Policy levers in intellectual property law and the right to repair[1]

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Abstract

Recent developments in right to repair laws across multiple jurisdictions have intensified scrutiny of how far manufacturers may assert intellectual property (IP) rights post-sale. This article examines the right to repair movement and emerging legislative responses, focusing on three central developments: access to spare parts, disclosure of repair information, and lawful circumvention of technological protection measures. Setting aside mandatory supply of parts and tools, it argues that existing IP policy levers – exhaustion doctrine, a normative account of repair, and abuse of rights – cannot reliably expand the space for repair activities in the absence of a bespoke right to repair. This article then turns to Japan and contends that while adopting right to repair legislation would align with Japan's circular economy objectives, the threshold question is whether access barriers to repair comparable to those in other jurisdictions in fact arise to an extent that justifies rebalancing rights between IP holders and consumers.

Keywords

right to repair, intellectual property rights, policy levers, Japan

1. Introduction

In recent years, a wave of "right to repair" legislation has been adopted across several jurisdictions. This legislative activity builds on a broader right to repair movement, which insists that owners of purchased goods should be able to keep them in service by having access to spare parts, repair tools, and repair information, and by being protected against legal and technical barriers to repair.[3] The movement specifically identifies intellectual property (IP) as a barrier, pointing to copyright claims against the sharing of repair manuals,[4] increased design

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[3] The Repair Association, based in the U.S., highlights restricted access to parts, tools, documentation, and the locking of third-party parts as the main issues surrounding the right to repair. See: "The Issue: Restricted Access to Parts, Tools, and Documentation," The Repair Association, accessed January 27, 2026, https://www.repair.org/restricting-access. The Right to Repair Europe coalition identifies similar issues, and additionally advocates for more sustainable designs and bans on a wider range of anti-repair practices. See: "What We Want," *Right to Repair Europe*, n.d., accessed January 27, 2026, https://repair.eu/what-we-want/.

[4] Tim Hicks, "Toshiba Laptop Service Manuals and the Sorry State of Copyright Law," *Future Proof*, November 10, 2012, https://tim.id.au/blog/2012/11/10/toshiba-laptop-service-manuals-and-the-sorry-state-of-copyright-law/. See also *Right to Repair: Productivity Commission Inquiry Report* (Productivity Commission, 2021), 168–69.

protection granted to repair parts,[5] trade mark claims used to disrupt aftermarket supply,[6] patent suits targeting reuse and recycling businesses,[7] and the deployment of technological protection measures (TPMs) to block access needed for repair.[8] Where repair advocates seek to advance, manufacturers sought to differ, citing the importance of IP rights in sustaining innovative activities and the necessity of keeping sensitive technical information confidential.[9] Manufacturers further claim that repair restrictions are justified on grounds of product safety, quality of service, cybersecurity, and management of liability.[10] As right to repair rules have gradually taken hold, however, manufacturers have begun to adjust their public positions and business strategies, and in some cases to express cautious support for harmonised, "balanced" repair obligations.[11]

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[5] On the trend where design patents are increasingly granted to OEMs, see e.g. Automotive Body Parts Association, "Consumer Issues in the Collision Repair Industry," December 5, 2019, 5–6, https://www.regulations.gov/comment/FTC-2019-0013-0088; Leah Grinvald and Ofer Tur-Sinai, "Intellectual Property Law and the Right to Repair," *Fordham Law Review* 88, no. 1 (2019): 113–14.

[6] See e.g. Automotive Body Parts Association reporting the disruption of aftermarket parts by original equipment manufacturers (OEMs) alleging trade mark infringement at the point of entry into the market, resulting in the parts being flagged and facing increased scrutiny, without any actual filing of trade mark infringement charges. Automotive Body Parts Association, "Consumer Issues in the Collision Repair Industry," 13. See also the Australian Government's Productivity Commission report on Apple's assertion of trade mark rights to prevent importation of aftermarket iPhone screens, *Right to Repair: Productivity Commission Inquiry Report*, 178.

[7] Notably, the cases concerning printer toner cartridges, see e.g. Supreme Court of Japan (First Petty Bench), 8 November 2007, 2006 (Ju) No. 826 (Canon Ink Tank case); Impression Products, Inc. v. Lexmark International, Inc., 137 S. Ct. 1523 (2017); and Calidad Pty Ltd v Seiko Epson Corporation HCA 41; (2020) 383 ALR 375.

[8] See e.g. Anthony D. Rosborough and Aaron Perzanowski, *Repair As Research: How Copyright Impedes Learning About Devices*, 2023, 14–24.

[9] See e.g. Federal Trade Commission, *Nixing the Fix: An FTC Report to Congress on Repair Restrictions* (2021), 24–38.

[10] The National Manufacturers Association ("NAM") has opposed the right to repair, calling it "a solution in search of a problem", see National Association of Manufacturers, *New Study: "Right-to-Repair" Stifles Innovation, Threatens Consumer Safety*, December 7, 2023, https://nam.org/new-study-right-to-repair-stifles-innovation-threatens-consumer-safety-29652/. On NAM's general position on the right to repair, see also Ike Brannon and Kerri Seyfert, *The Economic Downsides of "Right-to-Repair:" Prepared for the National Association of Manufacturers* (National Association of Manufacturers, 2023).

[11] Apple now expresses that "consumers and businesses would benefit from laws that balance repairability with customer safety, product performance, and integrity," but notes the concern over confusion by conflicting approaches within countries and across borders. See: Apple Inc., "Longevity, by Design," June 2024, 3–23, https://www.apple.com/environment/pdf/Longevity_by_Design-June_2024-Apple.pdf. Apple has similarly lobbied against right to repair legislation. "Apple Argues against Right-to-Repair Bill That Would Reduce Its Control | The Verge," accessed December 31, 2025, https://www.theverge.com/2024/2/9/24067957/apple-right-to-repair-oregon-bill-parts-pairing-ban. See also the recent protests on Microsoft's support for Windows 10. Cristina Ganapini, "Microsoft Stops Automatic Support for Windows 10: Campaigners Demand EU Action to Put an End to Software Obsolescence," *Right to Repair Europe*, October 14, 2025, https://repair.eu/news/microsoft-stops-

The right to repair movement is largely backed by two accounts: (i) consumer interest in maintaining and restoring purchased products, and (ii) creation of a circular economy and emphasis on sustainability.[12] The former emphasises the rebalancing of bargaining power between consumers and manufacturers, for example by ensuring access to independent repair on fair and reasonable terms.[13] The circular economy approach, which finds support under the United Nations Sustainable Development Goals (SDGs),[14] focuses on closed-loop production, resource efficiency, and the reduction of premature obsolescence.[15] Aligned with both accounts are calls to move towards a "positive user right to repair" by curbing the overreach of IP laws where they impede repair.[16] From a competition law perspective, concerns also arise when manufacturers create or reinforce repair monopolies through practices such as tying

automatic-support-for-windows-10-campaigners-demand-eu-action-to-put-an-end-to-software-obsolescence/. See Google's most recent position: "Google & Repairability - Google Sustainability," Sustainability, accessed December 1, 2025, https://sustainability.google/reports/Right-to-Repair/. See also John Deere's current position on the right to repair, with repair parts and manuals now available for sale on their website. John Deere, "Service & Repair Resources," 2025, https://about.deere.com/en-us/our-company-and-purpose/service-repair-resources.

[12] The right to repair movement in the US is mostly driven by consumer rights. In the EU, it finds roots in the European Green Deal but is also viewed as advancing consumer protection and creating a more competitive market. On the repair social movement in the US, see generally Grinvald and Tur-Sinai, "Intellectual Property Law and the Right to Repair." In the EU, see generally Impact Assessment Accompanying the Proposal for a Directive on Common Rules Promoting the Repair of Goods and Amending Regulation (EU) 2017/2394 and Directives (EU) 2019/771 and (EU) 2020/1828, SWD(2023) 60 Final, 22 March 2023. (2023), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023SC0059; Taina Pihlajarinne, "European Steps to the Right to Repair: Towards a Comprehensive Approach to a Sustainable Lifespan of Products and Materials?," SSRN Scholarly Paper no. 3708221 (Social Science Research Network, October 9, 2020), https://papers.ssrn.com/abstract=3708221.

[13] See e.g. New York's Digital Fair Repair Act, framed by its sponsor to "improve security and safety for consumers while still protecting their ability to get their devices repaired at a fair and reasonable price." Senate Bill S1320, 2023-S1320, The New York State Senate (2023), https://www.nysenate.gov/legislation/bills/2023/S1320. See also the right to repair legislative template by The Repair Association, "to promote equipment owner choice and competition by requiring manufacturers of digital electronic equipment to make available to owners and independent repair providers, on fair and reasonable terms, the documentation, parts, and tools used to diagnose, maintain, and repair such equipment." The Repair Association, "2026 Legislative Template for Digital Right to Repair," Legislation and Policy Objectives, October 24, 2025, https://www.repair.org/legislation.

[14] *Transforming Our World: The 2030 Agenda for Sustainable Development*, A/RES/70/1 (United Nations, 2015).

[15] The 2030 Agenda for Sustainable Development, adopted by the United Nations, sets out 17 Sustainable Development Goals (SDGs), where SDG 12 calls for "sustainable consumption and production patterns."

[16] See Anthony Rosborough et al., "Achieving a (Copy)Right to Repair for the EU's Green Economy," *Journal of Intellectual Property Law and Practice* 18, no. 5 (2023): 351 (on how copyright law should be balanced towards a positive user right to repair by limiting the reach of copyright where it impedes repair).

repair services to the supply of parts or using technical measures to foreclose independent repairers.[17]

At the international level, the SDGs, while not binding as such, have been taken up by states and regional organisations in their own legal orders. The EU's Right to Repair Directive[18] seeks to advance the SDGs and implement the European Green Deal strategy,[19] notably goal 12.5 on reducing waste through prevention, reduction, recycling, and reuse, and goal 12.6 on encouraging companies to adopt sustainable practices and to integrate sustainability practices into their reporting cycle. Relevantly, the World Intellectual Property Organization (WIPO), through the WIPO Development Agenda, has likewise stressed that a well-calibrated innovation policy framework can support progress across a wide range of SDGs.[20] Yet WIPO has so far engaged only tangentially with repair-specific questions and left member states considerable latitude in tailoring enforcement to their policy priorities.

As will be explored, the resulting right to repair legislation across jurisdictions varies significantly, but for the most part stops short of directly cutting into the core exclusivity IP rights. Still, these laws tend to either specify or exclude certain product groups where the manufacturer is required to supply parts, tools, and information across a specific period of time, and exclude circumvention of TPMs if for repair purposes. The emergence of these laws, however, highlights a familiar principle: IP rights are not absolute. Rather, the exclusivity they confer is balanced against policy considerations that serve the broader public interest. The right to repair brings to the foreground the extent to which sustainability or consumer policies should prevail when it conflicts with IP holders' exclusive rights.

Against this backdrop, this article seeks to first provide an overview of the main right to repair legislation now in force or under discussion as of the time of writing. This is followed by exploring three "built-in" levers within existing IP doctrines that courts can consider for accommodating repair even in the absence of express legislative exceptions. Finally, it reflects on the necessity of a bespoke right to repair legislation, and whether Japan, in light of its environmental policy trajectory, needs one. While the discussion will touch on relevant IP rights more broadly, the primary focus of this article is on patent law.

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[17] See also Perzanowski, Aaron, *Mandating Repair Scores*, 2022, 1124. (Perzanowski points to four primary justifications for legal intervention: preserving end-user autonomy, promoting competitive markets, minimizing environmental impact, and expanding user options.)

[18] Directive (EU) 2024/1799 of the European Parliament and of the Council of 13 June 2024 on common rules promoting the repair of goods and amending Regulation (EU) 2017/2394 and Directives (EU) 2019/771 and (EU) 2020/1828

[19] "The European Green Deal – European Commission," accessed January 8, 2026, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.

[20] WIPO, "The Impact of Innovation: WIPO and the Sustainable Development Goals," accessed November 8, 2025, https://www.wipo.int/sdgs/en/story.html.

