equitable-and-professional-auto-industry-repair-act/>. See also Fair Repair Act, S. 3830, 117th Cong. § 3(a)(1) (2022), <https://www.congress.gov/bill/117th-congress/senate-bill/3830/text?r=1&s=1> (giving the FTC power to treat a manufacturer’s failure to make equipment available to independent repair providers as an “unfair or deceptive act or practice”).

11. *Nixing the Fix: A Workshop on Repair Restrictions*, FED. TRADE COMM’N (July 16, 2019), <https://www.ftc.gov/news-events/events/2019/07/nixing-fix-workshop-repair-restrictions>.

12. FTC, *supra* note 1. The FTC also issued a resolution allowing, for a 10-year period, the use of compulsory process for repair restrictions. *Resolution Directing Use of Compulsory Process Regarding Repair Restrictions*, FED. TRADE COMM’N (Sept. 2, 2021), <https://perma.cc/R5VE-EWJQ>.

13. Exec. Order No. 14,036, 86 Fed. Reg. 36987 (July 9, 2021).

14. *Id.* §§ 5(h), 5(s)(iii).

15. HB22-1031, 73rd Gen. Assemb., Reg. Sess. (Colo. 2022). See *infra* note 133 and accompanying text.

16. S4104A, Reg. Sess. (N.Y. 2021). See *infra* note 116 and accompanying text.

A. FARM EQUIPMENT

Farm equipment presents the first setting. The ubiquity of software has led to dramatic changes in the industry, which are exacerbated by timing issues, dealer consolidation, and the imposition of restrictions by multiple manufacturers. These developments have resulted in John Deere's effective market power being higher than courts are likely to recognize. And these competitive concerns are accompanied by questionable justifications based on safety and copyright law.

1. *Role of software*

The casual observer would be surprised by the role software plays in farm equipment. Today's John Deere tractors "cost as much as \$800,000" and "depend on multiple electronic control units (ECUs) to operate everything from the engine to the power seat."¹⁷ As a U.S. PIRG Education Fund report concluded: "The sensors and control systems that feed this software with data have been integrated into most of the functions of modern combine harvesters, tractors, and other farm equipment."¹⁸ The problem? When "a mechanical issue engages safety or emissions control systems, or some part of those systems fail, the immobilizer is activated," which "sends the machine into 'limp mode,' which disables most of the equipment's functionality" until "it is repaired and the error codes are cleared."¹⁹

This is no infrequent occurrence. There are "as many as 125 sensors in a single combine," with "[e]ach sensor . . . connected to a controller network."²⁰ A "problem with any one of those controller networks will require diagnostic tools not available to farmers," which forces them "to either haul their machine into the nearest dealership or wait for a field technician to arrive to complete the repair."²¹ These "sensors and their associated controller networks are now the highest point of failure on the product."²² Confirming this point, "[o]f the roughly 700 error codes" listed in the Diagnosis and Tests Service Manual for several Deere tractors, "89% state that the farmer should contact their John

17. AARON PERZANOWSKI, *THE RIGHT TO REPAIR: RECLAIMING THE THINGS WE OWN* 9 (2022).

18. KEVIN O'REILLY, U.S. PIRG EDUCATION FUND, *DEERE IN THE HEADLIGHTS* 5 (2021), https://uspirg.org/sites/pirg/files/reports/DeereInTheHeadlights/WEB_USP_Deere-in-the-Headlights_V3.pdf.

19. *Id.*

20. *Id.* at 6.

21. *Id.*

22. *Id.*

Deere Dealer with little to no other guidance on how the farmer can fix their equipment.”²³

The hurdles facing farmers are multi-layered. One is copyright law. In particular, the Digital Millennium Copyright Act (DMCA) punishes conduct that circumvents technological protection measures (TPMs) controlling access to copyrighted works, which include the software in tractors.²⁴ The DMCA created a “triennial exemption process” that allows the Librarian of Copyrights to grant exemptions every three years for certain classes of works.²⁵ Since 2015, there has been an exemption for motorized land vehicles, which includes tractors. In 2021, this exemption covered “[c]omputer programs that are contained in and control the functioning of a lawfully acquired motorized land vehicle . . . such as a . . . mechanized agricultural vehicle . . . when circumvention is a necessary step to allow the diagnosis, repair, or lawful modification of [a] vehicle function.”²⁶

Although this exemption is helpful for users able to circumvent the TPMs, it does not cover the trafficking of such tools, which prevents those not handy enough to fix the products themselves from benefiting from the exemption.²⁷ In addition, any solace provided by the exemption quickly dissipated. Just after it was first granted in 2015, Deere “started requiring farmers to sign licensing agreements.”²⁸ These licenses prohibit users from “exercis[ing] their repair rights or . . . even look[ing] at the software running the tractor.”²⁹ They cover “[s]oftware, data files, documentation, engine calibration tables, proprietary data messages, and controller area network . . . data messages that are in or communicated to or from any [licensed product]”³⁰ even though “[m]any of these items are numerical values that do not contain any copyrightable expression.”³¹ The licenses require users to agree that the licensed material is

23. KEVIN O'REILLY, U.S. PIRG EDUCATION FUND, *DEERE IN THE HEADLIGHTS II* 5 (2022), <https://uspig.org/feature/usp/deere-headlights-ii>.

24. 17 U.S.C. § 1201(a). The DMCA also applies to the software in ventilators, military equipment, and technology discussed elsewhere in this Article.

25. 17 U.S.C. § 1201(a)(1)(B).

26. 37 C.F.R. § 201.40(b)(13) (2021).

27. 17 U.S.C. § 1201(a)(1)(B).

28. Jason Koebler, *Why American Farmers Are Hacking Their Tractor With Ukrainian Firmware*, VICE (Mar. 21, 2017, 1:17 PM), <https://www.vice.com/en/article/xykkkd/why-american-farmers-are-hacking-their-tractors-with-ukrainian-firmware>.

29. Kit Walsh, *John Deere Really Doesn't Want You to Own That Tractor*, EFF (Dec. 20, 2016), <https://www.eff.org/deeplinks/2016/12/john-deere-really-doesnt-want-you-own-tractor>.

30. License Agreement for John Deere Embedded Software ¶ 1, https://www.deere.com/assets/pdfs/common/privacy-and-data/docs/agreement_pdfs/english/2016-10-28-Embedded-Software-EULA.pdf [hereinafter License Agreement].

31. Walsh, *supra* note 29.

“protected under copyright law, trade secret law, and laws governing confidential information”³² and that they will not “‘modify,’ ‘reverse engineer,’ or ‘reproduce’ the covered information” even though these are “necessary steps to understanding, repairing, and improving [the] equipment.”³³

An additional hurdle comes from “[m]odifications and troubleshooting [that] requires diagnostic software that farmers can’t have,” with “[e]ven . . . farmer[s who] manage[] to get the right software . . . sometimes [needing] a factory password.”³⁴ Nor does Deere make it easy, as shown by the example of U.S. PIRG’s Kevin O’Reilly calling twelve Deere dealers, “asking to try to buy the software tools and diagnostics . . . need[ed] to fix [the] tractor,” being told by eleven of the twelve that he “couldn’t buy them” (sometimes hearing “they didn’t even exist”), and receiving from the twelfth “an email address to reach out to, which [he] never heard back from.”³⁵ Adding insult to injury, Deere withholds information about common failures and recalls from equipment owners.³⁶ In short, the widespread array of overlapping limitations ties the hands of farmers with broken equipment.

2. *Importance of timing*

These restrictions’ significant effects are exacerbated given the sensitivity of timing. The finite duration of harvesting seasons and idiosyncrasies of weather raise the stakes for *each day* farmers are not able to use their equipment. A few examples demonstrate this harm:

- A California farmer with a faulty tractor “ha[d] to take it to an authorized John Deere dealer—the closest one [wa]s about 40 miles away—or a John Deere rep ha[d] to come visit him,” which led to him “wait[ing] a day,” which presented a problem given that “in farming

32. License Agreement, *supra* note 30, ¶ 1.

33. Walsh, *supra* note 29. *See generally* Koebler, *supra* note 28 (explaining that “only John Deere dealerships and ‘authorized’ repair shops can work on newer tractors”).

34. Kyle Wiens, *New High-Tech Farm Equipment Is a Nightmare for Farmers*, WIRED (Feb. 5, 2015, 7:00 AM), <https://www.wired.com/2015/02/new-high-tech-farm-equipment-nightmare-farmers/>.

35. Uri Berliner, *Standoff Between Farmers And Tractor Makers Intensifies Over Repair Issues*, NPR (May 26, 2021, 7:19 AM), <https://www.npr.org/2021/05/26/1000400896/standoff-between-farmers-and-tractor-makers-intensifies-over-repair-issues>.

36. O’REILLY, *supra* note 23, at 13. For these reasons, farm-equipment dealers’ agreement with California farmers to provide “access to service manuals, product guides, on-board diagnostics, and other information that would help a farmer or rancher to identify or repair problems with the machinery” is not complete “without access to parts and diagnostic software.” Kyle Wiens & Elizabeth Chamberlain, *John Deere Just Swindled Farmers out of Their Right to Repair*, WIRED (Sept. 19, 2018, 1:12 PM), <https://perma.cc/K49D-P9BW>.

timing is everything”: “[w]hen the soil is soft enough to till you have to go[, and] when the crop is ripe you have to pick it.”³⁷

- The “unpredictable weather in southern Minnesota means that spring planting season is brief and often frantic, sometimes requiring 24-hour shifts if the weather requires it,” which means that “[f]armers who want to get their crops in the ground can’t afford to waste an hour.”³⁸
- A Kansas farmer with “a blown mechanical valve” that he “could have repaired himself” lost “\$30,000-\$60,000” after his tractor sat at the dealership, “full of fertilizer, for 32 days” despite his “call[ing] daily for progress updates and visit[ing] with the dealership manager in-person twice.”³⁹
- A Nebraska farmer “lost half a day of harvesting corn while waiting for mechanics to drive 65 miles to his farm to reset the software” on his combine, with the wait “contribut[ing] to a loss of at least 15% of the crop.”⁴⁰

37. Laura Sydell, *DIY Tractor Repair Runs Afoul of Copyright Law*, NPR (Aug. 17, 2015, 4:20 PM), <https://www.npr.org/sections/alltechconsidered/2015/08/17/432601480/diy-tractor-repair-runs-afoul-of-copyright-law>. See also O'REILLY, *supra* note 23, at 19 (a Minnesota farmer “who had to wait more than two weeks for a fix due to repair restrictions described the experience as being ‘stressful because cutting and baling small squares of hay is extremely weather dependent’”); Jason Koebler, *Tractor-Hacking Farmers Are Leading a Revolt Against Big Tech’s Repair Monopolies*, VICE (Feb. 14, 2018, 11:31 AM), <https://www.vice.com/en/article/kzp7ny/tractor-hacking-right-to-repair> (noting that even minor repairs will be costly, as hauling the equipment results in “\$2,000 [for] getting something minor fixed,” which presents a challenge since “[y]ou have a real small window to get [a harvest] done in the year”); Jesse Hirsch, *Broad agriculture coalition files federal complaint against John Deere, demanding the right to repair their own tractors*, COUNTER (Mar. 4, 2022, 4:28 PM), <https://thecounter.org/john-deere-tractors-federal-complaint-right-to-repair-ftc/> (a Missouri farmer explained that “[i]f a piece of my equipment breaks down during planting season, time is a luxury I don’t have,” with “[m]y only purpose in life . . . to get it working again as soon as I can”).

38. Adam Minter, *U.S. Farmers Are Being Bled by the Tractor Monopoly*, BLOOMBERG (Apr. 23, 2019, 5:00 AM), <https://www.bloomberg.com/opinion/articles/2019-04-23/u-s-farmers-need-a-better-way-to-fix-their-tractors>.

39. O'REILLY, *supra* note 18, at 8. See *id.* (explaining that “[t]he next closest dealership was an estimated 80 miles away,” which would require the farmer to “incur expensive hauling fees and . . . physically shovel out the fertilizer loaded in the machine to make sure it was light enough to load on the truck”).

40. Peter Waldman & Lydia Mulvany, *Farmers Fight John Deere Over Who Gets to Fix an \$800,000 Tractor*, BLOOMBERG BUSINESSWEEK (Mar. 5, 2020, 2:00 AM), <https://perma.cc/Z8JX-3DJJ>.

The inability to quickly repair equipment is frustrating for farmers, who “pride themselves” on “being able to come up with ingenious and creative solutions to the problems that come along with their profession.”⁴¹ And in fact, farmers are increasingly preferring older machines without software. A survey found that 77% “purchase older-model equipment to avoid the software in newer equipment that requires dealership fixes.”⁴² As a result, farmers are “paying unprecedented prices for older tractors . . . because they are actually fixable.”⁴³ In 1989, for example, the highest price for a thirty-year-old John Deere tractor was roughly \$7,000; by 2019, that figure had skyrocketed to \$71,000.⁴⁴

3. Deere market power

The role of software and importance of timing increase the leverage of manufacturers, in particular market leader John Deere. Deere’s market power varies among “specific product categories” as “[t]ractors, combines, and backhoes are not interchangeable products.”⁴⁵ But to pick one example, in the market for large farm tractors in 2018, John Deere had 53% market share, with most of the rest of the market taken by CNH Industrial (35%) and AGCO (7%).⁴⁶

The power that any single manufacturer has is buttressed by competitors employing similar restraints. An Illinois farmer explained that “it’s not just John Deere” but is “across the board,”⁴⁷ as “they all have the diagnostic systems you have to buy . . . or you have to pay their mechanics.”⁴⁸ And while Deere “is at the center of discussion . . . CNH Industrial and AgCo also engage in the same kind of restrictions.”⁴⁹

41. O’REILLY, *supra* note 18, at 9; *see also* Wiens, *supra* note 34 (“[I]t’s as old as dirt: farmers have been making, building, rebuilding, hacking, and tinkering with their equipment since chickens were feral.”).

42. O’REILLY, *supra* note 18, at 7.

43. *Id.* at 6–7.

44. *Id.* at 11 (figures in 2019 dollars).

45. PERZANOWSKI, *supra* note 17, at 181.

46. Jennifer Reibel, *Manufacturer Consolidation Reshaping the Farm Equipment Marketplace*, FARM EQUIPMENT (Aug. 29, 2018), <https://perma.cc/A65B-FN53>. In the market for combines (which combine several harvesting functions), Deere had 60%, followed by CNH with 30% and AGCO with 7%. *Id.*

47. Dave Byrnes, *John Deere accused of monopolizing tractor repair industry in antitrust suit*, COURTHOUSE NEWS SERV. (Jan. 12, 2022), <https://www.courthousenews.com/john-deere-accused-of-monopolizing-tractor-repair-industry-in-antitrust-suit/>.

48. *Id.*

49. Anne T. Regan, *A Closer Look at a Farmer’s Right to Repair*, HELLMUTH & JOHNSON (Aug. 5, 2021), <https://hljlawfirm.com/a-closer-look-at-a-farmers-right-to-repair/>.

This power is strengthened by dealer consolidation. 82% of John Deere’s dealerships “are a part of a large chain with seven or more locations.”⁵⁰ As a result, “some farmers only have one dealership choice near them,” which can “force them to travel long distances and cross state lines to get another quote from a dealer they might trust more.”⁵¹ For example, in Montana’s “58 million acres of farmland,” there are “only three large John Deere chains with a combined 19 locations serving Montana farms.”⁵² In addition to few choices, farmers also confront “customer service at chain dealerships [that] can be much worse than at local dealerships,” with family-owned dealerships replaced by corporate entities.⁵³

The combination of dealer consolidation and multiple manufacturers’ use of restrictions should lift John Deere’s market power above the threshold for liability.⁵⁴ As a practical matter, farmers confronting onerous restrictions imposed by Deere cannot turn elsewhere for alternatives.

4. *Unsupported excuses*

John Deere has offered safety and copyright justifications for its restrictions.⁵⁵ But these justifications are questionable.

a) Safety

First, Deere has claimed that “[s]oftware modifications increase the risk that equipment will not function as designed,” which would result in “unqualified individuals . . . hack[ing] or modify[ing] equipment software” that could “endanger Deere customers, dealers, and others” and “result in

50. O’REILLY, *supra* note 23, at 6.

51. *Id.*

52. *Id.*

53. *Id.*

54. Courts typically require at least a 70% market share for a finding of monopoly power. *E.g.*, HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE § 6.2a (6th ed. 2020).

