

Sept. 12, 2022

Chairwoman Nydia M. Velázquez
Committee on Small Business
2302 Rayburn HOB

Ranking Member Blaine Luetkemeyer
Committee on Small Business
2230 Rayburn HOB

Chairman Jared Golden
Subcommittee on Underserved,
Agricultural, and Rural Business
Development
222 Longworth HOB

Ranking Member Claudia Tenney
Subcommittee on Underserved,
Agricultural, and Rural Business
Development
1410 Longworth HOB

Dear Chairs, Rankers and Members of the Subcommittee on Underserved, Agricultural and Rural Business Development:

Thank you for your invitation to ask me to speak to the Subcommittee about issues facing repair businesses in our communities. In addition to my verbal testimony, I have elaborated on the topic for your use in the following document.

Why Repair?

Repair is at the center of everything we need to do to keep our stuff in use, be able to resell it to the next user, and the user after that, or we are forced to throw away our stuff, buy new, or do without. Keeping technology affordable and up and running takes much more from Congress than budgeting money for broadband – households also need functional computers, tablets and communications devices in order to participate in modern life. As we learned during the pandemic – its not enough for an Manufacturer to donate thousands of gadgets to schools – the school still has to keep the gadgets working at a reasonable cost– which is impossible without enabling broad access to repair competition in law.

We have always had the Big R “Right” to fix our stuff, but we lack laws making repairs practical. Antitrust laws are being dusted off after years of neglect. The FTC has recently taken actions to remind manufacturers that they cannot tie the business of repair exclusively to themselves. But those actions still do not make a requirement to sell repair materials. Unfair and Deceptive Acts and Practices (“UDAP”) laws have not yet protected consumers from being forced to accept contracts that remove existing rights to repair. Consumers are not able to protect themselves by making smarter purchases – in many industries, such as agriculture, the handful

of major vendors have nearly identical policies¹ and operate as a cartel when it comes to opposition to the right to repair.

Repair monopolies are now pervasive and are unrelated to the size, shape, weight, cost or even purpose of the equipment. Monopolies are corrosive and illegal. We shouldn't accept any excuses for how repair monopolies are beneficial because they are not. All consumers (and business) deserve to know before they head to a store or online, that they will have full and complete control of their property because they are owners. We cannot rely on manufacturers to behave well consistently – we need a legal standard so that all consumers are protected and not just those few that can afford to litigate.

Why “Right to Repair”?

Repair is, and has always been, legal. Most every town used to have a variety of repair shops fixing our appliances, TVs, computers, cameras and cars. The difference between then and now is repair businesses are not able to purchase the basic service materials that are needed to fix modern things.

There is nothing about fixing a computerized gadget that is any different than it was twenty years ago other than policy. The only thing that changed is manufacturers stopped doing what they had always done. Manufacturers used to ship repair manuals and schematics standard with the product. They sold spare parts and if new parts were out of stock, we could buy a spare part from any number of vendors, stuff it in, and it would work. If there was a mis-match of version levels of firmware – we could download a patch or a driver for free from the manufacturer website. We could fix our own stuff or hire a local tech or use the manufacturer. We had choices and agency over our possessions.

Repair is also the gateway policy that supports a functional used market. If we can fix our stuff it can retain value over multiple users. If we can't fix our stuff its value drops to that of the raw materials that can be easily recovered. A common cell phone contains less than \$ 2 in gold ² and is far more valuable as a working phone than as scrap. Recyclers estimate the value of mixed “Shed” at \$.025 per pound compared with \$ 4.00 per pound as parts.³

Many of the terms and conditions now found in common contracts actually interfere directly with the used market. Many contracts contain restrictions that block the owner from reselling or reusing their purchases without engaging in some sort of process controlled by the

¹ <https://www.aem.org/news/aem-eda-announce-statement-of-principles-on-right-to-repair>

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<https://theconversation.com/im-a-bit-of-a-modern-day-chemist-recovering-gold-from-old-mobile-phones-137959>

³ Estimates from Techdump, now <https://getrepowered.org/>

manufacturer. Even if this idea appears benign – it's always an impediment to resale. Some contracts even include a positive requirement to get permission to resell.

This has wide-ranging consequences for banks as well as buyers. Lenders don't like limitations on resale of their collateral – known in the industry as “impaired collateral”. This makes for more difficulty getting financing on major purchases and grants the captive finance arm (such as John Deere Finance) a major competitive advantage. Owning things is not supposed to include any side deals or restrictions - so the contracts themselves are very badly formed.

