

Keeping things working in a throwaway economy

Australia's repair problem isn't just about broken appliances. Legal frameworks, product design and digital control systems can make repair harder than replacement, even as communities try to revive a culture of fixing, reports Jacinta Cleary.

Dave shakes my toaster hard, upside down, for a full five minutes. I explain that I cleaned it before bringing it to the repair cafe that morning, but crumbs spill out in clumps, some the size of almonds, covering the bottom of the sink.

"Cleanability matters," he says, pointing to where crumbs are wedged inside. "If it's too hard to clean, it affects how it works."

It's a logical place to start. Crumb build-up can stop the lever from staying down on a toaster, along with other issues, such as the electromagnetic component that holds it in place failing after years of heat exposure. On my four-slice machine, one side still drops and toasts reliably, while the other side recently stopped working.

Dave explains that toasters are notoriously difficult to repair. "Almost 99% irreparable," he estimates. The small coil that controls the lever is often buried inside the toaster beside heating elements and wiring. Replacing that one failed part can mean pulling apart the entire unit, if it can be opened without breaking it in the first place.

He still offers to remove the base and take a look. I hesitate. If most toasters can't be fixed, what's the point?

Inside the repair cafe

Around us at the Pascoe Vale Repair Café in Melbourne's north, coordinated by Sussex

Neighbourhood House, volunteers lean over vacuums, lamps and cassette players. A 1980s tape deck lies open on the table, recently prised apart by Glenn, while Frank, another volunteer, suggests to its owner that she could clean the tape deck heads with a dab of methylated spirits to improve sound once it's fixed. Across the room, hand menders patch woollens and revive soft toys.

Over coffee and conversation, eight volunteer repairers work through a queue of neighbours who have brought in items that are broken, wobbly or simply worn out.

Last year alone, 665 items were brought through these doors, and 558 were restored to use—an 84% success rate. On arrival, I sign a form acknowledging that once an item has been opened or worked on at the repair cafe, any remaining manufacturer's warranty will be void.

Even in a room full of such skill and goodwill, some products resist repair. My half-working toaster will do for now, until the other side fails and we replace it. But the next toaster purchase will be more considered. Simple appliances now come with smart features and Wi-Fi connectivity (yes, even a toaster), sealed casings and tightly integrated components that aren't designed to be opened. Over time, the way products are assembled and legally protected has quietly shifted. Repair is no longer just a question of

know-how. It is challenged by weak consumer laws, strong intellectual property rules and manufacturing decisions that often make replacement feel easier than repair.

What happens at the repair cafe tells part of the story, but the rest begins long before a broken appliance lands on a table.

The rules behind repair

Whether or not to repair a product is often framed as a question of consumer choice. But as Professor Leanne Wiseman argues, the reality is more complex. From the moment a product leaves its packaging, consumer guarantees, warranty terms and intellectual property protections shape what owners can and cannot do. The gap between what feels fair ('I bought it, so surely I should be able to fix it') and what's actually possible is where many appliances, and good intentions, come unstuck.

Professor Wiseman, an intellectual property law scholar at Griffith University whose work focuses on the right to repair, studies how copyright, consumer law and competition policy shape what Australians can and cannot do with the products they own.

"Putting it simply," she says, "the right to repair is really about giving everyone the ability to have their products repaired at a competitive price using a repairer of their choice."



All of our classes are designed for you to start at zero skill level. After 15 minutes you've picked up the basics to be able to go and customise and repair your own clothing afterwards.



Digital locks and hidden barriers

So how have copyright and intellectual property come to affect whether your fridge or washing machine can be repaired?

One of the least visible barriers lies in copyright law. Wiseman gives a familiar analogy: "If you think about the DVDs that we used to bring back from overseas that you couldn't play in your machines because they had locks on them, it's the same digital lock that we are seeing put in fridges, washing machines and our cars."

These protection measures, designed to prevent unauthorised access to software, can also prevent legitimate repair.

"Anything that is now software enhanced or has a computer program in it, it's basically

made it harder to fix," Wiseman says. "We're looking at products from pacemakers to cochlear ear implants to cars, to tractors to toasters, washing machines, fridges, your laptops and phones, everything. It's very broad."

The failure might not be the heating element or motor, but the code that controls it, and access to that code is often tightly controlled by manufacturers.

Modern products rely on embedded software to run sensors, regulate temperature and diagnose faults. When something goes wrong, repair may require access to exclusive software or diagnostic tools. "You basically have to plug into the manufacturer's proprietary system to get access to the information you need," Wiseman says. Without that access, independent repairers can be locked out.