2. Right to repair legislation

Right to repair legislation generally encompasses a range of activities, including pre-sale design, post-sale IP rights enforcement, mandatory supply of parts, disclosure of repair information, and exemption from circumvention of TPMs. To date, the EU and several U.S. states have been the most active in the legislative space.

In the EU, the right to repair is grounded in broader constitutional principles[21] and implemented through a suite of measures. The Circular Economy Action Plan[22] underlines sustainability objectives, which are furthered by several other instruments, including the Ecodesign Regulation (ESPR),[23] the Right to Repair Directive, and the "Design Package."[24] The EU also seeks to tackle the root of the problem by requiring manufacturers to produce repairable products on the market,[25] for example by putting in place design-for-repair and repairability-index obligations.[26] In the US, right to repair legislation has developed only at the state level, with statutes that differ in sectoral focus and contain varying carve-outs for different products.[27]

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[21] Art. 11, Treaty of the Functioning of the European Union; Art. 37 of the Charter of Fundamental Rights

[22] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: On Making Sustainable Products the Norm, COM/2022/140 final (2022), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0140&qid=1649112555090.

[23] Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC

[24] Regulation (EU) 2024/2822 of the European Parliament and of the Council of 23 October 2024 amending Council Regulation (EC) No 6/2002 on Community designs and repealing Commission Regulation (EC) No 2246/2002; and Directive (EU) 2024/2823 of the European Parliament and of the Council of 23 October 2024 on the legal protection of designs (recast)

[25] See the preambles of the Right to Repair Directive and the Ecodesign Regulation on supporting EU's wider environmental goals, including referencing the European Green Deal and the Circular Economy Action Plan.

[26] See e.g. the EU's repair-related legislation as foreseen under the second Circular Economy Action Plan. A New Circular Economy Action Plan for a Cleaner and More Competitive Europe, COM/2020/98 final (2020), https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN. While the European approach stems from the overarching European Green Deal for sustainable growth, it is also part of the New Consumer Agenda that encourages consumers to repair. See: European Commission, "2030 Consumer Agenda," November 19, 2025, https://commission.europa.eu/strategy-and-policy/policies/consumers/consumer-protection-policy/2030-consumer-agenda_en. On how the unregistered community design influenced fast-moving consumerism, see: Charlotte J. S. Vrendenbarg, "Durable Design: What Role for EU Design Law in the Green Transition?," *GRUR International* 74, no. 6 (2025): 525–31, https://doi.org/10.1093/grurint/ikaf052.

[27] On the developments of state-level right to repair laws in the U.S., see e.g. Gerard Donovan and Chris Brennan, "Navigating The Growing Thicket Of 'Right To Repair' Laws," Law360, March 14, 2025, https://www.law360.com/articles/2308676/navigating-the-growing-thicket-of-right-to-repair-laws; Leah Grinvald and Ofer Tur-Sinai, "The Right to Repair in the United States," in *Promoting Sustainable Innovation and the Circular Economy* (Routledge, 2024).

These state laws impose different obligations on manufacturers and provide different remedies for consumers and independent repairers, resulting in a growing thicket of state repair laws.

While both EU and US measures address issues extending beyond the IP landscape, this paper will only address the three pertinent points most relevant to IP protection: access to spare parts, disclosure of repair manuals, and circumvention of TPMs, with periodic references to other jurisdictions where relevant.

2.1 Access to spare parts

A core demand of the right to repair movement is access to spare parts and components to enable restoration of a faulty product. Under the EU framework, the ESPR establishes design-phase requirements for sustainable products, mandating manufacturers to ensure repairability through accessible spare parts, technical documentation, and prohibitions on measures that obstruct repairs, such as software locks. The earlier Ecodesign Directive[28] set out minimum repairability standards and parts availability for specific energy products through product-specific implementing acts for different product groups, and continues to apply temporarily for those products until the new framework is fully implemented.[29] The ESPR, which entered into force on 18 July 2024, seeks to integrate environmental sustainability considerations throughout a product's life cycle and value chain and to curb planned obsolescence.[30] It replaces and expands the scope of the Ecodesign Directive by establishing a general legal framework for ecodesign requirements,[31] while detailed requirements for each product group are to be defined through subsequent implementing measures.

The ESPR, through the ecodesign requirements, seeks to improve "product durability, reliability, repairability, upgradability, reusability, and recyclability, improve possibilities for the refurbishment and maintenance of products(…)."[32] It further affirms the principle of exhaustion with regards to second-hand products: products that undergo refurbishment or repair, originating from the EU, are not new products. However, "remanufactured" products are considered new products subject to ecodesign requirements. "Remanufacturing" is further defined as a new product produced from waste, where at least one change significantly affects the safety, performance, purpose, or type of product. On the other hand, the Right to Repair

[28] Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products; Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU

[29] See also Regulation (EU) 2019/2023 for washing machines and washer-dryers, Regulation (EU) 2019/2022 for dishwashers (from March 2021), and Regulation (EU) 2023/2533 for tumble dryers (from July 2025).

[30] See preamble, para. 7 of the ESPR. The obligations under the prior Directive on Ecodesign remain in effect until 2026 for certain energy and heating devices, or until 31 December 2030 in regard to products regulated by implementing measures. See Art. 79 of ESPR.

[31] Defined under Art. 2(7) as a performance requirement aimed at making a product or process more environmentally sustainable. See also Art. 5 on the product aspects.

[32] Preamble, para. 6, ESPR

Directive directly references what constitutes “repair” and “refurbishment” under the ESPR: repair refers to an action carried out to restore a defective product to a condition where it fulfils its intended purpose,[33] whereas “refurbishment” refers to actions necessary to repair a product to its performance or functionality within its intended use, as conceived at the design stage.[34]

Under existing ESPR implementing regulations adopted under the 2009 Directive, spare parts must be made available for, among others, for a minimum of 7 years for refrigerating appliances[35] and household dishwashers,[36] 10 years for door hinges and seals; and delivery of the spare parts must be made within 15 working days. For smartphones and tablets placed on the EU market from 20 June 2025 onward, a separate Ecodesign regulation[37] requires manufacturers to ensure that key spare parts are available for up to seven years after the last unit has been placed on the market. Under the 2024 Regulation and its product-specific implementing measures, manufacturers are required to ensure access to essential components and may not bundle them in a way that prevents individual sale of spare parts.[38] In addition, the Regulation prohibits destruction of certain categories of unsold consumer products, subject to limited derogations to be set in a delegated act, including where the products must be destroyed because they infringe IP rights.[39]

Complementing this, the Right to Repair Directive applies from 31 July 2026 to the products listed in Annex II, which include household washing machines and washer-dryers, household dishwashers, household tumble dryers, refrigerating appliances, electronic displays, welding equipment, vacuum cleaners, servers and data storage products, phones and tablets, and e-bikes.[40] The directive imposes post-sale obligations on manufacturers to either repair these goods themselves or subcontract their repair, upon request, free of charge or at a reasonable price and within a reasonable time, and cannot refuse to repair such goods just because a previous repair had been carried out by a third party.

Specifically on IP rights protection, what “spare parts” entail depends on the product as listed in Annex II. The preamble and Art. 5(6) of the Repair Directive make it clear that manufacturers

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[33] Art. 2(20), ESPR

[34] Art. 2(18), ESPR

[35] Commission Regulation (EU) 2019/2019 of 1 October 2019 laying down ecodesign requirements for refrigerating appliances pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 643/2009

[36] Commission Regulation (EU) 2019/2022 of 1 October 2019 laying down ecodesign requirements for household dishwashers pursuant to Directive 2009/125/EC of the European Parliament and of the Council amending Commission Regulation (EC) No 1275/2008 and repealing Commission Regulation (EU) No 1016/2010

[37] Commission Regulation (EU) 2023/1670 of 16 June 2023 laying down ecodesign requirements for smartphones, mobile phones other than smartphones, cordless phones and slate tablets pursuant to Directive 2009/125/EC of the European Parliament and of the Council and amending Commission Regulation (EU) 2023/826 (Regulation (EU) 2023/1670)

[38] Art. 5-7 and Annex I, ESPR

[39] Art. 24-26, ESPR

[40] Art. 5, Right to Repair Directive

cannot use any contractual mechanisms, hardware or software techniques that restrict the repair of goods under Annex II, unless "justified by legitimate and objective factors," which would include the protection of IP rights. A literal reading would inform that a patentee is not compelled to produce a specific patent-protected part. Art. 5(6) clarifies that manufacturers cannot impede the use of spare parts, whether original, second-hand, compatible or 3D printed, but only if those spare parts are in compliance with EU or national laws including product safety or IP relevant legislation.[41] The last sentence of the same clause states that it is without prejudice to specific EU acts in Annex II, nor to EU or national IP laws, which means that the scope of repair can be further narrowed beyond this general clause.

In parallel, the new EU design package introduces a "repair clause," specifically under the Directive to be transposed by EU member states. The clause excludes design protection for visible component parts that are used only to repair a complex product and restore its original appearance, for certain "must-match" visible spare parts of complex products, which would help facilitate the manufacture and sale of compatible replacement parts.[42]

Overall, the current EU framework remains product-specific, for good reasons: each requirement is developed for specific product groups by technical experts, taking into account both consumer expectations for that product type and unique technical considerations of those categories.[43] This approach has nonetheless drawn some criticism. An example concerns smartphones and tablets, in which spare parts are mandated to be made available only to "professional repairers" and not to end users.[44] The definition of a "professional repairer" differs across different regulations and remains unharmonised, beyond the core requirement of providing "professional repair or maintenance services for a product," demonstrate insurance coverage and technical expertise, and registered as a professional repairer in at least one EU member state.[45]

Among U.S. states, California, Colorado, Minnesota, New York, Massachusetts, and Oregon have all adopted some form of right to repair legislation.[46] In New York[47] and Minnesota[48] for

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[41] Art. 1(3) clarifies that application of this clause is limited to those goods listed in Annex II.

[42] Art. 20a, ESPR

[43] DigitalEurope, *"Right to Repair" Directive: Don't Unravel the Commission Proposal* (Brussels, n.d.), 3–4.

[44] Section B, 1.1(1) of Regulation (EU) 2023/1670. See also Cristina Ganapini, "Repair Labels, Spare Parts and Longer Support for Smartphones and Tablets as of June 2025 – but We Need More Repairable Designs," *Right to Repair Europe*, June 20, 2025, https://repair.eu/news/repairability-labels-spare-parts-and-longer-support-for-smartphones-and-tablets-as-of-june-2025-but-we-need-more-repairable-designs/ (pointing out that only five out of fifteen types of spare parts will be made available to end users and community repair initiatives).

[45] Para. 48, Preamble, ESPR; Section B, 1.1(2) of Regulation (EU) 2023/1670

[46] See generally Elizabeth Chamberlain, "Right to Repair Laws Have Now Been Introduced in All 50 US States," iFixit, December 31, 2025, https://www.ifixit.com/News/108371/right-to-repair-laws-have-now-been-introduced-in-all-50-us-states; Jack Goodrich and Nathan Proctor, *The State of Right to Repair* (U.S. PIRG Education Fund, 2025).