55. The industry also raises environmental concerns, warning that “right to repair” legislation “could give third-party repair shops the ability to illegally bypass emissions standards set by the Federal Government.” *Manufacturers’ Support for Farmers’ Right to Repair*, ASSOC. EQUIP. MFRS. (June 15, 2020), <https://www.aem.org/news/report-highlights-equipment-manufacturers-support-for-farmers-right-to-repair>. But as U.S. PIRG has explained, “subverting environmental controls is illegal.” O’REILLY, *supra* note 18, at 14. In particular, no one can “remove or render inoperative any device or element of design installed on or in engines/equipment in compliance with the regulations prior to its sale and delivery to the ultimate purchaser.” 40 C.F.R. § 168.101(b)(1). *See also* Kevin O’Reilly & Nathan Proctor, *Deere shareholders: ‘It doesn’t add up’*, U.S. PIRG (Dec. 8, 2021), <https://uspig.org/blogs/blog/usp/deere-shareholders-it-doesn’t-add-up> (writing that farmers’ repair is not modification but rather “restor[es] equipment to original working order”).

equipment that no longer complies with industry and safety standards or environmental regulations.”⁵⁶ Similarly, in a comment to the Copyright Office, Deere stated that “TPMs protect access to copyrighted software code that ensures compliance with governmental rules and industry safety standards.”⁵⁷

More ominously, Deere’s chief technology officer highlighted “a 40,000-pound tractor going down the road at 20 miles an hour . . . with software on it that has been modified for steering or modified for braking” and asked: “Do you really want to expose untested, unplanned, unknown introductions of software into a product like that that’s out in the public landscape?”⁵⁸ Another senior Deere official warned that “[o]ne tweak could cascade throughout an entire software system and lead to unintended consequences.”⁵⁹ And an industry group worried that “right to repair . . . activists use hard-working farmers as pawns to advance their agenda and gain unfettered access to the embedded code in agricultur[al] equipment, which could be dangerous and harm both farmers and [the] general . . . public.”⁶⁰

These are foreboding claims. But as U.S. PIRG has explained, “[t]here is a clear difference between resetting an error code and ignoring or overriding safety codes.”⁶¹ In particular, “overriding emissions or safety controls requires modification tools, not . . . tools used for diagnosis and repair.”⁶² And “[t]o override these controls, a farmer would have to first erase the operating system present on the machine” and then “upload new, modified software that either does not have emissions and safety controls or allows a farmer to ignore them,” a path that “violates the tampering provisions” of the Code of Federal Regulations enforced by the Environmental Protection Agency (EPA).⁶³

Additional skepticism for the safety justification comes from Europe, where regulations require manufacturers to “provide ‘non-discriminatory’

56. Cory Doctorow, *John Deere: of course you ‘own’ your tractor, but only if you agree to let us rip you off*, BOINGBOING (May 13, 2015, 9:00 AM), <https://boingboing.net/2015/05/13/john-deere-of-course-you-ow.html>.

57. Darin Bartholomew, *Long Comment Regarding a Proposed Exemption Under 17 U.S.C. 1201*, 3, https://copyright.gov/1201/2015/comments-032715/class%2021/John_Deere_Class21_1201_2014.pdf; see also Dennis Slater, *Equipment manufacturers support farmers’ right to repair*, PENNLIVE (Mar. 1, 2020, 12:23 PM), <https://www.pennlive.com/opinion/2020/03/equipment-manufacturers-support-farmers-right-to-repair-pennlive-letters.html>.

58. Nilay Patel, *John Deere Turned Tractors into Computers—What’s Next?*, VERGE (June 15, 2021, 8:21 AM), <https://perma.cc/G3XJ-RLNU>.

59. Waldman & Mulvany, *supra* note 40.

60. *Manufacturers’ Support for Farmers’ Right to Repair*, *supra* note 55.

61. O’REILLY, *supra* note 18, at 17.

62. *Id.*

63. *Id.*

access to repair and maintenance information to ‘authorised dealers, repairers, and independent operators’ in a standardized format.”⁶⁴ As U.S. PIRG has observed, “[t]he fact that tractor manufacturers provide access to materials in Europe which they deny to farmers in the U.S. undermines their arguments that access to such information poses a safety or security risk.”⁶⁵

b) Copyright

As a second justification, John Deere and its representatives have argued that right-to-repair proponents are seeking “to get to the source code that operates modern tractors, forcing manufacturers to turn over their intellectual property.”⁶⁶ But as U.S. PIRG has explained, source code (the “instructions written by software engineers . . . that tell a machine what to do”) is “compiled and turned into embedded software,” an “important change” that “translates the human-legible coding language into computer-legible 1s and 0s.”⁶⁷ The weakness of Deere’s source-code justification is that “translating this information back into the source code originally written by the software engineers is essentially impossible,” which is “why Apple, HP, and others freely make embedded code available for their products in the form of firmware updates.”⁶⁸

More broadly, in a comment to the Copyright Office, Deere worried that circumventing TPMs would “make it possible for pirates, third-party software developers, and less innovative competitors to free-ride off the creativity, unique expression and ingenuity of vehicle software designed by leading vehicle manufacturers and their suppliers.”⁶⁹ Deere lamented that “in the absence of TPMs, third-party software developers could purchase vehicles to access instantly copyrighted, safe and regulatory-compliant software that is the result of years of extensive research and development by manufacturers and suppliers.”⁷⁰ The manufacturer also worried about the circumvention of TPMs “for vehicle software for entertainment systems,” as a driver “may listen to [infringing] sound recordings, while passengers may watch or view television

64. O’REILLY, *supra* note 23, at 10; *see also id.* (“Specifically, manufacturers must provide ‘technical manuals and technical service bulletins,’ ‘diagnostic trouble codes,’ ‘wiring diagrams,’ [and] ‘all information needed to install new or updated software on a new vehicle or vehicle type.’”).

65. *Id.*

66. Adam Belz, “Right-to-repair” fight extends from iPhones to tractors, STARTRIBUNE (Jan. 12, 2020, 1:00 PM), <https://www.startribune.com/right-to-repair-fight-extends-from-iphones-to-tractors/566910242/>.

67. O’REILLY, *supra* note 18, at 14.

68. *Id.*

69. Bartholomew, *supra* note 57, at 2.

70. *Id.*

and movie content.”⁷¹ It, however, is highly unlikely that farmers are using their equipment to “pirate[] . . . highly-expressive copyrighted works [such as] musical works, sound recordings, television content, and movies.”⁷² Or as Kyle Wiens colorfully asked: “Because copyright-marauding farmers are very busy and need to multitask by simultaneously copying Taylor Swift’s *1989* and harvesting corn?”⁷³

In short, John Deere and other manufacturers rely on the ubiquity of software to prevent farmers from repairing their equipment. Excuses based on safety and copyright are not persuasive. And the manufacturers are likely to possess market power based on time-sensitive uses, industry-wide restrictions, and dealer consolidation.

B. MEDICAL EQUIPMENT

The second example of restrictions on the right to repair is provided by ventilators and other medical equipment. As the Covid-19 pandemic showed, ventilators keep alive patients who are not able to breathe on their own. A lack of ventilators forces doctors into the impossible position of choosing which patients will live and which will die.

But ventilators and other medical equipment are subject to an array of restrictions making repair difficult. An empirical study of more than 200 biomedical professionals found that in a period of several months nearly half “had been denied access to ‘critical repair information, parts, or service keys.’”⁷⁴ The restrictions took many forms, including:

- “Requiring a password or service key to read diagnostic information”⁷⁵;
- “Refusing to provide access to service manuals,” with some manuals “also [being] password protected,” and others “requir[ing] an updated service contract to access”⁷⁶;

71. *Id.*

72. *Id.* at 8.

73. Kyle Wiens, *We Can’t Let John Deere Destroy the Very Idea of Ownership*, WIRED (Apr. 21, 2015, 9:00 AM), <https://www.wired.com/2015/04/dmca-ownership-john-deere/>. For a critique of copyright arguments similar to those advanced by Deere, see *infra* notes 244–286 and accompanying text.

74. U.S. PIRG EDUCATION FUND, HOSPITAL REPAIR RESTRICTIONS 2 (2020), https://uspig.org/sites/pirg/files/reports/Hospital_Repair_Restrictions_USPEF_7.8.20b.pdf [hereinafter PIRG REPORT].

75. *Id.*

76. *Id.*

- “Designing machines to require calibration software to activate new spare parts, and then not making that software available”⁷⁷; and
- “Restricted access to specialty training.”⁷⁸

These restrictions have been especially pernicious given the scarcity of ventilators. Throughout the pandemic, “hospitals worldwide . . . reported inadequate supplies of crucial equipment” such as ventilators and dialysis machines.⁷⁹ Then-N.Y. Governor Andrew Cuomo lamented that getting enough ventilators “remains the challenge,” with “the numbers . . . daunting,” as “you can’t find a ventilator for sale” despite “looking desperately.”⁸⁰ Given the paucity of ventilators, the ability of hospital technicians to make quick repairs is critical. A manager of a biomedical engineering team at a California hospital “recalled multiple times . . . when he had to go into the hospital in the middle of the night to fix a device.”⁸¹ On those occasions, “[d]octors were waiting to use the device,” and if the device is not “up and running in an hour or two hours, that patient will die.”⁸² Nor is there any point in waiting “to see if the manufacturer is going to respond,” because “sometimes the answer is ‘you need a contract’ or ‘no, you can’t buy this part.’”⁸³

Another biomedical professional explained that their hospital “was almost unable to repair one model of their ventilators at the height of the crisis” as the manufacturer “was attempting to cut off access to repair for their technicians—because they were due for the refresher training.”⁸⁴ The irony is not only that “the manufacturer had cancelled all the in-person trainings” but also that the technicians had “no need to be ‘retrained’ on a device they were fixing around the clock.”⁸⁵

77. *Id.*

78. *Id.*

79. Shuhan He, Debbie Lai & Jarone Lee, *The medical right to repair: the right to save lives*, 397 LANCET 1260, 1260 (2021).

80. Jason Koebler, *Hospitals Need to Repair Ventilators. Manufacturers Are Making That Impossible*, VICE (Mar. 18, 2020, 7:15 AM), <https://www.vice.com/en/article/wxekgx/hospitals-need-to-repair-ventilators-manufacturers-are-making-that-impossible>.

81. Nathan Proctor, “*Life and Death*”—*Medical equipment repairers push for Right to Repair during COVID-19 pandemic*, U.S. PIRG (May 19, 2020), <https://uspig.org/blogs/covid-19/usp/%E2%80%9Clife-and-death%E2%80%9D-medical-equipment-repairers-push-right-repair-during-covid-19>.

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.*

Similar to the claims made by John Deere,⁸⁶ manufacturers have sought to justify their restrictions by claiming that allowing non-authorized repair could impair patient safety. For example, a vice president of a medical device manufacturer trade group warned the U.S. Food and Drug Administration (FDA) that allowing third parties to service medical devices could lead to “device repairs . . . be[ing] performed by untrained personnel with inappropriate equipment and testing; replacement of parts or components of unknown provenance [that] result in an adulterated device; and repairs [being] performed without compliance to servicing standards such as those followed by OEMs [original equipment manufacturers].”⁸⁷

As also was the case with the claims made by Deere,⁸⁸ this safety concern is overblown. As U.S. PIRG Education Fund has explained, “[r]epair of equipment used in hospitals and care facilities is highly regulated.”⁸⁹ In particular, medical devices “must be approved according to stringent standards set by the [FDA]” and “are subject to rules under the National Fire Protection Agency (NFPA).”⁹⁰ Moreover, “there are rules under the Code of Federal Regulations (CFR) 21, Occupational Safety and Health Administration (OSHA), The Joint Commission (TJC), and hospital or Accreditation Association for Ambulatory Health Care (AAAHC) standards.”⁹¹

In 2018, the FDA issued a comprehensive report that concluded that third-party repair did not affect patient safety. Based on medical device reports of death or serious injury, the agency was “not able to establish a conclusive relationship between . . . third party entity servicing and the subsequent adverse event.”⁹² In addition, the FDA relied on a healthcare nonprofit organization’s analysis that concluded that it did not “believe that a safety problem exists with the servicing, maintenance, and repair of medical devices by either third party organizations or OEMs.”⁹³

86. *See supra* Section II.A.4.a.

87. FDA, FDA REPORT ON THE QUALITY, SAFETY, AND EFFECTIVENESS OF SERVICING OF MEDICAL DEVICES 16 (2018), <https://www.fda.gov/media/113431/download> [hereinafter FDA REPORT].

88. *See supra* Section II.A.4.a.

89. PIRG REPORT, *supra* note 74, at 3.

90. *Id.*

91. *Id.*

92. FDA REPORT, *supra* note 87, at 20–22.

93. This entity, ECRI, “the only organization worldwide to conduct independent medical device evaluations,” reached this conclusion after “search[ing] over two million records” and “analyz[ing] private databases of hazards and recalls” and “investigations of hospital-based incidents.” ECRI, *FDA Report Agrees with ECRI Institute that Additional Regulations for Medical Device Servicing Are Not Needed* (May 18, 2018), <https://www.ecri.org/components/HDJournal/Pages/FDA-report-servicing.aspx>.

As a result of these studies and observations, the FDA concluded that “the objective evidence indicates that many OEMs and third party entities provide high quality, safe, and effective servicing of medical devices.”⁹⁴ Not only were there no safety issues but also “[t]he continued availability of third party entities to service and repair medical devices is critical to the functioning of the U.S. healthcare system.”⁹⁵

To put it bluntly, the agency responsible for assessing the safety of medical devices concluded—without hesitation or equivocation—that third-party repair presents no safety concern and serves a crucial role. It goes without saying that manufacturers have every interest in raising ominous warnings. But in the absence of new evidence not yet uncovered, given the exhaustive FDA findings, there should be a strong presumption against safety-based justifications.⁹⁶

This lack of procompetitive justifications is particularly concerning given the extreme nature of the anticompetitive effects. As discussed above,⁹⁷ a lack of ventilators could lead to patients dying. In addition, ventilator manufacturers are likely to have market power from the confluence of several factors. First, given the severe health condition of patients needing ventilators, time is of the essence. Second, purchasers may not know the array of restrictions—such as password-protected service manuals, limited access to training, and the unavailability of necessary software—restricting repair. Third, given that a comprehensive report found that 92% of medical repair professionals “claimed they had been denied service information for ‘critical equipment’” and that 89% “reported that manufacturers had refused to sell spare parts,” it seems likely that multiple manufacturers are restricting repair.⁹⁸

94. FDA REPORT, *supra* note 87, at 23.

95. *Id.* For one example of third-party repairs, see Jay L. Himes & Jonathan S. Crevier, *If It Ain't Working, Fix It—With Competition*, NOT MONOPOLY, CPI ANTITRUST CHRONICLE, Aug. 2020, at 3, [https://www.labaton.com/hubfs/IF%20IT%20AIN %E2%80%99T%20WORKING,%20FIX%20IT%20%E2%80%94%20WITH%20COMPETTITION%20-%20CPI%20-%20Himes%208.2020.pdf](https://www.labaton.com/hubfs/IF%20IT%20AIN%20%80%99T%20WORKING,%20FIX%20IT%20%E2%80%94%20WITH%20COMPETTITION%20-%20CPI%20-%20Himes%208.2020.pdf); Glynn Moody, *Volunteers 3D-Print Unobtainable \$11,000 Valve For \$1 To Keep Covid-19 Patients Alive; Original Manufacturer Threatens To Sue*, TECHDIRT (Mar. 17, 2020, 1:35 PM), <https://www.techdirt.com/2020/03/17/volunteers-3d-print-unobtainable-11000-valve-1-to-keep-covid-19-patients-alive-original-manufacturer-threatens-to-sue/> (a pharmaceutical worker in Italy used a 3D printer to print replacement valves for breathing devices that the manufacturer refused to provide, doing so for roughly \$1, a fraction of the \$11,000 that manufacturer would have charged).

96. *See also* Koebler, *supra* note 80 (finding it unpersuasive that independents are viewed as unsafe when many of them “work officially for the manufacturers on Monday and Tuesday, and then [do] work for themselves the rest of the week”).

97. *See supra* note 74 and accompanying text.

98. PIRG REPORT, *supra* note 74, at 8.

And fourth, those purchasing ventilators have not switched to manufacturers not employing these restrictions. In short, manufacturers seem to have the market power necessary to impose severe anticompetitive effects.