The problem extends beyond repairs to ongoing support. "There's nothing under our consumer law that makes a manufacturer guarantee that they will provide software updates to products for a certain period of time," she says. "They don't even have to tell you whether you're going to get updates to your product, whether it's your fridge or your washing machine or whatever." She describes a friend's smart dishwasher that couldn't run a cycle recently because it was in the middle of an update.

Manufacturers argue these protections safeguard intellectual property and data security. Wiseman is sceptical: "People aren't trying to copy or steal the software. All they want to do is be able to get through the locks to access the product to replace a part."

Before you throw it out...

Your rights extend beyond the warranty

Under Australian Consumer Law, products must be of acceptable quality and last a reasonable amount of time. These consumer guarantees can apply even after a written warranty has expired.

Warranties and repairs

If a product fails during the warranty period, the retailer or manufacturer usually needs to repair, replace or refund it. A third-party repair might void the warranty, so it's best to contact the retailer first.

Major vs minor faults

If the fault is major, you may be entitled to choose a replacement or full refund. Minor faults are those that can be fixed within a reasonable period of time, requiring the business to offer a free repair, replacement or refund.

Outside warranty doesn't always mean out of rights

Even after a warranty ends, consumer guarantees may still apply if a product fails earlier than a reasonable person would expect.

Ask about spare parts

Manufacturers are generally expected to provide repair facilities and spare parts for a reasonable period after purchase.

Check repairability before you buy

Look for products with modular parts, replaceable batteries and screws rather than glued casings.

Recycling is the last resort

Keeping products in use for longer has a far greater environmental benefit than recycling them later.



Volunteer Glenn at Pascoe Vale Repair Cafe prying apart an old tape deck.

at what price. “There’s been an imbalance between the manufacturer’s control over the products... they’re controlling the aftermarket. The service, repair and maintenance is as valuable to them as the original sale,” says Wiseman. For consumers, that can mean they are forced to return to authorised service centres, often at higher cost and with limited competition.

The cost of replacement

The imbalance becomes clearer with high-value appliances. “You spend \$6000 on a fridge,” Wiseman says, “but the manufacturer’s warranties often only last for two years.”

When a component fails in year three or four, often something integrated, like an ice and water system, repair can be technically possible but not worthwhile financially. If parts aren’t modular, simple replacements become unnecessarily complex, and an otherwise solid appliance can be pushed toward early replacement.

The financial cost lands with households, but the environmental cost lands everywhere. The broken fridge or washing machine doesn’t just disappear; it joins the growing stream of discarded goods.

“Keeping our products in use for longer is so fundamentally important to reducing waste,” Wiseman says. “If we keep your phone or your fridge or your machine in use for one or two years longer, the environmental benefits are exponential.”

Recycling, she adds, should be viewed as a last resort. In a country that consumes

“We don’t have a big repair economy in Australia,” Wiseman says. “A lot of the older generation of mechanical repair trades, diesel mechanics and similar skills, are not being taught in TAFE anymore ... we need to remove a lot of barriers, work on better support, design and skills to get a repair economy going in Australia.”

The smartphone cycle

These repair difficulties are not limited to whitegoods. One example is the smartphone, a device many people replace every few years, sometimes because the battery fades, a screen cracks or a newer model appears.

Under Australian Consumer Law, products are supposed to last a reasonable amount of time, although there can be disagreements about what counts as a reasonable lifespan. These protections apply automatically and can extend beyond the manufacturer’s written warranty, although many consumers don’t realise it. Cracked screens, worn batteries and software issues are often treated as wear and tear, and disputes can arise over whether a fault reflects normal use or a product that has failed too soon.

If a fault happens during the warranty period, the phone usually needs to be returned to the retailer or manufacturer. Once the warranty expires, things can get more difficult. Repairs can cost hundreds of dollars, so many people choose to replace the device instead.

The old phone often becomes e-waste. Recycling can recover some of the precious metals inside, but not the energy and

Fairphone, although their phones are not available here, but other manufacturers such as HMD and Nokia also make phones that are at least meant to be repaired, if not as easily as the Fairphone.

This approach remains the exception in a market dominated by sealed devices that are difficult to repair.

Mandatory data sharing benefits

There are signs of change.

In 2022, Australia introduced a mandatory data-sharing scheme requiring car manufacturers to provide repairers with access to service and repair information. The reform followed years of concern that proprietary software systems were locking independent mechanics out of modern vehicles.

Treasury’s review found that 65% of independent repairers reported higher productivity, and the number of vehicles being turned away has fallen by around 40%.