A full decade after Automotive Right to Repair legislation was passed in Massachusetts, the problems of tech repair are continuing to converge and get worse across a wide variety of industries. Regardless of product - we're stuck with whatever options are offered, including distorted pricing, poor service availability and lack of any service options for all but the newest models. It has become common for manufacturers to tightly limit the types of repairs they offer and mark products with the label: “There are no user-serviceable parts” inside. Since nearly everything that has been made in a factory can be repaired, (some with great difficulty) that statement is not a genuine warning but an attempt to thwart repairs.

New models are crammed with spyware that capture our data and then monetize our own data back to us without our permission. We don't even have the option to turn these features off or direct the data back to ourselves or someone we trust to help us use it.

Used markets that used to be viable options for farming equipment, motor vehicles, appliances and consumer electronics no longer exist. Tractors that pre-date modern models are in high demand because they can be fixed.⁴ Refrigerators that used to last 20 years on average are now lasting an average of 12 years.⁵ Consumers are told TVs are so cheap they aren't worth repairing,⁶ but without competition for TV repair, it's impossible to know how costly repairs might be.

Consequently, the small businesses that used to provide repair services in every town in the US were driven out of business by manufacturers that have refused to sell or provide ordinary service materials to anyone but their authorized subcontractors. According to IBIS world,⁷ consumer electronics repair businesses have been dwindling at a rate of 2% per year for at least the past decade, down from 175,000 locations in 2014 to 140,000 locations in 2020 with

⁴ <https://www.bloomberg.com/news/articles/2021-11-13/deere-strike-ignites-bidding-wars-for-used-tractors>

⁵ <https://www.homeserve.com/en-us/blog/home-improvement/old-appliances-vs-new-appliances/>

⁶ <https://www.wsj.com/articles/we-need-the-right-to-repair-our-gadgets-1441737868>

⁷ IBIS World
<https://www.ibisworld.com/united-states/market-research-reports/electronic-computer-repair-services-industry/>

no end in sight. For context consider that the same entity reports 500,000 independent auto repair locations.

We cannot shop our way out of this problem. Manufacturers have all learned how much more money they can make when blocking repair than aiding it. In most industry categories there are no brands to buy that do not already monopolize repair. Any product labeled “Smart” is almost certainly repair monopolized not because consumers want “Smart” products, but because manufacturers know they can make more money selling things that cannot be repaired.

Manufacturers entirely control design and specifications. They have an incentive to compete on price at retail so choices that reduce manufacturing cost are desirable. Tech products are combinations of hundreds of small parts each with its own failure rate. The overall durability of the finished product is therefore limited by the durability of the least durable component part.⁸ So downrating specifications to lower manufacturing cost directly reduces the expected lifetime of the product - giving rise to the rational perception of “Planned obsolescence”.⁹ Our only defense against products that are designed to fail is to make sure we have equally robust options for repair.

Our research provided to the FTC for their Nixing the Fix study confirms a very wide gap between what manufacturers offer and what consumers want. Many of the limitations are flatly illegal. US PIRG studied all 50 members of the trade association AHAM (Association of Home Appliance Manufacturers) for their compliance with the Magnuson-Moss Warranty Act of 1975. 45 out of 50 manufacturers confirmed they would void a warranty if a customer did not use their services and parts. This is illegal under MMWA.¹⁰

We also dug into the contracts offered for review and negotiation by consumers pre-purchase. In five major categories of equipment: mobile devices, enterprise computing, personal computing, TVs, and agriculture. Our research showed that 90% of products¹¹ available today are repair-monopolized. The only category of equipment where contracts were more consistently available to preview are also the few brands for “commodity” laptops and desktops where repairs are not currently monopolized. Many consumers confuse their long-time experience of fixing their family desktop running a Windows OS with a healthy market for repair.

