

## 10 Ownership's Uncertain Future

So far, this book has explained the shifting relationship between consumers and the products they acquire, and the factors driving those changes. Overlapping developments in the law, technology, and the marketplace have undermined our sense of ownership of the digital and tangible goods that surround us. In this concluding chapter, we have two objectives. First, we will explain why—despite the many benefits of rentals, subscriptions, and sharing—an economy in which ownership disappears is a cause for concern. And second, we will offer a sketch of the kinds of interventions we think could help safeguard ownership and the many interests it serves. Our goal is not to turn back the clock or forestall innovation. Instead, we want to highlight the consequences of undermining ownership in hopes of preserving meaningful choice and the many benefits of personal property.

### Ownership, Sharing, and Choice

A future that deemphasizes ownership is not only inevitable, it's already here. The explosive growth of streaming services like Netflix and Spotify, accompanied by plummeting physical media sales, tells only a small part of the story. Likewise, digital media and devices hobbled by license restrictions and DRM are already facts of life. Although important in their own right, these are all examples of a much broader and deeper cultural shift away from ownership.

We see evidence of this transformation in the emergence of the so-called “sharing economy.” For those unfamiliar with the term, it refers broadly to services and business models that enable individuals and organizations to share, rent, and reuse resources, often enabled by technology. If you've ever gotten a ride in an Uber or spent the night in an Airbnb rental, you've taken part in the sharing economy. The range of goods and services in the sharing economy is staggering. In addition to rides and apartments, there are

platforms for renting parking spots, bicycles, private planes, and clothes. Other platforms help neighbors share tools and household goods. Leftover-Swap and EatWith even apply the sharing model to meals.

In everyday English, “sharing” implies something given freely. A few sites like NeighborGoods and Streetbank actually facilitate sharing in the literal sense. And that sort of sharing, of course, is premised on individual ownership. You usually can’t lend something that you don’t own. But many of the services lumped together under the “sharing economy” moniker are premised on short-term, for-profit rentals. Most are built around the exchange of money for temporary access. Some services rely on a distributed network of individual owners connecting to end users through a technology platform. Others depend on a single provider that coordinates the needs of lots of users.

The rapid growth of some of these efforts has attracted lots of attention. But we rented cars, stayed in hotels, and endured rented bowling shoes long before the first iPhone app. So what is it—if anything—that makes the sharing economy “disruptive”? For one, we see nonownership models moving from out-of-the-ordinary circumstances, like renting a car on vacation, to the everyday convenience, like ride sharing on your commute to work.

In large part, the expansion of temporary-access models is a function of technology. Before everyone had a smartphone in their pocket, the transaction costs of renting your bike for a few hours were prohibitive. By making it easier for owners and users to connect, technology enables more efficient use of existing resources. Cars, for example, are parked most of the time. If you can reliably press a button to summon a ride that takes you where you need to go—especially if it’s cheaper—why own a car? Of course, public transit users have been asking and answering that question for decades.

The decline of ownership is also a function of reduced wealth, particularly among millennials. Post-recession, young people are less likely than previous generations to prioritize traditional financial milestones like buying a car or house. The number of young people who own cars or homes has dropped significantly in recent years.<sup>1</sup> Increasingly, ownership looks like a luxury they can’t afford. In that sense, Uber isn’t much different from Spotify. If you have money to spend, you can own a car or a record collection. Or you could spend a lot less for access to services that provide rides and music.

People are understandably attracted to the appeal of a lower sticker price. But sometimes the price tag fails to reflect hidden costs and other risks. Ownership has long-term upsides for individuals and society as a whole that aren’t always readily apparent—in terms of privacy, autonomy, and

competition, among others. That's not to say we should do away with new models of allocating and sharing resources, or that we should favor incumbents at all costs. But we need to be fully aware of the bargains we are striking.

There are losers in the sharing economy, and they aren't just legacy taxi companies and expensive hotels. The savings Airbnb users realize and the company's profits are in part the result of externalities—costs that Airbnb and its users aren't bearing. In cities big and small, there is evidence that Airbnb contributes to rent increases for residents.<sup>2</sup> As more housing units are devoted to the sharing economy, fewer are available for locals to rent. Long-term renters have even been evicted to make room for vacationers.<sup>3</sup>

The unseen costs of the sharing economy are also borne by the increasing number of workers classified as independent contractors. By insisting on that classification for its drivers, Uber—currently valued at over \$50 billion—avoids paying the minimum wage, payroll taxes, health insurance, unemployment benefits, and workers compensation for the vast majority of its workers.<sup>4</sup> That cost shifting isn't apparent to Uber users. All they see is the few dollars they saved compared to a taxi and the free bottle of water.

These problems are hardly insurmountable. They are largely the function of business models that have outpaced the law. But the law will catch up. Airbnb is under increased scrutiny by local authorities. And Uber is in the midst of litigation over the employment status of its drivers. In all likelihood, the savings that flow from the efficiency introduced by the innovations of the sharing economy are here to stay. But the externalities they've relied on so far are not.

Temporary-access models also leave us vulnerable to fluctuations in price. When we depend on resources owned by others, we have to pay the prices they demand. Uber's controversial surge-pricing model illustrates the point. When demand for rides is high—because of a sporting event or a hostage crisis<sup>5</sup>—Uber responds by increasing prices, by as much as eight times the normal fare.<sup>6</sup> Uber defends its policy on the grounds that higher prices should convince more drivers to hit the road to meet consumer demand. And competition puts some limits on price. If you don't want to pay Uber's inflated rates, you can take a rate-regulated taxi, or public transit, or drive your own car. That's true for now, at least. But once we head down the path of temporary access, it might be hard to reverse course. In a world of licensed, robot-driven cars—a world that may soon be upon us—it might not be so easy to drive yourself.