C. MILITARY EQUIPMENT

Repair restrictions also affect military readiness. In a powerful letter submitted as part of the FTC's call for information, former Marine officer Lucas Kunce and current Marine logistics officer and operations research analyst Elle Ekman provided numerous examples of the harm that the military has suffered from repair restrictions. These limitations prevent "end user[s] from working on [their] own equipment" and include "commercial terms and conditions surrounding technical data schematics, diagnostic software, specialized parts and tools, warranties, bundling of repairs with products, interoperability restraints, the inability to access integrated code . . . required for hardware operation, and end user licensing agreements."⁹⁹

These restrictions are "particularly problematic" given the Defense Department's mission.¹⁰⁰ The reason is that "[m]any of the products and services purchased from contractors must be available in combat situations where contractor presence or reach-back for repairs, data, or diagnostics will likely not be an option."¹⁰¹ Kunce and Ekman explain how the restrictions pose difficult choices such as the one confronting a mechanic who faced a "choice of voiding a warranty or losing the equipment that supported [the unit's] training."¹⁰²

The restrictions also can be expensive and harmful. For example, one category of "costly parts that are economical to repair" must be "shipp[ed] . . . back to the contractor in the continental United States from Okinawa, Japan," because Marines' efforts to fix the problem themselves "would violate repair support contracts."¹⁰³ The result? "[S]ignificant transportation costs and time costs" and even "reduce[d] forward-deployed unit readiness."¹⁰⁴

Lost confidence is another consequence. The Joint Light Tactical Vehicle (JLTV) is an Army-led project to "develop a family of future light tactical

99. Letter from Lucas Kunce & Elle Ekman to The Honorable Joseph J. Simons 5 (Sept. 15, 2019), https://downloads.regulations.gov/FTC-2019-0013-0074/attachment_2.pdf [hereinafter Kunce & Ekman Letter].

100. *Id.*

101. *Id.*

102. *Id.* at 6; *see also id.* (providing example of Marines who "conduct[ed] maintenance on warrantied equipment" and "were reprimanded because they voided the contract when they fixed the equipment").

103. *Id.*

104. *Id.*

vehicles.”¹⁰⁵ An assessment found issues with “ineffective training, poor manuals, and challenges with troubleshooting the vehicle.”¹⁰⁶ In addition, and also consistent with the effect of repair restrictions, “[t]he health monitoring system” was not accurate and “reduce[d] crew and maintainer confidence in the system.”¹⁰⁷

Another potentially deadly result from repair restrictions involves military officers having their hands tied in dangerous situations. The officers often cannot make repair parts “due to manufacturer restrictions” or because of “cost-prohibitive” specifications.¹⁰⁸ As a result, they are not able to “repair[] equipment if a part is unavailable due to supply chain issues in austere environments.”¹⁰⁹ Similarly, in the setting of Medium Tactical Vehicle Replacement (MTVR) used for carrying troops and equipment, a restrictive warranty and the required use of a specific vendor for repairs “mean limiting the capability, flexibility, and experience of Marines who will be needed to conduct these repairs if they are ever in a hostile . . . or D-Day-like situation.”¹¹⁰

Kunce and Ekman explain that “[o]verall, Marines are less capable of repairing equipment in extreme circumstances because they are not allowed to repair the equipment during regular operations and do not have the tooling, diagnostic equipment or diagrams, or hands-on experience.”¹¹¹ This is no small concern, as service members could “need[] to repair equipment in a part of the world with unreliable transportation, limited communication, and no contractor support.”¹¹² The authors conclude that upholding the right to repair could “impact whether America can protect its service members, secure its defense posture, and even win her wars.”¹¹³

Like the situation with farm equipment and ventilators, manufacturers are likely to have market power. First, time pressures are critical for military equipment on the battlefield. Second, purchasers are not likely to know the array of repair restrictions, which include “commercial terms and conditions surrounding technical data schematics, diagnostic software, specialized parts

105. CONG. RSCH. SERV., JOINT LIGHT TACTICAL VEHICLE (JLTV): BACKGROUND AND ISSUES FOR CONGRESS 1 (2020), <https://sgp.fas.org/crs/weapons/RS22942.pdf>.

106. OFF. DIR. OPERATIONAL TEST & EVALUATION, FY18 ARMY PROGRAMS: JOINT LIGHT TACTICAL VEHICLE (JLTV) FAMILY OF VEHICLES (FOV) 89, <https://www.dote.osd.mil/Portals/97/pub/reports/FY2018/army/2018jltv.pdf?ver=2019-08-21-155807-400>.

107. *Id.*

108. Kunce & Ekman Letter, *supra* note 99, at 6.

109. *Id.*

110. *Id.* at 7.

111. *Id.* at 6.

112. *Id.* at 9.

113. *Id.*

and tools, warranties, bundling . . . interoperability restraints, the inability to access [required] code, and end user licensing agreements.”¹¹⁴ Third, the military has not switched to manufacturers not using these restrictions. And fourth, based on the limitations not being “unusual, but . . . a product of [the existing] repair regime,” it is at least plausible that multiple manufacturers are employing them.¹¹⁵

D. TECHNOLOGY

Repair restrictions also appear across the vast expanse of technology products, including smartphones, household devices, and even wheelchairs. This Part details a few types of common restrictions.¹¹⁶

One type is *limiting repair outlets*. In 2012, Nikon informed independent camera repair technicians that it would “no longer make repair parts available” to facilities it did not authorize.¹¹⁷ Although Nikon sought to justify this change based on “the specialized tools that are now necessary to perform repairs on this complex equipment,” critics called this “ridiculous” as “local camera shops are staffed by people who have extensive experience repairing Nikon equipment, and the only reason they wouldn’t have access to the necessary tools is if Nikon uses proprietary or tamper-proof fasteners and won’t sell the tools their own repair techs use.”¹¹⁸ This restriction affected those needing the cameras for their livelihoods through “lost business, shipping costs, and time lost waiting for the Postal Service to shuttle the camera back and forth.”¹¹⁹

Another type is *intentionally preventing products from working*. Apple infamously blocked phones “repaired outside of their ‘authorized’ service network,” which

114. *Id.* at 5.

115. *Id.* at 8.

116. In June 2022, the New York legislature passed a bill requiring manufacturers “to make diagnostic and repair information for digital electronic parts and equipment available to independent repair providers and consumers if such parts and repair information are also available to . . . authorized repair providers.” S4104A, Reg. Sess. (N.Y. 2021).

117. Elizabeth Chamberlain, *How Nikon Is Killing Camera Repair*, IIFIXIT (Feb. 14, 2012), <https://www.ifixit.com/News/1349/how-nikon-is-killing-camera-repair>.

118. *Id.* Similarly, Apple has one store for “the 2 million people who live in Nebraska.” Kyle Wiens, *You Bought That Gadget, and Dammit, You Should Be Able to Fix It*, WIRED (Mar. 22, 2017, 6:30 AM), <https://www.wired.com/2017/03/right-to-repair-laws/>.

119. *Id.* In 2020, Nikon ended its authorized repair program, forcing users to mail their broken cameras to one of two facilities in the United States. Kevin Purdy, *Nikon Is Killing Its Authorized Repair Program*, IIFIXIT (Dec. 9, 2019), <https://www.ifixit.com/News/34241/nikon-is-killing-its-authorized-repair-program>. Manufacturers also sometimes “falsely tell users that certain repairs can’t be done, even when independent shops are perfectly capable of performing them.” IIFIXIT, REPAIR MARKET OBSERVATIONS 16 (2019), https://downloads.regulations.gov/FTC-2019-0013-0027/attachment_1.pdf.

resulted in an “Error 53” message¹²⁰ and users losing photos and other data.¹²¹ Apple later apologized, “admitt[ing] that Error 53 was a software mistake,” and “issued a software patch that fixed phones ‘bricked’ by the error.”¹²² Another example occurred with “throttle gate,” in which Apple—without even telling its customers—“was caught slowing down iPhones with old batteries.”¹²³ Commentators called this behavior “sketchy” and even a “scandal” on the grounds that Apple 1) “doesn’t tell you it throttles,” 2) “makes it hard for you to fix the problem,” 3) designs a phone that “requires proprietary tools to open and various components to be removed . . . to replace the only part of the phone that is *guaranteed to go bad*,” and 4) “actively discourages you from trying to fix your own phone.”¹²⁴

A third type is *changing a device’s physical structure* to make it extremely difficult—if not impossible—to repair. For example, Apple began using “a new type of tamper-resistant screw” for which there were “no readily available screwdrivers.”¹²⁵ Since the iPhone worked “with ordinary Phillips screws,” the switch “wasn’t for engineering reasons” but was “to tamper-proof [the] iPhone.”¹²⁶ Another example is using “glue instead of screws to hold things

120. *Independent Repair is Big Business*, REPAIR.ORG, <https://www.repair.org/electronics> (last visited Apr. 25, 2022).

121. Miles Brignall, “*Error 53*” *fury mounts as Apple software update threatens to kill your iPhone 6*, GUARDIAN (Feb. 5, 2016, 1:59 PM), <https://www.theguardian.com/money/2016/feb/05/error-53-apple-iphone-software-update-handset-worthless-third-party-repair>.

122. *Id.* For another example, see PERZANOWSKI, *supra* note 17, at 7–8 (discussing Google-owned Nest’s 2016 announcement that “it would push an involuntary software update to its \$300 Revolv home automation hubs, rendering them entirely inoperable” despite selling the devices “with the promise of a ‘lifetime subscription’”).

123. Jason Koebler, *Tim Cook to Investors: People Bought Fewer New iPhones Because They Repaired Their Old Ones*, VICE (Jan. 2, 2019, 2:56 PM), <https://www.vice.com/en/article/zmd9a5/tim-cook-to-investors-people-bought-fewer-new-iphones-because-they-repaired-their-old-ones>.

124. Jason Koebler, *Apple Throttles iPhones That Have Old Batteries (But Didn’t Tell You About It)*, VICE (Dec. 20, 2017, 1:27 PM), <https://www.vice.com/en/article/3k5bdw/apple-throttles-iphones-bad-batteries>.

125. Kyle Wiens, *Apple’s Diabolical Plan to Screw your iPhone*, iFIXIT (Jan. 20, 2011), <https://www.ifixit.com/News/14279/apples-diabolical-plan-to-screw-your-iphone>.

126. iFIXIT, REPAIR MARKET OBSERVATIONS, *supra* note 119, at 11–12. *See also id.* at 12 (providing other examples including “Nintendo us[ing] rare tri-point screws on their hardware, Amazon us[ing] tri-wing screws on the Fire TV, and Sony us[ing] Torx security screws in the PlayStation 4”); Cory Doctorow, *Apple’s Cement Overshoes*, MEDIUM (May 22, 2022), <https://doctorow.medium.com/apples-cement-overshoes-329856288d13> (“[T]he electric clipper monopolist Wahl has started booby-trapping the blades of its hair- and beard-trimmers, spring-loading them so they fly apart if you unscrew them to sharpen them.”). For a discussion of Apple’s “home repair program,” see *Apple’s Cement Overshoes. Id.* (“[T]he program is the perfect way to make it look like the company supports right-to-repair policies without actually encouraging them at all. Apple can say it’s giving consumers access to everything, even the

together,” as glue is “difficult to separate without breaking things.”¹²⁷ A final is “mak[ing] a device difficult or impossible to open,” as Microsoft did with its Surface Laptop, “ultrasonically weld[ing] the chassis together and then glu[ing] a fabric cover down over the top.”¹²⁸

This conduct even applies to motorized wheelchairs, where “locking device[s] . . . prevent[] the hardware or software from being tinkered with,” with manufacturers not “hand[ing] out the corresponding key.”¹²⁹ As a result, those using wheelchairs have “wait[ed] 60 days [or longer¹³⁰] for a simple repair”—or even been denied service¹³¹—suffering a “nightmare scenario.”¹³²

same tools its technicians use, while scaring them away with high prices, complexity, and the risk of losing a \$1,200 deposit.”).

127. iFIXIT, REPAIR MARKET OBSERVATIONS, *supra* note 119, at 12.

128. *Id.* at 14. See also FTC, “NIXING THE FIX” TRANSCRIPT 22 (2019), https://www.ftc.gov/system/files/documents/public_events/1494445/nixing-fix-transcript.pdf (explaining that manufacturers’ “glu[ing] everything shut . . . is a common occurrence with many devices”); *id.* at 23 (a repair technician asked why companies went from “having a battery that was easily removable to now basically gluing them in” and opined that this is not “adding any sort of innovation”).

129. Angela Ufheil, *How a Right to Repair Bill Could Speed Up Wheelchair Fixes*, 5280 (Apr. 8, 2022), <https://www.5280.com/2022/04/how-a-right-to-repair-bill-could-speed-up-wheelchair-fixes/>.

130. *Stories from Coloradans Regarding Problems Fixing Wheelchairs and DME*, COPIRG FOUND. 1, 2, 9 (Mar. 21, 2022), <https://publicinterestnetwork.org/wp-content/uploads/2022/03/Stories-from-Coloradans-regarding-problems-fixing-DME-3.21.22.pdf> (discussing examples including 1) a wheelchair user “end[ing] up with a sore that required surgery” because the manufacturer took three months to replace a power chair; 2) a manufacturer taking “4 months and charg[ing] \$500 for a button” to power a wheelchair that could be “overnight mailed from eBay for about \$20”; and 3) a quadriplegic explaining that “[i]t generally takes at least two months to get repairs made” given the steps of scheduling an appointment for an evaluation, getting insurance approval, ordering parts, and making the repairs). See generally U.S. PIRG, STRANDED: REPAIR RESTRICTIONS IMMOBILIZE WHEELCHAIR USERS 5 (2022), https://uspirgedfund.org/sites/pirg/files/reports/USPIRGEF_Stranded_June2022.pdf (finding, in “survey of 141 manual and power wheelchair users,” that “40% of respondents . . . estimated it takes 7 or more weeks on average to get a repair completed”).

131. *Id.* at 9 (a patient was “denied service from [manufacturer] Numotion” after acquiring wheelchair “from one of their competitors before Numotion bought them out”).

132. Ufheil, *supra* note 129; see also Matthew Gault, *Colorado Denied Its Citizens the Right to Repair After Riveting Testimony*, VICE (Apr. 5, 2021, 6:00 AM), <https://www.vice.com/en/article/wx8w7b/colorado-denied-its-citizens-the-right-to-repair-after-riveting-testimony> (a wheelchair user with “life threatening medical issues caused by pressure sores” waited two weeks for company to provide service and—because this “failed to fix the problem”—he had a handyman fix a loose wire so he could avoid “go[ing] to the hospital or worse,” which led to the company voiding his warranty).

Given how frequently wheelchair users need repairs, this is a pressing problem.¹³³

In short, manufacturers have used an array of restrictions that have little to do with innovation and everything to do with preventing repair. In these settings, manufacturers are likely to have market power. First, many users are not likely to know the range of restrictions that include the device's physical structure or software. Second, in certain cases, especially related to wheelchairs or independent photographers needing cameras for their livelihood, the uses are time-sensitive. Third, users' options are further restricted by geographic limitations on repair outlets like those imposed by Nikon. And fourth, there has been no evidence that manufacturers have lost market share as a result of repair restrictions.¹³⁴

III. ANTITRUST'S CONSTRAINTS

Antitrust faces constraints in addressing repair restrictions. This section describes how the caselaw has developed in a way that imposes an array of challenges to plaintiffs bringing cases challenging this conduct.

A. KODAK AND ITS LIMITATIONS

Any assessment of competition's role in addressing the right to repair begins with antitrust law. And the antitrust doctrine most relevant to the right to repair involves "aftermarkets," which include service or parts for a durable product. The leading case on aftermarkets is *Eastman Kodak Company v. Image Technical Services*.¹³⁵ In that case, Kodak manufactured and sold "high-volume photocopiers and micrographic equipment."¹³⁶ The company "implemented a

133. See U.S. PIRG, *supra* note 130, at 5 (93% of survey respondents "indicated that they have required service in the last year, with 68% indicating they needed two or more repairs"). In June 2022, Colorado enacted the Consumer Right To Repair Powered Wheelchairs Act, which requires powered wheelchair manufacturers to provide "parts, embedded software, firmware, tools, or documentation . . . to independent repair providers and owners of the manufacturer's powered wheelchairs." HB22-1031, 73rd Gen. Assemb., Reg. Sess. (Colo. 2022). See generally U.S. PIRG, *supra* note 130, at 15.

134. The automobile industry presents another setting in which these issues have received significant attention. What is unique about this context is the adoption by manufacturers of a nationwide agreement allowing independent repair organizations access to "diagnostic and repair information" and "diagnostic repair tools." Memorandum of Understanding, *supra* note 10, § 2(a), § 2(b)(1). Technological developments have recently increased manufacturers' control, but the industry has witnessed more independent repair servicing than other settings. See *supra* note 10; see also FTC, *supra* note 128, at 177 (explaining that roughly 3/4 of repairers in auto industry are independent).