⁸ Gay Gordon-Byrne “Buying, Supporting and Maintaining Software and Equipment, an IT Managers Guide to Controlling the Product Lifecycle” . Chapter 11, pg 206. CRC Press 2014.
https://www.amazon.com/Gay-Gordon-Byrne/e/B00LGYY96U?ref=dbs_a_mng_rwt_scns_share

⁹ Early example of planned obsolescence in the light bulb industry.
<https://www.newyorker.com/business/currency/the-l-e-d-quandary-why-theres-no-such-thing-as-built-to-last>

¹⁰ Warranties in the Void – part 1 <https://pirg.org/resources/warranties-in-the-void/> and part 2 <https://pirg.org/resources/warranties-in-the-void-ii/>

¹¹ Nixing the Fix empirical research submitted by Repair.org
<https://www.ftc.gov/news-events/events/2019/07/nixing-fix-workshop-repair-restrictions> and <https://www.regulations.gov/document/FTC-2019-0013-0030>

Factually - that market is one of very few where consumer perceptions are reasonably well aligned with reality. No other category has the same policies.

Alignment with Antitrust and UDAP laws

The chain of contracts from the moment of purchase to documentation of limitations on repair show pervasive abuse of consumers under both antitrust and UDAP statutes. It is already illegal under antitrust provisions in the Sherman and Clayton Acts for manufacturers to tie the purchase of a second product or service to the original unless that service or part is provided for free. Conditioning the use of a product to buying service materials only from the manufacturer is already the subject of multiple class action lawsuits alleging John Deere illegal tying¹² of repair materials (17 so far) in Federal Court.

Even when a manufacturer uses wiggle words in their documentation such as “may” or “might” use the repair provider of their choice – unless it is practical to acquire the necessary repair materials, this is a clear instance of illegal tying and can be investigated not only by the US DOJ and FTC, but also by States Attorneys General.

Other aspects of antitrust law cover “refusal to deal” and “exclusionary dealing” which are also rampant in the repair industry. Courts have ruled variably on these matters and some of the actions underway recently will probably drag out for a decade or longer before being resolved. In the meantime - consumers need relief today.

Rather than argue the legal merits of right to repair in court one manufacturer at a time, we’ve come to accept that it is far simpler to work through states and their statutory control of general business law to blunt the pervasive use of unfair and deceptive contracts and policies such as found in all End User License Agreements (“EULA”). EULA make sense only for shrink-wrap media purchases where copyright law is not otherwise obvious to the consumer. Outside of that format, there are no good reasons to insist on additional agreements beyond the purchase agreement other than to surreptitiously hide anti-consumer and anti-competitive terms from the buyer.

- a) EULA are not negotiable pre-purchase
- b) EULA are not generally negotiable at all between consumers and corporations
- c) EULA are written to be unintelligible to a consumer
- d) EULA alter the fundamental terms and conditions of purchase post-purchase

In crude parlance – EULA are a form of Bait and Switch. Everything that a buyer needs to know about their rights is already set forth in the purchase agreement. If there are copyrighted licenses attached – those licenses need to be separate and just as negotiable and the purchase agreement.

¹² <https://news.bloomberglaw.com/antitrust/john-deere-facing-antitrust-lawsuit-over-tractor-repair-market>

The computer industry has operated since the 1950s with a combination of hardware purchases and separate licenses. Buying a laptop and licensing a Windows or Linux operating system is a very clear instance of straightforward contracting. When a manufacturer ties licenses to hardware either in a EULA or other contract – the license turns that hardware into raw materials. Buyers need to know what they buy and what they don't in the first sale. Anything else is fundamentally unfair and deceptive.

State Legislation

Both New York and Colorado passed variations of Digital Fair Repair legislation in 2022. Another half dozen states have moved similar legislation through either a house or senate body and expect to finish the job in 2023. A total of 43 states have begun their legislative process without any discernible preference by political party.

States are ideal for moving practical legislation using their powers to control existing general business law to require manufacturers doing business in their state to sell all necessary repair materials directly to consumers and to independent repair businesses. This is the path taken by the auto industry in 2012 which unlocked auto repair nationally despite having been passed in only one state.

It was the potential for other states to pass similar laws that drove the auto industry to the bargaining table to hammer out a national Memorandum of Understanding in 2014¹³ This type of agreement may work in some industries with a small number of manufacturers, but is not likely to work for all.¹⁴

With a decade of experience – we can look to the success of the auto repair industry and conclude that despite projections of terrible consumer harm – the sky did not fall. Consumers did not suddenly die due to bad brake repairs, or lose control of their bank accounts, nor get stalked by home invaders. Unfortunately, the experience of the auto industry also tells us that being able to fix one's modern car in 2012 is not the same as cars today.