As the benefits of temporary access models—primarily price and convenience—contribute to their spiking popularity, we worry about the

long-term impact on choice. If we neglect the physical and legal infrastructure of ownership, we may see it disappear. Manufacturers are building cars, electronics, and other devices that we can't truly own; DRM keeps them loyal to another master. Publishers are launching digital-only imprints.<sup>7</sup> And despite the recent resurgence of vinyl, there are only twenty pressing plants in operation in the United States, and they struggle to meet demand.<sup>8</sup> Without the means of production and delivery, ownership becomes more expensive, if not impossible. Once the record stores are gone and the CD plants have closed, the competitive checks on the price of services like Spotify weaken.

Just as important, when we trade ownership for access, we sacrifice reliability. Most of us have had the experience of realizing the movie we were hoping to watch has disappeared from our Netflix queue.<sup>9</sup> Titles come and go all the time as licenses expire and new deals are negotiated. Or maybe your favorite album is pulled from your subscription music service because the artist signed an exclusive deal with a competitor. These are minor inconveniences, to be sure, but they highlight the contrast between a model in which the consumer has control and one in which control is entrusted to a third party. More troublingly, works can disappear altogether. In a world without individual ownership, a publisher could pull a controversial book, movie, or album from the handful of subscription services, and it would be like it never existed.

And when you don't own your devices, you lose control over the kinds of uses you can make of them. So far, limitations on use have for the most part treated everyone the same: "you cannot lend this ebook," or "your rental period is twenty-four hours." But as technology reduces the costs of monitoring and valuing individual behavior, we are likely to see increasingly fine-grained, individualized use-based restrictions. Imagine your reasonably-hip crossover vehicle alerting you after your third after-school stop, "I'm sorry; you've reached your limit of daily passenger drop-offs. Would you like to upgrade your vehicle plan to CarPoolPro?" As if that weren't indignity enough, your carmaker's pricing algorithm—relying on information it has gathered about property values in your neighborhood, your driving patterns, and your in-car search history—predicts exactly how much you are willing to pay for the privilege of dropping off that last cranky first grader.<sup>10</sup> This is exactly the goal of the price and geographic discrimination tactics we have discussed throughout the book—to divide our lives into individual transactions and charge as much as we are willing to pay for each one. Shifting away from ownership is an essential step toward that future.

Temporary-access models are not inherently harmful. Whether they are the right choice for any particular consumer will depend on a number of factors—the type of resource, the use they want to make of it, how they value that use, their income, their desire for durability, and a constellation of other considerations. Someone who embraces Netflix might treasure their record collection. And a commuter who could never part with their bicycle might enthusiastically sign up for a robot car service. There's no one solution for all occasions. What's important is that we can choose between ownership and temporary access depending on our needs.

Physical formats and business models come and go. Columbia House is actually relaunching for vinyl. What separates the shift we are witnessing today from, say, the demise of the illuminated manuscript is that the conceptual and legal framework of ownership is crumbling. In the rest of this chapter, we look at ways we can preserve the choice to own.

### Avenues for Legal Reform

One way to safeguard ownership is through changes in the law. Law is a powerful tool for regulating markets and protecting the interests of individuals. The notion of intellectual property itself is a creation of the law—a legislatively crafted reprieve from competition. Considered in this light, balancing the rights of IP holders and consumers is inescapable, regardless of who comes out ahead. The law can favor rights holders, as it often does. Or we can leverage law as a tool to help preserve the benefits of ownership. But there is no single legal fix for the full range of issues we've detailed in this book.

Of course, legal change faces hurdles. The judicial process is slow, and courts tend to be incremental in their innovations. The legislative process suffers from its own difficulties. In the current political climate, Congress can barely avoid regular government shutdowns, let alone reach agreement over substantive policy changes. And historically, copyright lawmaking has done a poor job of taking the public interest into account.<sup>11</sup> But despite these stumbling blocks, large-scale copyright reform is underway. Spurred by Register of Copyrights Maria Pallante's call for the "next great Copyright Act," Congress has taken some initial steps toward rethinking the law for our digital economy.<sup>12</sup> What will come of that effort remains to be seen.

That said, there are steps lawmakers, courts, and regulators can take if they understand the problems facing consumers and are motivated to address them. Some are a matter of enforcing existing law. Others depend

on courts interpreting aspects of the law in ways that are more sensitive to the threats to ownership. Others require legislative change.

### **Preventing False Promises of Ownership**

One partial solution we've already discussed centers on making sure we have accurate information when we choose between the ownership and access models. Today, consumers have no good way to distinguish between a sale that confers meaningful rights of ownership and a license that imposes all manner of restrictions on their use of a product. Both are labeled "sales," and we are encouraged to "buy" and "own" with nary a mention of the special meaning those words are intended to convey in the digital context. And as we've shown, lots of people are in fact deceived. If consumers want to choose rentals or subscriptions, they should be free to do so. But they shouldn't be fooled into sacrificing ownership by misleading language. Since consumers can't easily challenge these practices themselves, courts are unlikely to ever hear a false advertising case challenging the "Buy Now" lie. That leaves responsibility for policing these abuses in the hands of the Federal Trade Commission, an enforcement agency that is more than capable of targeting these behaviors. We urge the FTC to investigate the "Buy Now" button and encourage retailers to adopt a short notice that clearly identifies what buyers can and can't do with digital goods.