135. 504 U.S. 451 (1992).

136. *Id.* at 456.

policy of selling replacement parts” for these machines “only to buyers of Kodak equipment who use Kodak service or repair their own machines.”¹³⁷ These policies were “intended . . . to make it more difficult for [independent service organizations (ISOs)] to sell service for Kodak machines.”¹³⁸ In defending its policies, Kodak contended that competition in the equipment market prevented it from “rais[ing] prices of service and parts” above competitive levels because any profits from “a higher price in the aftermarkets . . . would be offset by a corresponding loss in profits from lower equipment sales as consumers began purchasing equipment with more attractive service costs.”¹³⁹

The Supreme Court, however, found that Kodak’s theory did not “accurately explain the behavior of the primary and derivative markets for complex durable goods,” since “significant information and switching costs” could “create a less responsive connection between service and parts prices and equipment sales.”¹⁴⁰ In particular, the high “cost to current owners of switching to a different product” would lead to consumers being “locked in” and thus willing to “tolerate some level of service-price increases before changing equipment brands.”¹⁴¹ The Court found it “reasonable to infer that Kodak ha[d] market power to raise prices and drive out competition in the aftermarkets” and that the company “chose to gain immediate profits by exerting that market power where locked-in customers, high information costs, and discriminatory pricing limited and perhaps eliminated any long-term loss.”¹⁴²

In recognizing a cause of action for aftermarkets claims, *Kodak* laid a foundation for an ambitious agenda of challenges that could target a right-to-repair claim. But the potentially far-reaching nature of the decision would quickly ground to a screeching halt, running into a brick wall of criticism and judicial limitations. Commentators asserted that “significant or long-lived consumer injury based on monopolized aftermarkets is likely to be rare, especially if equipment markets are competitive,”¹⁴³ and called for the decision

137. *Id.* at 458.

138. *Id.*

139. *Id.* at 465–66.

140. *Id.* at 473.

141. *Id.* at 476. *See also* Stephen Calkins, *The Antitrust Conversation*, 68 ANTITRUST L.J. 625, 629 (2001) (explaining how the Court cited amicus briefs to “support its doubts about the frequency with which customers engage in effective lifecycle [pricing]”).

142. *Kodak*, 504 U.S. at 477.

143. Carl Shapiro, *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, 63 ANTITRUST L.J. 483, 485 (1995).

to be overruled.¹⁴⁴ And courts soon constructed an array of limitations, “narrow[ing] the scope of liability,”¹⁴⁵ “severely limit[ing] *Kodak*’s scope so that it is no longer a viable weapon for antitrust plaintiffs,”¹⁴⁶ and “ben[ding] over backwards to construe *Kodak* as narrowly as possible.”¹⁴⁷

Most notably, several courts required plaintiffs to show that defendants changed their service policies “to exploit the installed base of consumers.”¹⁴⁸ For example, the Sixth Circuit stated that “the change in policy in *Kodak* was the crucial factor in the Court’s decision,” holding that “an antitrust plaintiff cannot succeed on a *Kodak*-type theory when the defendant has not changed its policy after locking in some of its customers, and the defendant has been otherwise forthcoming about its pricing structure and service policies.”¹⁴⁹

Other courts have considered factors such as pricing, aftermarket share, and information and switching costs.¹⁵⁰ But even these courts require “the competitive situation in the aftermarket” to be “dissociat[ed] . . . from activities . . . in the primary market.”¹⁵¹ In other words, “a court may conclude that the aftermarket is the relevant market . . . only if the evidence supports an inference of monopoly power in the aftermarket that competition in the primary market appears unable to check.”¹⁵² In a nutshell, since *Kodak*, “few plaintiffs have prevailed on aftermarket claims, and the legacy of the . . . decision has been modest.”¹⁵³

As I explain in the next section, given changes in technology and the nature of today’s restrictions, the rationale underlying *Kodak* claims applies even more

144. Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 2001 COLUM. BUS. L. REV. 257, 288 (2001).

145. *Competition Issues in Aftermarkets – Note from the United States*, OECD (May 26, 2017), <https://www.justice.gov/atr/page/file/1312326/download>.

146. David A.J. Goldfine & Kenneth M. Vorrasi, *The Fall of the Kodak Aftermarket Doctrine: Dying A Slow Death in the Lower Courts*, 72 ANTITRUST L.J. 209, 220 (2004).

147. Hovenkamp, *supra* note 144, at 286; *see also* William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago/Harvard Double Helix*, 2007 COLUM. BUS. L. REV. 1, 19–20 (2007) (explaining that post-*Kodak* decisions “emphasized principles that discourage intervention” and “imposed significant burdens on plaintiffs . . . seeking to challenge dominant firm conduct”).

148. Goldfine & Vorrasi, *supra* note 146, at 222. *See, e.g.*, *Alcatel USA, Inc. v. DGI Techs., Inc.*, 166 F.3d 772, 783 (5th Cir. 1999); *Digital Equip. Corp. v. Uniq Digital Techs., Inc.*, 73 F.3d 756, 763 (7th Cir. 1996); *Lee v. Life Ins. Co. of N. Am.*, 23 F.3d 14, 20 (1st Cir. 1994).

149. *PSI Repair Servs., Inc. v. Honeywell, Inc.*, 104 F.3d 811, 820 (6th Cir. 1997).

150. *Harrison Aire, Inc. v. Aerostar Int’l, Inc.*, 423 F.3d 374, 384 (3d Cir. 2005).

151. *SMS Sys. Maint. Servs., Inc. v. Digital Equip. Corp.*, 188 F.3d 11, 17 (1st Cir. 1999).

152. *Id.*

153. OECD, *supra* note 145, at 6; *see also* Goldfine & Vorrasi, *supra* note 146, at 220 (“Summary judgment has been awarded to the defendant in almost every single *Kodak*-style lock-in case.”).

powerfully today. Nonetheless, the inertia, compounding effect, and lack of self-reflection in the caselaw have erected significant hurdles in front of plaintiffs.

B. CHANGES SINCE KODAK

Today's right-to-repair cases are a far cry from the aftermarket claims that were brought in the wake of *Kodak*. At that time (and in most of the period since), a manufacturer merely instituted a policy regarding parts or service. Customers often were aware of such a (relatively simple) policy.¹⁵⁴ And the primary harm from being locked in to the original policy was to pay a higher price for service and parts.

The claims today are different. The restrictions range far beyond constraining policies. Instead, as detailed in the FTC's comprehensive report, they include: (1) physical restrictions; (2) unavailability of parts, manuals, and diagnostic software tools; (3) designs that make independent repairs less safe; (4) steering consumers to manufacturers' repair networks using telematics (real-time monitoring) systems; (5) application of patent rights and enforcement of trademarks; (6) disparagement of nonauthorized parts and independent repair services; (7) software locks, digital rights management, and technological protection measures; and (8) end user license agreements.¹⁵⁵ As the executive director of the Repair Association explained at an FTC workshop on the issue, "basically 100 percent of manufacturers have restrictions on repair in every one of their contracts."¹⁵⁶

Purchasers are far less likely to be aware of these restrictions, which are typically used in combination. A *Kodak*-style policy addressing parts and service is easier to discern than software incorporated into products.¹⁵⁷ And when the software is combined with the unavailability of parts and service manuals and an array of other restrictions, the notion of consumer choice is a mirage. Given

154. *See, e.g., Alcatel USA, Inc. v. DGI Techs., Inc.*, 166 F.3d 772, 783 (5th Cir. 1999) (plaintiffs did not "face substantial information and switching costs" and "engage[d] in life-cycle pricing" by "factor[ing] in not only the purchase price of the equipment, but also the post-acquisition costs of operation, maintenance, and expansion at the time of purchase").

155. FTC, *supra* note 1, at 17–24. *See also, e.g.,* Letter from Motor & Equip. Mfrs. Ass'n to FTC 3 (Apr. 30, 2019), https://downloads.regulations.gov/FTC-2019-0013-0022/attachment_1.pdf (detailing, in 2019, a list of restrictions in the automobile industry and stating that "[n]one . . . existed ten years ago" and "[m]ost were not prevalent five years ago").

156. FTC, *supra* note 128, at 76. *See also id.* ("end user license agreements [are] active when you turn [the device] on").

157. As one commentator explained in 2019, "[o]ver the last two decades, we've gone from a world where software is rarely seen outside of a general-purpose computer to a world where billions of microprocessors are embedded in virtually every type of device." IFIXIT, *supra* note 119, at 11.

the severity of anticompetitive effects taking the form of harms to livelihoods and even premature deaths, all of these developments have an outsized effect.

C. OTHER LEGAL DOCTRINES

The *Kodak* aftermarket claim provides the most relevant antitrust doctrine for a right-to-repair claim. Two other doctrines that could potentially be implicated present even steeper challenges. First is a *tying* claim. Such a claim requires a plaintiff to show (1) two separate products, (2) coercion, (3) market power in the market for the “tying product” (the one the consumer desires), and (4) a not insubstantial amount of commerce in the market for the “tied product” (the one the consumer is forced to take).¹⁵⁸ A tying claim would necessitate a bigger stretch from the caselaw since it calls for an additional finding (not present for an aftermarket claim) of coercion.¹⁵⁹ Moreover, its requirement of market power is harder to satisfy since it cannot rely on the higher market shares that flow from aftermarket limited to a single manufacturer’s product.¹⁶⁰

A second claim is based on access to an “*essential facility*” or, relatedly, a *refusal to license*. An essential-facility claim requires a monopolist to share facilities necessary to compete in a market.¹⁶¹ But in part because these claims

158. *See, e.g.*, *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 461–62 (1992). For a potential tying claim, see Jamie Crooks letter to Holly Vedova, FTC 29 (Mar. 3, 2022), <https://farmaction.us/wp-content/uploads/2022/03/Deere-Right-To-Repair-FTC-Complaint.pdf> (defining tying market as “the parts and diagnostic error codes necessary to repair large Deere equipment” and tied market as “the market for repairs to large Deere equipment”); *see also id.* at 28 (suggesting traditional tying claim based on tying market of “large agricultural equipment” and tied market of “repairs of large agricultural equipment”).

159. While customers may not practically have a choice when confronted with repair restrictions, *see supra* Part III.B and *infra* Part V.A, courts may not consider this to be “coercion.” *See, e.g.*, HOVENKAMP, *supra* note 54, § 10.4, at 531 (stating that “the coercion doctrine has become beguiling in tie-in analysis” as it “mean[s] several things”: (1) being “forced to take the tied product”; (2) “market power in the market for the tying product”; (3) “whether a . . . purchaser would have taken the tied product anyway”; and (4) “whether the tie-in foreclosed other options”). *See, e.g.*, *Rome Ambulatory Surgical Ctr., LLC v. Rome Mem’l Hosp., Inc.*, 349 F. Supp. 2d 389, 407 (N.D.N.Y. 2004) (finding no evidence of coercion, as there were “no viable facts to support an inference of anything but negotiation,” even though plaintiff alleged that payors were required “to contract for outpatient surgery services on an exclusive basis as a condition for contracting for general inpatient acute care hospital services on a discounted basis”).

160. Of course, it is possible that a plaintiff could show market power under the traditional antitrust standards. *See supra* note 158 (describing a complaint that alleges tying of “large agricultural equipment” and repairs of such equipment).

161. *MCI Commc’ns Corp. v. AT&T*, 708 F.2d 1081, 1132 (7th Cir. 1982); *see also* *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973); *United States v. Terminal R.R. Ass’n*, 224 U.S. 383 (1912).

could be interpreted to cover a wide array of products, courts almost never allow the claims to proceed.¹⁶² A similar result follows from refusals to license, which have been construed narrowly, especially when they involve IP. For example, in *In re Independent Service Organizations Antitrust Litigation (Xerox)*, the Federal Circuit held that a refusal to sell patented parts did not exceed “the scope of the patent grant” and thus could not violate antitrust law.¹⁶³ As a result, the expansion of the law to address an essential-facility or refusal-to-deal claim could apply to countless durable products, not having the natural stopping point offered by an aftermarkets setting in which smaller gaps need to be bridged to demonstrate market power.

IV. SECTION 5’S GAP FILLER

As discussed in Part II,¹⁶⁴ the right to repair implicates significant competition issues. But antitrust law frequently appears hamstrung by *Kodak*’s progeny, unable to fully address these competitive problems.¹⁶⁵ Do we have any other options? Fortunately, we do. The mechanism is Section 5 of the FTC Act, which provides the FTC with authority to address “unfair methods of competition.”¹⁶⁶

It is clear that Section 5 reaches beyond antitrust law. That makes sense. For if it did not, it would be redundant. The drafters intended Section 5 “to be an interstitial statute . . . fill[ing] in the gaps in the other antitrust laws” and meant for it to reach “conduct that violates the policy or ‘spirit’ of the antitrust

162. *See, e.g., Verizon Commc’ns Inc. v. Law Offs. Curtis V. Trinko, L.L.P.*, 540 U.S. 398, 411 (2004) (holding that the Court “ha[s] never recognized” the essential-facilities doctrine and “find[s] no need either to recognize it or to repudiate it here”). Even if the FTC is more able than courts to determine when a refusal to deal is anticompetitive and decide the terms of dealing, it would still be a larger stretch and relatedly provide less guidance to apply Section 5 in the refusal setting as compared to the *Kodak* aftermarkets setting.

163. 203 F.3d 1322, 1328 (Fed. Cir. 2000) (providing immunity unless monopolist engaged in one of three behaviors not typically implicated by a refusal to license: tying patented and unpatented products, obtaining a patent through fraud, and pursuing sham litigation); *see generally Trinko*, 540 U.S. at 408 (emphasizing “high value” Court “ha[s] placed on the right to refuse to deal”) (citation omitted). For a more moderate view, see *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1187 (1st Cir. 1994) (“[A]n author’s desire to exclude others from use of . . . copyrighted work is a presumptively valid business justification. . .”).

164. *See supra* Part II.

165. *See supra* Part III. *See also* FTC, *supra* note 1, at 16 (“In many instances . . . repair restrictions may reduce consumers’ options for obtaining spare parts and repair services in the aftermarket without running afoul of antitrust law.”).

166. 15 U.S.C. § 45(a)(1).

laws, even though it may not come technically within its terms.”¹⁶⁷ To similar effect, the Supreme Court in *FTC v. Sperry & Hutchinson*, for example, confirmed that the FTC could “consider[] public values beyond simply those enshrined in the letter or encompassed in the spirit of the antitrust laws.”¹⁶⁸ And in its 2015 statement on Section 5, the FTC explained that the provision encompasses “those acts and practices . . . that contravene the spirit of the antitrust laws.”¹⁶⁹

But the critical question is *how far* Section 5 reaches beyond antitrust. Without limits, it could encompass an expansive array of conduct that might not actually harm competition. And without a framework providing intelligible constraints, Section 5 could mean only what three of the five FTC Commissioners at any time believe it means, providing little guidance for future conduct. For example, some have criticized the “trilogy of cases, decided in the 1980s, that rejected . . . extravagant views of Section 5.”¹⁷⁰

Commentators have offered theories to cabin the range of Section 5, including a “frontier” rationale by which “there is not yet an established body of precedent” to support an antitrust violation¹⁷¹ and a “yes, but” rationale by which “a case would meet all the economic and legal requirements of a

167. Neil W. Averitt, *The Meaning of “Unfair Methods of Competition” in Section 5 of the Federal Trade Commission Act*, 21 B.C. L. REV. 227, 251 (1980). See also *id.* at 276–77 (finding it “reasonably clear that the Commission, under Section 5, can go beyond established public policies and . . . frame competition policies on its own initiative” and noting that this was “a concept that is threaded through the entire length of the discussion”); *id.* at 279 (“The language of [Section 5] was . . . made deliberately broad to provide, in all instances, for adequate protection against harms to competition.”).

168. 405 U.S. 233, 244 (1972).

169. *Statement of Enforcement Principles Regarding “Unfair Methods of Competition” Under Section 5 of the FTC Act*, FED. TRADE COMM’N (Aug. 13, 2015), https://www.ftc.gov/system/files/documents/public_statements/735201/150813section5enforcement.pdf; see also Edith Ramirez, Chairwoman, Fed. Trade Comm’n, Address at the Competition Law Center, George Washington University Law School, 4 (Aug. 13, 2015), https://www.ftc.gov/system/files/documents/public_statements/735411/150813section5speech.pdf (“There has never been any question that Section 5’s ban on ‘unfair methods of competition’ reaches beyond the scope of the other antitrust laws.”)