Agriculture is next to benefit, with the Motor Vehicle Service and Repair Information Sharing Scheme to be extended to farm machinery. Agricultural machinery is packed with software, sensors and satellite links locked behind digital walls, causing frustration for farmers when they need to wait for tractors or heavy machinery to be fixed. Financial losses can quickly add up while waiting for repairs during a harvest period.

Internationally, momentum is building. In the European Union, new right-to-repair rules require manufacturers of some appliances to make spare parts available for longer.

France has introduced a reparability index on selected products, a score shown at the point of sale that helps shoppers see how easy an item will be to repair, based on spare parts, manuals and how easily it can be taken apart.

In several US states, new laws now require manufacturers to provide repair information and parts for electronics and, in some cases, farm equipment.

Wiseman says that if Australia is serious about building a repair economy, several reforms are needed (see box ‘What needs to change in Australia’).

Design for reparability

The right to repair is also about how products are conceived in the first place, whether they are built to be opened and maintained over time, or sealed and quietly steered towards early replacement. If copyright law and consumer guarantees shape what



Households are constantly exposed to aggressive sales and marketing campaigns to upgrade, replace and purchase new products, as opposed to maintaining and repairing their products to extend product life and keep them out of landfill.



far more than it can realistically recycle, the most effective environmental action might be to keep what we already own working for longer.

But that depends on having the skills and infrastructure to support repair in the first place.

resources used to manufacture the device in the first place.

Some manufacturers are trying a different approach, with devices being designed so batteries and screens can be replaced with basic tools. The best known, and probably best implemented, example of this is



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happens after a product fails, design decisions determine how likely that failure is to lead to repair or replacement.

For John Gertsakis, Director of the Product Stewardship Centre of Excellence, repair begins long before an appliance lands on a workbench. Many products are simply not designed to be repaired and the burden has subtly shifted to consumers.

"Households are constantly exposed to aggressive sales and marketing campaigns to upgrade, replace and purchase new products, as opposed to maintaining and repairing their products to extend product life and keep them out of landfill," he says.

Design can enable or undermine repair. When appliances are glued shut, batteries are sealed in, or proprietary fasteners require

specialist tools, making repair technically possible yet practically unviable.

"Designing for repairability starts with ensuring that the manufacturer or brand is genuinely committed to repair and product longevity," Gertsakis says. Without that commitment, even the most obvious repair-friendly features can prove futile over time.

Gertsakis says design for repairability comes down to a set of clear choices. His general rules of thumb include:

- Design for disassembly so products can be taken apart easily and safely to replace broken parts.
- Use standard screws and fasteners, not proprietary tools that are hard to access.
- Avoid glues and bonding agents that make products difficult or impossible to open.
- Choose durable materials that are less likely to fail and easier to repair or replace.
- Clearly label parts and materials to make identification and replacement simpler.
- Place parts or modules that are more prone to break, fail or need replacement in accessible locations.
- Avoid sealing batteries inside products; they should be removable and replaceable.

Some companies have embraced this approach. Framework's modular laptop allows key components to be swapped with basic tools. Repeat Audio's headphones follow a similar ethos: each part is designed to be individually replaced or upgraded, reducing waste and extending usable life.

Even in the clothing world, brands like Patagonia design garments with durable materials and provide repairs on worn gear to keep it in use rather than discarded.

"Durability, repairability and re-usability are more than 'nice to have' type measures," says Gertsakis. "They represent a potent set of strategies that are increasingly demanded by consumers and the general public." If Australia is serious about reducing waste, he argues, repair must be supported rather than treated as an afterthought to recycling.

The repair culture

At the repair cafe, these design decisions play out in real time. "If you can pull it apart, there's a good chance we can fix it," Frank tells me.

Lamps with accessible wiring are fixed in minutes. But coffee machines or grinders with sealed motors and small appliances fused shut are far less promising. "By the time you buy a new motor it's cheaper to replace it," Glenn says.

Dave has been working on a juicer, "a very well-made Korean machine worth fixing" and is waiting on a replacement switch. The

What needs to change in Australia

If Australia is serious about building a repair economy, several reforms could make a tangible difference.

1. Reform copyright law

Manufacturers can use "digital locks" to restrict access to repair information and diagnostics. Expanding legal exemptions to allow those locks to be bypassed for lawful repair would remove a major barrier.

"Copyright law is one of the biggest problems because it allows manufacturers to place digital locks... and that locks us as owners out of those products," says Professor Leanne Wiseman. "If you can just fix copyright law a little, that'll alleviate a lot of those problems."