### **Limiting Form Contracts**

As we argued in chapter 4, courts should stop analyzing licenses as contracts and regard them instead as pure grants of permission. But even if courts insist on the license-as-contract framework, bringing contract law to its senses is another way to chip away at the edges of the ownership problem. Licenses that attempt to redefine the relationship between consumers and their purchases rely on the legal fiction of freely negotiated agreements. But that fiction does not reflect reality and should be cast aside by the courts. Being put on notice of a contractual term is not the same thing as agreeing to one. And the law's imposition of a "duty to read" that holds people accountable for terms they didn't examine is a holdover from a bygone era when purchases were not routinely accompanied by thousands of words of legal limits. Today, no one can be expected to read the overwhelming onslaught of complex terms and conditions—many of which are longer than this chapter—that consumers confront in the digital environment. It's time courts stop pretending we should.

Ideally, courts should protect individuals by reining in the worst offenses of EULAs through the contract law doctrine of unconscionability. For an

agreement to be unconscionable, it has to be shockingly one-sided as a result of unequal bargaining power between the parties. Courts could refuse to enforce licenses that claim to eliminate ownership in a transaction that has all the hallmarks of sale by deeming them unconscionable. Those take-it-or-leave-it agreements are certainly one-sided, and some provisions, like ones that unilaterally reserve the right to terminate or alter the agreement certainly appear unreasonable. But courts aren't eager to find unconscionability out of a reluctance to intervene in the marketplace. But when the marketplace is riddled with unread terms and misleading marketing, intervention is necessary.

Perhaps contract law's embrace of marketplace dynamics and its overreliance on notice rather than requiring meaningful assent means that it is incapable of addressing concerns about EULAs. If so, we need to look elsewhere for solutions. One promising tactic is the FTC's approach to advertising disclosures. Faced with print, TV, and online ads for a range of products that "quoted prices, but didn't adequately disclose the strings that were attached," the FTC announced a policy that requires clear and conspicuous disclosure of the relevant terms.<sup>13</sup> Disclosures are evaluated using the FTC's *Four Ps*: prominence, presentation, placement, and proximity.<sup>14</sup> Prominence requires that the disclosure be easily readable, and the fine print of a EULA doesn't suffice. Presentation looks at whether the disclosure is written in a way that will be easily understood; dense legalese fails that test. Placement considers whether the disclosure appears in a place consumers are likely to look; presumably that disqualifies EULAs that no one reads. And proximity examines the relationship between the disclosure and the claim that it modifies; a "Buy Now" button isn't particularly proximate to a revelation that "this product is licensed not sold" disclosed in a linked EULA. If these sorts of standards were used to scrutinize most EULAs on digital media and devices, those terms would fail miserably.

The EU's Unfair Terms in Consumer Contracts Directive offers another example of a legal regime that requires extra scrutiny for certain types of consumer contracts.<sup>15</sup> In general, when contract terms are not individually negotiated, the Directive considers them unfair to the extent they lead to a significant imbalance in the rights and obligations of consumers and merchants. The Directive also provides a number of specific examples of unfair terms familiar from many EULAs for digital goods. They include terms that: limit the legal rights of the consumer in the event of nonperformance or inadequate performance by the seller; obligate the consumer even where the seller does not perform its obligations or where its performance is optional; allow the seller to terminate a contract without reasonable notice;

and permit the seller to alter the terms of the contract or the characteristics of a product unilaterally.

Under the Directive, unfair terms are not binding. In addition, the Directive requires that terms are drafted in plain language and that ambiguities be interpreted in consumers' favor. EU states are required to enforce these standards under their national laws. If the United States adopted similarly rigorous standards for form contracts, some of the most egregious abuses in EULAs could be avoided.

Another way to rein in contracts would be to strengthen the doctrine of copyright preemption. When a state law—like contract—conflicts or interferes with a federal law—like copyright—federal law wins. Theoretically, courts could rule that EULAs that are inconsistent with copyright law—if they deny owners the right to transfer, for example—are unenforceable. However copyright preemption is rare because courts mostly focus their attention on the issue of whether or not the rights defined by a contract overlap with the rights of a federal copyright. They almost never ask whether a contract interferes with the rights of consumers of the copyrighted work. We think that view misunderstands not only the relationship between licenses and copyright, but also the fundamental purpose of our IP system.

### Freeing Owners from DRM

Even without contractual restrictions, the machine-code limitations imposed by DRM remain a major barrier to owners' control over their property. DRM can constrain how owners use digital media and software-embedded devices in ways that were impossible in the predigital era. Looking at the anti-circumvention provisions of the DMCA nearly twenty years after their creation, we see them as a major policy misstep. They have stifled innovation and competition, fragmented markets, impeded research, stymied educators, and compromised security. Unintended consequences aside, those provisions have proven ineffective and unnecessary when it comes to their stated purposes. DRM has rarely prevented or even slowed infringement, and at least one study has shown it actually reduces sales.<sup>16</sup> As the music download market has shown ever since Apple abandoned DRM, technological protections are not needed to convince copyright holders to sell content online or for fans to buy it. And the most outrageous abuses of DRM—in our garage doors, printers, and vehicles—bear no connection to copyright infringement at all.

We see very little downside to scrapping section 1201 altogether.<sup>17</sup> But if policymakers are insistent on keeping it, there are two partial solutions



to the problems it creates for ownership. Courts have already held that unless an act of circumvention bears some “reasonable relationship” to an act of copyright infringement, the DMCA cannot stand in the way of breaking digital locks.<sup>18</sup> Where a use is protected under the fair use doctrine or section 117—which articulates exhaustion rights in computer software—some courts have found that “critical nexus” to infringement is missing.<sup>19</sup> It would be a modest expansion of existing law to recognize that circumvention undertaken for purely personal use—like repairing your tractor or reading a book on an unsupported device—or to enable a transfer of ownership—like giving away your digital movie to a friend—should also be immune from DMCA liability.