170. Creighton & Krattenmaker, *supra* note 6, at 2 (citing *Official Airline Guides, Inc. v. FTC*, 630 F.2d 920 (2d Cir. 1980); *Boise Cascade Corp. v. FTC*, 637 F.2d 573 (9th Cir. 1980); *E.I. du Pont de Nemours & Co. v. FTC*, 729 F.2d 128 (2d Cir. 1984)). For a contrary view, see Miles Kirkpatrick, *Report of the ABA Section of Antitrust Law Special Committee To Study the Role of the FTC*, 58 ANTITRUST L.J. 43, 62 (1989) (“The FTC is a less dangerous forum than the federal courts for testing legal theories and considering their application in difficult cases since the FTC’s sanctions are civil and prospective and its decisions cannot be used as *prima facie* evidence to support treble damages awards.”).

171. Thomas B. Leary, *A Suggestion for the Revival of Section 5*, ANTITRUST SOURCE (2009) (discussed in Creighton & Krattenmaker, *supra* note 6, at 3).

Sherman Act claim, but cannot be brought . . . because of legal limitations imposed for reasons unrelated to [antitrust’s] goals.”¹⁷² The theory that I build on here is the “gap-filling” rationale articulated by Susan Creighton and Thomas Krattenmaker. This framework applies “where the conduct at issue does not (or arguably does not) meet one of the elements of the Sherman Act.”¹⁷³ The authors’ intended cases “likely raise questions regarding the ‘agreement’ element of Section 1, or the ‘monopoly power’ element of Section 2.”¹⁷⁴ They offer as a “paradigmatic example” of a “gap filling” case the “invitation to collude,” which “do[es] not fit easily within the language of either Section 1 (where is the agreement?) or Section 2 (where is the dangerous probability of success?)” even though “there is little doubt that attempted collusion is conduct that fits comfortably within the ambit of antitrust economic and policy analysis.”¹⁷⁵

For another example, the authors discuss what they call “patent fishing,” which has more typically been linked to patent assertion entities (or, more pejoratively, “patent trolls”).¹⁷⁶ They define the activity as “acquir[ing] patents and then demand[ing] payments from probable non-infringers.”¹⁷⁷ They note that the payments are “much less than the costs of litigation” and that the demands, when “repeated many times, . . . can significantly raise the costs of the producing firms.”¹⁷⁸ They explain that “[t]hese increased costs are inefficiencies and will also likely yield higher prices and a diminution in

172. Creighton & Krattenmaker, *supra* note 6, at 3.

173. *Id.* at 7–8. For my elaboration of the framework, see *infra* Part V.

174. Creighton & Krattenmaker, *supra* note 6, at 8.

175. *Id.* at 8; *see also* Transcript of FTC Workshop on Section 5 of the FTC Act as a Competition Statute 65 (Oct. 17, 2008), https://www.ftc.gov/sites/default/files/documents/public_events/section-5-ftc-act-competition-statute/transcript.pdf (statement of former FTC Chair Robert Pitofsky) (one use of Section 5 “which almost everybody agrees to is [to] fill in the gaps” in “situations where Congress would have covered a transaction or a behavior if it [had] thought of it”); Ramirez, *supra* note 169, at 5 (noting that invitations to collude “generally fall[] through the cracks of Sections 1 and 2 of the Sherman Act” but “can nonetheless violate the spirit of the antitrust laws insofar as [they] threaten[] harm to competition without countervailing benefits”); *see also id.* (applying similar reasoning to “the improper exchange of competitively sensitive non-price information” and “breaching commitments to license standard-essential patents on reasonable terms,” as such conduct “lacks a ‘legitimate efficiency justification’ that would outweigh its ‘likely anticompetitive effects’”). Relatedly, as Herb Hovenkamp has explained, a limited abuse-of-dominance standard could target “higher prices or reduced innovation in a secondary market” (which could result from repair restrictions) that lies outside the range of Section 2. Herbert Hovenkamp, *Monopolizing and the Sherman Act*, WM. & MARY L. REV. (forthcoming 2023) (manuscript at 32), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3963245.

176. Creighton & Krattenmaker, *supra* note 6, at 8.

177. *Id.*

178. *Id.*

consumer surplus.”¹⁷⁹ But “because the patent fisher does not itself gain from the market power that its fishing can create . . . it is not obvious that conventional antitrust would speak to this behavior.”¹⁸⁰

My use of the gap-filling theory is not identical: Creighton and Krattenmaker envision a gap filler plugging an entirely missing element, whereas mine would expand the evidence considered for a currently existing element.¹⁸¹ But in augmenting the evidence available for showing market power, I borrow the rationale from the theory. As discussed above, the size of the gap filled by my use of Section 5 is less than for other antitrust theories.¹⁸² In particular, in cabining Section 5 to cases in which only one element of an antitrust claim is absent but the conduct “fits comfortably within the ambit of antitrust economic and policy analysis,”¹⁸³ the framework reaches beyond antitrust, but in a limited, predictable manner. And the benefit of using Section 5 in this setting is that it avoids a narrowly restrictive caselaw that developed in response to the problem of service and parts policies, while applying the rationales underlying an aftermarkets claim in a setting marked by more suffocating, hidden restrictions and more severe anticompetitive harms.¹⁸⁴

179. *Id.*

180. *Id.* For a discussion of how patent assertion entities could potentially violate antitrust law, see Mark S. Popofsky & Michael D. Laufert, *Antitrust Attacks on Patent Assertion Entities*, 79 ANTITRUST L.J. 445, 452–61 (2014); Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2179–80 (2013); Michael A. Carrier, *Patent Assertion Entities: Six Actions the Antitrust Agencies Can Take* 2 CPI ANTITRUST CHRONICLE 1, 5–11 (2013).

181. My use of the theory is limited to expanding the range of evidence considered where the evidence analyzed by courts does not fully capture anticompetitive harm. Market power inquiries are generally designed to reveal the cases in which the defendant has the ability to affect the market and bring about anticompetitive harm. While an expansion of market power could reach broadly, the five developments I discuss in the next Part limit the universe of cases in which a gap filler would be justified and offer a more appropriate alternative to the change in policy required by many courts.

182. *See supra* Section III.C.

183. Creighton & Krattenmaker, *supra* note 6, at 8.

184. *See supra* note 170 and accompanying text (citing Kirkpatrick, which noted that “FTC is a less dangerous forum . . . since [its] sanctions are civil and prospective and its decisions cannot be used as prima facie evidence to support treble damages awards”). *See also* Stephen Calkins, “*Unfair Methods of Competition*” in the 1990s: *The Example of Frequent-Flyer Programs*, in *MARKETING AND ADVERTISING REGULATION* 374, 374–75 (1990) (suggesting that “the government should evaluate the competitive effects of airline frequent flyer programs . . . and consider prohibiting them” as an “unfair method of competition”).

Given the inherent uncertainty of how Section 5 should be applied, there is always the risk that a court will find its use unjustified. *See supra* note 170 and accompanying text. But given its limited and supported application here, especially in a setting where courts have erected significant antitrust barriers, those risks may be worth taking.

V. A TEMPLATE FOR A SECTION 5 RIGHT-TO-REPAIR CASE¹⁸⁵

As discussed above, the *Kodak* aftermarket claim cannot practically be relied on in challenging a right-to-repair claim. This Part offers a framework for using Section 5 to remedy this deficiency while being cognizant of the criticism that has been leveled against the doctrine. The key gap filler is market power. The first Section develops five settings that provide the equivalent of market power. The second and third Sections then discuss the foundational aspects of a Section 5 case: anticompetitive effects and procompetitive justifications.

A. (RELAXED) MARKET POWER

A critical issue in *Kodak* claims is whether a plaintiff can demonstrate market power in the aftermarket. The critiques of the ruling have contended that such aftermarket power is unlikely where primary markets are competitive. This is especially the case when buyers can engage in “lifecycle pricing”¹⁸⁶ at the time of their original purchase and switch to other manufacturers with less restrictive policies. However persuasive such critiques were at the time of (or shortly after) the decision, developments in the past several years have rendered them less likely to apply.

My Section 5 gap filler expands beyond the restrictive caselaw requirements of market power in the primary market or a manufacturer’s policy change after purchase. It offers five scenarios that functionally prevent consumers from having a choice: (1) multiple manufacturers’ restrictive terms; (2) control over a separate level of the distribution chain; (3) users’ lack of knowledge of restrictions; (4) revealed market power over time; and (5) time-sensitive uses.

First, *multiple manufacturers* could impose similarly restrictive terms. As a result, even if the particular manufacturer with whom the customer is dealing does not have significant market power, the use by other firms of analogous terms could effectively prevent choice. If multiple manufacturers have adopted similarly restrictive policies, a seemingly low market share of the manufacturer with whom the user is dealing is not as meaningful as it otherwise would be

185. This Article offers a framework for a Section 5 unfair-method-of-competition case. It does not address other potential avenues to address right-to-repair claims such as rulemaking or a consumer-protection claim. *See, e.g.*, Joshua D. Sarnoff, *How the FTC Could, but Won't, Use Its Rulemaking Authority to Allow Aftermarket Parts*, TRUTH ON MKT. (May 10, 2022), <https://truthonthemarket.com/2022/05/10/how-the-ftc-could-but-wont-use-its-rulemaking-authority-to-allow-aftermarket-parts/> (discussing rulemaking).

186. Lifecycle pricing considers “both the price of the original good and the cost of subsequent maintenance.” HOVENKAMP, *supra* note 54, § 10.3b.

because the user cannot turn to other manufacturers with different policies. In such a case, the FTC need not show that the manufacturers conspired or entered into an agreement to impose similar terms. Rather, the absence of effective consumer choice supports the market power needed for an unfair-method-of-competition claim.¹⁸⁷

Second, a manufacturer could have control over a *separate level of the distribution chain* needed to service the product.¹⁸⁸ For example, farmers using John Deere tractors need to obtain service at certified Deere dealers. And such dealers may be the only repair facilities in the vicinity. As discussed above,¹⁸⁹ in Montana’s “58 million acres of farmland,” there are “only three large John Deere chains with a combined 19 locations serving Montana farms.”¹⁹⁰ Such geographic power functionally provides a monopoly. Even if Deere’s market share in the primary equipment market does not technically rise to the level of monopoly power, it essentially has such power given that farmers cannot realistically transport their tractors hundreds of miles for service, especially during harvesting season when timing issues are critical.¹⁹¹

Third, today’s range of more intrusive restrictions leads to users *lacking knowledge*.¹⁹² One of the main strands underlying hostility to *Kodak* aftermarket claims is the purchaser’s ability to consider the policies of a single manufacturer, engage in lifecycle pricing that considers these costs, and make comparisons with rivals. But today’s use of not only simple parts and servicing policies but also a range of more hidden restrictions, including restrictions accomplished by software, makes this virtually impossible.¹⁹³ The typical

187. The harms presented in this paragraph align with “shared monopoly” concerns. See C. Scott Hemphill & Tim Wu, *Parallel Exclusion*, 122 *YALE L.J.* 1182, 1243–45 (2013) (noting “judicial resistance to recognizing shared monopoly as an antitrust violation,” but highlighting “useful tool” of Section 5 for conduct that “clearly violate[s] the policy of the Sherman Act,” especially in the case of “independently incentivized but nonetheless harmful exclusionary tactics, where the methods used lack a plausible or cognizable efficiency justification”).

188. A consumer’s lack of choice in repair shops provides additional evidence of being locked in to the manufacturer’s product.

189. See *supra* notes 50–53 and accompanying text.

190. *Id.*

191. Conceptions of geographic market power could be relevant in this determination, but given courts’ focus on the primary market, likely will not play a central role.

192. For a list of factors that “make harm from aftermarket monopolization more likely and more severe,” see Lorenzo Coppi, *Aftermarket monopolization: the emerging consensus in economics*, 52 *ANTITRUST BULL.* 53, 68–69 (2007) (discussing “large number of uninformed customers” and “low-quality information”). Although inquiries based on knowledge could reach expansively to many settings, this Article focuses on the aftermarket setting, which is unique in how decisions are made over a sustained time period.

193. E.g., FTC, *supra* note 1, at 34 (owner of mobile phone and computer repair shop could “confidently say that all of my customers have no idea whether or not their devices are

purchasers at the end of the twentieth century understood that they needed to pay a price for service and that *Kodak*-type restrictions could lead to higher prices. In contrast, today's users often do not know that they are not able to repair their equipment and that this (perhaps longstanding) ability is blocked by software.¹⁹⁴

Fourth is *revealed market power over time*. The farming example above showed dramatic harms to livelihoods, with the examples of medical and military equipment revealing harms to lives. Despite these suffocating policies being in place, multiple generations of purchasers are *still* buying the products. The inability to switch away from such restrictive policies provides an indication of equipment owners' sustained market power.

Fifth is the importance of *time-sensitive uses*. In the agricultural, ventilator, and military settings discussed above, delay has dramatic consequences. Users suffering equipment breakdowns when a tractor is needed to harvest crops, a ventilator is required to keep critically ill patients alive, or equipment needs to quickly be fixed on the battlefield face timing constraints that increase the manufacturer's market power. Given the importance of hours and even minutes in such settings, users will not have the luxury of deliberately looking to other manufacturers in a theoretically competitive primary market for alternatives.

The presence of a single one of these factors might not be enough to demonstrate market power. But where multiple manufacturers impose similar restrictions or users continue to suffer significant anticompetitive effects, it might. And the presence of multiple factors pushes the outcome strongly in the direction of a Section 5 case.

These five settings address the problems highlighted by courts and commentators. For example, a plaintiff does not need to show a policy change if purchasers are not aware of the restrictions in the first place. There is no functional choice if multiple manufacturers have similar policies, all the repair shops in the area are affiliated with a single manufacturer, or timing constraints

repairable" and heard "[s]o many times . . . 'had I known I couldn't fix it I would not have purchased it'"); *id.* (U.S. PIRG senior official explained that "the problem is the point of sale" as "consumers don't have enough information"); Eric Ober, Benedetta Dell'anno, Jean-Roger Drèze, Herrmann L., Luciano A., Maltry R., Oehme I., Schmon B. & Ventère J.-P., *Planned obsolescence: the government's choice?*, PLATE: PRODUCT LIFETIME AND THE ENVIRONMENT 318 (2017) ("The lack of information concerning durable and repairable products causes an asymmetry in the market balance and leaves consumers unable to make the best buying decisions regarding . . . their own needs.").

194. For a complaint that Deere blocked pricing information, see Crooks, *supra* note 158, at 29–30 (refusal to make such information available allowed Deere to be "essentially free to charge whatever it likes for repairs").

limit effective options. And the theoretical ability to switch manufacturers is not persuasive when purchasers *continue* to buy equipment even though restrictive policies adversely affect livelihoods and lives. Users, in other words, practically have no choice.

The five categories of gap-filling I propose achieve the functional effect of the market power requirement. They also are consistent with the statutory standard, which limits the range of unfair practices targeted by the FTC to those that “cause[] or [are] likely to cause substantial injury to consumers” and are “not reasonably avoidable by consumers.”¹⁹⁵

B. UNPARALLELED ANTICOMPETITIVE EFFECTS

Once market power—or at least its functional equivalent—is shown, the analysis should consider anticompetitive and procompetitive effects.¹⁹⁶ First, there are uniquely severe anticompetitive effects in these scenarios. Antitrust’s typical anticompetitive effects have been higher prices and lower output, and to a lesser extent, reduced innovation and quality. The first two effects are relatively easy to measure, and (where significant enough) make consumers’ lives worse.

But as concerning as these effects are, there is a whole level of harm higher than that—in fact, *significantly higher*. Consumers are not “just” experiencing an anticompetitive market with higher prices, but also suffering *direct* effects on their lives and livelihoods. These effects are not typical. And they present a compelling argument for the FTC to use Section 5.

195. 15 U.S.C. § 45(n). *See also* William E. Kovacic & Marc Winerman, *Competition Policy and the Application of Section 5 of the Federal Trade Commission Act*, 76 ANTITRUST L.J. 929, 949 (2010) (suggesting use of Section 5 where “a particular element of proof needed to show a Sherman Act violation” is “relaxed”).

