

Right to Repair: Myths and Facts

Myth: Independent repair is dangerous.

Fact: Independent repair has the same track record of safety as manufacturer-authorized repair.

Independent repair businesses hire from the same labor pool of trained and experienced technicians as manufacturers' brand-authorized repair centers.

Manufacturers attempted to argue to the US Federal Trade Commission (FTC) that their repair providers are safer, but the FTC found no evidence to support this claim.¹ Instead, the FTC found evidence that manufacturers sometimes deliberately design products to make independent repairs less safe as a strategy for undercutting independent repair businesses.²

Electronics repair is, in general, quite safe. The US Bureau of Labor Statistics reports that the electronics repair industry has six times fewer occupational injuries than the national average.³

Bottom line: Electronics are complex—but most repairs are not. Many manufacturers make diagnostic and service information that makes finding and replacing failed parts easy. The best way to ensure that all repairs are done safely, and that everyone has the training needed to repair their devices, is to give people the information, replacement parts, and tools they need.

¹ US Federal Trade Commission (FTC), "Nixing the Fix: An FTC Report to Congress on Repair Restrictions" (2021), FTC.gov, https://www.ftc.gov/system/files/documents/reports/nixing-fix-ftc-report-congress-repair-restrictions/nixing_the_fix_report_final_5521_630pm-508_002.pdf, p. 28

² US FTC, "Nixing the Fix," pp. 19–21

³ In 2020, the electronics repair industry reported 0.3 cases of injury requiring time away from work per 100 workers, compared to 1.8 cases per 100 on average. US Bureau of Labor Statistics, "Injuries, Illnesses, and Fatalities" (2021), https://www.bls.gov/web/osh/summ1_00.htm#soii_n17_as_t1.f1

Myth: Lithium-ion batteries cannot be safely replaced.

Fact: People replace billions of lithium batteries without incident.

Batteries are consumable components that need to be replaced over the life of any product. iPhone batteries are rated to last just 16 months of daily charging,⁴ which is less than half the average lifespan of a smartphone.⁵ It should not take an authorized repair technician to replace a battery. A 2021 Environmental Protection Agency report described lithium-ion batteries as “quite safe when not improperly disposed.”⁶ Lithium-ion batteries have a failure rate of less than one in a million, and most of those failures happen at the recycling or waste management stage.⁷ (For comparison, the lifetime chance of being struck by lightning is about 1 in 15,000.⁸)

Much of the risk of working with lithium-ion batteries could be mitigated if manufacturers followed common sense safety regulations like labeling 18650 batteries (which can have different internal chemistries) and securing batteries with screws or removable adhesive strips instead of glues.⁹

With access to the proper information and tools, consumers, independent repair providers, and recycling facilities are able to remove and replace lithium-ion batteries safely and successfully—and regularly in this country and around the world. Many things we allow people to do, such as changing tires on a car, pose more risk.¹⁰

Bottom line: Battery replacement isn’t dangerous, and manufacturers have the power to make it safer. You can’t claim it’s dangerous to replace batteries without proper instructions or original parts, and then withhold those instructions and parts. People manage risks all the time, many of which are more volatile than swapping a battery.

⁴ Radu Vrabie, “How Long Do Cell Phone Batteries Last?” (2021), Power Bank Expert, <https://www.powerbankeexpert.com/how-long-do-cell-phone-batteries-last/>

⁵ Statista, “Average Lifespan (Replacement Cycle Length) of Smartphones Worldwide from 2013 to 2020” (2020), <https://www.statista.com/statistics/786876/replacement-cycle-length-of-smartphones-worldwide/>

⁶ United States Environmental Protection Agency, “An Analysis of Lithium-ion Battery Fires in Waste Management and Recycling” (2021), EPA.gov, https://www.epa.gov/system/files/documents/2021-08/lithium-ion-battery-report-update-7.01_508.pdf

⁷ Allen St. John, “Why Lithium-Ion Batteries Still Explode, and What’s Being Done to Fix the Problem” (2016), Consumer Reports, <https://www.consumerreports.org/safety-recalls/why-lithium-ion-batteries-still-explode-and-whats-being-done-to-fix-the-problem/>

⁸ United States National Weather Service, “How Dangerous Is Lightning?” (2018), National Oceanic and Atmospheric Administration, <https://www.weather.gov/safety/lightning-odds>

⁹ US FTC, “Nixing the Fix,” pp. 19–21

¹⁰ The automotive repair industry has nearly four times the occupational injury rate of electronics repair—despite the fact that automotive repair is *also* below the national occupational injury average, at 1.1 incidents requiring time away from work per 100 workers, compared to the 1.8-incident average. US Bureau of Labor Statistics, “Injuries, Illnesses, and Fatalities” (2021), https://www.bls.gov/web/osh/summ1_00.htm#soji_n17_as_t1.f.1

Myth: Right to Repair harms environmental or safety features.

Fact: Right to Repair helps make sure repairs are done right.

Right to Repair legislation only requires manufacturers to provide the parts, tools, and information necessary to diagnose a problem and complete a repair. This does not include illegal modification tools.