A cleaner solution, but one that would require legislative action, would exempt owners from section 1201 altogether. If you own a digital good—whether it’s a movie or a car—software locks shouldn’t stand in the way of you accessing or using your property in ways that are otherwise lawful. DRM that prevents you from reading an ebook on a new device or diagnosing your sluggish engine does not protect any legitimate copyright holder interest. And someone who hacks a car’s operating system in order to sell infringing copies to competing carmakers would still be liable for copyright infringement.<sup>20</sup> The legal dragnet of the DMCA, however, ensnares more average users than it does determined hackers. We’d also exempt makers of tools that enable circumvention from liability to the extent those tools are primarily designed for and used by owners of digital goods. We shouldn’t expect every ebook reader to figure out on their own how to make an iBook work on a Kindle.

That’s not to say the DMCA’s anti-circumvention rules would be entirely toothless. Under this proposal, DRM could still enforce the clearly articulated limits of rentals and subscriptions. Since renters and subscribers are not owners, rights holders could prohibit circumventing software code that limits access to and use of a digital good. So if a user exceeds the twenty-four-hour rental period or fails to pay the monthly subscription fee, self-executing code could cut off their access. We think this distinction is an intuitive one. While we might find them annoying, we accept limitations on our use of products we rent. But that’s quite distinct from code that controls what we can do with digital content or devices that we own.

### Reinvigorating Patent Exhaustion

As this book is being written, the Supreme Court is weighing the outcome of the Federal Circuit’s decision in *Lexmark v. Impression Products*, the case that decided it was illegal for you to refill your ink cartridges. There are two

distinct questions presented to the Court in that case—first, whether patent holders can restrict how a purchaser uses a product after it has been sold, and second, whether authorized foreign sales should be treated the same as domestic ones in terms of triggering exhaustion. With respect to both of these questions, we urge the Supreme Court to correct the Federal Circuit’s efforts in recent decades to rewrite the law of patent exhaustion. Instead, it should return to the well-established rules in patent law that rejected post-sale restrictions and artificial geographic limits on exhaustion and reaffirm the positions it outlined in *Quanta Computer v. LG* and *Kirtsaeng v. John Wiley & Sons*.

The other alternative is legislation. Intervention by Congress is preferable to living with the Federal Circuit’s current perspective on exhaustion. But even acknowledging that court’s missteps over the past two decades, we remain confident that a flexible common law approach that allows courts to apply the fundamental principles of exhaustion to evolving facts is the best way to resolve disputes in a fast-changing market.

### Reforming Copyright Law

Addressing the core of the ownership crisis requires changes to copyright law. Those changes could be achieved through legislation; they could take the form of courts embracing a more expansive view of exhaustion; or they might require both.

A number of legislative solutions have been proposed over the years. One of the earliest came in 1997 when then-Representative Rick Boucher introduced the Digital Era Copyright Enhancement Act.<sup>21</sup> That bill, proposed as an alternative to what became the DMCA, would have amended the statutory first sale rule to permit the owner of a lawfully made copy “in a digital format” to reproduce, perform, display, and distribute the copyrighted work to a single recipient, so long as the owner “erases or destroys” their copy “at substantially the same time.” In essence, the bill would have allowed an owner to transfer their interest in a digital good, even if that meant making copies, so long as they didn’t keep any for later use. The bill was prescient and boasted fifty bipartisan cosponsors. But it failed after copyright holders worried that it would lead to widespread infringement since, they argued, no existing technology could have ensured compliance by copy owners.<sup>22</sup>

More recently Representative Blake Farenthold introduced the You Own Devices Act or YODA in 2015.<sup>23</sup> That bill addressed the more narrow but pressing problem of transfers of software-enabled devices. As we’ve seen, many device makers insist that purchasers don’t own the software built into

their phones, cars, and appliances. That could render resale of those devices an act of infringement. YODA would prevent that absurd result. Under the bill, when a computer program enables a product to operate, the owner of that product “is entitled to transfer an authorized copy of the computer program, or the right to obtain such copy, when the owner sells, leases, or otherwise transfers” the product. That right cannot be waived by contract. So far, these sensible amendments have garnered little support. However, in a promising turn, Senators Grassley and Leahy have recently asked the Copyright Office to study the extent to which copyright law undermines legitimate uses of software-enabled devices by consumers.<sup>24</sup>

If Congress fails to act, the courts should step in. After all, it was the courts, not Congress, which created the exhaustion principle in the first place. And courts tended to be more flexible in its application. Before the first sale doctrine was codified in the Copyright Act, courts interpreted exhaustion more broadly. Exhaustion went beyond the right to distribute a copy. It included the rights to modify it and to make reproductions to repair or restore a copy. We think that same sort of context-sensitive adjudication could allow courts to apply the basic principle of exhaustion to digital goods. Statutory changes tend to be narrow and rigid, but judicial change offers flexibility. But given the text of sections 109 and 117, courts understandably feel constrained when it comes to pushing the accepted boundaries of copyright exhaustion. So although we believe courts have the power today to revive a broader approach to exhaustion, they might need some additional encouragement from Congress.

Ideally, Congress would endorse a less rigid approach to exhaustion that can accommodate the realities of the digital marketplace, but one that would empower courts to engage in the sort of careful balancing of competing interests they are particularly well suited to do. This solution parallels the history of copyright law's other crucial limitation—fair use. That doctrine got its start as judge-created common law. When it was eventually incorporated into the Copyright Act of 1976, Congress wisely adopted a flexible framework of four nonexclusive factors to guide judges in fair use cases.<sup>25</sup> And although fair use has not always been a model of perfect clarity, this framework has allowed copyright law to adapt to new technologies, market conditions, and uses of works with reasonable predictability.<sup>26</sup>

So what would a multifactor framework for exhaustion look like? Of course, the first question a court would need to decide is whether a particular consumer is an owner or not. We outlined the sorts of considerations we think courts should take into account there in chapter 4. They include the length of possession by the consumer, whether payment is one-time or

ongoing; and how the transaction is characterized to the public. In short, we think a one-time payment made in exchange for permanent or open-ended possession of or access to a digital good—whether it’s a tangible copy or an intangible asset—results in ownership. That’s especially true when the transaction is characterized using words like “sale,” “buy,” or “own.” So when you click “Buy Now” and pay \$9.99 for a digital movie, you own it, even if no permanent copy is ever stored on your device. And when you exchange cash for a coffee maker, you own both the hardware and the software embedded in it.