The most common automotive diagnostic portal in 2012 was the OBD-II port and the MOU memorialized this particular interface as the standard. Other interfaces were not included in the law and the subsequent MOU which has turned into another legislative battle. Consumers and mechanics are being cut off from wireless diagnostics and data restoring repair monopolies on more recent vehicles. As a result, the auto repair market is now headed down the same disastrous path as the market for repair of cell phones, TVs and tractors.

¹³ <https://wanada.org/wp-content/uploads/2021/01/R2R-MOU-and-Agreement-SIGNED.pdf>

¹⁴ For example – the Consumer Technology Assn boasts more than 1,300 members <https://www.cta.tech/>. The auto industry had only 22 signatories to their MOU which to this date does not include Tesla. It is likely impossible for CTA to get 1300+ lawyers to agree to anything.

Legislation must therefore fill the void left by incomplete voluntary actions. Legislation must also cover two entirely different areas of law. States can require manufacturers to sell parts and tools, but only Congress can make sure that Copyright laws or Patent laws are not used as a method of blocking repair. Our Coalition supports both sets of activities and we work carefully to maintain the bright line between state and federal responsibilities.

Our legislative intent is to allow competition for the business of repair as a basic requirement supporting the rights of equipment owners to control their property. Competition for repair requires only fair and reasonable access to existing repair materials. Our template legislation does not specify how long parts must be available, only that if available they must be sold in non-exclusionary ways to consumers and independent repair businesses. There are no design requirements, nor any requirements not already legal under copyright or patent law. Trade secrets are not useful for repair and are disclaimed. Cyber security secrets are never disclosed in repair materials. There are no requirements for access to source code. Whatever federal laws exist, states cannot change them.

Ultimately, we expect that once a few more laws have been passed in state legislatures, that Congress can finish the job and harmonize the various laws so that manufacturers are less likely to be confused or non-compliant.

Manufacturers now dictate useful life rather than the market.

Equipment used to fade from the market as products ceased being desirable in the market. Classic cars started out as new cars and were kept in use at the choice of the owner, not the manufacturer. There are many computer products built over 25 years that are still in use powering such systems as nuclear power plants and chemical factories. Obsolete is not a choice made by the manufacturer but by the user.

In our digital world – manufacturers are determining useful life entirely on their terms. Once the manufacturer declares a particular product is “obsolete”, that's the end of life even when the product has decades of expected useful life ahead of it. We know that even very old computers can be kept in use by harvesting used parts and using schematic diagrams to repair circuit boards for indefinite periods. When manufacturers refuse to provide a schematic, or most importantly the firmware to allow parts to be attached, that ends the potential for long life.

Many manufacturers subcontract to our members for specialized board repair services to be able to keep spare parts in stock for their own needs. The opportunity for repair techs to make these tiny repairs is also being killed by refusal on the part of manufacturers to provide a schematic diagram. These diagrams are not secrets, but they are subject to copyright. The only legal source of a schematic is therefore the OEM despite the diagram having no creative content.

Short useful life is also dictated by manufacturer choice of components. The Association of Home Appliance Manufacturers (“AHAM”) reported in testimony in Vermont that the average life

of a major appliance is now 12 years, down from 20. When asked why – they said simply “Electronics”. Electronics have replaced sturdy mechanical parts not because they are better, but because they are cheaper. The use of adhesives has also proliferated as a lower cost method of manufacturing, and not as a consumer advantage. The European Union has begun to ban adhesives as fasteners in several categories of equipment ¹⁵. We look forward to less glue and more durability requirements from the EU.

Digital Locks and the DMCA

Copyright Law already allows for repair, but has a loophole created in 1998 at the request of the makers of VCR tapes to block tools made to make copies more easily. The language created a new way for content creators to protect their materials, but with the unfortunate consequence of adding legal limitations on breaking digital locks for non-infringing uses.

Congress anticipated that the copy/tool restrictions in Section 1201 of the DMCA were not fully developed and therefore included a provision allowing for exceptions in the future. The US Copyright Office is required to evaluate requests for exemptions to Section 1201 every three years.

Our Coalition has been engaged in every triennial review since 2012 with petitions to the USCO requesting exemptions to breaking digital locks for purposes of repair. We have been almost completely successful - with exemptions now granted for repair of nearly everything short of computer gaming stations. In theory – we can all break digital locks and fix our stuff without being in violation of copyright law – but lock breaking is not easy.