196. *See, e.g., Statement of Enforcement Principles Regarding “Unfair Methods of Competition” Under Section 5 of the FTC Act*, FED. TRADE COMM’N (Aug. 13, 2015), https://www.ftc.gov/system/files/documents/public_statements/735201/150813section5enforcement.pdf (describing that by 4-1 vote, FTC “adhere[d] to the . . . principle[]” that an act “will be evaluated under a framework similar to the rule of reason,” in other words, that the act “must cause, or be likely to cause, harm to competition or the competitive process, taking into account any associated cognizable efficiencies and business justifications”). By a 3-2 vote, the FTC in 2021 withdrew the 2015 statement, objecting to the application of a framework “similar to the rule of reason” because of “significant administrability concerns” and the difficulty of plaintiffs winning these cases. *Statement of the Commission On the Withdrawal of the Statement of Enforcement Principles Regarding “Unfair Methods of Competition” Under Section 5 of the FTC Act*, FED. TRADE COMM’N (July 9, 2021), https://www.ftc.gov/system/files/documents/public_statements/1591706/p210100commnstmtwithdrawalsec5enforcement.pdf. But even outside the particular setting of the Rule of Reason as applied in the courts, a consideration of anticompetitive and procompetitive effects would seem to be essential in ascertaining a restraint’s net competitive effect.

In the setting of medical equipment, the anticompetitive effects include lost lives. When COVID-19 was ravishing the nation's hospitals, ventilators sitting idle waiting for repair were ventilators that could not be used. Given the need for this equipment to keep patients alive, such an effect resulted in patients dying.

The anticompetitive effects also include lives in the military context. If the military is not able to fix its equipment, soldiers will be unprepared for battle, and the United States may not be able to “protect its service members, secure its defense posture, and even win her wars.”¹⁹⁷

The effects also encompass livelihoods. Farmers are not able to fix their equipment. This is not a machine they use for idle pleasure. It is not even equipment they use because it is merely important in their lives. No. It is their *literal livelihood*. Farmers use these machines to make a living. If they cannot use their tractor, they will not be able to harvest their crops.

Even worse, in this setting, timing is everything. Time spent waiting for a repair is time not harvesting. And because the window is short, it has irreversible effects. Until John Deere and other manufacturers took control of the tractors through software, farmers could repair the equipment themselves. Now, they cannot.¹⁹⁸

The unique harms in this setting are exacerbated by the more traditional antitrust harms of higher prices. In its report, the FTC concluded that “[w]ithin the aftermarket industry, dealer prices for OEM parts are almost always the highest,” with “[a]lternative parts . . . sell[ing] at a fraction of dealer prices.”¹⁹⁹ For example, the FTC cited empirical research that “some independent servicers maintain diagnostic imaging equipment for \$150-\$250 per hour,” far less than “manufacturer servicing at rates reportedly ranging from \$500-\$600 per hour (with a four-hour minimum).”²⁰⁰ Even if lives are not affected by technology restrictions, livelihoods could be. And at a minimum, price and service quality are.²⁰¹

197. Kunce & Ekman Letter, *supra* note 99, at 9.

198. Timing issues also have occurred in other settings. *See supra* notes 117–119 (photo equipment) and 129–133 (motorized wheelchairs) and accompanying text.

199. *See also* FTC, *supra* note 1, at 40 (citing LKQ empirical research, at 5).

200. FTC, *supra* note 1, at 40 (citing empirical research of International Association of Medical Equipment Remarketers and Services, at 1–2).

201. Nor is lifecycle pricing likely to explain the prices given the presence of factors like multiple manufacturers' use of similar restrictions, consumers' lack of knowledge, and revealed market power over time. *See supra* Section V.A and accompanying text.

In short, the anticompetitive effects side of the equation is unparalleled. The effects on lives and livelihoods are direct in ways not presented in previous Section 5—or, for that matter, antitrust—cases.

C. QUESTIONABLE PROCOMPETITIVE JUSTIFICATIONS

As severe as the anticompetitive effects are, the FTC still should consider whether they are justified by procompetitive effects. The two most fundamental justifications that manufacturers have offered are based on safety and IP.²⁰² These are potentially weighty excuses, and if they were strongly supported, the FTC would need to make careful determinations. But as discussed in this section and above,²⁰³ the lack of support generally makes these justifications an uphill climb for the manufacturers.

1. *Safety*

Manufacturers have claimed that “repair restrictions protect repair workers and consumers from injuries that could result from fixing a product or using an improperly repaired product.”²⁰⁴ In particular, their contracts with authorized repair persons “ensure that they have been properly trained” and “have the necessary skills to safely and reliably repair products to OEM specifications and standards with OEM-quality parts.”²⁰⁵

These safety concerns, however, have not been supported. The FTC’s Call for Empirical Research “specifically asked for data concerning “[t]he risks posed by repairs made by consumers or independent repair shops,” and in

202. Manufacturers additionally have offered justifications based on cybersecurity, liability and reputational harm, and quality of service, but the FTC’s comprehensive analysis has found them wanting. *See* FTC, *supra* note 1, at 31 (“The record contains no empirical evidence to suggest that independent repair shops are more or less likely than authorized repair shops to compromise or misuse customer data.”); *id.* at 33 (finding “no empirical evidence” to support manufacturers’ “concerns about reputational harm or potential liability resulting from faulty third party repairs”); *id.* at 38 (discussing “evidence that consumers are generally satisfied with repairs made by independent repair shops” and concluding that “[t]he record does not establish that repairs conducted by independent repair shops would be inferior to those conducted by authorized repair shops if [they] were provided with greater access to service manuals, diagnostic software and tools, and replacement parts as appropriate”). *See also* Brief of iFixit et al. at 10–11, *All. for Auto. Innovation v. Healey*, No. 1:20-cv-12090-DPW (D. Mass. June 7, 2021) (“Experts widely disfavor . . . ‘security through obscurity’ . . . [by which] secrecy [provides] the means to prevent unwanted intrusion into technological systems . . . both because secrecy is unlikely to deter a capable adversary and because it allows vulnerabilities to persist undetected and uncorrected, multiplying and broadening the avenues into sensitive systems for malicious actors.”).

203. *See supra* notes 61–65 and 92–95 and accompanying text.

204. FTC, *supra* note 1, at 26.

205. *Repair Locations*, CONSUMER TECH. ASS’N, <https://www.cta.tech/Landing-Pages/Greener-Gadgets/Repair-Locations> (last visited Apr. 27, 2022).

response, “several manufacturers and their associations submitted comments and were provided the opportunity to participate in the Workshop.”²⁰⁶ Despite this, “manufacturers provided no data to support their argument that injuries are tied to repairs performed by consumers or independent repair shops.”²⁰⁷ In addition, the FTC concluded that manufacturers did not “provide[] factual support for their statements that authorized repair persons are more careful or that individuals or independent repair shops fail to take appropriate safety precautions” or that “independent repair workers who enter homes pose more of a safety risk to consumers than authorized repair workers.”²⁰⁸

A leading repair organization explained that “[c]orporate lobbyists paint a bleak picture of third-party shops,” but this “couldn’t be further from the truth,” as (1) independent repair shops “are fully capable of performing the same repairs that manufacturers do—plus some repairs” they won’t do, (2) “[m]any independent repair technicians have gone through the same training and certification processes that manufacturers require . . . of their own technicians,” (3) it is “not uncommon for independent repair shops to have former technicians from big manufacturers on staff,” and (4) “many common repairs don’t require extensive expertise.”²⁰⁹

These conclusions have been observed in particular industries. In the setting of medical devices, as discussed above, based on an exhaustive analysis, the FDA issued a report that concluded that “the objective evidence indicates that many OEMs and third party entities provide high quality, safe, and effective servicing of medical devices”²¹⁰ and that “[t]he continued availability of third party entities to service and repair medical devices is critical to the functioning of the U.S. healthcare system.”²¹¹

206. FTC, *supra* note 1, at 28.

207. *Id.* See also FTC, *supra* note 128, at 53 (senior official at Consumer Technology Association “not aware that anybody has studied” issue of “authorized repair providers perform[ing] higher quality or more secure repairs than owners or independent repair providers”). The manufacturers cited only a single safety event—“a mobile phone thermal runaway occurring in Australia in 2011”—and even that did not “support the proposition that phones repaired by individual or independent repair shops are more likely to result in [these] events.” *Id.* at 28 n.146.

208. *Id.* at 28.

209. iFIXIT, *supra* note 119, at 8–9. See also *supra* note 96 (discussing repairers that simultaneously work for manufacturers and themselves). In addition, as one participant in the FTC workshop on the issue explained: “any good business owner who wants to keep their brand and reputation is going to make sure they have technicians that can repair appropriately.” FTC, *supra* note 128, at 56.

210. FDA REPORT, *supra* note 87, at 23.

211. *Id.* See *supra* notes 92–95 and accompanying text.

In the agricultural setting, as discussed above,²¹² “[t]here is a clear difference between resetting an error code and ignoring or overriding safety codes.”²¹³ Nor were there safety issues after European regulations gave independent repair organizations access to “technical manuals[,] . . . diagnostic trouble codes[,] . . . information needed to install . . . software,” and other tools.²¹⁴

Finally, the automobile industry even claimed that the right to repair could result in sexual predators. Wait, what? Yes, reaching for the fear card, the industry claimed that legislation considered in Massachusetts would “lead women to be stalked and sexually assaulted” because the law would allow “anyone [to] access the most personal data stored in your vehicle” and “a sexual predator could use the data to stalk their victims.”²¹⁵ Strong claims indeed. But a television station that investigated the issue found that the claims were “very out of context,”²¹⁶ and “cybersecurity experts” found that the charge “ha[d] no grounding in reality.”²¹⁷

In short, the safety claims that manufacturers have made have not been corroborated.

2. Intellectual Property

Manufacturers have contended that “vigorous assertion of their intellectual property rights sustains the health of the vibrant and innovative technology industry and fosters innovation.”²¹⁸ At times they have sought to justify their

212. See *supra* notes 61–65 and accompanying text.

213. O'REILLY, *supra* note 18, at 17.

214. O'REILLY, *supra* note 23, at 10.

215. Matthew Gault, *Auto Industry TV Ads Claim Right to Repair Benefits “Sexual Predators,”* VICE (Sept. 1, 2020), <https://www.vice.com/en/article/qj4ayw/auto-industry-tv-ads-claim-right-to-repair-benefits-sexual-predators>.

216. Karen Anderson, *5 Investigates: Ads over Massachusetts Right to Repair campaign full of misleading claims*, WCVB5 (Aug. 7, 2020, 6:38 PM), <https://www.wcvb.com/article/5-investigates-ads-over-massachusetts-right-to-repair-campaign-full-of-misleading-claims/33549057>.

217. *Id.* For similar fear-mongering, see Ben Lovejoy, *Apple fighting new “right to repair” legislation after successfully lobbying against it in the past*, 9TO5MAC (Feb. 15, 2017, 4:04 AM), <https://9to5mac.com/2017/02/15/apple-nebraska-right-to-repair/> (“[I]ndustry lobbyists told lawmakers in Minnesota that broken glass could cut the fingers of consumers who try to repair their screens.”); Jason Koebler, *Apple Tells Lawmaker that Right to Repair iPhones Will Turn Nebraska Into a “Mecca” for Hackers*, VICE (Feb. 17, 2017, 3:21 PM), <https://www.vice.com/en/article/pgxgpg/apple-tells-lawmaker-that-right-to-repair-iphones-will-turn-nebraska-into-a-mecca-for-hackers> (describing how Apple claimed that Nebraska—then considering right-to-repair legislation—“would become the mecca for bad actors”).

218. FTC, *supra* note 1, at 25 (citing comments from Association of Home Appliance Manufacturers and National Association of Manufacturers). Manufacturers garner significant profit streams from controlling repair markets, but that is not a justified IP-based defense. See

restrictions by pointing to multiple types of IP. Because the primary focus has been copyright law, this section focuses on this justification. But three other forms of IP—design patents,²¹⁹ trade secrets, and trademarks—are worth quick attention because manufacturers sometimes have relied on them and because—as discussed more fully below²²⁰—of the attenuated link between these laws and the need for incentives in this setting.

Design patents protect “new, original and ornamental design[s].”²²¹ Manufacturers have frequently obtained design patents in the automobile industry. Ford, for example, has claimed that its “designers create the appearance of headlamps, hoods and other parts to appeal aesthetically to customers,” that “[g]iven the importance of vehicle design, [the company] invests heavily in design and protects some of its artistic products through design patents,” and that a “knock-off business model free-rides off [its] investment and creativity.”²²² Design patent protection is understandable when “the design . . . make[s] some type of material aesthetic contribution to the art,” having “some visual content that actually matters to consumers of the relevant product.”²²³ But it does not seem appropriate for the “internal parts of a product, which no one buys for their appearance,” implicated in repair settings.²²⁴

Letter from Tim Cook to Apple investors, APPLE (Jan. 2, 2019), <https://www.apple.com/newsroom/2019/01/letter-from-tim-cook-to-apple-investors/> (Apple CEO Tim Cook admitted that company lost significant profits because of “customers taking advantage of significantly reduced pricing for iPhone battery replacements”).

219. In its report, the FTC stated that “only two commenters noted that manufacturers’ assertion of patent rights impedes independent repair,” with the one comment that provided concrete examples focusing on design patents. FTC, *supra* note 1, at 22, 26.

220. See *infra* notes 252-254 and accompanying text.

221. 35 U.S.C. § 171.

222. *Auto. Body Parts Ass’n v. Ford Glob. Techs., LLC*, No. 2:15-cv-10137-LJM-SDD, 2017 WL 2304509, at 1 (E.D. Mich. Jan. 31, 2017).

223. Sarah Burstein, *Costly Designs*, 77 OHIO ST. L.J. 107, 135 (2016).

224. Leah Chan Grinvald & Ofer Tur-Sinai, *Intellectual Property Law and the Right to Repair*, 88 FORDHAM L. REV. 63, 115 (2019). See also 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 Cong. 4, 24 (Nov. 1, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3082289.

In *Automotive Body Parts Association v. Ford Global Technologies, LLC*, 930 F.3d 1314, 1319 (Fed. Cir. 2019), the Federal Circuit upheld design patents on automobile vehicle hoods and head lamps even though “the owner simply wants the body parts that will return [the car] to the way it looked when it was new.” *Auto. Body Parts Ass’n v. Ford Glob. Techs., LLC*, 293 F. Supp. 3d 690, 699 (E.D. Mich. 2018). As Leah Chan Grinvald and Ofer Tur-Sinai explain, however, 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,” and “it is not clear that . . . the court gave sufficient attention to underlying policy considerations” because “patent protection for

As Sarah Burstein has explained: “internal, mechanical parts are going to be created regardless of whether design patent protection is available,” “[t]he public gains nothing by protecting them,” “patenting such designs raises serious concerns related to circumvention of the utility patent system,” and providing separate protection for spare parts . . . provides a windfall to the . . . manufacturer.”²²⁵

Manufacturers have used *trademarks* to block “the importation of replacement parts.”²²⁶ To do this, they have placed trademarks on “internal parts like batteries, processors, and cables” that users never see and “logos . . . no bigger than a grain of rice.”²²⁷ The setting in which these issues arise—counterfeiting and blocking importation of purportedly trademark-protected goods—is one where trademark defenses are less likely to be fully considered.²²⁸ But such use is at odds with trademark law and policy in several ways.

repair parts does not promote the decorative arts or provide other public benefits.” 88 FORDHAM L. REV. at 115–16.

225. Burstein, *supra* note 223, at 135–37. For a discussion of how the Federal Circuit has “appl[ie]d stringent and rigid standards” that have limited the U.S. Patent and Trademark Office’s (PTO’s) ability to reject applications for being obvious and that have made it “incredibly difficult—if not practically impossible—to reject any designs for a lack of ornamentality,” see Sarah Burstein, *Is Design Patent Examination Too Lax?*, 33 BERKELEY TECH. L.J. 607, 621, 624 (2018). See also, e.g., *In re Webb*, 916 F.2d 1553, 1555 (Fed. Cir. 1990) (interpreting “the ‘normal and intended use’ of an article to be a period in the article’s life, beginning after completion of manufacture or assembly and ending with the ultimate destruction, loss, or disappearance of the article” even though such a test does not consider the patent’s visibility or the article’s decorative purpose); see generally Sarah Burstein & Saurabh Vishnubhakat, *The Truth About Design Patents*, 71 AM. U. L. REV. 1221, 1270 (2022) (“[T]he available data suggest a high grant rate (upwards of 85–90%) for design applications between the late 1990s and the present [2021].”).

For a discussion of how the granting of design patents on parts has had a detrimental effect in the automobile industry, see Sarnoff, *supra* note 224, at 1 (“For decades, a robust competitive aftermarket for repair parts existed” but “the recent granting to and assertion by [original equipment manufacturers] of partial-product design patents for repair parts now threatens the repair parts aftermarket and the valuable consumer and insurance savings that have resulted.”).