Assuming the court is dealing with an owner, next it has to decide whether the actions they have taken fall within the scope of exhaustion. In other words, did they exercise their property rights or did they make a use reserved for the copyright holder. Right now, the prevailing view is that—with the exception of computer software—exhaustion covers distribution and little else.<sup>27</sup> For the reasons we’ve described, digital exhaustion should permit acts of reproduction, and even the creation of derivative works, to the extent necessary to enable the transfer of rights from one owner to another. In some cases that transfer of rights will involve moving a particular copy from one location to another. In other cases, it will require the creation of new copies. And in others, it will be a matter of associating permission to access some intangible resource with a new user. But no matter the mechanics, exhaustion can’t be a pretext for a digital free-for-all, figuratively or literally. Establishing limits on what an owner can do with their purchase is crucial.

In making this determination, courts should consider:

1. The extent to which the owner parted with possession of or access to the digital good;
2. The extent to which the use deprives rights holders of a fair return; and
3. Whether the owner has materially altered the underlying expression of the copyrighted work.

The first factor identifies the central feature of a lawful sale, rental, or gift. When you transfer your rights in a resource, whether permanently or temporarily, you lose access to it. If you sell your car, you don’t get to keep driving it. If you rent out your spare bedroom for the week—unless you are the worst Airbnb host ever—you don’t get to sleep in it. With tangible goods this result is partly dictated by physics. That’s the nature of rivalry. But it’s also a function of the legal construct of property. For digital goods no less than physical ones, a transfer of rights can’t lead to an increase in the number of people simultaneously enjoying the work. So if an owner

doesn't give up their rights—if, for example, they “sell” their digital record collection but listen to a backup copy—their behavior isn't protected by exhaustion.

The extent to which they are required to give up their access depends on what rights they have and the kind of transfer at issue. If you bought two copies of a favorite book, you could keep one and lend one. The same should be true of digital goods. And different types of transfers demand different degrees of loss. A gift or a sale dictates a permanent loss; lending or rental would entail a temporary one. Sometimes, there will be hard questions. Should the owner of a multivolume work—Julia Child's two-volume *Mastering the Art of French Cooking*, for example—be allowed to lend one ebook but keep the other? What does it mean for a digital work to be published in two volumes? Does it depend on whether the two volumes were sold separately or as a bundle? As a practical matter, physical copies make these sorts of questions easier. But the definition of *the work* is a problem copyright law struggles to answer in a number of contexts.

The second factor looks at the impact of the use on the economic incentives of rights holders. Part of the justification for exhaustion is that a sale offers a strong indication that the rights holder has been fairly compensated.<sup>28</sup> Rights holders set the sale price, after all. So complaints about reduced revenue from secondary markets can't be enough to overcome exhaustion. If that were the case, libraries and used record stores would be outlawed. But there are important differences between digital and analog goods that, in some circumstances, could divert enough revenue from rights holders to undermine the incentive structure of copyright. Courts need a way to identify and address those circumstances.

In the analog world, copyright holders could rely on the inherent limits of physical goods to curb the impact of exhaustion. You can only lend a favorite novel to so many friends before wear and tear, and the occasional spilled drink, take their toll. But digital goods are different. They can be transferred far more quickly and at much lower cost. And in the short term, digital goods are more durable. An ebook of that same novel can be read a thousand times with no wear and tear. Over the long term, however, digital goods face their own challenges. Hardware and software evolve quickly. Storage media and file formats that were popular just a decade or two ago can quickly become ancient relics, leaving digital works practically inaccessible long before their analog counterparts.<sup>29</sup> And hard drives, flash memory, and CD-ROMs all degrade over time. Nonetheless, courts need to be sure that resale and lending don't undermine the basic incentive structure of copyright law in light of the characteristics of digital goods.

Imagine an online community for ebook lending. Thousands or even millions of users sync their ebook collections with this service, enabling them to search for books they want to read. When you borrow a book from user A, it gets transferred to your device, and no one else, including user A, can access that book. So far, this doesn't sound much different from analog book borrowing. But imagine that the ebook lending platform knows whether the book is being read at any given moment. If not, it lets another user check out user A's book. With a large enough user base, this far more efficient lending system could guarantee that once sold, an ebook would never have a wasted cycle. Someone, somewhere would be reading it every second of every day—without any fear of broken bindings or torn pages—all thanks to a single purchase by user A. If exhaustion allowed this sort of system, we could see sales and publisher revenue plummet, perhaps below the threshold of profitability. One response would be to dramatically raise prices to offset lost sales, or to abandon sales altogether and move to a subscription model. None of these are outcomes copyright law should encourage.

This hypothetical illustrates why we cannot simply port the exhaustion rules of the analog world over to the digital marketplace. Courts need a way to assess the impact of uses potentially enabled by exhaustion to see if they cause undue harms to rights holders. Our second factor is meant to do exactly that. What counts as undue harm is admittedly a tough question. That's largely because policymakers—despite the rhetoric of incentives—have consistently failed to measure the economic impact of IP rights, much less begin a serious conversation about the ideal level of incentives. The more incentive, the better, they seem to believe. But no serious assessment could support that conclusion. Limitations on exclusive rights—and by extension, incentives—like exhaustion are essential. But how far should they go?