The owner of the device is still responsible for ensuring that they comply with all relevant safety and environmental regulations. Those regulations are enforced aggressively by organizations like the United States Environmental Protection Agency, which has levied many millions of dollars in civil penalties against sellers of illegal devices that defeat emissions control systems for engines.¹¹ Right to Repair legislation would keep these emissions control systems, these regulations, and their enforcement scheme intact.

Right to Repair legislation is a huge boon for the environment, keeping working products in use longer. The claim that Right to Repair legislation will harm environmental features is a red herring.

Bottom line: Right to Repair legislation helps the environment by keeping products working longer, and owners must still comply with environmental and safety regulations.

Myth: Right to Repair legislation will expose manufacturers to liability for faulty repairs.

Fact: Manufacturers aren't liable for someone else's bad repair.

If a repair provider makes a mistake that results in an injury or loss, existing bodies of negligence and tort law govern the assignment of liability. Right to Repair legislation does not assign any additional liability to manufacturers for a badly repaired product. When manufacturers have made parts, tools, and information available to independent shops and consumers, they typically include liability release in the terms of service.¹² This legislation wouldn't restrict that practice.

Bottom line: There are many ways for manufacturers to protect themselves from liability from someone else's bad repairs and to resist overreach of assigned liability.

¹¹ United States Environmental Protection Agency, Office of Enforcement and Compliance Assurance, "Enforcement Alert: Aftermarket Defeat Devices and Tampering Are Illegal and Undermine Vehicle Emissions Controls" (2020), EPA.gov, <https://www.epa.gov/sites/default/files/2020-12/documents/tamperinganddefeatdevices-enfalert.pdf>

¹² For example, see Apple, "Repair Terms and Conditions" (2022), <https://www.apple.com/legal/sales-support/terms/repair/generalservice/servicetermsen/>

Myth: Right to Repair legislation is a risk to cybersecurity and privacy.

Fact: Repair access protects cybersecurity and privacy.

The common so-called “cybersecurity concerns” raised by manufacturers are “disingenuous and false,” according to Dr. Richard Forno (Stanford, Computer Science) and Dr. Avi Rubin (Johns Hopkins, Technical Director of the JHU Information Security Institute). They co-authored a rebuttal that found “no cybersecurity risk in third-party repair.”¹³

Securely designed products cannot be undermined by repair technicians, whether manufacturer-authorized, independent, or consumer. Manufacturers do not provide authorized repair technicians with information that would undermine security, because they know those secrets would not be kept by their broad service networks. Right to Repair legislation asks only for the same tools already provided to authorized repair technicians. The FTC’s “Nixing the Fix” explained, “The record contains no empirical evidence to suggest that independent repair shops are more or less likely than authorized repair shops to compromise or misuse customer data.”¹⁴

As international cybersecurity expert Tarah Wheeler testified at a hearing in Washington State, “If taking your iPhone apart represents a serious threat to the safety and security of communications in this country, we should be talking right now in an underground situation room.”¹⁵

Bottom line: Cybersecurity experts agree that these laws present no cybersecurity risk.

Myth: Manufacturers will void consumers’ warranties if they don’t use ‘authorized’ services.

Fact: “Warranty void if removed” stickers are illegal.

Since the Magnuson-Moss Warranty Act passed in 1975, US manufacturers are prohibited by federal law from voiding a warranty because the consumer repaired the device themselves or used an independent repair provider.¹⁶ The FTC invites reports of illegal “warranty void” stickers.¹⁷

Bottom line: Manufacturers may not void warranties for third-party or DIY repairs.

¹³ Richard Forno, “Challenging Cybersecurity as the Reason to Oppose the Consumer Right to Repair” (2021), Stanford Law School: The Center for Internet and Society, <http://cyberlaw.stanford.edu/blog/2021/01/challenging-cybersecurity-reason-oppose-consumer-right-repair>

¹⁴ US FTC, “Nixing the Fix” (2021), p. 31

¹⁵ “Testimony: Tarah Wheeler, New America” (2020), SecuRepairs.org, <https://securepairs.org/testimony-tarah-wheeler-new-america/>

¹⁶ Craig Lloyd, “Warranty-Voiding Stickers Are Illegal. These Companies Still Use Them” (2019), iFixit, <https://www.ifixit.com/News/15464/warranty-voiding-stickers-are-illegal-but-these-companies-are-still-using-them>

¹⁷ Emily Wu, “The FTC Weighs in on Repair Restrictions” (2021), Federal Trade Commission, <https://www.consumer.ftc.gov/blog/2021/05/ftc-weighs-repair-restrictions>

Myth: Consumers already have plenty of repair options.

Fact: Manufacturer repair fails to meet many people's needs.

When the only available repair service is manufacturer-authorized repair, consumers often experience long wait times, high prices without competition or alternatives, delays in shipping and repair, and limits to the types of repair available.