2. Strengthen consumer protections

Current consumer law focuses on the physical product, not the embedded software that increasingly determines how it functions.

"Our consumer law really needs updating," Wiseman says. "It is not recognising that many products now are digitally and software enhanced, and that this brings particular challenges. For example, there's nothing under our consumer law that makes a manufacturer guarantee that they will provide software updates."

Clarifying how consumer guarantees apply to software, durability and long-term support would strengthen repair rights.

3. Ensure fair competition in repair markets

Independent repairers need access to tools, manuals and diagnostic systems. Similar access rules already exist in the automotive sector.

"If you don't provide the repair information and access to diagnostics, we see whole industries that can't survive," Wiseman says.

4. Introduce repairability labels

Clear labelling on durability, spare-parts availability and ease of repair would help consumers choose products built to last, similar to France's repairability index.

"Durability or repairability labels or repair incentives like rebates are some ways in which other countries have tried to elevate and educate consumers," Wiseman says.

5. Invest in repair skills

From TAFE training to supporting repair cafes, rebuilding practical skills is essential.

"All of those skills are not recognised in training programs," Wiseman says of traditional repair trades. Community initiatives, she adds, are "doing a really vital service."



Into Carry repair workshops.



owner brought it in last month, and the pair are trying to source the right component, hopefully in-hand for the next repair cafe. The owner has already contacted the dealer in Queensland, who were unwilling to send the switch. Repair requires patience and is often dependent on manufacturers being willing to supply parts.

Rachel Currao, who coordinates the Pascoe Vale Repair Café, says the appetite for repair continues to grow. "It's an opportunity to connect the community through neighbours helping neighbours to fix something," she says. "You can see the delight on people's faces when something is fixed."

More than 110 repair cafes operate across Australia, with thousands more worldwide. "They're doing a really vital service," says Leanne Wiseman of the grassroots movement. "There are goods failing due to a simple \$3 plastic valve in an \$800 product. Repair cafes are important to the bigger picture for identifying and feeding information back to designers, manufacturers and regulators. They don't receive any sustainable funding, yet they're providing such an important service, as well as preserving and valuing the repair skills that we still have in the community."

Changing material relationships

Luke Phillips, founder of Into Carry, has seen how repairing or remaking an object can change the way people value it. He started his business making bags from upcycled materials, and now runs workshops as well, so people can learn skills to make and repair things themselves.

Phillips trained as an industrial designer, but says an environmental "awakening" pushed him to rethink the materials

he was using. "The mission statement that we came up with was to change material relationships," he says. "Until we really develop a proper connection and understanding with the materials that we use every day, nothing's really going to change."

He began sourcing discarded textiles and packaging for the bags, using materials such as soymilk containers and nursery bags. It became apparent that customers weren't only interested in the finished product, they also wanted to understand how it was made. In-person and online workshops soon followed, teaching fundamental sewing and repair skills before participants make their own bags from reclaimed materials.

"As much as the fashion and textile industry is one of the biggest polluters in the world, it's also one of the few product industries that still maintain the right to repair," he says.

With minimal skills people can learn to mend in a short time, without specialist tools. "All of our classes are designed for you to start at zero skill level," Phillips says. "After 15 minutes you've picked up the basics to be able to go and customise and repair your own clothing afterwards."

People also come away with a sense of confidence from making or repairing something themselves. "Having the tangible activity where you're getting instant feedback... it is real and no one can take that away from you," he says.

He recalls one moment from a recent course: a participant finished his bag, stood up and started laughing. "He's like, 'I made this.'"

For Phillips, it's a reminder that repair and reuse are not only environmental acts; they can also be social and psychological ones. **▶**

More information:

- Visit the Australian Repair Network website for a map of Australian meets: www.australianrepairnetwork.org
- International repair cafe movement: www.repaircafe.org
- Product Stewardship Centre of Excellence: www.stewardshipexcellence.com.au
- Into Carry website, including online tutorials: www.intocarry.co

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Jacinta Cleary has worked on various publications in the sustainability sector and is a former editor of Renew magazine.

iFixit's repair manual

You might have come across iFixit when searching how to fix a phone or even a game console. The repair platform publishes free step-by-step guides and troubleshooting advice for thousands of products, from power tools to coffee machines.

The guides are created by a worldwide community and show how products are assembled and how they can be taken apart and repaired. iFixit also sells tools and spare parts to help tackle common repairs, such as replacing phone batteries or laptop screens at home.

iFixit also advocates for laws that give consumers and independent repairers access to parts, manuals and diagnostic information. Its message is simple: if you bought a product, you should be able to fix it.

www.ifixit.com