There are two ways to identify uses that give rise to undue harm to copyright holder interests. First, we could leave it to the courts. That's what the fair use doctrine has done. The fourth fair use factor requires courts to consider "the effect of the use upon the potential market for or value of the copyrighted work."<sup>30</sup> If a use causes enough harm, that fact weighs heavily against fair use. The statute doesn't tell courts exactly how much or precisely what sort of harm, but over decades of common law reasoning, courts have developed a reasonably clear understanding of market harm. There's no reason they couldn't do the same when it comes to exhaustion.

If that creates too much uncertainty, either Congress or the courts could identify categories of use that are beyond the scope of digital exhaustion.

The Copyright Act already adopts this approach. It prohibits rental, lease, or lending of music and software—though not video games. Noncommercial lending remains lawful, however.<sup>31</sup> And section 117 sets up a fairly detailed set of rules regarding archival, adaptation, and necessary-step copies, and their transfer. Policymakers could do something similar with digital goods. They could permit resale and gifts, but prohibit rental and lending. Or they could distinguish between private and public lending, allowing you to lend an ebook to a friend, but not a stranger. They could even try to replicate some of the transaction costs of the analog world by limiting the number of times an owner could lend their digital content, or how frequently. Given these options, there is no reason to insist that exhaustion can't be reconciled with digital distribution.

The third factor is simply meant to prevent exhaustion from becoming a back door to changes to a work that are better considered under fair use. Sometimes an owner will want to modify their copy for compatibility purposes—to make their iBooks work on a Kindle, for example. Exhaustion should permit that, just as section 117 allows owners to adapt their computer programs to work with new hardware and software. But exhaustion isn't the right framework to analyze the legality of remixing or making other expressive changes to a work.

Our approach allows courts to directly and transparently assess the impact of exhaustion on owner and rights holder interests. It will cement a set of ownership rights that are rooted in longstanding property rules, but are attuned to the differences of the digital economy. Those rights will be dictated by law, not privately drafted fiat. We think this framework addresses the concerns at the heart of the exhaustion debate and will prove adaptable to the inevitable changes in the marketplace.

But there's another objection copyright holders raise to exhaustion that we should address. They worry that exhaustion could be used as a cover for widespread acts of infringement. Armed with the right to lend and resell digital goods—the worry goes—purchasers will share copies with friends and strangers, or even resell multiple copies of a single purchase. The concern isn't that exhaustion would permit or excuse that behavior, but that it would somehow makes it easier to get away with. Given the ease of copying online, they say, there's too much infringement already. Any change that would increase the risk of infringing behavior is a nonstarter.

We understand this hesitation, but don't find it particularly persuasive. First, those who want to acquire copyrighted material without paying for it already have ample opportunity. Second, exhaustion is what's called an affirmative defense. That means the doctrine identifies a set of

behaviors—lending or reselling, for example—that would normally be unlawful, but are excused for one reason or another. And as an affirmative defense, exhaustion places the burden of proof on defendants. So if a copyright holder suspects that some person or entity is going beyond the lawful scope of exhaustion, it is that person or entity who has to prove that their actions are legal. They'd have to show that the initial purchase was lawful, that they were owners at the time of the resale or lending, and that their actions were of the sort permitted by the exhaustion rule. If they can't prove that, they are infringers.

Granted, monitoring secondary markets and finding potential infringers imposes costs on copyright holders that they would rather avoid. But the possibility of infringement around the edges of resale markets is hardly new. Nothing stopped you from burning a backup copy of your CD collection before selling it to the used record store, or taping your LPs to reel-to-reel in an earlier era. And the expectation that copyright holders bear the costs of rooting out infringers is well established both offline and on. Surprise visits to used record stores and flea markets to find unauthorized copies were just a cost of doing business in the analog world. And courts have reaffirmed that obligation again and again on the Internet—whether it's Tiffany's duty to locate counterfeit jewelry on eBay<sup>32</sup> or the burden of copyright holders to identify unauthorized videos on YouTube.<sup>33</sup>

Despite the dire predictions and fears of copyright holders, consumers outside of the United States are already allowed to resell their digital goods. And the sky has not yet fallen. In a case called *UsedSoft GmbH v. Oracle*, the European Court of Justice ruled that purchasers are entitled to resell the software they buy, even when it is delivered digitally and subject to a restrictive license agreement.<sup>34</sup> Oracle sued UsedSoft for allowing users to purchase second-hand software. Oracle claimed that when UsedSoft users downloaded the software, they illegally reproduced the code. The court disagreed, explaining that since the software was originally purchased lawfully from Oracle, exhaustion applied. The court understood that exchanging a one-time payment for the right to download and use the software was a sale. But that sale was not tied to any particular download or copy, rather it was tied to the right to use the software.