Modern locks aren't just like luggage locks controlled by the luggage owner. Locks that come with the product are using increasingly complex cryptographic algorithms that are intentionally difficult to break. Lacking a physical key – legal owners of equipment are currently unable to access their legally acquired property for the legal purpose of repair without breaking sophisticated software locks. This requires help – and that help is currently illegal to sell.

Locks have become the new frontier of repair monopolization. Manufacturers are now adding locks that tie parts to the mainboard known variously as “VIN Burning” “Parts Pairing”, “Serialization” or “Tying” The impact is the same regardless of wording. Installing a spare part now requires an extra step, and one which only the OEM or their authorized providers can make, that alters the settings of the part to match the specific serial number or VIN of the host machine.

Without action by Congress, we already know that our existing limited repair capabilities will drop to zero. No one will be able to stock parts for immediate use – and none will be able to use a 3rd party part or a used part as an alternative. Consumers will be forced to bring their purchases exclusively to the manufacturer for repair or maintenance. Recyclers will no longer

¹⁵ https://ec.europa.eu/commission/presscorner/detail/en/qanda_19_5889

harvest parts for reuse. Billions of gadgets will cease to be useful because manufacturers will have to be involved in every repair.

This process does nothing for the consumer other than delay and add expense to an otherwise ordinary process. We have yet to hear a rational excuse for adding extra hurdles to repair other than to monopolize repair.

Only Congress can make sure that digital locks cannot be used to block access to repair, and only Congress can make sure that design patents do not thwart repair using shape as a cudgel. Both of these problems create monopolies which are damaging to all but the monopolist.

Federal Fair Repair / Right to Repair and Related Legislation

There are now several federal bills under consideration that are taking up issues specific to repair. Sponsors have made a concerted effort to work on a bipartisan basis. Some of the original sponsors lost their primaries and will have to be replaced. Yet others are still seeking a balance of co-sponsors on both sides of the aisle before pressing forward.

- H6566 (Jones/Spartz) was filed to allow the production of repair-specific tools to aid owners in repairing their legally acquired property.
- Congressman Joe Morelle filed HB4006 as a federal version of the NY Digital Fair Repair Act for which he was a prime sponsor while the Majority Leader in the NY State Assembly. The Digital Fair Repair Act was passed in June of 2022 and awaits the governor's signature before becoming law.
- Senator Ben Lujan filed a general Digital Right to Repair Act SB 3830 as a comparison to Congressman Joe Morelle's HB 4006.
- Senator Jon Tester of Montana has filed a Right to Repair bill specific to agricultural and ranch equipment.¹⁶
- Senator Ron Wyden of Oregon and Representative Yvette Clarke filed a Right to Repair bill specific to medical equipment,¹⁷ related to the pandemic.

FTC Actions

The FTC is tasked with enforcement of the Magnuson-Moss Warranty Act ("MMWA") as well as consumer protection under the FTC Act. The FTC has recently become more aggressive in enforcement. We expect to see manufacturer's to clean up their contracts to remove language

¹⁶ <https://www.testersenate.gov/newsroom/press-releases/pr-8866/>

¹⁷ <https://www.congress.gov/bill/116th-congress/house-bill/7956>

threatening to void warranties through the use of non-OEM original parts or non-OEM labor. Since consumers rarely read these documents, enforcement needs to be aligned with education so that consumers do not continue to assume their warranties will be voided.

FTC Nixing the Fix Workshop

The FTC did a two year study on repair access beginning as a workshop in July of 2019 called “Nixing the Fix”. They asked all interested parties to provide empirical evidence of their view of repair both pro and con. The results were published in May of 2021 and concluded there is “Scant Evidence” that limitations on repair are of any value to consumers. They also concluded that lack of access to repair falls hardest on underserved communities.

The comment about underserved communities has raised some eyebrows which I can attempt to justify. I’ve been able to easily document that consumer electronics repair locations authorized by manufacturers, including those offered by large retailers such as Best Buy, are located only in relatively wealthy urban and suburban areas. This is logical since that's where the buyers with the means to buy new are located. However, the need for repair is not unique to wealthy people. The distribution of manufacturer directed repair options leaves most of the population without local access to repair services.