The FTC reported having received similar complaints about long wait times and repair delays from Apple product owners, from Marine Officers concerned about military equipment, and from farmers trying to repair planting and harvesting equipment.¹⁸ They found that the COVID-19 pandemic “has exacerbated the effects of repair restrictions on consumers,” particularly regarding wait times.¹⁹

Manufacturers sometimes point to their systems for enabling independent shops to become authorized (or partially authorized). However, often these programs sell parts to those shops at exorbitant prices and offer much worse tools and documentation than they provide to their authorized service providers. Electronics repair shop owners have publicly described Apple's Independent Repair Provider program as “a joke.”²⁰

Bottom line: Right to Repair laws will help make repair faster and cheaper for consumers. By ensuring that manufacturers provide parts, tools, and documentation to independent shops and owners on the same terms as to authorized repair shops, Right to Repair laws ensure fair competition in the repair industry.

Myth: Right to Repair legislation won't help local economies

Fact: Repair jobs are local jobs.

Right to Repair legislation would provide much-needed support to small, local, and independent repair services. An Illinois Economic Activity survey found that repairing electronics creates 13 times as many jobs as recycling it.²¹ For every 1000 tons of electronics, repair creates 200 jobs²².

Bottom line: Because most repair jobs can't be outsourced, supporting independent repair means supporting local businesses.

¹⁸ US FTC, “Nixing the Fix” (2021), p. 39

¹⁹ US FTC, “Nixing the Fix” (2021), p. 4

²⁰ Audrey Conklin, “Independent Repair Shops Disappointed with Apple's Repair Programs” (2020), FOXBusiness, <https://www.foxbusiness.com/technology/apple-right-to-repair>

²¹ People Before Profit, “Right to Repair Policy” (2022), <https://www.pbp.ie/policies/right-to-repair/>

²² Illinois Department of Commerce and Economic Activity, “Electronics Recycling: Economic Opportunity and Environmental Impact” (2009), https://www.slideshare.net/Bill_Martin/ewaste-fact-sheet

Myth: US reductions in the total volume of e-waste mean it's no longer a problem.

Fact: E-waste is the fastest-growing waste stream, and Right to Repair legislation is one of our best tools to reduce it.

Electronic waste is toxic to human health when landfilled, incinerated, or improperly recycled. It can release heavy metals and persistent organic pollutants, which have both immediate and bioaccumulating effects.²³ Manufacturers like to point to a study that found that in 2020, total e-waste volume had declined 10% since 2015.²⁴ But the authors of that study reject the suggestion that manufacturer takeback programs explain the decline.²⁵ Instead, the researchers explain that consumer electronics have changed significantly in the last two decades—some devices that were once large and heavy (like cathode ray tube televisions) are now smaller and lighter. State e-waste regulations, and their definitions of what counts as e-waste, haven't managed to keep up, which distorts the real picture of e-waste in the United States.

Global measures of e-waste find it to be still growing dramatically, up 21% from 2015–2020.²⁶ And even at smaller volumes, e-waste makes up a significant portion of toxic trash: In the US, “e-waste already accounts for 70% of the heavy metals” found in the waste stream.²⁷

Plus, focusing only on e-waste hides the enormous environmental costs of electronics manufacturing. For example, 81% of the energy a laptop uses in its lifetime is consumed during manufacturing, not during use by consumers, and mining for the materials in electronics is incredibly destructive.²⁸ Getting a single ounce of gold out of the earth can create up to 91 tons of waste. Keeping electronics in use instead of in the waste stream reduces environmental costs.

Bottom line: Repair is good for the environment, because it keeps products in useful life for longer instead of requiring that consumers buy new.

²³ Ming Man, Ravi Naidu, and Ming H. Wong, “Persistent Toxic Substances Released from Uncontrolled E-Waste Recycling and Actions for the Future” (2013), *Science of the Total Environment* 463-4, https://d1wqtxts1xzle7.cloudfront.net/46104460/Persistent_toxic_substances_released_fro20160531-28043-1eq1erl-with-cover-page-v2.pdf

²⁴ Shahana Althaf, Callie W. Babbitt, and Roger Chen, “The Evolution of Consumer Electronic Waste in the United States” (2020), *Journal of Industrial Ecology* 25, <https://onlinelibrary.wiley.com/doi/epdf/10.1111/jiec.13074>

²⁵ Callie Babbitt and Shahana Althaf, “Consumer Electronics Have Changed a Lot in 20 Years – Systems for Managing E-Waste Aren’t Keeping Up,” *The Conversation*, <https://theconversation.com/consumer-electronics-have-changed-a-lot-in-20-years-systems-for-managing-e-waste-arent-keeping-up-147972>

²⁶ Vanessa Forti, “Global Electronic Waste up 21% in Five Years, and Recycling Isn’t Keeping Up,” *The Conversation*, <https://theconversation.com/global-electronic-waste-up-21-in-five-years-and-recycling-isnt-keeping-up-141997>

²⁷ Ming Man, Ravi Naidu, and Ming H. Wong, “Persistent Toxic Substances”

²⁸ Vaclav Smil, “Your Phone Costs Energy—Even Before You Turn It On” (2016), *IEEE Spectrum*, <https://spectrum.ieee.org/your-phone-costs-energy-even-before-you-turn-it-on>