More recently, a Dutch court extended the UsedSoft rationale to ebooks.<sup>35</sup> In 2014, Tom Kabinet launched a secondhand ebook store that allowed readers to resell their ebooks after certifying that they were legally purchased and that any local copies had been deleted. Tom Kabinet was promptly sued by the Dutch Publishers Association. After initially refusing to shut down the site in light of the UsedSoft decision, the court ruled



that the site could remain open only if it took additional steps to ensure that the ebooks it resold were lawfully acquired.<sup>36</sup> In short order, Tom Kabinet implemented a digital watermark system. Although not a guarantee against infringement, the Dutch Court of Appeals (Hof Amsterdam) refused to shutter Tom Kabinet's resale marketplace.<sup>37</sup>

Both our proposed exhaustion framework and the one being adopted in Europe embrace shifting focus away from particular copies to instead thinking about rights to use particular works. Copyright, as the name implies, has been preoccupied with copies for a long time. But in the digital world, copies are everywhere. Instead of determining whether a particular behavior is lawful by carefully counting copies, we think courts should be focused on tracking who has rights to use and enjoy a work. A more radical—but admittedly more elegant—way to achieve this result is by taking the copy out of copyright altogether. Christina Mulligan has suggested we solve the digital exhaustion problem, among others, by eliminating copyright law's reproduction right and hinging liability on commercially valuable uses of a work, like display or performance.<sup>38</sup> If creating a new copy didn't trigger infringement liability, digital goods would stand on the same footing as analog ones. You could transfer them freely. Infringement would occur when a nonowner displayed or performed a work, even privately. This proposal is promising, but its implications go well beyond the question of ownership.

Generally, we prefer reforms that place considerable authority in the hands of the courts, but there is no shortage of ways that policymakers could update copyright law to reinforce ownership in the digital marketplace. But often, legal change—particularly when it comes to intellectual property—is prompted by developing technologies. We've already discussed how companies like ReDigi created software that forces us to rethink both the application of the law and our assumptions about the nature of resale markets. We will now outline other technologies with the potential to change the way we conceptualize ownership.

### The Role of Technology

As early as the late 1990s, "forward and delete" technologies were under discussion in copyright policy circles. These software tools—purely theoretical at the time—would have kept users honest when they transferred ownership of digital goods.<sup>39</sup> So if you sold or lent an ebook to a friend, the software would *forward* the file to them and *delete* your local copy. The fact that technology capable of safeguarding those sorts of transfers was

unavailable at the time contributed to the failure of Representative Boucher's effort to update copyright exhaustion.<sup>40</sup> It also led to the Copyright Office's 2001 decision to oppose expanding exhaustion to digital goods.<sup>41</sup>

Serious efforts to conceptualize and develop technologies that would allow for transfer of ownership of digital goods didn't begin for nearly a decade. One early effort was led by the Institute of Electrical and Electronics Engineers (IEEE), an association of engineers, scientists, and other technical experts and one of the world's most influential standards-setting bodies. In 2010, the IEEE formed a working group to develop a standard for "consumer-ownable digital personal property" (DPP).<sup>42</sup> But to date, no standard has emerged.

Around the same time, companies like Apple and Amazon were developing systems that would enable transfers of digital content between consumers. Amazon for example patented a "secondary market for digital objects."<sup>43</sup> That system lets a user store ebooks, audio, video, and applications in a cloud locker. When the user decides they no longer want it, the system allows the user to transfer their now-used digital content to another user. At that point, the digital content is deleted from their account. Similarly, Apple patented a method of "managing access to digital content items."<sup>44</sup> Apple's system also permits the transfer of digital content between users. It envisions that when a user sells their purchased digital content to a second user, an online store—here, iTunes—stores data about these transactions to establish "which user currently has access to the digital content." Once the user transfers their music, movie, or other purchase, they are "prevented from accessing the digital content." Other patents on "providing a market for digital goods" and a "secondary marketplace for digital media content" cover much the same territory.<sup>45</sup>

No major U.S. retailer has deployed these technologies yet, although there are shades of this approach in Amazon's experiments with restricted ebook "lending." Nonetheless, these patents suggest two things. First, these technologies have moved from theoretical speculation to practical reality. Second, the dominant players in the digital retail market recognize the economic potential of systems that facilitate property-like rights in digital assets. But the patents also reveal that those systems, at least as envisioned by Amazon and Apple, incorporate some potentially troubling limitations. Amazon, for example, describes suspending or terminating transfers of digital content after an unspecified number of transactions, presumably defined in a license agreement and bowing to the demands of publishers.

Apple's patent contemplates a different kind of burden on transfers—a portion of the resale price would be diverted to the publisher.<sup>46</sup> Resale

royalties, which give the original creator of a product an ongoing cut of future sales, have been the subject of debate in the courts and Congress for decades. Bills that would create this right—reminiscent of J. K. Rowling's goblin property discussed in chapter 2—have been repeatedly introduced and defeated in the muggle Congress, most recently with the American Royalties Too (ART) Act of 2014.<sup>47</sup> And California's state-level Resale Royalty Act was recently ruled unconstitutional as to sales that take place outside of that state's borders.<sup>48</sup> Typically, this legislation focuses on visual artists—painters, sculptors, and the like—on the grounds that they are especially unlikely to capture the full value of their works at the time of their initial sale. Because resale royalties tend to favor only the most successful visual artists and introduce costly bureaucracies, the case in favor of them is weak.<sup>49</sup> When applied to record labels and movie studios—hardly the victims of unequal bargaining power in the market—that case is nonexistent.

These two aspects of the Apple and Amazon patents point to a more general problem with privately administered digital markets. When markets are run according to rules negotiated between copyright owners and technology platform providers, we trade property rights for conditional privileges. Private actors should not be in a position to define what owners can do with their property, even if they write the next generation of license agreements in a more consumer-friendly way. The baseline for property rights should be a function of the law, not contingent on the kindness of copyright holders and retailers. So these ersatz digital markets might give the appearance of property rights, but what they would actually provide is a slightly relaxed set of license restrictions.

That might be better than nothing, but we don't think it's good enough. There's no shortage of reasons to favor the kind of free secondary marketplace that genuine property rights would enable over these tightly controlled sandboxes. For one, privacy and anonymity would be sacrificed. Retailers and publishers would know what books you bought, sold, and borrowed, not to mention who you borrowed them from or lent them to. And because Apple, Amazon, and other retailers are likely to operate distinct, non-interoperable platforms, these systems balkanize the marketplace. They also increase the risk of lock-in. If your ebook collection and network of lenders, borrowers, and resellers is within the Apple ecosystem, you're far less likely to make the switch to Kindle, for example.