Local access is important even in urban areas as some items needing repair aren’t easily dragged around on public transit or in a car. Apartment dwellers can call the “Super” but the Super can’t fix what isn’t repairable. As more and more older appliances, HVAC and other items common in cities are replaced by their non-repairable newer devices, the problems of access and costs of repair will only grow.

Digital Divide

Lack of options for repair of tech gadgets adds directly to the growing gulf between rich and poor and urban and rural. When repairs are not available locally – as is common in both rural and urban settings - distance and delays are damaging. Shipping products away for repair service isn’t timely or practical for all but the lightest and least important devices. Maybe it works to send a watch out for repair but not a major appliance and definitely not a tractor.

For roughly half our population - new products are often unaffordable. Money to buy new tech has to compete with money for food ,housing or transportation. Historically, used cars, appliances, computers, tractors and even medical equipment is the lower cost alternative to new. But without robust options for repair spanning longer than a 1 year warranty, the market for used equipment is crushed.

Our divide cannot be resolved by mandating better broadband. Everyone needs modern technology to work, go to school, do our banking, get access to medical care and communicate. Functional broadband has to be paired with functional in-home technology. When consumers have no choice of repair, that in-home technology can easily be out of the financial reach of the

very customers that need it most. It does little good to provide school children with a brand new laptop if there is no provision to keep that equipment working without having to rely upon parental finances or school district budgets to buy replacements.

We must de-monopolize repair so that competition can drive lower costs and wider availability of both services and functional used alternatives.

Manufacturers are not in the Business of Repair

We should not expect manufacturers to be effective sources of repairs in the first place. Manufacturers are in the business of selling shiny new products. Every repair made is a replacement sale not made. Repair programs and policies designed by manufacturers will always be geared towards making repairs as unattractive and impractical as possible in order to drive new sales.

Worse, when repairs are totally controlled by the manufacturer, the products themselves can be made as cheaply as possible and repair options tuned to match projected failures with new product offerings. Even poorly made products can stay in use indefinitely when repairs are widely available. For example, products made with embedded batteries are doomed to fail when the battery dies – which is a known physical attribute of battery technology.¹⁸

This is why the real business of repair is done by small businesses outside of the manufacturer umbrella. Independent repair businesses serve the customer, not the manufacturer. They will repair things that the manufacturer never intended to be repaired, or no longer even offer an option. It is in the best interest of the repair shop to make good repairs and keep that customer happy with the things they already own.

Small Business Growth Potential

The more repair options can be restored for consumers, the more repair businesses will start up to serve the need. And those needs are not only in wealthy urban centers where leading manufacturers set up their retail outlets, but everywhere people live. Any town able to support an auto repair shop likely has more than enough customers nearby to support a tech repair business or two.

Repair jobs are good jobs that feed families and are part of making a rural community function. Repair techs do not need a fancy college degree - just a bit of attention to detail, nimble fingers and opportunity. The cost of opening a repair business is very low. Many geeky kids start by fixing stuff at the kitchen table. Many techs, particularly medical repair techs, start their careers in the military. Computer and cell phone repairs are taught in junior high and high schools and programs in Community Colleges often train repair techs for auto, appliance, HVAC and related

¹⁸ <https://batteryuniversity.com/article/bu-801b-how-to-define-battery-life>

jobs. We have the ability to train people for repair jobs at the same time as those jobs are being systematically crushed.

In some industries there is a clear shortage of repair technicians – such as in agriculture. The problem is not that people aren't interested in repair jobs, but that the wages paid by dealerships aren't attractive enough for young people to pursue repair as a career. ¹⁹Historically, the best way for a repair tech in the auto industry to make a good living is to open one's own repair shop. This option does not exist in Agriculture. Techs have no upward mobility to move from being an employee to becoming an employer. I've met personally with farmers that will happily build a stocked repair shop in their barns, set up a tech in business, and offer double the wages of the dealership in order to have techs on site. Farmers all benefit when there are more options for business growth and badly needed services at the same time.

Electronic Waste

Throwing away has its own consequences - driving the 17% CAGR²⁰ growth rate of electronic waste - now the fastest growing waste stream in the world. No matter how one calculates the impacts – it costs more to mine and manufacture electronics than can be recovered economically simply through recycling,

Studies confirm that the environmental costs of manufacturing are far greater than those of use. ²¹All the mining, smelting, transportation and energy use needed to make products are generating pollution and harming human health. If we can just use a phone for 4 years rather than 2 – we halve the environmental and handling costs.

