
iFixit: If You Bought It, You Don't Really Own It

We define mainstream repair as something that is possible, rather than something that used to happen.

—Kyle Wiens¹

When Bev Thompson accidentally dropped her 64-gigabyte iPhone SE (second generation) in late December 2021, the screen protector shattered and the display disappeared. Although the iPhone rang and pinged when it received calls and texts, Thompson couldn't see anything. Without a working screen, she couldn't even turn the phone off to restart. At this point, Thompson believed she had two options. She could take it to an Apple store or Apple authorized shop to be repaired—and if it only needed a new screen, that repair would probably cost less than a new iPhone. Or she could purchase a new iPhone and try to get some trade-in value for the broken phone. With the global production of smartphones estimated at 1.36 billion units,² Thompson had plenty of options for buying a new one. And trading in the old phone, she believed, meant it would be recycled. What Thompson didn't know was that she had a third option—to fix the iPhone herself with free online repair guides from iFixit.

Kyle Wiens and Luke Soules were cofounders of iFixit, located in San Luis Obispo, California. They launched their company in 2003 and by 2021, had over 70,000 repair guides for 30,000 gizmos provided on their website for free.³ The business made money from selling parts and tools—a supply chain it had to generate itself. Yet monetization wasn't what drove the business. “I think any business should think about how they can be additive to our communities rather than extractive,” Wiens said. “Having a profitable company is about being sustainable, meaning it is something we can continue doing in the future.” Selling parts and tools allowed iFixit to monetize 3% of repairs performed using iFixit information, and that money was used to pay staff. Wiens and Soules's business model was based on creating more value than they captured—repair was sustainable. They intended to keep electronics such as Thompson's iPhone out of landfills by providing accessible and easy information for free so anyone could fix their devices. Indeed, Wiens and Soules wanted to show the whole world how to fix.

¹ This is a field-based case. All information and quotations, unless otherwise noted, derive from author interviews with company representatives.

² Esther Fang and Pinchun Chou, “Global Smartphone Production Expected to Reach 1.36 Billion Units in 2021 as Huawei Drops Out of Top-Six Ranking, Says TrendForce,” *Business Wire*, January 5, 2021, <https://www.businesswire.com/news/home/20210105005408/en/Global-Smartphone-Production-Expected-to-Reach-1.36-Billion-Units-in-2021-as-Huawei-Drops-Out-of-Top-Six-Ranking-Says-TrendForce> (accessed June 22, 2022).

³ “Repair Guides,” iFixit, <https://www.ifixit.com/Guide> (accessed June 22, 2022).

This field-based case was prepared by Vidya Mani, Associate Professor of Business Administration and Gerry Yemen, Senior Researcher. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation. Copyright © 2022 by the University of Virginia Darden School Foundation, Charlottesville, VA. All rights reserved. To order copies, send an email to sales@ardenbusinesspublishing.com. No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the permission of the Darden School Foundation. This publication is protected by copyright and may not be uploaded in whole or part to any AI, large language model, or similar system, or to any related training database. Our goal is to publish materials of the highest quality, so please submit any errata to editorial@ardenbusinesspublishing.com.

Yet not everyone was supportive of iFixit and its mission to change consumer behavior around a propensity to toss away broken products. Wiens and Soules's plan put iFixit head-to-head against industry leaders in the electronics space—large manufacturers that worked against iFixit's efforts to offer repair guides. For nearly 20 years, Wiens and Soules had worked toward the “right to repair” what consumers owned. To succeed meant changing how companies thought about parts planning and logistics in their product manufacturing. iFixit tried to do so by partnering with manufacturers, working with the US Environmental Protection Agency (EPA) on green purchasing standards and nonprofit organizations to pass right-to-repair legislation, lobbying state legislatures to pass right-to-repair bills, and fighting off copyright-violation threats against independent repair websites. With each step, it seemed that manufacturers had a new method to circumvent consumers' ability to fix their devices. What would it take to move the needle so manufacturers would work with, instead of against, iFixit? Moreover, would winning the right to repair mean that more consumers, such as Thompson, would choose to fix a broken item instead of buy a new one? Furthermore, would iFixit ever be able to keep up with creating repair manuals for all the new products produced each year?

iFixit from the Start

Wiens grew up in a family of fixers. His father ran a Harley-Davidson shop and his grandfather carted a tool kit around everywhere he went. Spending time with his grandchildren included taking them to Goodwill to buy broken electronics to pull apart and tinker with. When his laptop broke while in university, Wiens took it apart and fixed it, although admittedly struggling to do so. “The reason the process was so challenging was there wasn't a service manual with instructions available,” Wiens said. “Apple lawyers had removed that information from the internet.” Frustrated with that fact, Wiens took his computer apart again, wrote a service manual, and put the printed guide online to sell—which it didn't, so he decided to offer a web version for free.