[47] N.Y. Gen. Bus. Law § 399-NN(4) (2022)

[48] Minn. Stat. § 325E.72

instance, original equipment manufacturers (OEMs) must provide replacement parts on "fair and reasonable terms" for a specified duration,[49] and apply the same terms made available to authorised repair providers to independent repair providers and individuals. As compared to the EU, the state repair laws in the US explicitly affirms provision of spare parts to not just repairers but end users. Further, instead of positively listing covered product categories, these state laws define relatively broad coverage for digital electronic equipment then carve out specific sectors. For example, New York explicitly leaves out motor vehicles, gaming and entertainment consoles, related software and service components, medical devices, farming equipment, industrial electronic equipment and e-bikes. California exempts, among others, categories that pose significant safety or security risks if repaired improperly, alarm systems, and video game consoles, and Colorado additionally exempts electric vehicles, marine vessels, and motor vehicles, alongside separate sectoral statutes for agricultural equipment and wheelchairs.[50] Despite covering a wider range of products, some states exclude business-to-business or business-to-government sale, and most preserve an OEM's ability to withhold trade secrets or highly sensitive IP, such as source code of security-critical information, from disclosure to independent repairers or end users. Minnesota's right to repair act for instance, states that an OEM only needs to disclose IP "as necessary to provide documentation, parts, and tools on fair and reasonable terms."[51]

A consumer-oriented approach to repair can also be seen in Quebec's Consumer Protection Act,[52] which has since 1978 required retailer and manufacturers to provide consumers with information on the availability of replacement parts and repair services. Recent amendments[53] go further by prohibiting deliberate acts that shorten the lifespan of a product.[54] Retailers and

[49] Durations for supplying of spare parts differ greatly. In California, spare parts must be made for at least seven years after the last date the product was manufactured with a wholesale price over $99.99, and three years if it is an electronic or appliance product with a wholesale price of $50-99.99.

[50] S6-1-1503, subsections 2 and 5. The chaptered bill appears to have been watered down: in the original bill, service literature should have been provided at no charge, and clauses that require manufacturers to provide access to electronic security lock or any other security function at reasonable terms to disable or reset the lock are struck out. Further, in the original bill a manufacturer is not required to divulge a trade secret "except as may be necessary to provide service literature, documentation, tools, software, and parts on fair reasonable terms, but now a manufacturer does not need to divulge "trade secret or license any intellectual property, including copyrights or patents." An extensive set of limitation of liability provisions are also added in to the final version of the manufacturer's liability for any repair carried out by the consumer or a third party. See: "Compare Versions – SB-244 Right to Repair Act. Right to Repair Act.," accessed November 26, 2025, https://leginfo.legislature.ca.gov/faces/billVersionsCompareClient.xhtml?bill_id=202320240SB244&cversion=20230SB24499INT.

[51] Minn. Stat. § 325E.72, subd. 5(a)

[52] Section 39, Consumer Protection Act

[53] Bill 29, An Act to protect consumers from planned obsolescence and to promote the durability, repairability and maintenance of goods.

[54] Sections 277–280 of the Consumer Protection Act

manufacturers are also required to disclose ahead of sale if replacement parts and repair services will be available and for how long.[55]

2.2 Disclosure of repair manuals

Second, existing right to repair legislation also calls for access to repair manuals, schematics, and diagnostic information, without which consumers and independent repairers cannot meaningfully exercise any repair freedom. In general, repair manuals and service documentation may qualify for copyright protection as literary works if they incorporate original expression beyond mere factual or procedural content. A manufacturer's diagnostic software will typically be protected as a software program under copyright law. Other technical know-how may also be protected under trade secret law if the conditions are met.

Critics have pointed out that manufacturers' unwillingness to share or withholding of repair information is detrimental to consumers and independent repair services, since it makes repairing much more difficult.[56] In 2012, Toshiba issued cease-and-desist demands to Tim's Laptop Service Manuals, an Australian site hosting over 200 models' service manuals, citing copyright infringement and forcing the removal of all Toshiba content despite its value to hobbyists and technicians.[57] Similarly, in 2016, Apple threatened YouTube repair technician Louis Rossmann with legal action over videos displaying proprietary schematics for board-level MacBook fixes, raising fears of channel takedowns and business shutdowns.[58] These IP enforcement actions against repair educators and sharers create a chilling effect, discouraging the dissemination of vital knowledge and stifling the right to repair movement.

In response, most right to repair laws that mandate the production or supply of spare parts similarly require disclosure of repair-related documentation.[59] In the EU, ecodesign requirements for specific products require manufacturers to provide repair information such as component and diagnosis information, wiring and connection diagrams, diagnostic fault and error codes, a disassembly map of the product and more, but only to professional repairers

[55] Section 39, Consumer Protection Act

[56] According to a survey conducted by iFixit, PIRG, and the Digital Right to Repair Coalition on the availability of service manual and repair information, 86% of the companies did not provide full repair instructions, 89.1% of technicians reported issues with accessing service manuals, and another 93.5% technicians found it difficult to access necessary schematics. Much of this information is provided at a high fee which may be too costly for an independent repair shop. See: Elizabeth Chamberlain et al., *Investigation of Barriers to Appliance Service Information Access: A Report to the FTC Re: Energy Labelling Rule (16 C.F.R. Part 305) (Matter No. R611004)* (2023), 21–46, https://www.regulations.gov/comment/FTC-2022-0061-0033.

[57] Hicks, "Toshiba Laptop Service Manuals and the Sorry State of Copyright Law."

[58] Julia Bluff, "Louis Rossmann Might Lose His Repair Videos After Legal Threat," iFixit, July 1, 2016, https://www.ifixit.com/News/8210/rossmann-repair-legal-threat.

[59] See e.g. § 399-nn(2), New York's General Business Law; Annex II of the Right to Repair Directive; Section 39 of Quebec's Consumer Protection Act.

and at a fee.[60] The Right to Repair Directive also requires manufacturers to supply repair and maintenance related information, including software tools, firmware, or similar auxiliary means, necessary to ensure the technical feasibility of repair for products covered by its annexes.[61] This is again qualified by "legitimate and objective factors," including to prevent infringement of IP rights.[62] What is noteworthy is that Art. 6 does not impose a general obligation to provide full consumer access to detailed service manuals or schematics, but only "information on their repair services in an easily accessible, clear and comprehensible manner." This means that the end users may not receive detailed service documentation including manuals and schematics.

On the other hand, state-level repair laws in the U.S. do not seem to limit the disclosure of repair manuals. Access to tools is not limited to just repairers but also the owner of the purchased good, when requested.[63] Manufacturers must also provide it on fair and reasonable terms.[64] There are still limits to disclosure on IP grounds. Minnesota's right to repair act explicitly states that an OEM would only need to divulge trade secrets or license any IP to an owner or independent service provider as required to provide repair-related documentation.[65] Colorado similarly does not require a manufacturer to license any IP "unless such licensing is necessary for providing services."[66] Nevertheless it remains to be seen how these carve-outs are interpreted by the courts.

Relevantly, Australia has in place its automotive Motor Vehicle Service and Repair Information Sharing Scheme,[67] a mandatory data-sharing regime that requires car manufacturers and other data providers to give independent repairers fair access to service and repair information. There is no statutory right to repair for other goods, but the Productivity Commission's Right to Repair Inquiry concluded in October 2021 recommended strengthening consumer guarantees and requiring manufacturers to provide spare parts and software updates for a reasonable

[60] See e.g. Annex II of Commission Regulation (EU) 2019/2022 of 1 October 2019, which concerns ecodesign requirements for household dishwashers; and similarly Annex II of the Commission Regulation (EU) 2019/2023 of 1 October 2019 for household washing machines and washer-dryers.

[61] Para. 10, Preamble; Art. 6, Right to Repair Directive

[62] Para. 18, Right to Repair Directive

[63] See Colo. Rev. Stat. § 6-1-1502(9) (definition of "owner").

[64] California's Right to Repair Act applies to all electronic or appliance products manufactured or first sold or used in the state on or after July 1, 2021, and divides products into those which cost more than $100 and those under but more than $50. For the former, repair resources must be available for up to seven years after the device is placed on the market; for the latter, up to three years.

[65] Minn. Stat. § 325E.72, subd. 5(a)

[66] Colo. Rev. Stat. § 6-1-1503(4)(a) (effective Jan. 1, 2026)

[67] Competition and Consumer Amendment (Motor Vehicle Service and Repair Information Sharing Scheme) Act 2021 (Cth)

period following purchase.[68] The Commission further recommended better access to repair information and technical documentation, including reforms to ensure that IP and contract law do not unreasonably restrict independent repairers, and noted that while manuals are treated as potentially protected by copyright and trade secrets, such restrictions could be loosened for repair purposes.[69]

Quebec's Consumer Protection Act also requires merchants and manufacturers to ensure the availability of information necessary to repair goods "of a nature that requires maintenance." These must be offered for a reasonable period and at a price that does not discourage consumers from accessing repair.[70]

2.3 Circumvention of Technological Protection Measures

A third element of the right to repair is the ability to circumvent technological protection measures (TPMs) when they block otherwise lawful repair, updating, or part replacement. TPMs function as a layer of digital protection that controls access to, or certain uses of, copyrighted materials embedded in devices, such as firmware, diagnostic software, or digital manuals. Anti-circumvention law operates as a largely self-contained framework: the legal wrong is the act of circumvention or making available circumvention tools, divorced from any infringement of exclusive rights. This makes bypassing a digital lock itself a violation, even when the underlying repair activity would not infringe copyright. In practice, copyright owners thus enjoy at least three cumulative layers of protection: copyright itself, technical control via TPMs, and a separate anti-circumvention regime that prohibits bypassing TPMs even where the underlying use would be lawful.

The protection of TPMs is expressly prescribed under the WIPO Copyright Treaty and WIPO Performances and Phonograms Treaty, which require contracting parties to provide adequate legal protection and legal remedies against effective circumvention of technological measures.[71] In its inception, the anti-circumvention regime was primarily justified as a response to deter widespread piracy, particularly the digitisation of literary works. However, TPMs have affected how consumers are able to use their purchased good, especially where physical goods are integrated with software. Owners can be effectively locked out of their own goods when access to core functions is blocked by TPMs. Further, repair is complicated when

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[68] "Right to Repair Reforms to Be Expanded to Farm Machinery," *ABC News*, December 2, 2025, https://www.abc.net.au/news/2025-12-02/right-to-repair-reforms-to-be-expanded-to-farm-machinery/106089888.

[69] Australian Government Productivity Commission, *Right to Repair: Productivity Commission Issues Paper* (2020), https://www.pc.gov.au/inquiries-and-research/repair/issues/.

[70] See e.g. sections 39 and 39.1-39.5 of the Consumer Protection Act.

[71] Article 11, WIPO Copyright Treaty. See generally Jacques de Werra, "The Legal System of Technological Protection Measures under the WIPO Treaties, the Digital Millennium Copyright Act, the European Union Directives and Other National Laws (Japan, Australia)," in *Adjuncts and Alternatives to Copyright: ALAI Congress, June 13-17, 2001, New York, U.S.A.*, by June Besek and Jane Ginsburg (Kernochan Center for Law, Media and the Arts, Columbia Law School, 2002), 3–40; Jane C. Ginsburg, "Legal Protection of Technological Measures Protecting Works of Authorship: International Obligations and the US Experience," *The Columbia Journal of Law & the Arts* 29 (2005): 11–37, https://doi.org/10.2139/ssrn.785945.

consumers and independent repairers cannot access requisite information such as service codes and "keys" to diagnose faults, replace parts, or even carry out regular maintenance on the purchased good.[72] One of the more well-studied cases concerns farmers in the U.S. seeking to repair their tractors, where even in the absence of mechanical issues, software-based locks disable or limit the operation of the tractors.[73] This further complicates repair, since only the manufacturer and its authorised technicians possess the necessary access codes and diagnostic tools.[74]

In the U.S., the Digital Millennium Copyright Act (DMCA) prohibits individuals from circumventing technical measures,[75] but excludes certain acts such as non-commercial use, reverse engineering, encryption research, and security testing.[76] In addition to these built-in exemptions, the DMCA provides a form of legislative safety valve: the Librarian of Congress, on the recommendation of the Register of Copyrights, may adopt a 3-year temporary exception for particular classes of works, in light of the marketplace and the need to preserve non-infringing uses.[77] In 2018, the Library issued an exemption to allow for diagnosis or repair of products including vehicles, smartphones, and home appliance systems, and this has further been expanded to include devices primarily designed for consumer use, except video game consoles without optical drives, and medical devices and systems.[78]

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[72] On how TPM-protected software and withheld diagnostic tools impede repair markets, see e.g. Anthony Rosborough, "Unscrewing the Future: The Right to Repair and the Circumvention of Software TPMs in the EU," *JIPITEC* 11, no. 1 (2020): 26–48.