226. Grinvald & Tur-Sinai, *supra* note 224, at 117; see also *id.* (providing example of U.S. Customs and Border Protection “routinely seiz[ing] replacement parts manufactured by . . . automobile parts supplier on the basis that the parts are ‘counterfeit’”).

227. Aaron Perzanowski, *Consumer Perceptions of the Right to Repair*, 96 IND. L.J. 361, 374 (2021).

228. See, e.g., Mark P. McKenna, *Criminal Trademark Enforcement and the Problem of Inevitable Creep*, 51 AKRON L. REV. 989, 1016 (2017) (“[I]here is virtually no law dealing with functionality in any counterfeiting context.”); *id.* at 1015 (“In a series of enforcement actions, Customs has seized imported replacement automobile parts on the ground that the parts (usually front grilles) are counterfeits because they copy registered marks in the grille designs” but “[t]he problem is that the grille designs are often necessary in the context of a replacement

First, it is not consistent with trademark law’s purpose, which is to prevent customer confusion²²⁹: consumers will be aware of the fact that an independent servicer—which it chose—repaired their products.²³⁰ Second, under trademark law, repairers are allowed to refurbish parts as long as they do not “‘deceive the public.’”²³¹ Third, manufacturers have targeted independent repairers’ use of the manufacturers’ trademarks even though—in referring to the plaintiff’s product itself—repairers’ use of the trademark will typically be justified based on the doctrine of “nominative use.”²³² Finally, the functionality defense would prohibit enforcement of a trademark embedded in a system necessary for the device to work.²³³

part—in the sense that car owners want parts that restore their cars to their original design, and sometimes even in the sense that the parts must have a particular design in order to fit the vehicle.”).

229. *E.g.*, *Fabick, Inc. v. JFTCO, Inc.*, 944 F.3d 649, 655 (7th Cir. 2019).

230. *Grinvald & Tur-Sinai*, *supra* note 224, at 116.

231. *Champion Spark Plug Co. v. Sanders*, 331 U.S. 125, 129 (1947) (quoting *Prestonettes v. Coty*, 264 U.S. 359, 368 (1924)); *see id.* at 130 (repair does not violate trademark owner’s rights “so long as the manufacturer is not identified with the inferior qualities of the product resulting from . . . reconditioning by the dealer”); *Nitro Leisure Prod., L.L.C. v. Acushnet Co.*, 341 F.3d 1356, 1362 (Fed. Cir. 2003) (for refurbished products, “consumers are not likely to be confused by—and indeed expect—differences in the goods compared to new, unused goods”).

232. *See New Kids on the Block v. News Am. Pub., Inc.*, 971 F.2d 302, 308 (9th Cir. 1992) (“[N]ominative use of a mark—where the only word reasonably available to describe a particular thing is pressed into service—lies outside the strictures of trademark law: Because it does not implicate the source-identification function that is the purpose of trademark, it does not constitute unfair competition; such use is fair because it does not imply sponsorship or endorsement by the trademark holder.”) (emphasis in original).

For example, in *Toyota Motor Sales, U.S.A., Inc. v. Tabari*, 610 F.3d 1171, 1180 (9th Cir. 2010), the court did not allow Toyota to prevent auto brokers from using its “Lexus” mark because “the wholesale prohibition of nominative use in domain names . . . would be unfair to merchants seeking to communicate the nature of the service or product” and “would be unfair to consumers, who would be deprived of an increasingly important means of receiving such information.” *See also Leah Chan Grinvald & Ofer Tur-Sinai, Smart Cars, Telematics and Repair*, 54 U. MICH. J.L. REFORM 283, 318 (2021) (citing *Ford Motor Co. v. Autel US Inc.*, No. 14-13760, 2015 WL 5729067, at *7–8 (E.D. Mich. Sept. 30, 2015), in which manufacturers targeted independent repairers’ use of the manufacturers’ trademarks on electronic menu screens).

233. *See, e.g., Sega Enterprises Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1528 (9th Cir. 1992) (overturning preliminary injunction because trademark owner’s security system “display[ing] its trademark . . . whenever the initialization code for the . . . system is utilized . . . has the effect of regulating access to the [videogame] console” and “because there is no indication in the record of any public or industry awareness of any feasible alternate method of gaining access”). *See generally Inwood Lab’s, Inc. v. Ives Lab’s, Inc.*, 456 U.S. 844, 851 (1982) (product feature is functional “if it is essential to the use or purpose of the article or . . . it affects the cost or quality of the article”); *Qualitex Co. v. Jacobson Prod. Co.*, 514 U.S. 159, 164 (1995) (“[T]he functionality doctrine prevents trademark law, which seeks to promote competition

Manufacturers also have sought to block independent repair organizations by using *trade secrets*. They have claimed that allowing these groups to service their products would “increase[] the likelihood of trade secrets becoming public knowledge”²³⁴ and “place[] OEMs, suppliers, [and] distributor and repair networks at risk.”²³⁵ Despite these claims, three doctrines should prevent manufacturers from being successful. First, unlike information that gives an advantage over competitors, repair information does not derive independent economic value from being secret.²³⁶ Second, protection does not apply when independent repairers can discover the information legally through reverse engineering.²³⁷

And third, when information “is readily shared with authorized dealers (and their repair personnel) all over the country,”²³⁸ the owner may not have engaged in reasonable efforts to maintain secrecy.²³⁹ This could be the case “even where manufacturers have entered into confidentiality agreements with their authorized dealers” because the dealers’ repair personnel may not have “entered into similar agreements with their employers.”²⁴⁰ In fact, the repair information could be so widely available and generally known that it is not considered a secret at all.²⁴¹

In the realm of *copyright* law, manufacturers of video games and gaming consoles, to pick one example, have asserted that “repair restrictions in the

by protecting a firm’s reputation, from instead inhibiting legitimate competition by allowing a producer to control a useful product feature.”)

234. Letter from Telecommunications Industry Association to FTC 2-3 (Sept. 16, 2019), https://downloads.regulations.gov/FTC-2019-0013-0072/attachment_1.pdf.

235. Electronics Products Manufacturers’ Opposition to HB 2279 3 (Jan. 8, 2018), <https://api.ctia.org/docs/default-source/legislative-activity/coalition-letter-in-opposition-to-washington-hb-2279----digital-right-to-repair.pdf>.

236. Uniform Trade Secrets Act § 1(4) (Unif. L. Comm’n 1985), <https://www.uniformlaws.org/viewdocument/final-act-128?CommunityKey=3a2538fb-e030-4e2d-a9e2-90373dc05792&tab=librarydocuments>.

237. Reverse engineering is the process of “working backward to find the method by which [the product] was developed.” *Id.* at § 1.

238. Grinvald & Tur-Sinai, *supra* note 224, at 123.

239. Uniform Trade Secrets Act § 1(4) (Unif. L. Comm’n 1985).

240. Grinvald & Tur-Sinai, *supra* note 232, at 323.

241. Uniform Trade Secrets Act § 1(4) (Unif. L. Comm’n 1985) (information must derive value from “not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use”). For a discussion of cases in which courts found trade secrets in products sold to the public, see Michael Risch, *Hidden in Plain Sight*, 31 BERKELEY TECH. L.J. 1635, 1649–51 (2016). See also Michael Hiltzik, *Column: How Apple and other manufacturers attack your right to repair their products*, L.A. TIMES (Nov. 16, 2018, 7:30 AM), <https://www.latimes.com/business/hiltzik/la-fi-hiltzik-right-repair-20181116-story.html> (“No one puts trade secrets in their repair manuals.”).

form of . . . TPMs are needed to protect video games from being pirated.”²⁴² In particular, they contend that “some game console repairs may require replacing hardware components or parts of components, and some of these hardware fixes may require’ circumvention of a console’s anti-piracy TPMs.”²⁴³

For several reasons, the copyright justification is not compelling in this setting. First, any reasonable assessment of the relationship between IP and competition law makes clear that IP rights are not absolute. Second, copyright-based policies favor the right to repair. Third, copyright doctrine supports this conclusion.

First, IP-based conduct is not immune from competition law. The Supreme Court in *FTC v. Actavis*²⁴⁴ confirmed its decades-long approach of applying antitrust scrutiny to IP-based conduct. The Court held that it “would be incongruous to determine antitrust legality by measuring [a] settlement’s anticompetitive effects solely against patent law policy, rather than by measuring them against procompetitive antitrust policies as well.”²⁴⁵ In other words, “patent and antitrust policies are both relevant in determining the ‘scope of the patent monopoly’—and consequently antitrust law immunity—that is conferred by a patent.”²⁴⁶ Citing cases going back to 1926, the Court explained that it “has struck down overly restrictive patent licensing agreements—irrespective of whether those agreements produced supra-patent-permitted revenues.”²⁴⁷

242. FTC, *supra* note 1, at 25; *see also* Letter from Microsoft Corp. to FTC at 10, May 31, 2019, <https://securerepairs.org/wp-content/uploads/2019/06/MSFT-COMMENT.pdf> (cited in FTC, *supra* note 1, at 25 n.128) (“[U]nfettered access to diagnostic and proprietary hardware tools increases the potential for malicious actors to circumvent anti-piracy controls.”).

243. FTC, *supra* note 1, at 25. For an example regarding patents, see National Association of Manufacturers letter to FTC 1 (Sept. 16, 2019), https://downloads.regulations.gov/FTC-2019-0013-0079/attachment_1.pdf. *See also* FTC, *supra* note 1, at 25 (describing the National Association of Manufacturers letter as contending that “any requirement” to “make available patented replacement parts for repair would be contrary to the statutorily protected right of a patent holder to exclude others from making, using, or selling their patented invention”).

244. 570 U.S. 136 (2013).

245. *Id.* at 148.

246. *Id.*

247. *Id.* at 150. In addition to antitrust-based scrutiny within the scope of the IP right, the doctrine of copyright misuse prevents owners from leveraging their copyrights outside this realm. For example, in *Philips North America LLC v. Advanced Imaging Services, Inc.*, the court denied a manufacturer’s motion to dismiss an independent repair organization’s claim challenging a software update with “no legitimate business reason” based on the allegation that the defendant “locked . . . ISOs out of its systems . . . to prevent competition in the servicing market under the guise of protecting their copyrighted material.” 2022 WL 1138076, at *4, *5 (E.D. Cal. Apr. 18, 2022). *See also, e.g.*, *Assessment Techs. of WI, LLC v. WIREdata, Inc.*, 350 F.3d 640, 647 (7th Cir. 2003) (copyright misuse doctrine “prevents copyright holders from leveraging their limited monopoly to allow them control of areas outside the monopoly”)

To similar effect, the D.C. Circuit in *United States v. Microsoft* rejected Microsoft's assertion that the license restrictions it imposed on original equipment manufacturers were justified as the "exercis[e] of] its rights as the holder of valid copyrights."²⁴⁸ The court explained that "Microsoft's primary copyright argument borders upon the frivolous" as "[t]he company claims an absolute and unfettered right to use its intellectual property as it wishes."²⁴⁹ But the court made clear that "[t]hat is no more correct than the proposition that use of one's personal property, such as a baseball bat, cannot give rise to tort liability."²⁵⁰ The court instead cited the longstanding proposition that "[i]ntellectual property rights do not confer a privilege to violate the antitrust laws."²⁵¹

Second, Section 5 provides leeway to consider policy considerations not as directly relevant in the caselaw. The most fundamental question in copyright law is how to assess the tradeoff between incentives and access.²⁵² In the right-to-repair setting, access concerns should be paramount. For starters, manufacturers have never shown that they need to control the market for service and parts to incentivize the creation of products with protectable expression.²⁵³ Nor would they need to do so to be motivated to service or provide parts for faulty products because—in addition to the lack of connection with protecting expression—the need to fix the products is reason enough.²⁵⁴ This favoring of access gains support from courts' treatment of reverse engineering as fair use. Because courts have found that using reverse

(citation omitted); *Alcatel USA, Inc. v. DGI Techs., Inc.*, 166 F.3d 772, 793 (5th Cir. 1999) (copyright owner "used its copyrights to indirectly gain commercial control over products [it] does not have copyrighted," namely, its microprocessor cards"); *Prac. Mgmt. Info. Corp. v. Am. Med. Ass'n*, 121 F.3d 516, 520 (9th Cir. 1997) (finding misuse where copyright owner licensed coding system "in exchange for . . . agreement not to use a competing . . . system"); *DSC Commc'ns Corp. v. DGI Techs., Inc.*, 81 F.3d 597, 601 (5th Cir. 1996) (noting "attempt[] to use . . . copyright" on "operating system software . . . to obtain a patent-like monopoly over unpatented microprocessor cards"); *Lasercomb Am., Inc. v. Reynolds*, 911 F.2d 970, 978 (4th Cir. 1990) (licensing agreement prevents licensee from "independently implement[ing]" software for 99 years). See generally Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095, 1124–26 (2003) (discussing cases).

248. *United States v. Microsoft Corp.*, 253 F.3d 34, 62 (D.C. Cir. 2001).

249. *Id.* at 63.

250. *Id.*

251. *Id.* (citation omitted).

252. E.g., Jorge L. Contreras, *The Open Covid Pledge: Design, Implementation and Preliminary Assessment of an Intellectual Property Commons*, 2021 UTAH L. REV. 833, 846 n.56 (citing sources).

253. See, e.g., FTC, *supra* note 128, at 120 (manufacturers have "already been paid for all of their IP" and "all of their R&D").

254. See also *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1208 (2021) ("The fact that computer programs are primarily functional makes it difficult to apply traditional copyright concepts in that technological world.").

engineering to create a competing system is fair use,²⁵⁵ the lesser step of repairing the system itself also would be.²⁵⁶ Finally, users expect the right to repair their product²⁵⁷ and innovation relies in significant part on users' contributions—the “user innovation” highlighted by Eric von Hippel.²⁵⁸

Third, copyright doctrine supports the right to repair. The “first sale” doctrine in Section 109 of the Copyright Act “allows those who have acquired products . . . considerable freedom to use, modify, and resell those products as they wish, even if the products are protected . . . by IP rights.”²⁵⁹ As Pamela Samuelson has explained, this right “serves many positive functions” including “promot[ing] broader public access to products[,] . . . enabl[ing] preservation of products[,] . . . protect[ing] privacy and autonomy,” and fostering “more innovation.”²⁶⁰

Additionally, Section 117(c) allows the copying of computer programs for “maintenance or repair” of a machine.²⁶¹ The drafters explained that “[w]hen a computer is activated, certain software or parts thereof is automatically copied into the machine’s random access memory, or ‘RAM.’”²⁶² Court holdings that such copying is a “reproduction” reserved to the copyright owner “call[] into question the right of an independent service provider . . . to even activate” a computer “for the purpose of servicing the hardware

255. *E.g.*, *Sega Enterprises, Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1514–15 (9th Cir. 1992) (finding fair use where Accolade reverse engineered Sega’s video game programs to create its own games); *Sony Comput. Entertainment v. Connectix Corp.*, 203 F.3d 596, 598 (9th Cir. 2000) (finding fair use where Connectix made software program whose purpose was “to emulate on a regular computer the functioning of the Sony PlayStation console”).

256. *See also infra* note 271 for a discussion of courts’ concern with applying the DMCA to protect functional products.

257. Perzanowski, *supra* note 227, at 392 (“More than 80%” of consumers surveyed “expressed their belief that they have the right to repair devices themselves or to rely on the repair shop of their choice.”).

258. *See* ERIC VON HIPPEL, *DEMOCRATIZING INNOVATION* 8 (2005) (explaining that users tend to develop “functionally novel” innovations that incorporate information about their desires in contrast to manufacturers that develop “improvements on well-known needs”). *See also, e.g.*, Grinvald & Tur-Sinai, *supra* note 232, at 292 (“Where repair markets are open, consumers, independent repair shops, and tool developers have the ability and motivation to create new methods of repair, develop or improve diagnostic and repair tools, and create user-generated tips, manuals, and kits that could significantly benefit others.”).

259. Pamela Samuelson, *Freedom to Tinker*, 17 *THEORETICAL INQUIRIES* L. 563, 572–73 (2016).

260. *Id.* at 573–74. *See also* *Kirtsaeng v. John Wiley & Sons, Inc.*, 568 U.S. 519, 542 (2013) (rejecting interpretation of Copyright Act that would have required product manufacturers to obtain “the permission of the holder of each copyright on each” component part before product is imported into United States).

261. 17 U.S.C. § 117(c).