The costs of solid waste processing are mostly taxpayer funded. The more that gets thrown into the waste stream – the higher the costs. Many municipalities have mandatory recycling programs, but even with those programs, high-side estimates report less than 20% of designated products are recycled. ²²

Electronics which include lithium ion batteries are creating enormous fire hazards for processors. A small battery in household trash cannot be shredded or crushed without risking exposing explosive lithium to oxygen. Recycling and processing facilities are at particular risk of

¹⁹ <https://www.farmprogress.com/technology/farmers-face-nationwide-shortage-trained-technicians>

²⁰

<https://www.environmentalleader.com/2022/08/e-waste-management-market-expected-to-grow-at-15-rate-through-2027/>

²¹ <https://www.cnbc.com/2021/11/03/tsmc-samsung-and-intel-have-a-huge-carbon-footprint.html>

²² <https://www.statista.com/topics/3409/electronic-waste-worldwide/>

fire. ²³One of the larger problems of solid waste management is how to functionally separate these batteries from their housings. Without a library of schematic diagrams made in a consistent format – most pre-processing to remove batteries is currently manual.

How Big is the Problem?

Our research from 2019 for the Nixing The Fix Study concluded that roughly 90% of products using digital electronic parts on the market today either cannot be repaired at all or can only be repaired by the manufacturer. Outside of the market for laptops and desktops made using commodity components and readily available operating systems, nearly everything else is made so that only the manufacturer can fix the product, if the product is even repairable by design.

Both the EPA and back of the napkin calculations estimate the average household already owns 30 digitally driven gizmos and gadgets. These things range from major appliances to hot tub controls, garage door openers and personal computers. Multiply 30 x 122 million²⁴ households and we estimate 3.66 billion individual electronic devices are already in use just in households and headed to the dump with the first failure. There are billions more devices deployed in business, government, education and industry. No matter how one calculates the weight – the sheer volume of units that will either need repair or recycling is alarming.

Related Progress

Right to repair legislative efforts are already prodding manufacturers towards improving their repair policies and making their products more readily repairable. Microsoft has been reducing their use of strong adhesives in the tablets to enable repairs to be less physically destructive. Samsung, Google and Motorola have taken steps to set up retail distribution channels for parts and tools. Apple and John Deere have both made repair-friendly noises but have yet to actually deliver.

The Federal Trade Commission has begun to enforce laws intended to protect²⁵ consumers from losing their warranties under the FTC act. Just a few weeks ago they announced settlements with Harley-Davidson, Weber Grills and Westinghouse generators that violated the Act. More enforcement of existing laws will help dramatically

Politics

²³

<https://www.waste360.com/safety/five-alarm-fire-queens-ny-recycling-plant-caused-lithium-battery-fdny-says>

²⁴ <https://www.census.gov/quickfacts/fact/table/US/HSD410220>

²⁵

<https://www.ftc.gov/news-events/news/press-releases/2022/06/ftc-takes-action-against-harley-davidson-westinghouse-illegally-restricting-customers-right-repair-0>

We have been able to document nearly uniform support for “right to repair” legislation in states regardless of political party. Everyone benefits from the legislation. Fixing things is part of our DNA as a society. Monopolization is bad public policy. Much as we would like – recycling cannot keep up. We have so few repairable options that what had been a free market for repair is no longer functional. If we could unlock repair monopolies without legislation we would gladly do so – but we don’t see any alternative.

A survey done by Consumer Reports shows that consumers support their right to repair by a margin of 84% favorable.²⁶ Votes have proven even more popular. Massachusetts passed their 2012 automotive Right to Repair law unanimously. NY passed the Digital Fair Repair Act with near unanimous support. Colorado’s wheelchair right to repair bill passed easily. Farmers in Nebraska, a state where lack of repair options and rural locations are normal, voted by 99% favorable to support Right to Repair legislation when asked by the Nebraska Farm Bureau.²⁷

Similar surveys have also been done in Canada with comparable results.²⁸ As Right to Repair becomes more demonstrably popular, we are seeing more political campaigns include Right to Repair support as platform issues. Legislators are consumers too and personally want their right to repair just as enthusiastically as everyone else.

Opposition

Opposition has become entirely predictable and impervious to facts. Even when clearly provided with evidence of their own poorly formed contracts, illegal acts and illogical arguments, the same groups repeat the same mantra as if they will achieve truth through repetition.