[73] Jason Bloomberg, "John Deere's Digital Transformation Runs Afoul of Right-To-Repair Movement," Forbes, April 30, 2017, https://www.forbes.com/sites/jasonbloomberg/2017/04/30/john-deeres-digital-transformation-runs-afoul-of-right-to-repair-movement/.

[74] See Rosborough, "Unscrewing the Future," 27–32 (an account of how John Deere used proprietary hardware, software and TPMs to disable or shut down tractors even in the absence of a mechanical failure). See also Bloomberg, "John Deere's Digital Transformation Runs Afoul of Right-To-Repair Movement."

[75] Under the DMCA, to "circumvent a technological measure" means "to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner." See Section 1201(a)(1)(A).

[76] See the list of exceptions under section 1201(a)(1)(c), DMCA.

[77] Section 1201(a)(1)(c)(v) and 1201(a)(1)(d), DMCA. In the U.S., NAM representatives have sent a letter to the Copyright Register not to allow exemption for TPM circumvention for repair purposes. See Charles Crain, "Re: Docket No. 2023-5: Exemptions To Permit Circumvention of Access Controls on Copyrighted Works (37 CFR Part 201)," February 20, 2024, https://www.copyright.gov/1201/2024/comments/opposition/Class%207%20-%20Opp%27n%20-%20National%20Association%20of%20Manufacturers.pdf.

[78] United States Copyright Office, *Section 1201 Rulemaking: Ninth Triennial Proceeding to Determine Exemptions to the Prohibition on Circumvention* (2024), 6–7, https://www.copyright.gov/1201/2024/2024_Section_1201_Registers_Recommendation.pdf.

In the EU, the Right to Repair Directive and the Ecodesign framework does not create a new TPM regime. Rather, the existing directives continue to apply. The Infosoc Directive[79] requires member states to provide adequate legal protection against any circumvention of any effective technological measures, but emphasises a balancing of rights and interests between IP right holders and users of protected subject-matter.[80] The InfoSoc Directive introduces an exception, adopted at the member states' discretion, to exclude temporary acts of reproduction for "uses in connection with the repair or demonstration of equipment."[81] The InfoSoc Directive expressly leaves intact the *lex specialis* of the Software Directive for computer programs,[82] but for software that qualify as "complex works," they may be subject to both the Infosoc Directive and Software Directive. For software-enabled products, both directives might allow for some form of circumvention for repair activities in which the TPM must be (i) solely to protect access to computer programs and (ii) only if carried out privately.[83] The Software Directive provides some exceptions to circumvention but does not have a review mechanism analogous to that of the DMCA. Still, it focuses on the commercial circulation of circumvention devices or services, rather than an act of circumvention by a user.[84] As previously mentioned, a manufacturer can still limit circumvention of hardware or software techniques provided, that they can justify it based on objective factors such as the protection of IP rights under the Right to Repair Directive.

Separately in Australia, manufacturers must share service and repair information in the automotive aftermarket at a reasonable cost. Australian copyright law incorporates a technological protection measures (TPM) regime that already recognises a limited repair-related circumvention exception. The Productivity Commission has recommended that this exception be clarified and extended to encompass access to embedded information required for diagnosis and repair and further recommended that TPM circumvention and distribution of such devices should be allowed for the purposes of repair.

Canada has opted to amend the Copyright Act to allow a third party, on behalf of another, to circumvent TPMs for diagnosis, maintenance, and repair of the product; and broadened the existing TPM exception for interoperability of computer programs and the devices in which they are embedded.[85] However, offering circumvention services or tools to the public remains

[79] Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society

[80] See Recital 31 and Recital 50.

[81] Art. 5(3)(l), InfoSoc Directive

[82] Art. 6.1, Infosoc Directive

[83] See Rosborough et al., "Achieving a (Copy)Right to Repair for the EU's Green Economy," 350–51 (commenting that the existence of both directives causes fragmentation in the market and limits repair for all users).

[84] While individuals may have a right under EU law to circumvent the TPM, they often do not have the ability to do so, when the necessary tools and assistance cannot be shared freely. Rosborough, "Unscrewing the Future," 41–42.

[85] See Section 41.121(1), Copyright Act.

prohibited.[86] The provision further clarifies that the person acting on behalf of the owner cannot be exempted from any subsequent copyright infringement as a result of such TPMs.[87]

The Japan Copyright Act codifies both copy-control and access-control,[88] and a generous reading may provide some relief for repairers. "Technological protection measure" as defined in Art. 2(1)(xxi) specifically refers to copy-control, while "technological exploitation restriction measure" as defined in Art. 2(1)(xx) refers to access-control. In the event of a John Deere-style TPM lock-out, on the access-control side one could at least argue that Art. 113(6) would treat circumvention as non-infringing as long as it "does not harm the interest of the owner of the copyright, etc." Copy-control guards the reproduction side, and if temporary copies are made during the repair operations, as would be the case for temporary storage in RAM when a diagnostic software is loaded, Art. 30-4 and Art. 47-4(2) can be invoked to argue that those circumventions are permitted, but only where the interests of copyright holder is not "unreasonably prejudiced."

However, looming over this is the sale or distribution of devices to sidestep TPMs. In Japan, sellers and distributors will find themselves liable under Art. 113(7) and Art. 120-2. This keeps Japan in familiar company with the EU's anti-circumvention regime under, specifically Art. 6(2)(c) of the Infosoc Directive and Art. 7(1)(c) of the Software Directive.

3. Policy levers in intellectual property law

IP rights are exclusive rights that block access to, or use of, certain works or inventions. At its core, the grant and enforcement of an IP right, especially in light of an instrumentalist approach, theorises that a state confers a private, exclusive right to inventors and creators to incentivise innovation and creative activities that advance a public good for the benefit of the society.[89] Both the exclusive right granted and limitations on the right serve the public interest in distinct ways: the right incentivises creative production, inventive activities, and wider commercial distribution, while the limitations safeguard freedoms in areas where competing public priorities

[86] Section 41.1(b) and (c), Copyright Act

[87] Section 41.121(3), Copyright Act

[88] Japan adopts a bifurcated approach, dividing the anti-circumvention law under the Copyright Act and the Unfair Competition Prevent Act (UCPA). The UCPA regulates what is known as "technological restriction measures," which cover restrictions not limited to copyright works.

[89] The TRIPS Agreement has effectively reconceptualised IP rights protection as a trade issue: a stronger IP rights regime will incentivise inventive activities and enhance technology transfer, but this is regardless of actual empirical evidence that stronger IP rights bring forth economic development. See generally: Dan L. Burk, "Law and Economics of Intellectual Property: In Search of First Principles," *Annual Review of Law and Social Science* 8, no. 1 (2012): 397–414, https://doi.org/10.1146/annurev-lawsocsci-102811-173857; Rochelle Cooper Dreyfuss, "In Praise of an Incentive-Based Theory of Intellectual Property Protection," in *Framing Intellectual Property Law in the 21st Century: Integrating Incentives, Trade, Development, Culture, and Human Rights*, ed. Elizabeth Siew-Kuan Ng and Rochelle Cooper Dreyfuss (Cambridge University Press, 2018), 1–6, https://doi.org/10.1017/9781316471647.002.

outweigh the benefits of exclusivity, or where limiting others' access would impose greater costs than any benefit the limitations may provide.

When such exclusive rights are enforced in a manner that is inconsistent with the national policy, such rights can be subject to limitations.[90] How the right to repair movement translates into legislation highlights this balance. An IP owner has economic interests in every potential infringing use of the IP-embodied work or product, even after it is sold by enjoining subsequent resale or preventing repair; but under a free market rationale, limits are placed by national laws on how much the IP holder can appropriate from the commercialisation of their IP.

Existing right to repair legislation exhibits two noteworthy commonalities. First, laws mandating access to parts and repair information is category-specific – either designating or excluding certain categories of products. Second, these laws are carefully crafted around IP rights, but do carve into the exclusivity space of IP in design protection and TPMs, and to a certain extent, copyright protection and trade secrets over repair manual and information.[91] The right to repair thus interacts with every major branch of IP law. For patents, it raises questions about where legitimate repair ends and the prohibited "making" or "practising" begins. In copyright, it brings to the fore issues of mandated disclosure of repair manuals and software, alongside exceptions that permit circumvention of TPMs so that products can actually be serviced. Trade mark law matters primarily as for how indications are embodied in refurbished, recycled, or upcycled goods, and whether a consumer would be misled. The extent to which derogation is allowed under trade secret law to mandate disclosure of repair manuals, diagnostic software and schematics is another space to be explored.

To fully implement policy shifts as those demanded by the right to repair movement, legislative intervention would be required. Courts can draw out the contours for infringement or even extend consideration on policy grounds but cannot, based on existing IP laws, punish manufacturers for designing a product in an unsustainable way, or for withholding repair information or manuals from the public. In the absence of clear legislative wording, however, courts which are already tasked with the duty to interpret broad IP statutes retain some degree of discretion in adopting any of the levers ingrained in the IP system.[92] Indeed, courts have operationalised the existing levers in cases involving repair by applying the principle of exhaustion or adopting a more permissive and broader interpretation of what constitutes "repair." Abuse of right, although less likely, could be another lever that courts may engage.

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[90] On exclusive rights conferred by IP as a barrier to the right to repair, see: Rosborough et al., "Achieving a (Copy)Right to Repair for the EU's Green Economy." See also Grinvald and Tur-Sinai's analyses for a right to repair through both external (social interests) and internal (utilitarian and non-utilitarian) justifications. Grinvald and Tur-Sinai, "Intellectual Property Law and the Right to Repair," 83–96.

[91] On exhaustion policies and the relevant incentives under IP law, see e.g. Shubha Ghosh and Irene Calboli, *Exhausting Intellectual Property Rights: A Comparative Law and Policy Analysis* (2018), 34–35.

[92] Burk and Lemley have further pointed out that courts may be more suited than industry-specific statutes to engage in tailoring policy levers by profiling an industry and adapt innovation policy accordingly. Mark A. Lemley and Dan L. Burk, "Policy Levers in Patent Law," SSRN Scholarly Paper no. 431360 (Social Science Research Network, August 7, 2003), https://doi.org/10.2139/ssrn.431360.

3.1 Exhaustion

The principle of exhaustion addresses the extent to which IP rights are retained once a product is sold. What rights are exhausted depends on the type of IP: for example, when applied to copyright protection, the copyright owner's distribution right is extinguished once the work is distributed through a lawful transaction into the hands of a purchaser; whereas for patents, both the patent owner's exclusive right to sell and the right to use the patented invention are extinguished.[93] Specifically on patents, courts have distinguished the act of repair from reconstruction: when in results in a new product, exhaustion does not to apply. Once a patented article is purchased, the exhausted "use" sphere includes a right to dispose, preserve, or restore the article's useful condition. But when a new article is produced, it crosses the line from "use" to "making," back to infringement territory.[94]

In the U.S., courts have recognised that the lawful purchaser of a patented product is entitled to use, modify, or dispose the item at will. However, the purchaser is not entitled to "reconstruction" of the patented combination as it goes beyond the implied authorisation.[95] Earlier Federal Circuit case laws ground the inquiry in terms of an implied license accompanying the sale, which in turn allowed the court to treat that license as limited or one that can be overridden by contract.[96] This approach is seen from the Federal Circuit's ruling of Lexmark v Impression Products, which involved the refilling of cartridges covered by Lexmark's patent subsequently resold into the U.S. The court reasoned that "the patentee does not have to hand over the full 'bundle of rights' every time," and "if the patentee expressly withholds a

[93] Art. 6 of the TRIPS Agreement leaves the application of the exhaustion doctrine to its member states. On the development and broader rationale of the exhaustion doctrine and how it differs when applied to different IP rights, see Shubha Ghosh and Irene Calboli, "The Persistent Policy Pull of Exhaustion," in *Exhausting Intellectual Property Rights: A Comparative Law and Policy Analysis* (Cambridge University Press, 2018), 6–9. See also Shubha Ghosh, "Incentives, Contracts, and Intellectual Property Exhaustion," in *Research Handbook on Intellectual Property Exhaustion and Parallel Imports*, ed. Irene Calboli (Edward Elgar Publishing Limited, 2016), 16–17.