When Wiens headed to college to study computer science, his grandfather gave him a toolbox. It was at California Polytechnic State University that he met another fixer—Soules. They realized they had similar interests beyond fixing things and paying their way through school. They didn't like the cultural norm of throwing broken things away and buying new ones. “You go to school to become an engineer to design new things, and I started second-guessing that, asking—do we really need more things in the world?” Wiens said. “Was there a way to keep things that we already have longer?”

They continued to work on the frustrations Wiens had with fixing his Apple laptop. They took apart and repaired other Apple products, taking notes and posting repair manuals online. They got 30,000 hits on the early manuals. “I knew enough about the law to know that if you lift the hood on your Ford car, take a picture, and post it on the internet, Ford can't stop you,” Wiens said. “There was nothing Apple was going to be able to do about it.” Wiens and Soules set out to build a community that shared what they knew about fixing things (see **Exhibit 1** for their manifesto). The information was provided free, through an open-source wiki ecosystem. “We initially laser-focused on Apple, with a goal to get a totally comprehensive repair ecosystem for every product that Apple sold,” Wiens said. At the time, Apple had roughly 40 products, and it took three years to build the technology (actual software) that allowed people to collaborate on repair manuals, and for iFixit to become the market leader for learning to repair Apple products. “Our closest competitor at *teaching people how to fix things* is YouTube,” Wiens said. “But there are 32,000 videos on YouTube that will teach you how to change the oil on a Honda Civic, some which are good and most not really, so it's hard for people to find the good one.”

Along with the free online repair manuals, iFixit added parts and tools for sale to make it easier for consumers to perform repairs. For example, Apple used a screw on the outside of its iPhones that had five points. Nothing on an iPhone could be repaired without removing it. Wiens believed the five-point “pentalobe”

screw was an Apple invention to keep people out of the iPhone—no screwdriver that had five points was easily available. At first, iFixit tried to go to Apple suppliers and buy parts, but that didn't work out. Manufacturers wouldn't sell direct to the small company. So Wiens and Soules would head to Sears to buy screwdrivers and resell them. "But Sears would only sell us something like six of any given screwdriver at a time," Wiens said. "Obviously, that didn't scale, so we went to importing from China." Eventually, iFixit created screwdriver sets built to its own specifications. Having the tools to open smartphones allowed do-it-yourselfers (DIYers) to remove their phone battery to fix common problems. For instance, many people accidentally dropped their iPhone in water. There was a common belief that putting a wet phone in rice dried it out. But the real fix was to remove power—there was no power button on the iPhone—so people really needed to take the battery out.

In addition to tools, Wiens and Soles got aftermarket parts and parts from recyclers who took apart old items and sold the parts. "If I'm convincing a consumer to open their smartphone and do a repair," Wiens said, "the part has to work as there is very little tolerance of a defect." Getting quality parts was a major operational challenge and Soules took over that part of the business. Wiens handled the digital side, which was split between software engineering and community management.

With little to no paid advertising (and what there was mostly consisting of sponsoring YouTube channels), iFixit was primarily discovered by word of mouth or from those searching Google about a broken product. "In the early days, Google came to me and said, 'Hey, if you add Google ads to the search on iFixit.com, we will guarantee you a million dollars a year,'" Wiens said. "We said no, because that would undermine the trust in our community and our long-term vision."

iFixit and Electronic Waste (E-waste)

As Wiens and Soules shifted their potential career paths from designers of new things the world might need to focusing on keeping the things the world needed longer, they dove deeper into the sustainability aspect of their business. "We did a lot of environmental research on a fact-finding trip and realized discarded electrons were a major problem," Wiens said. Although recycling was widely considered to be beneficial, Wiens and Soules realized that the e-waste economy was damaging peoples' health and the environment. Most of the world's electronic recycling took place illegally or improperly, in low-income or middle-income countries that had little oversight.⁴

In the United States, the EPA was also concerned about e-waste and worked to keep metals in the supply chain through *proper* recycling—but the agency also had limited oversight. First Congress or the executive branch had to pass laws (acts) or executive orders that gave the EPA the clear authority to regulate lithium-ion batteries. Then the EPA had to write regulations around those specific acts that informed the public and the regulated industry of the acts' intent. This step alone could take years to complete. In terms of e-waste, two acts provided the EPA some authority. Under the Resource Conservation and Recovery Act (RCRA), the EPA could regulate hazardous waste from businesses (i.e., batteries for electronics), but the act was old and had gaps. "A lot of electronics such as computers and smartphones are owned by consumers, not business," retired EPA electronics sustainability expert Karen Pollard said. "RCRA was enacted to regulate barrels of hazardous waste from industry, not to regulate consumer waste that may or may not be hazardous, depending on what materials it was developed with, such as electronics waste. Consequently, consumer hazardous waste—household hazardous waste—was exempted under RCRA well before computers were part of a consumer's everyday life. Therefore, it is difficult for the EPA to say how you should dispose of your computer—instead, we support

⁴ "Soaring E-waste Affects the Health of Millions of Children, WHO Warns," World Health Organization press release, June 15, 2021, <https://www.who.int/news/item/15-06-2021-soaring-e-waste-affects-the-health-of-millions-of-children-who-warns> (accessed June 22, 2022).