The one point that is consistently ignored by opposition is the nature of ownership. Consumers ALWAYS become responsible for their own property entirely at the point of sale. Contracts of sale ALWAYS (the use of caps indicates importance) disclaim every harm that the owner might do to themselves including loss of limb, life, lost crops and lost profits.

²⁶

https://advocacy.consumerreports.org/press_release/consumer-reports-survey-finds-americans-overwhelmingly-support-the-right-to-repair/

²⁷

<https://pirg.org/articles/nebraska-farmers-vote-overwhelmingly-for-right-to-repair/#:~:text=by%20%40nProctor-.Delegates%20of%20the%20Nebraska%20Farm%20Bureau%2C%20which%20represents%2058%2C000%20member.or%20agreement%20with%20equipment%20manufacturers.>

²⁸

[https://openmedia.org/press/item/poll-75-people-canada-support-right-repair-legislation#:~:text=An%20Innovative%20Research%20Group%20\(INNOVATIVE,3%25%20of%20those%20surveyed%20opposed.](https://openmedia.org/press/item/poll-75-people-canada-support-right-repair-legislation#:~:text=An%20Innovative%20Research%20Group%20(INNOVATIVE,3%25%20of%20those%20surveyed%20opposed.)

Manufacturers rely heavily on these disclaimers to protect themselves from retaining the obligations of ownership past the purchase. I worked for many manufacturers over the years and I've never seen or heard of an attorney that actually wanted the manufacturer to retain any actual hint of ownership. If manufacturers were actually responsible for errors made by customers – the resulting torrent of torts would crush the legal system.

Opposition knows that Proprietary “Rights” are not secrets. Copyrights protect the authors of creative works to control distribution. Such as having the right to publish a book. But the book itself is meant to be read and the contents are not secret. Congress intended for repairs to be legal and made specific provision in copyright law for computer users to make backup copies of all their copyrighted software for purposes of repair. Opposition arguments about illegal exposure to proprietary materials have failed in every instance because they are clearly not correct.

Similarly, Patents are also a form of proprietary right to control rights to manufacturing. The patent is not a secret - its already public in exchange for a monopoly on production. Patents are infringed through manufacturing without permission, but repair is not manufacturing. Manufacturers that refuse to sell their repair parts to their own customers are creating a market for counterfeits which would not otherwise exist.

We're also told that trade secrets and cyber secrets will be revealed by sharing of repair materials. Once again, I've never seen or heard of a single incident where a manufacturer included trade secrets in any repair materials even when those repair materials were provided under a non-disclosure agreement. Repair materials are made to be distributed and therefore do not meet any of the tests for protection as a trade secret under the Uniform Trade Secrets Act.

The same goes for cyber security information. Hackers are not browsing schematic diagrams and repair manuals to find software holes to exploit. Repair materials are utterly useless to hackers. The big problems, which are very real, in cyber security are due to flawed designs and inattention to good security on the part of manufacturers.

All of these arguments were made to the FTC in their Nixing the Fix Study – and rejected as lacking evidence. Opposition lawyers aren't lazy, but simply haven't been unable to cook up evidence that doesn't exist. In the sales business - we call such tactics “FUD” meaning Fear, Uncertainty and Doubt.

Summary

Our members are true experts in their fields and are often called on to provide industry expertise among their peers, with regulators, legislators, consultants and media. None of our members are paid to talk – they pay their own way to events. Please call on us to provide support for any of your questions or concerns.

About the Digital Right to Repair Coalition

The Coalition, commonly known as Repair.org, is a membership driven 501 (c) 6 Trade Association representing over 400 member organizations and businesses with common interests in secondary market uses of high-tech equipment. Our mission is to fight for repair-friendly legislation, regulations and standards wherever possible for owners, because if owners cannot fix their stuff, repair businesses cannot form to help them.

Ours is a big and growing umbrella – our members do everything that supports the equipment owner from the point of sale to the final shred. Some of our members handle returned merchandise for retailers, others provide in-warranty repair services for the OEMS, and at the same time compete against them for business contracts. Others handle the remarketing of used products in the worldwide market for whole machines and parts. Still others refurbish equipment for charities and provide recycling services. We are all united by being unable to do our work, expand our businesses, or even support consumers due to lack of repair information and materials.