[94] Shubha Ghosh, *The Continuing Right to Repair*, 2022, 1097–122; Irene Calboli, "Pushing a Square Pin into a Round Hole? Intellectual Property Challenges to a Sustainable and Circular Economy, and What to Do About It," *IIC - International Review of Intellectual Property and Competition Law* 55, no. 2 (2024): 237–48.

[95] See e.g. Hewlett-Packard Co. v. Repeat-O-Type Stencil Manufacturing Corp., 123 F.3d 1445 (Fed. Cir. 1997) ("when a seller sells a product without restriction, it in effect promises the purchaser that in exchange for the price paid, it will not interfere with the purchaser's full enjoyment of the product purchased. The buyer has an implied license under any patents of the seller that dominate the product or any uses of the product to which the parties might reasonably contemplate the product will be put (…)"). See also the Australian case of National Phonograph Company of Australia Limited v Menck

[1911] UKPCHCA 1 (12 CLR 15) (although later overturned by Calidad Pty Ltd v Seiko Epson Corporation [2020] HCA 41); "where a patented article has been acquired by sale, much if not all, may be implied as to the consent of the licensee to an undisturbed and unrestricted use thereof," followed by an affirmation that any restrictive conditions would negate any implied license, "knowledge of the conditions attached by the patentee, which knowledge is clearly brought home to him at the time of sale, shall be bound by that knowledge(…)").

[96] See e.g. Jazz Photo Corp. v. Int'l Trade Comm'n., 264 F.3d 1094, 1102 (Fed. Cir. 2001), on the refurbishment of single-use cameras as permissible repair after an authorised first sale in the U.S.

stick from the bundle (…) the patentee may continue to enforce its right to exclude that practice under the patent laws."[97] A follow-on purchaser, such as a refurbisher, may still face patent or trade mark claims, the latter if their interventions materially alter the goods or create confusion about origin or quality. On appeal however, the Supreme Court ruled that the exhaustion principle is not a presumption concerning what rights accompany a sale but operates as a limitation on the patentee's own rights. When an item enters the market, it "should not be shaded by a legal cloud on title as it moves through the marketplace."[98] Essentially, exhaustion before the U.S. courts has been reframed as a boundary on patent monopoly, rather than a question on transferrable rights.[99] This move away from the implied license approach was also seen in Australia in Calidad v Seiko[100] which similarly involved recycled cartridges.

Whether a part is an essential or constituent part of the invention is often decisive in some courts:[101] if the part does not embody the feature that separates the invention from prior art, the right of the patentee remains exhausted and infringement is not established.[102] In Calidad v Seiko, the court distinguished between re-using and remaking, and held that modifications may amount to the making of a new product if it embodies features of the patent claim. However, in the U.S., drawing from Aro I, there is no special test based on "essential" or "distinguishing" parts. In Karl Storz v Steris,[103] the replacement of the lens of a patented scope was not deemed infringing, even though it formed a part of the patented combination. The

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[97] Lexmark Int'l, Inc. v. Impression Prods., Inc., 816 F.3d 721 (Fed. Cir. 2016) (en banc), rev'd, 581 U.S. 1523 (2017)

[98] Impression Prods., Inc. v. Lexmark Int'l, Inc., 581 U.S. 360, 137 S. Ct. 1523 (2017)

[99] The justification for exhaustion here may have been a theoretical overreach, since patent rights do not disappear or merge with property rights just because ownership of the object changes. See e.g. Jessica C. Lai, "The Exhaustion of Patent Rights v the Implied Licence Approach: Untangling the Web of Patent Rights," Queen Mary Journal of Intellectual Property, *Queen Mary Journal of Intellectual Property* 8, no. 3 (2018): 209–30, https://doi.org/10.4337/qmjip.2018.03.03.

[100] The Australian High Court ruled that "the exhaustion doctrine has the virtues of logic, simplicity and coherence with legal principle," and the doctrine of implied license gave way to exhaustion on the grounds that the doctrine "is not consistent with certainty demanded by trade and commerce or with consumer expectations". Applying doctrine of implied license would have made the importation impossible since there was a contractual limitation. See: Calidad Pty Ltd v Seiko Epson Corporation, 12 November 2020, [2020] HCA 41.

[101] See also Osaka District Court, 26 November 2002, 2000 (Wa) No. 7271 (Step Tool Case), where the court clarified that if the item is a consumable that requires replacement, has a shorter service life compared to the patented product, is designed to be easily detached and replaced, and is not essential to the invention, it is likely that infringement will not be established. But contrast with Osaka District Court, 24 April 1989, 1985 (Wa) No. 6851 (Sand Machine Hammer Case), where infringement was found even though the replaced component was structurally replaceable in the product and did not constitute a characteristic part of the invention.

[102] See also the first step of Heath's three-step test. Christopher Heath, "A Three-Step Test for Determining Patent Infringement Related to Repair," *IIC – International Review of Intellectual Property and Competition Law* 55, no. 5 (2024): 768–69, https://doi.org/10.1007/s40319-024-01458-4.

[103] Karl Storz Endoscopy-America, Inc. v Steris Instrument Management Services, Inc. No 22-1978 (Fed. Cir. 2023)

Federal Circuit, echoing Aro I, reasoned that whether the replaced element was an “essential” or “distinguishing” part of the invention should not make a difference, or else any one element of the patented combination could be ascribed the status of the patented invention itself.

For cases involving repair or recycling in Japan, courts typically begin from the exhaustion inquiry[104] and ask whether the defendant produced a new embodiment of the patented invention, as compared to a mere prolongation of the economic life of the patented invention.[105] In the Canon Ink Tank case,[106] the defendant argued that the exhaustion doctrine applies to its recycled cartridges. The District Court ruled that since the cartridge, at the point of recycling, was not “spent” as it retained a small amount of residual ink, no alteration was made to the essential element of the product, and thus no new product had been made. The IP High Court reversed this decision by examining two questions: whether the product had been used up due to normal wear and tear, and whether the parts replaced constituted essential, characteristic features central to the technical idea.[107] The court found that the first condition was not met since the ink cartridge remains functional even after the ink supply is used up. However, the second condition was met since refilling the ink recreated the “essential” features. Notably, the court further dismissed the defendant’s environmental policy argument, pointing to plaintiff’s own recycling activity, namely by collecting discarded cartridges and selling them as heat source in cement manufacturing.

Upon appeal, the Supreme Court ruled that processing “spent,” one-time-use cartridges amounted to effectively remaking the cartridges as a new embodiment of the patented invention.[108] The court then enumerated several factors that must be comprehensively taken into account in making the determination: (i) structural features and durability of the recycled product, (ii) nature and role of the replaced component, (iii) extent to which the original product was processed, and (iv) transactions of the recycled product. Since the ink tanks are supposed to lose their ability to perform the patented function past a certain point, reviving the essential patent function constitutes impermissible remanufacture.

The Canon ink tank judgment demonstrates a key limitation of the principle of exhaustion: the moment repair is deemed to lead to the creation of a new patented article, exhaustion ceases to apply. The line however is hardly clear. If the intent is to liberalise the repair market, relying solely on exhaustion would not be sufficient. Despite the factors listed by the court, it would be difficult for a repairer to make an accurate assessment on whether a certain recycling activity falls under the exhausted use sphere, or if it constitutes remaking and is thus infringing. Additionally, while Canon claims to recycle their cartridges, the result is that the environmental benefits of reuse and refurbishment accrue almost entirely within Canon’s own closed-loop

[104] See also Supreme Court of Japan (Third Petty Bench), 1 July 1997, 1995 (O) No. 1988 (BBS case). The court assessed parallel importation through an implied license approach.

[105] See also Tokyo District Court, Aug 31, 2000, Heisei 8 (Wa) 16782 (“QuickSnap” Case / Fuji Film Case), where the court held that reconditioning of disposable cameras by changing the essential element constitutes an act of remanufacture and not repair.

[106] Tokyo District Court, 8 December 2004, Heisei 16 (Wa) No. 8557

[107] Intellectual Property High Court (Grand Panel), 31 January 2006, 2005 (Ne) No. 10021

[108] Supreme Court of Japan (First Petty Bench), 8 November 2007, 2006 (Ju) No. 826 (Canon Ink Tank case)

system. Independent remanufacturers and third-party refill businesses are still effectively excluded from the market, and consumers remain tied to the manufacturer's ecosystem.

For trade marks, exhaustion applies to selling repackaged goods, used or repaired goods, or reselling a genuine good, but court cases remain divided on the upcycling of genuine goods, particularly when the repair is so extensive that it no longer describes the good to which the mark is attached.[109] In a case brought before the Singapore High Court,[110] the upcycled goods were deemed to be counterfeits as they gave false representation that the products were genuine. Similarly in Japan, the sale of custom-made goods produced from second-hand branded goods was found to be infringing under Art. 2(1)(ii) of the Unfair Competition Prevention Act, which prohibits any person from using a famous source indicator without permission.[111] The court reasoned that the monogram on the items constitutes a source indicator, and even if the goods are sold as "custom-made" remakes, they would still constitute an infringement.

In Korea, in a case concerning the "reform" of brand bags where the defendant, a repair shop performs alteration and customising services, the Seoul Central District Court[112] ruled that it constitutes manufacturing of a new commercial good, amounting to use of the trade mark. The High Court[113] upheld the decision, stating that a reformed product goes beyond a simple repair and is tantamount to production, even when the reformed product is only sold to the owner of the original product. Further, the court remarked that presence of the trade mark on significantly altered items can lead to consumer confusion and damage the mark's origin or quality functions.[114] This reasoning however was remanded upon appeal.[115] The Supreme Court pointed to the use of a trade mark as referring to its function as an indication of source or forming consumer perceptions, and not just the physical attachment or presence of a trade mark on a product as such. The focus thus shifts to the nature of the use: whether the reformed product is for personal use, or for sale on the market. If a bag owner requests a reform of the bag, and the bag is subsequently returned to the owner, then the display of the trade mark does not constitute such use. However, this is subject to a holistic consideration of several "special circumstances" to be proven by the trade mark holder: circumstances of the reform request, nature of the compensation, ownership of the product, source and proportion of material used, and the decision-making authority. If such reformed bags are deemed as for

[109] For a general account of how products bearing their original trade marks are prevented from being repaired, refurbished, or upcycled, see Elena Izyumenko, "Intellectual Property in the Age of the Environmental Crisis: How Trademarks and Copyright Challenge the Human Right to a Healthy Environment," *IIC – International Review of Intellectual Property and Competition Law* 55, no. 6 (2024): 864–900, https://doi.org/10.1007/s40319-024-01478-0.

[110] Louis Vuitton Malletier v Ng Hoe Seng [2025] SGHC 122

[111] Intellectual Property High Court (Division 1), 23 October 2018, 2018 (Ne) No. 10042 ("Louis Vuitton Case")

[112] Decision of 12 October 2023, Case 2022 Ga Hap 513476

[113] Decision of 28 October 2024, Case 2023 Na 11283

[114] Sung-Nam Kim and Alexandra Bélec, "Refurbishing Can Constitute Trademark Infringement," January 24, 2025, https://www.ip.kimchang.com/en/insights/detail.kc?sch_section=4&idx=31116.

[115] Decision of 26 February 2026, Case 2024 Da 311181

sale as the reformer's goods in the market, it can constitute use, and thus exhaustion does not apply. A reformer could also be held to be jointly liable if they knew or should have known that the requested reform is for the purpose of reselling in the market.[116]

3.2 Defining "making" or "producing"

As demanded by the right to repair movement, part of how aftermarket activities such as recycling, remanufacturing and repurposing can be spurred includes greater legal space for the reuse of consumables like toner and ink cartridges. For such products, scholars and policymakers have argued that IP doctrines should not be applied in a way that unduly suppresses legitimate re-use and recycling industries, for example, by treating routine refilling or component replacement as infringement rather than permissible repair.