262. H.R. REP. NO. 105-796, at 76 (1998) (Conf. Rep.).

components.”²⁶³ Section 117(c) serves a purpose that the drafters believed was “important”²⁶⁴ and supports repair.²⁶⁵

Moreover, even though copyright law—in particular, the DMCA—makes unlawful the circumvention of technological protection measures that prevent access to copyrighted works, the legislative history and case law suggest that it was not intended to be applied in right-to-repair settings. The DMCA created a triennial exemption process that allows the Register of Copyrights to conduct a rulemaking proceeding and grant exemptions for individual uses every three years.²⁶⁶ In 2015, 2018, and 2021, the Register granted an exemption allowing the circumvention of TPMs for agricultural machines.²⁶⁷ The Register found that the exemption was warranted because “facilitating diagnosis, repair, and modification of vehicles may constitute a noninfringing activity as a matter of fair use,” Section 117 of the Copyright Act, or both.²⁶⁸ The exemption is helpful in protecting those who circumvent the TPMs themselves, but it does not cover trafficking in circumvention tools, “render[ing] it effectively meaningless for those who lack the technical knowledge to access and manipulate increasingly complex embedded computer systems.”²⁶⁹

The DMCA drafters’ intentions make clear that liability is not warranted in this setting. The DMCA prohibits the circumvention of TPMs protecting

263. *Id.* For a discussion of the limits of the provision, see PERZANOWSKI, *supra* note 17, at 120 (explaining that “if software necessary for repair isn’t already stored on the machine, owners and repair providers are not entitled to obtain or make copies”).

264. H.R. REP. NO. 105-796, at 76 (1998) (Conf. Rep.).

265. As discussed above, the fair use defense protects the typical repair activity of reverse engineering. *See supra* note 255 and accompanying text.

266. 17 U.S.C. § 1201(a)(1)(B)–(D).

267. For example, the 2015 exemption covered “computer programs that are contained in and control the functioning of a motorized land vehicle such as a . . . mechanized agricultural vehicle . . . when circumvention is a necessary step . . . to allow the diagnosis, repair, or lawful modification of a vehicle function.” Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 80 Fed. Reg. 65944–01 at 65963 (Oct. 28, 2015).

268. *Id.* at 65954; *see also id.* (“owners of vehicles and agricultural machinery are adversely impacted as a result of TPMs that protect the copyrighted computer programs on the ECUs that control the functioning of their vehicles”).

269. Kyle Wiens, *Copyright Office Ruling Issues Sweeping Right to Repair Reforms*, iFIXIT (Oct. 25, 2018), <https://www.ifixit.com/News/11951/1201-copyright-final-rule>. *See supra* note 27 and accompanying text; *see also* Grinvald & Tur-Sinai, *supra* note 224, at 109 (noting that anti-trafficking provision “prevents repair shops from posting content online and distributing information related to disabling digital locks” and that distributors may be “exposed to criminal liability” for doing so). For a discussion of how John Deere started requiring farmers to sign licenses agreeing to give up rights protected by the exemption shortly after it was granted in 2015, *see supra* notes 27–33 and accompanying text.

access to a work containing copyrighted material.²⁷⁰ But the legislative history confirms that the software in functional devices was not the intended target.²⁷¹

In enacting the DMCA, Congress was concerned that copyright owners would not “make their works . . . available on the Internet” because of the “massive piracy” resulting from the “ease with which digital works [could] be copied and distributed worldwide virtually instantaneously.”²⁷² The legislation was designed to encourage the availability of the “movies, music, software, and literary works that are the fruit of American creative genius.”²⁷³

The problem is that the DMCA’s language covers more than just online movies and music. The statute encompasses any measure that protects any work “protected by this title”—in other words, any copyrighted work. And that extends to software that plays a role in functional equipment.²⁷⁴

The drafters worried about potential abuse of the DMCA, crafting an interoperability exemption so that computer programs could exchange information.²⁷⁵ The House and Senate Judiciary Committees sought to ensure that the exception would foster “competition and innovation” in the software industry.²⁷⁶ The drafters explained that the exemption “allow[ed] legitimate software developers to continue engaging in certain activities for the purpose of achieving interoperability” and that “manufacturers, consumers, retailers, and professional servicers . . . should not be prevented from correcting an interoperability problem . . . resulting from a technological measure.”²⁷⁷ In fact, the Register of Copyrights rejected a request for a specific exemption to the

270. 17 U.S.C. § 1201(a)(1)(A).

271. The caselaw also warns of expansive DMCA interpretations that encompass functional products. *See* *Lexmark Int’l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522, 552 (6th Cir. 2004) (Merritt, J., concurring) (“Congress did not intend to allow the DMCA to be used offensively” but sought only “to reach those who circumvented protective measures ‘for the purpose’ of pirating . . . copyright-protected works such as movies, music, and computer programs.”); *Chamberlain Grp., Inc. v. Skylink Techs., Inc.*, 381 F.3d 1178, 1204 (Fed. Cir. 2004) (warning of manufacturer “add[ing] a single copyrighted sentence or software fragment to its product, wrap[ping] the copyrighted material in a trivial ‘encryption’ scheme, and thereby gain[ing] the right to restrict consumers’ rights to use its products in conjunction with competing products,” which “would allow virtually any company to attempt to leverage its sales into aftermarket monopolies—a practice that both the antitrust laws . . . and the doctrine of copyright misuse . . . normally prohibit”).

272. S. REP. NO. 105-190, at 8 (1998).

273. *Id.*

274. *See* MICHAEL A. CARRIER, INNOVATION FOR THE 21ST CENTURY: HARNESSING THE POWER OF INTELLECTUAL PROPERTY AND ANTITRUST LAW 184 (2009).

275. 17 U.S.C. § 1201(f).

276. S. REP. NO. 105-190, at 13; H. COMM. ON THE JUDICIARY, 105TH CONG., SECTION-BY-SECTION ANALYSIS OF H.R. 2281, at 14 (Comm. Print. 1998).

277. 144 CONG. REC. E2138; *see generally* CARRIER, *supra* note 274, at 181–83.

DMCA on the grounds that the statute's interoperability exception was "a far more robust remedy for insuring competitive activity in the marketplace."²⁷⁸ The drafters' intent in general and the interoperability exception in particular strengthen the case for not allowing manufacturers to use the DMCA to block the repair of functional products.

Manufacturers have used copyright to target the use of not only software but also service manuals. Just to give two examples, Toshiba sent a cease-and-desist letter to an individual that "distribut[ed], by download, copyright[ed] repair manuals . . . that are proprietary"²⁷⁹ and Apple called linking to its manual "an infringement of [its] copyrights," which resulted in its "insist[ing] that [the user] immediately take all necessary steps to remove the . . . manual . . . from [its] site."²⁸⁰ Copyright's originality standard is low,²⁸¹ and courts have found that "manuals can possess sufficient originality to allow copyright protection, thin as it may be."²⁸²

But a service manual, which "contain[s] useful information for diagnosing and repairing . . . common failures,"²⁸³ is largely factual in nature. No one is interested in the manual because they are looking for flowery prose or creative expression. Absent access to the manual, the machine cannot be fixed. This seems to violate the fundamental idea-expression dichotomy.²⁸⁴ And the manual's factual, functional, non-market-displacing use seems to present a

278. Memorandum from Marybeth Peters, Register of Copyrights to James H. Billington, Librarian of Congress 178 (Oct. 27, 2003), <https://cdn.loc.gov/copyright/1201/docs/registers-recommendation.pdf>.

279. Letter from John Ryan, Toshiba to Mr. Hicks (July 31, 2012), https://www.wired.com/wp-content/uploads/blogs/opinion/wp-content/uploads/2012/11/toshiba_timhicks_takedownletter.jpeg.

280. Andrew Orlovski, *Apple sues itself in the foot (again)*, REGISTER (May 4, 2006, 4:14 AM), https://www.theregister.com/2006/05/04/apple_sa_deep_links/.

281. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 345 (1991) ("[The requisite level of creativity is extremely low; even a slight amount will suffice.>").

282. *Honeywell Int'l, Inc. v. W. Support Grp., Inc.*, 947 F. Supp. 2d 1077, 1084 (D. Ariz. 2013) (aircraft maintenance manuals). *See also, e.g.*, *Eagle Access Control Sys., Inc. v. USA Power Gate, Inc.*, No. CV 07-3789 SVW (RCx), 2008 WL 11334485, at *4 (C.D. Cal. Dec. 18, 2008) (gate "is subject to 'thin' copyright protection").

283. PERZANOWSKI, *supra* note 17, at 7–8; *see* Kyle Wiens, *The Shady World of Repair Manuals: Copyrighting for Planned Obsolescence*, WIRED (Nov. 12, 2012, 6:00 PM), <https://www.wired.com/2012/11/cease-and-desist-manuals-planned-obsolence/> ("Repair isn't economically viable without manuals.")

284. For an example of the factual nature of manuals, *see* PERZANOWSKI, *supra* note 17, at 117 (discussing medical equipment manufacturer Steris's manual, one-third of which "is a long list of part names and numbers" and "the bulk of [which] is a collection of methods and processes beyond the scope of copyright").

quintessential example of fair use.²⁸⁵ Nor are incentives needed to create service manuals, which manufacturers must offer for their products.²⁸⁶

* * *

In short, the safety concerns upon which manufacturers have relied are not supported. And those based on IP lie far afield from the creativity and innovation at the core of the IP regimes. The weak justifications, in a setting with extreme anticompetitive effects and uncertain antitrust liability, present an ideal setting for application of FTC Section 5. In not being tied narrowly to the caselaw, Section 5 has room to consider policy justifications. And when it comes to IP, those policies strongly favor the access side of the incentives/access divide.

D. THE CONSUMER-WELFARE RECONCILER

Use of Section 5 in this setting also offers benefits in bridging the divide that has recently opened in antitrust debate on the issue of “consumer welfare.” For the past fifty years, this concept has served as the lodestar of antitrust law. The term first received attention after Robert Bork introduced it in the *Antitrust Paradox*.²⁸⁷ One of the ironies of the concept is that Bork used

285. In explaining why a database of repair manuals constitutes fair use, the Electronic Frontier Foundation analyzed the four factors and concluded that 1) the use is transformative, as “[w]hatever copyrightable elements exist in the[] manuals . . . are irrelevant to the project’s purpose of disseminating and explaining factual repair information . . . to save lives”; 2) the works “are highly factual and already published”; 3) the project “must copy entire manuals, or risk leaving out crucial details or context the technician will need to make the repair”; and 4) the documents “are incidental to the sale of a corresponding medical device” and “allowing manufacturers a copyright monopoly over repair information risks creating a corollary monopoly” on device maintenance, which would be “a misuse of copyright to inhibit competition in an adjacent market for non-copyrightable goods and services.” Letter from Kit Walsh & Cynthia Replogle, EFF to Russell Wheatley, Steris Corp. 2-3 (June 10, 2020), https://www.eff.org/files/2020/06/10/ifixit_correspondence_to_steris_executed.pdf. See also *id.* (“Given that the market for medical devices is about medical devices, it would be difficult for Steris to plausibly argue that it lacks adequate other incentives to document how to maintain the devices that are its bread and butter,” and “[t]he benefit to the public far outweighs any speculative harm to any legitimate interest in restricting their availability.”). See generally *Gulfstream Aerospace Corp. v. Camp Sys. Int’l, Inc.*, 428 F. Supp. 2d 1369, 1378, 1380 (S.D. Ga. 2006) (finding fair use of manuals because nature of work was “predominantly factual,” author’s “desire for copyright protection has nothing to do with needing an incentive to create its manuals,” and author’s “monopolization efforts should not get an assist from the [c]ourt through an expansive reading of copyright law”).

286. See, e.g., *The Importance Of Buying a Good Service Manual*, LINKEDIN (May 29, 2020), <https://www.linkedin.com/pulse/importance-buying-good-service-manual-my-premium-manual-source/>.

287. ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* 7 (1978).

it to refer to the welfare of not only consumers but also producers.²⁸⁸ Despite that, the term became the widely acknowledged goal of antitrust. It put the focus on consumers, whose interest in lower prices, higher output, better quality, and more innovation served as an effective surrogate for antitrust's objectives. And it addressed some of the acknowledged problems of the previous antitrust era, in which the lack of an overriding objective reduced predictability and antitrust “was characterized by over-enforcement, poor quality economics or none at all, and many internal contradictions.”²⁸⁹ In the past few years, neo-Brandeisians have objected to the term, asserting that it does not promote the objectives antitrust should be supporting, including those relating to small businesses, and that it focuses solely on price.²⁹⁰

There have been many stringent hurdles to robust antitrust enforcement since the 1970s. But it is not clear that consumer welfare deserves the lion's share of the blame it has shouldered. In their attempt to avoid punishing innocent companies, antitrust courts “have often imposed almost impossibly high burdens of proof on plaintiffs.”²⁹¹ And in fact, the consumer-welfare framework has made room not just for price and output, but also innovation²⁹² and labor.²⁹³ Regardless of how this question is resolved, the right-to-repair setting is one in which the two sides' goals align.

The reason is that, stated most generally, the interests of consumers overlap with those of workers, user innovators, and independent repair

288. Robert H. Bork, *Legislative Intent and the Policy of the Sherman Act*, 9 J.L. & ECON. 7, 7–10 (1966).

289. Herbert Hovenkamp & Fiona Scott Morton, *Framing the Chicago School of Antitrust Analysis*, 168 U. PA. L. REV. 1843, 1844 (2020).

290. Lina M. Khan, *Amazon's Antitrust Paradox*, 126 YALE L.J. 710, 716 (2017).

291. A. Douglas Melamed, *Antitrust Law and Its Critics*, 83 ANTITRUST L.J. 269, 273 (2020).

292. *E.g.*, *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) (en banc). *See generally* A. Douglas Melamed & Nicolas Petit, *The Misguided Assault on the Consumer Welfare Standard in the Age of Platform Markets*, 54 REV. INDUS. ORG. 741, 752 (2019) (describing judicial “condemn[ation] of] practices—unrelated to price—that threatened to raise entry barriers and thus to reduce or delay innovation”).

293. *E.g.*, Complaint, *United States v. Adobe Systems, Inc.*, No. 1:10-cv-01629 (D.D.C. Sept. 24, 2010). *See* Melamed & Petit, *supra* note 292, at 753 (Department of Justice treated as “facially anticompetitive” a series of bilateral agreements among large technology firms that “refrain[ed] from soliciting, cold calling, recruiting, or otherwise competing for each other's computer engineers and scientists” because it “disrupted the normal price setting mechanisms that apply in the labor setting”). *See also* Stephen Calkins, *Remarks Intended for Delivery on the Acceptance of the American Antitrust Institute's 2019 Award for Antitrust Achievement*, ANTITRUST INST. (June 20, 2019), https://www.antitrustinstitute.org/wp-content/uploads/2019/08/Calkins_201-Antitrust-Achievement-Award.pdf (calling the term “conceptually correct” but suggesting use of phrase “competition welfare standard” and stating that the notion that “‘consumer welfare’ is concerned exclusively with price . . . is not and never has been true”).

shops.²⁹⁴ The consumer-welfare divide tends to appear when a large company uses efficiencies to benefit consumers, harming small-business rivals as a result. For example, if consumers benefit from large retailers' efficiencies, then what is good for consumers could be bad for small businesses, and vice versa. Here, in contrast, the consumer stands in for the effects on price, output, lives, and livelihoods. That would not necessarily be true if there were significant efficiencies from repair restrictions. But based on the evidence unearthed in empirical studies, the FDA's comprehensive report, and the FTC workshop, that doesn't appear to be the case.

In fact, a focus on consumers or end-users is particularly apt here. The primary entity affected by anticompetitive repair restrictions is the user—the patient who needs a ventilator, the military officer seeking to repair equipment in the field, the farmer trying to get their tractor to work, and the user struggling with their non-working device. The harm these users suffer from repair restrictions is not theoretical. In fact, the effect on lives and livelihoods is as direct as can be imagined.

VI. CONCLUSION

The right to repair is crucial. Consumers suffer by not being able to fix their products in a range of industries, including agriculture, medical, military, and technology. As applied by today's courts, antitrust will often not be able to be applied effectively to address these harms. My Section 5 framework is consistent with the rationale underlying *Kodak* while protecting consumers who effectively lack choice. Given the severe effects on lives and livelihoods and questionable justifications, a competition-based tool promises real benefits.

294. See, e.g., FTC, *supra* note 128, at 24 (noting “billions of dollars in potential loss for small businesses because of the possibility of losing the refurbishing market”).