Repair as an act to restore a faulty or broken product to a usable state lies in the grey area between preserving an item's utility and making of a new patented article. Although courts recognise a conceptual boundary between lawful repair and unlawful reconstruction, the line drawn can be fact-specific, based on commercial or public opinion.[117] In its most restricted interpretation, repair is limited to mere replacement of individual parts at different times;[118] only "minor operations;"[119] not "beyond routine repairs" regardless of whether it is a constituent part of an article;[120] or to preserve or extend the "useful life" of an article, but not "renew the entire machine."[121] Courts have also pushed the boundaries of exhaustion by confirming its application to any acts that does not result in a substantially new or "a new merchantable" article.[122] Repair has been characterised as a right inherent in the ownership of the item itself,[123] or a residual right falling outside of the exclusive right to make or produce the patented product.[124]

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[116] On further comments on the judgment see e.g. Nari Lee, "[Guest Post] A Tale of David and Goliath in Gangnam Style?," *The IPKat*, March 3, 2026, https://ipkitten.blogspot.com/2026/03/guest-post-tale-of-david-and-goliath-in.html; TFL, "Korea's Top Court Draws the Line on Luxury Upcycling," *The Fashion Law*, February 27, 2026, https://www.thefashionlaw.com/in-louis-vuitton-case-koreas-top-court-draws-the-line-on-luxury-upcycling/.

[117] See e.g. German Federal Supreme Court, 17 July 2012, GRUR 2012, 1118 – Palettenbehalter II.

[118] Aro Manufacturing Co. v Convertible Top Replacement Co., 365 U.S. 336 (1961) (Aro 1); and Aro Manufacturing Co. v Convertible Top Replacement Co., 377 U.S. 476 (1964) (Aro 2)

[119] Jazz Photo v. United States, 439 F.3d 1344 (Fed. Cir. 2006)

[120] Schütz v Werit UKSC 16

[121] Wilson v. Simpson, 50 U.S. 109 (1850)

[122] Rucker Co. v. Gavel's Vulcanizing Ltd, [1985] F.C.J. No. 1031

[123] British Leyland Motor Corp and Ors v Armstrong Patents Co Ltd (1986) 12 RPC 279

[124] See Aro 1. See also Jagot J in Calidad Pty Ltd v Seiko Epson Corporation: "[an] owner's right to repair is not an independent right conferred upon him by license, express or implied (…) it is a residual right, forming part of the right to do whatever does not amount to making the product."

In Japan, attaching a striking plate, a consumable requiring periodic replacement, to a sand-making machine's hammer[125] has been held to constitute "producing." Relevantly, although referring to network-type system invention with some elements existing outside the country, the Grand Panel of the IP High Court in the Comment Distribution System case[126] reasoned that "production" must be understood comprehensively, by considering the specific mode of the act, function or role performed in the invention by those elements, the effect of the invention, and the influence on the economic profit of the patentee. This standard set out by the Grand Panel was subsequently upheld by the Supreme Court.[127]

As observed, some courts – U.S. courts in particular – draw out a broader boundary of what counts as permissible repair. In light of sustainability goals, however, repair activities are by their nature prone to engage with the subject-matter of IP rights.[128] Carving out "repair" as a categorical exception – put differently, narrowing a patentee's exclusivity where repair is concerned, would be welcomed by right to repair advocates. Courts, which are already tasked with defining the boundary between "repair" and infringing "making" or "reconstruction" can in principle deploy this interpretive lever to legitimise certain aftermarket practices. After all, even the now widely accepted principle of exhaustion or implied license originated as judge-made doctrines to determine what post-sale activities are allowed in light of policy considerations, which is to permit the IP owner to gain commercial returns on the first sale of the patented invention, but not to take more than one bite at the apple.[129]

Thus, from a normative standpoint, one could argue for a broader exception for repair grounded in strong policy commitments to a circular economy or to a consumer's interest in restoring purchased goods, such that even conduct falling within the literal scope of a patent claim would be exempted. On a slightly more restrained perspective, repair could be defined as an intervention the sole aim of which is to restore a defective product to functionality.[130] The EU framework provides some inkling as to the contours of this exception: repair is described as an act to restore a defective product or waste back to where it fulfils its intended purpose.[131] On this view, the focus is on functional restoration, be it a "defective product" or "waste," rather than on whether the replaced part is "essential" or embodies a technical contribution. Characterising the act prior to an infringement analysis would allow a patentee's exclusive

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[125] Osaka District Court Decision, April 24, 1989 (Heisei 1), Mutai-shu Vol. 21, No. 1, p. 279

[126] Intellectual Property High Court (Special Division), May 26, 2023, Case No 2022 (Ne) 10046

[127] Supreme Court, March 3, 2025, 2023 (Ju) 14 and 15. See also Masabumi Suzuki, *Patent Infringement by Cross-Border Acts: Analysis of the Supreme Court Decisions in the Dwango Cases*, February 2026.

[128] On how exclusive rights of an IP holder can be limited to achieve sustainability objectives, see Katharina Kaesling et al., "'Freedom to Repair' under Trade Mark and Patent Law – A More Ecological Approach to Industrial Property Rights?" *GRUR International* 75, no. 1 (2026): 16.

[129] On the economic rationale underlying the principle of exhaustion, see e.g. Ghosh and Calboli, *Exhausting Intellectual Property Rights*, 34–40.

[130] On the repair/reconstruction dichotomy being a "judicially constructed one," and how recognising the grounds for a right to repair could justify redrawing the boundary in a more repair-friendly direction, see Grinvald and Tur-Sinai, "Intellectual Property Law and the Right to Repair," 100–101.

[131] Art. 2(20), ESPR

rights to be treated as exhausted insofar as the act in question merely restores the product to its predetermined performance. Refilling or replacing parts of a purchased consumable, such as a toner or ink cartridge which is effectively "waste" once spent, may very well be exempted.

The caution here however, is that a repair exception drawn broadly would raise difficult boundary questions: if any intervention that returns a product to a functional state is non-infringing, there is a real risk that extensive reconstitution of products could be carried out under the label of "repair." It might be this concern that explains why existing doctrine keeps the repair/reconstruction dichotomy relatively tight, and why even the Right to Repair Directive ultimately preserves room for IP rights as a basis for limiting certain repair activities.[132]

One suggestion, driven by wider environmental concerns, is to read patent claims more narrowly to expand the scope of what constitutes repair. In the case of patents that claim disposable items such as printer cartridges as strictly non-reusable, and where the specification does not disclose any technical contribution relating to reuse-enabling modifications, it could be argued that the true technical contribution lies only in the contact or coupling arrangements by which the cartridge interfaces with the printer, rather than in the measures that prevent refilling. On this view, acts that merely bypass or undo "single-use" features to restore the cartridge to its original printing function would be characterised as repair or legitimate reuse within an exhausted product, while only re-making or copying the patented contact arrangements themselves would fall within the exclusive right.[133]

3.3 Abuse of rights

A further, more exceptional lever is the doctrine of abuse of rights, which can temper disproportionate enforcement against socially valuable repair. The abuse of rights finds support in unfair competition law. Under the international framework, the 1925 Hague Act[134] expressly included repression of unfair competition within the scope of industrial property and defined unfair competition in broad terms as any "act of competition contrary to honest practices in industrial or commercial matters." The preamble of the TRIPS Agreement points to the reduction of distortions and impediments to international trade – the unreasonable use or "abuse" of IP rights specifically distorts the market, such as through tied sales of patented and non-patented materials, enforcement of patent rights by non-practising entities, refusal to license, or imposing other commercial limitations. By some accounts, not only would too much or too little IP make it impossible for competitors to use or create alternative tangible assets, whereas insufficient IP would cause the failure to cover differentiating assets. Member states retain a wide margin of manoeuvre on determining their "right dosage" for IP rights, depending on their policy objectives or views, which would lead to different levels of protection. Both

[132] Art. 5(6), Right to Repair Directive

[133] FB Rice-Paul Whenman and Sarah Glasson, "What Dead Parrots Can Tell Us about Printer Cartridges," Lexology, May 20, 2020, https://www.lexology.com/library/detail.aspx?g=0362ccfb-198a-4eed-a57d-3f10d1425724.

[134] Hague Agreement Concerning the International Deposit of Industrial Designs

generate confusion, distort competition, and deny consumers the possibility of making informed decisions."[135]

The abuse of right, tied to principles of good faith, reasonableness, and fairness, is a corrective mechanism provided under Art. 1(3) of the Japan Civil Code. The provision can be invoked during an IP dispute to claim over-enforcement, including instances when it conflicts with principles of fair competition. This defence has found success in several IP cases, where patent[136] and trade mark[137] holders have been deemed to have abused their rights when the court finds that the granted right has a high likelihood of being invalidated. A claim for injunction was similarly considered as an abuse of rights after considering the surrounding circumstances.[138] In the Kilby case, the Supreme Court indicated that seeking an injunction or damages on a patent that is clearly invalid could amount to an abuse of patent right, effectively denying relief even though the right formally exists.[139] So was the calculation of FRAND royalties – if a patentee who made a FRAND declaration claims for damages exceeding the royalties due on a FRAND license, the excess constitutes an abuse of right unless it can be proven that it is fair to grant the excess.[140] Sham or frivolous IP litigation, misuse of the patent process, or anticompetitive settlements might qualify as abuse of rights, but to the author's knowledge no such cases have been identified to date.

That said, in cases concerning refill or recycling, Japanese courts seem to show a higher inclination to decline abuse of right submissions, especially if the court establishes that the defendant could have designed around the technical scope of the patent claim. The Ricoh Toner Cartridge Recycling case involves the recycling of cartridges containing patent-protected IC chips which display the level of ink remaining in the cartridge. Plaintiff implemented security

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[135] Nuno Pires de Carvalho, "Intellectual Property as a Tool of Product Differentiation, and the Role of Competition Policy: A Unifying Perspective," in *Competition Policy and Intellectual Property in Today's Global Economy*, ed. Antony Taubman et al. (Cambridge University Press, 2021), 199–222, https://doi.org/10.1017/9781108157827.009. See also Recommendation 22 of the WIPO development Agenda. For an overview of WIPO's effort see Nuno Pires de Carvalho, "Competition Policy in WIPO's Development Agenda," in *Competition Policy and Intellectual Property in Today's Global Economy*, ed. Antony Taubman et al. (Cambridge University Press, 2021), 99–120, https://doi.org/10.1017/9781108157827.006.

[136] See Supreme Court of Japan (Third Petty Bench), 11 April 2000, 1998 (O) No. 364 (Kilby case)

[137] See Supreme Court of Japan, 28 February 2017, 2015 (Ju) No. 1876 (Eemax Case) (Exercise of a trade mark which is identical with another well-known mark and used for a similar good or service under Art. 4, item 10 after the statutory 5-year invalidation period does not constitute abuse of rights). See also Osaka District Court, Dec. 5, 2022 (Case No. 4272 (Wa) of 2020) (Leader Bikes Case) (Exercise of a registered trade mark identical with another prior registered trade mark, used for a similar good or service under Art. 4, item 11 after the statutory 5-year invalidation period does not constitute abuse of rights).

[138] See Naha District Court, 24 September 2008, 2007 (Wa) No. 347 (Shuri Castle Photo Case) (injunction claim constitutes an abuse of rights after taking into consideration of several factors, including the triviality of damage suffered by plaintiff, magnitude of damage which will be suffered by the defendant, and plaintiff's actual involvement and consent in the prior work with defendant)

[139] Supreme Court of Japan (Third Petty Bench), 11 April 2000, 1998 (O) No. 364 (Kilby case)

[140] See Intellectual Property High Court Judgment, May.16.2014 (2013 (Ne) 10043) (Samsung v Apple case)

measures to restrict the rewriting of these memory devices. Defendant rewrote some of these IC chips, and for those which are not rewritable, swapped them out with their own IC chips and sold the recycled toner cartridges. Plaintiff claims that both the rewriting and swapping of IC chips amount to infringement, while defendant refuted that plaintiff's restrictions for rewriting contravened the principle of exhaustion, unjustly interfered with Defendant's transaction in violation of the Antimonopoly Act, and constitute an abuse of rights. The Tokyo District Court[141] affirmed the excessiveness of Ricoh's rewrite-restriction measures. This was later reversed by the High Court,[142] and the abuse of right defence did not stand since the court reasoned that Defendant could have designed around the shape of the IC chips.[143]

As a policy lever, the abuse of right defence seems to be reserved for more extreme exercises of IP rights. Whether it can be leveraged to promote repair activities remains to be seen.

4. Enabling broader repair rights

As explored, the policy levers available to courts to allow for broader repair activities are limited in scope. There are clear advantages to adopt a pre-emptive legislative approach to create a space for repair to be exempted from liability, and scholars have similarly called for amending IP laws to align with the right to repair movement, and to implement the corresponding obligations on manufacturers.[144] The importance of having express legislative grounding for the right to repair is especially pronounced during a public health crisis, to allow for the repair of medical devices without governmental agency approvals and without risking private liability.[145] Explicit provisions providing for a right to repair, and not just policy grounds, would create more certainty for aftermarket players and recycling industries to grow. Even under the EU framework in which the right to repair can be derived from its core instruments, implementing those principles still required an overhaul of the EU legal framework, with the

[141] Tokyo District Court, 22 July 2020, 2017 (Wa) No. 40337

[142] Intellectual Property High Court, 29 March 2022, 2020 (Ne) No. 10057 (Ricoh Toner Cartridge Recycling Case)

[143] See generally 張唯瑜, "電子部品の取替えにより製造されたトナーカートリッジの再生品について特許権の行使が権利濫用とされた事例—情報記憶装置事件—," 知的財産法政策学研究 63 (May 2022): 217–77.

[144] Several scholars have called for the re-alignment of IP laws with sustainability goals, and to look beyond IP as an incentive mechanism for environmentally friendly innovation only. See e.g. Rosborough et al., "Achieving a (Copy)Right to Repair for the EU's Green Economy," 344–52; Grinvald and Tur-Sinai, "The Right to Repair in the United States," 211–61; Graham Reynolds, "Of Lock-Breaking and Stock Taking: IP, Climate Change and the Right to Repair in Canada," *The Canadian Bar Review* 101, no. 1 (2023): 33–43.

[145] Joshua D. Sarnoff, "The Right to Repair in a Pandemic," *NULR of Note*, May 20, 2020, https://blog.northwesternlaw.review/?p=1419. There has been a wealth of IP literature on this topic, particularly discussions on the "Global North" and "Global South" divide over access to medicines, to the extent where literature casting doubts on the existence of IP laws have spawned, in which innovative activities have occurred in the absence of IP laws. See e.g. Elizabeth Siew-Kuan Ng and Rochelle Cooper Dreyfuss, eds., "Framing Intellectual Property Law in the 21st Century," in *Framing Intellectual Property Law in the 21st Century: Integrating Incentives, Trade, Development, Culture, and Human Rights* (Cambridge University Press, 2018).

Right to Repair Directive and the ESPR.[146] Another example can also be found before Chinese courts, which explicitly codifies sustainability principles,[147] where courts in applying the green principle would not exempt an act from infringement, but would restrict the remedies granted to monetary compensation and not destruction of the infringing items.

In addition, beyond IP rights protection, the right to repair cuts across multiple areas of law, including contract law, consumer rights, competition policy, environmental law,[148] and data protection, reflecting broader efforts by the government and relevant interest groups.[149] The right to repair addresses a wider symptom of the prevailing business model, commonly described as planned product obsolescence: designing products with poor durability,[150] frequently releasing new models of a product,[151] releasing software updates that degrade the

[146] Rosa Ballardini et al., "Untapping Patents to Promote a European Right to Repair: From Exhaustion to Compulsory Licensing," *GRUR International* 74, no. 12 (2025): 1113–26.

[147] China has codified the necessity to conserve resources and commit to ecological environmental protection – what is known as the "Green Principle," under Article 9 of the Chinese Civil Code. On discussions on the potential for a right to repair legislation in China, see e.g. Wenbo Li, "论绿色原则在知识产权领域的适用" (Renmin University of China, 2025).

[148] On how IP should adopt a human rights-centric approach, specifically the right to a healthy environment, see e.g. Izyumenko, "Intellectual Property in the Age of the Environmental Crisis," 864–900.

[149] Some scholars have documented the rise of a "judicial sustainability test" on the destruction of IP-infringing goods; see e.g. Charlotte J. S. Vrendenbarg, "Towards a Judicial Sustainability Test in Cases Concerning the Enforcement of Intellectual Property Rights," *GRUR International* 72, no. 12 (2023): 1125–31, https://doi.org/10.1093/grurint/ikad100.

[150] France in 2015 introduced laws to criminalise deliberate techniques to shorten a product's lifespan to accelerate replacement. See Art. L454-6 of the French Consumer Code (punishable by up to two years' imprisonment and a fine of 300,000 euros, with the fine capable of being increased proportionately to the advantages gained from the offence (up to a percentage of average annual turnover)).

[151] See Giles Slade, *Made to Break: Technology and Obsolescence in America* (Harvard University Press, 2006). See also Tamar Makov and Colin Fitzpatrick, "Is Repairability Enough? Big Data Insights into Smartphone Obsolescence and Consumer Interest in Repair," *Journal of Cleaner Production* 313 (September 2021): 127561(noting, however, the limits to interest in repair by examining consumers perspectives on product obsolescence: "as functionality expectations increase, consumers may start to devalue the objective performance of the smartphones they currently own.")

performance of older models,[152] implementing parts pairing,[153] proprietary screwheads where the corresponding drivers are not sold to the public,[154] glued-in batteries,[155] or intentionally soldered modular parts into sealed units.[156] These are areas that limiting the enforcement of IP rights over repair activities might not sufficiently address, and would require intervention from other areas of the law.

While IP rights have been posed to be one of the impediments to repair, it is equally relevant to note that the protection of IP has been a major policy tool to promote green technologies.[157]

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[152] In 2018, Italy's competition authority imposed fines on Apple and Samsung after finding that certain software updates degraded the performance of older smartphone models. See: Autorità Garante della Concorrenza e del Mercato, "PS11009-PS11039 – Apple and Samsung fined for software updates that have caused serious troubles and/or have reduced functionality of some mobile phones," October 24, 2018, https://en.agcm.it/en/media/press-releases/2018/10/PS11009-PS11039. In France, Apple later faced enforcement action for a misleading commercial practice by omission, on the basis that iPhone users had not been informed that installing a particular update could slow their devices. See: Direction générale de la concurrence, de la consommation et de la répression des fraudes, "Ralentissement du fonctionnement de certains iPhone: une enquête de la DGCCRF conduit au paiement d'une amende transactionnelle de 25 M€ par le groupe Apple," February 7, 2020, https://kolektiv99.si/wp-content/uploads/2021/10/Sporocilo-generalnega-direktorata-za-konkurenco-potrosniske-zadeve-in-nadzor-nad-goljufijami-februar-2020.pdf.

[153] See e.g. Colorado's right to repair which, unless used for biometric components for authentication purposes, explicitly forbids manufacturers of digital electronic equipment to prevent an independent provider or owner from installing or enabling function of an otherwise functional replacement part or component, reduce functionality of performance of the equipment, or cause it to display misleading alerts or warnings of identified parts.

[154] Some of the examples include tri-wing screws on the GameCube, security Torx screws on the PlayStation 3, and pentalobe screws on the iPhone. Some manufacturers have taken initiatives to move past such practices, but it is noteworthy to see how prevalent such practices were. See e.g.: Kyle Wiens, "Apple's Diabolical Plan to Screw Your iPhone," iFixit, January 20, 2011, https://www.ifixit.com/News/14279/apples-diabolical-plan-to-screw-your-iphone; Bill Detwiller, "Five Ways Manufacturers Make Smartphones and Tablets Hard to Repair," TechRepublic, August 17, 2012, https://www.cnet.com/culture/five-ways-manufacturers-make-smartphones-and-tablets-hard-to-repair; Aaron Perzanowski, *The Right to Repair: Reclaiming the Things We Own*, 1st ed. (Cambridge University Press, 2022), 83–85, https://doi.org/10.1017/9781108946926.

[155] The EU has produced a report on *Removable, Replaceable and Repairable Batteries*, n.d. For fused displays, a cracked outer glass would necessitate replacing the entire stack of display assembly.

[156] An example would be devices with labels stating "no user serviceable parts inside." TMobile CPUs are often unnecessarily soldered onto the motherboard as well, which means that users would not be able to add newer RAM or a bigger hard drive to extend the lifespan. See Whitson Gordon, "The Most Common Ways Manufacturers Prevent You From Repairing Your Devices," iFixit, April 17, 2019, https://www.ifixit.com/News/15617/the-most-common-ways-manufacturers-prevent-you-from-repairing-your-devices.

[157] See e.g. "WIPO GREEN: The Global Marketplace for Sustainable Technology," accessed December 9, 2025, https://www3.wipo.int/wipogreen; Dietterich Amy, "WIPO GREEN: Supporting Green Innovation and Technology Transfer," WIPO Magazine, March 24, 2020, https://www.wipo.int/ja/web/wipo-magazine/article-details/?assetRef=41277&title=wipo-green-supporting-green-innovation-and-technology-transfer. Japan's patent

Fast-track examination schemes for environmentally beneficial inventions are now a common feature of many patent offices.[158] The Japan Patent Office for instance implements the GXTI classification to identify “green transformation” technologies to map, measure and signal innovation relevant to environmental goals.[159]

Japan, despite lacking a bespoke right to repair statute, has approached recycling and product longevity through a long-standing, environmentally driven legislative framework, which now shapes its response to the SDGs. Building on the Basic Environment Law and the Basic Environment Plan, relevant legislation includes the 2000 Basic Act for Establishing a Sound Material-Cycle Society to create a sound-material cycle based on the Basic Environment Act; 2001 Law for the Promotion of Effective Utilisation of Resources to integrate the 3Rs (reduce, reuse, recycle) into upstream product design and downstream management of industrial wastes, and the 2022 Plastic Resource Circulation Act which covers the recycling and disposal of plastic products.[160] To steer implementation of the SDGs, the government established in 2016 the SDGs Promotion Headquarters, a Cabinet-level body headed by the Prime Minister and composed of all ministers, which coordinates national action plans and mainstreams SDG objectives across sectoral policies including resource circulation and decarbonisation. In parallel, the Ministry of Economy, Trade and Industry’s Circular Economy Vision 2020 sets out a roadmap to shift from 1999’s Circular Economy Vision emphasising the 3Rs to circular business models. Japan has also announced its commitment to achieving carbon neutrality by 2050.[161] To that end a comprehensive policy package, known as the 'Growth-Oriented Resource-Autonomous Economic Strategy,' was formulated on March 31, 2023.[162] To deliberate on the policy package and share best practices on real-world circular economy

office has collaborated with WIPO, see “Collaboration with WIPO GREEN | Japan Patent Office,” accessed December 10, 2025, https://www.jpo.go.jp/e/news/kokusai/green.html.

[158] See generally Antoine Dechezleprêtre and Eric Lane, “Fast-Tracking Green Patent Applications,” WIPO Magazine, June 3, 2013, https://www.wipo.int/en/web/wipo-magazine/article-details/?assetRef=38465&title=fast-tracking-green-patent-applications. In Japan a similar expedited process exists, see “Outline of Accelerated Examination and Accelerated Appeal Examination | Japan Patent Office,” accessed December 10, 2025, https://www.jpo.go.jp/e/system/patent/shinsa/jp-soki/.

[159] “The Green Transformation Technologies Inventory (GXTI) | Japan Patent Office,” accessed January 8, 2026, https://www.jpo.go.jp/e/resources/statistics/gxti.html.

[160] Other relevant legislation includes the End-of-Life Vehicle Recycling Act where automakers pre-charge buyers a recycling fee that funds safe removal of airbags, fluorocarbons and automotive-shredder residue, and Small Home Appliance Recycling Law where the goal is rare-metal recovery from phones, cameras, and game consoles.

[161] Ministry of Economy, Trade and Industry, “Green Growth Strategy Through Achieving Carbon Neutrality in 2050,” October 17, 2022, https://www.meti.go.jp/english/policy/energy_environment/global_warming/ggs2050/index.html.

[162] See *Integrated Innovation Strategy 2024* (2024), https://www8.cao.go.jp/cstp/tougosenryaku/togo2024_honbun_eiyaku.pdf.

initiatives, a coalition known as the Circular Partners, an industry–government–academia partnership on circular economy, was launched in 2023.[163]

Although a discrete "right to repair" has yet to emerge in Japan's implementation of the SDGs, governmental and academic interest in overseas developments on repair, reuse, and circular-economy legislation is growing.[164] The right to repair movement dovetails neatly with the government's overall policy move to shift from a linear economy to a circular economy.[165] Japanese consumers are also experiencing first hand, the benefits brought about by global policy changes by some multinational companies, who in their efforts to comply with right to repair legislation, are now selling spare parts at reasonable pricings and providing repair-related information to consumers across the world.[166] But these approaches seem to beg the question: does Japan actually face a similar set of challenges where consumers are actively prevented by over-enforcement of IP rights from repairing their own goods? In the U.S., state-level right to repair laws exist simply because there is a strong call for it by stakeholders in different sectors. The 2012 Massachusetts Right to Repair Act for example was supported by aftermarket players, independent repairers, and consumer organisations, although it later faced fierce opposition from automakers with the lawsuit concluding only in 2024.[167] Right to repair in the agricultural sector was driven by the active backing of national farm groups and public-interest organisations,[168] but not without overcoming settlements that involve the parties

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[163] Ministry of Economy, Trade and Industry and Ministry of the Environment, "サーキュラーパートナーズについて," Circular Partners, 2025, https://www.cps.go.jp/.

[164] See e.g. Yuko Kimijima, *Right to Repair from an Intellectual Property Law Perspective* (Institute of Intellectual Property, 2023), 1–18; Yusuke Tachibana, "A Research of 'Digital Fair Repair Act' in the New York State of U.S.: Focusing on the Development of the Right to Repair," *IEICE Technical Report* SITE2022-58,IA2022-81 (March 2023): 20–23. See also Qi Jun Kwong, "Does Japan Need a Right to Repair Law?," RCLIP – Waseda University, accessed February 2, 2026, https://www.rclip.jp/en/publications/blog-post-title-two-eas7g-anb5y-jslc8-t7z58.

[165] METI has highlighted the importance of shifting from a linear economy to a circular economy, where resources are used effectively at all stages of the value chain. See 産業構造審議会, "成長志向型の資源自律経済戦略の実現に向けた制度見直しに関する取りまとめ," February 2025, https://www.meti.go.jp/shingikai/sankoshin/sangyo_gijutsu/resource_circulation/pdf/20250213_1.pdf. See also 小島道一, "アジアにおける修理する権利," 廃棄物資源循環学会誌 35, no. 3 (2024): 161–66, https://doi.org/10.3985/mcwmr.35.161 (referring to other Asian countries); 産業構造審議会, "成長志向型の資源自律経済戦略の実現に向けた制度見直しに関する取りまとめ" (reference to the current European model).

[166] Microsoft for instance has commenced sales of repair parts for Surface devices in Japan, which appears to be more a reflection of implementing a global policy driven by the EU and U.S. See Japan Windows Blog, "Surface の個人向けセルフサービス用交換部品の販売について," *Windows Blog for Japan*, February 22, 2024, https://blogs.windows.com/japan/2024/02/22/surface-self-service-replacement-parts-for-general-user-sales/.

[167] Brian Dowling, "Automakers Lose Fight to Block Mass. 'Right To Repair' Law," Law360, February 11, 2025, https://www.law360.com/articles/2296438/automakers-lose-fight-to-block-mass-right-to-repair-law.

[168] See Matthew Rimmer, "Tractor Rage: Intellectual Property, Agriculture, Competition Policy, and the Right to Repair," *IIC – International Review of Intellectual Property and Competition Law* 56, no. 1 (2025): 115–52, https://doi.org/10.1007/s40319-024-01538-5 (documenting how farmers spurred a legislative reform in various states in the US, for an agricultural right to repair in light of lawsuits against John Deere, a dominant player in

agreeing not to support right to repair legislation.[169] The right to repair in the consumer electronics space was also driven by repair advocates, consumer groups and independent repair businesses, but as observed previously, was strongly contested by different manufacturers.[170]

Fortunately, this is not a theoretical question but an empirical one. A nation-wide survey could be conducted to assess if there are similar grievances in Japan. As far as the author is aware, only small-scale surveys by private sectors have been carried out to date, examining whether individuals would opt to repair their devices; the conclusion being that pricing is the biggest concern.[171] As part of its circular economy policy, perhaps Japan would benefit from focusing on improving consumer's access to manufacturer's repair services. Australia for example, requires goods to be of acceptable quality, including reasonable durability; and further requires manufacturers to take "reasonable action" to provide repair facilities and spare parts, unless properly disclaimed in writing.[172]

To encourage the upcycling of luxury goods embodying a mark, introducing labelling requirements to indicate that it is a repaired product and to exclude it from "use" could similarly allow the industry to grow.[173] As for individual repair services, Japan might need to revisit the requirements under Radio Law and Telecommunications Business Act, which now requires an individual to obtain a license from the Ministry of Internal Affairs in order to repair smartphones.[174] There are also other approaches that may not necessarily involve legislative

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farm machinery and tractors, alleged to have designed the tractor in a way that prevents farmers from carrying out their own repairs).

[169] See e.g. class-action lawsuit against John Deere with the American Farm Bureau Federation, in which John Deere agreed to allow access to their software and tools by farmers and repair shops as long as they refrain from "introducing, promoting, or supporting federal or state 'Right to Repair' legislation" which goes beyond that of the memorandum of understanding.

[170] An earlier opinion piece pointed out the commonality between a John Deere tractor and an iPhone: too expensive to fix either. The Editorial Board, "Opinion | It's Your iPhone. Why Can't You Fix It Yourself?," Opinion, *The New York Times*, April 6, 2019, https://www.nytimes.com/2019/04/06/opinion/sunday/right-to-repair-elizabeth-warren-antitrust.html.

[171] "8 割以上が知らない「修理する権利」って何？ 壊れたスマホを'直して使う'時代へ（スマホライフ PLUS）," Yahoo!ニュース, accessed December 30, 2025, https://news.yahoo.co.jp/articles/ca67edc0493030acc9530d9b6ea5206aa4abade7.

[172] Australian Consumer Law (Cth) §§ 54, 58 (2010).

[173] Kaesling et al., "'Freedom to Repair' under Trade Mark and Patent Law – A More Ecological Approach to Industrial Property Rights?," 17.

[174] 嶋崎禅那 et al., "欧州（EU）・米国における「修理する権利」と日本における「修理する権利」," *IPSJ SIG Technical Report* 2022-EIP-96, no. 26 (2022): 1–7; "EU 修理促進指令案の概要 ～「修理する権利」に関する EU の新たなルール提案 | InfoCom ニューズレター," InfoCom ニューズレター（株式会社情報通信総合研究所）, accessed December 1, 2025, https://www.icr.co.jp/newsletter/wtr409-20230427-ksuzuki.html.

intervention on IP laws, such as France's sustainability index to track repairability and durability of products, aiming to inform consumers about the repairability of purchased goods.[175]

In any case, compulsory licensing is yet another mechanism that can be invoked,[176] and has been explored by scholars as a potential solution to the access to IP-protected spare parts.[177] Japan also reserves an anti-competition approach: the formal exercise of exclusive IP rights can be constrained by the Antimonopoly Act (AMA), if the conduct departs from the "legitimate exercise" of IP rights and harms competition.[178] Unfair business practices under Art. 2(9) can be invoked when fair competition is impeded, which would include tie-in sales where a good is tied to a supplementary good and thus unjustly interfering with the business of a competitor.[179] This often happens in cases involving consumables, such as printer cartridges in which a

[175] The previous repairability index covers laptops, televisions, lawnmowers, porthole washing machines, top washing machines, dishwashers, vacuum cleaners, and high-pressure cleaners. The durability index now adds reliability as a criterion to provide a more complete picture of product longevity. See "Indice de réparabilité," Ministères Transition Écologique Aménagement du Territoire Transports Ville et Logement, July 8, 2025, https://www.ecologie.gouv.fr/politiques-publiques/indice-reparabilite.

[176] Compulsory licensing is permitted under Articles 31 and 31bis of the TRIPS Agreement but usually used as a last resort during a public health emergency. The Open Covid Pledge has seen IP owners declaring not to assert their IP rights against infringers, but scholars have noted that compulsory licensing and voluntary pledges can exist mutually. See e.g. 中山一郎, "COVID-19 パンデミックにおける公衆衛生と特許," 知財管理 71, no. 4 (2021): 566–85. According to Ballardini et al., since the EU has committed to sustainable development goals through series of policy overhauls, and since sustainability is crucial for EU's internal and external policy, implementing the SDGs can similarly be construed as a matter of public interest, and threat to the environment can be a legitimate reason to declare a crisis. See Ballardini et al., "Untapping Patents to Promote a European Right to Repair," 1124–25. On the potential use of compulsory licensing to achieve sustainability goals, see also Matthias Lamping et al., "Revisiting the Framework for Compulsory Licensing of Patents in the European Union," SSRN Scholarly Paper no. 4381959 (Social Science Research Network, March 2, 2023), 1–26, https://doi.org/10.2139/ssrn.4381959.

[177] See e.g. Grinvald and Tur-Sinai, "Intellectual Property Law and the Right to Repair," 120–21; Ballardini et al., "Untapping Patents to Promote a European Right to Repair," 1122–26.

[178] See Art. 2 and Art. 3, Antimonopoly Act. See also the Guidelines for the Use of Intellectual Property under the Antimonopoly Act, which explicitly recognise IP's potential in stimulating research and development and further driving the generation of new technology and products, increasing competitive parties and promoting competition through technology transactions under the free market economy; but also the adverse impact that may be brought about by "restrictive acts related to the use of technology," such as restricting or refusing other parties to use their technology or impede research development activities.

[179] Art. 2(9)(vi), Antimonopoly Act. For tying in, see also item 10 of the Fair Trade Commission's General Designation of Unfair Trade Practices ("unjustly inducing or coercing the customers of a competitor to deal with oneself"). Item 14 also prohibits "unjustly interfering with a transaction between another entrepreneur who is in a domestic competitive relationship with oneself, and its transacting party, by preventing the conclusion of a contract, or by inducing the breach of a contract, or by any other means whatsoever."

customer purchasing a printer is then tied to using specific cartridges by the same manufacturer.[180]

More importantly, initiatives beyond legislative changes to IP law or invoking any of the policy levers are not mutually exclusive and can be carried out in parallel. But any of such proposals must be considered in light of coherence of the IP system. On a more practical level, there is good reason to consider adopting domestically an IP regime that is compatible with foreign right to repair legislation, even if it is initially driven by external pressure to comply with export market rules, given that certain products cannot be sold in the EU where, for example, they are not easily disassembled or repairable, spare parts are not made accessible, or labelling requirements are not met. On the flip side the right to repair laws would directly challenge the exclusive rights by IP holders and could undermine the incentive structure of IP protection. More groundwork research is thus necessary to identify potential trade-offs, including product liability, contractual carve-outs, privacy, and security concerns.

[180] See Atsuhiro Furuta and Christopher Heath, "The Right to Repair, Refill and Recycle by Way of an Antitrust Defence: Comment on the Decisions Ricoh I, Ricoh II and Brother," *Zeitschrift Für Japanisches Recht* 28, no. 55 (2023): 93–95 (comments on the Federal Trade Commission applying item 14 of the General Designation of Unfair Trade Practices to Canon for obstructing the rewrite of an IC chip and making the recycle of cartridges impossible without good reasons).

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