What's more, since their rights would hinge on the deals reached between each platform and publisher, consumers would have to contend with significant information costs. Some digital content could be lent, but not resold. Some could be lent two times in the course of a month, but

not three. And some couldn't be lent or resold at all. Consumers would be expected to determine what set of rules apply for each ebook, movie, or album they purchase. Avoiding these information costs is one of the chief reasons we have clear property rules.

We deserve better. There are two primary ways to improve on these sorts of systems. The first is to make them platform neutral. Regardless of who administers the technology, transfers should not be confined to a single provider's ecosystem. If an Apple user wants to lend a digital movie to an Amazon customer, technology should not stand in their way. We could achieve neutrality by clearing the way for third-party technologies that have no economic reason to favor one platform over another. The second way to improve these technology-driven solutions is to provide owners with clear rules about what transfers are allowed. Those rules should be defined by publicly made law, not by private licenses. But even with those changes in place, these solutions rely fundamentally on DRM to police the behavior of owners. These technologies are meant to "keep consumers honest" by taking decisions out of their hands and letting software code make them instead. Even when it is designed to facilitate exhaustion, we find DRM troubling for the many reasons we've already outlined. If DRM was the only way to create a workable digital exhaustion regime, we might grudgingly accept it. But there's another path forward.

Forward-and-delete DRM tries to ease fears about infringement by controlling how many copies exist before and after a transfer. That approach to the problem, much like the *ReDigi* decision's painstaking counting of copies, is built on twentieth-century thinking. It assumes that copies are valuable, long-lasting, and hard to come by. But today, because of the basic architecture of our information networks, copies—lawful and unlawful—are everywhere. What should concern rights holders and policymakers isn't who has a copy of a work, but who has the right to use and transfer it. Reliable evidence about who owns those rights would go a long way toward easing the transition to digital exhaustion.

In a sense, the problem facing lawmakers when it comes to transferring digital goods is one every property system has to confront. Namely, how do we verify ownership to prevent invalid transfers? For particularly valuable assets, we rely on elaborate and costly systems of documentation. Your house has a deed, and your car has a title. Both are registered in centralized public records. These records establish title. They provide legally meaningful answers to the question of ownership, and they help potential purchasers confirm that they are dealing with the right seller. We do something

similar for IP rights; copyrights, patents, and trademarks are recorded in searchable databases by the relevant authorities.

With small items of personal property, we typically rely on possession to establish ownership. If your phone is in your pocket or your watch is on your wrist, we assume it's yours. This less formal system makes sense for two reasons. First, it would be far too expensive to keep exhaustive title records for every pair of socks or can of beans that gets sold. And second, most of the time only one person is in possession of a particular tangible object. The object and the ability to exploit its value are deeply intertwined. But neither of these established approaches works all that well for digital assets. Your mp3 collection isn't valuable enough to warrant an official system of recordation. And because digital files are trivial to reproduce, possession in itself tells us very little about legal entitlement.

Surprisingly, cryptocurrencies like bitcoin may help solve the problem of tracking rights in digital assets.<sup>50</sup> Bitcoin is a payment system and corresponding digital currency created in 2008. It is not governed by any central authority; there is no government, central bank, or financial institution standing behind the over \$3 billion of bitcoin in the market. Instead, bitcoin relies on its core underlying innovation—the block chain—to verify transactions. Fundamentally, the block chain is a record of transactions. It functions much like the title records at your local county clerk's office or your own checkbook ledger—except the block chain keeps track of every single bitcoin transaction across the globe, updated every ten minutes, to provide a complete and reliable record of ownership. The block chain is not a miracle cure.<sup>51</sup> But it may provide some insight into how to create a workable system of digital personal property.

What sets the block chain apart from other recordation systems is that it's publicly maintained. Unlike your checkbook or title records at the DMV, there is no centralized authority that maintains the block chain. It's the result of an ingeniously complex, cooperative effort. That means the block chain costs very little to maintain, but is highly resistant to manipulation. Trust is essential; if users can't rely on the information it provides, a ledger like the block chain has no value.

While bitcoin remains a large-scale experiment in digital currency, the underlying technology is application-neutral. As Marc Andreessen, whose venture capital firm has invested \$50 million in bitcoin-related companies, wrote in the *New York Times*: "Bitcoin gives us, for the first time, a way for one Internet user to transfer a unique piece of digital property to another Internet user, such that the transfer is guaranteed to be safe and secure, everyone knows that the transfer has taken place, and nobody can

challenge the legitimacy of the transfer. The consequences of this breakthrough are hard to overstate.”<sup>52</sup>

So how does the block chain achieve this seeming miracle? Let’s start by thinking about an individual transfer and see how it is verified and recorded. Today, the primary application for the block chain is tracking ownership of bitcoins, but ownership interests in any asset—digital or tangible—could be tracked in the same way. Imagine you are buying a used ebook on a market that implements block chain technology. First, you would want to be sure that the payment you send and the ebook you want to receive can’t be intercepted by a malicious third party. You can avoid that by using what’s called public key cryptography. This basic approach has been used since the 1970s and forms the basis for popular email encryption programs like Pretty Good Privacy (PGP).

Encryption protects you against third parties, but how do you know you can trust the seller? The seller may not actually own the asset that they have promised to sell. Or maybe they have already promised to sell it to someone else. This problem is familiar from the world of tangible property. It’s why you do a title search before buying a house. And it’s why eBay has a reputation system. But the problem is even more challenging for digital assets. Unlike the seller of a rare vinyl record or a suburban split-level, the owner of an ebook can just make a second copy with a stroke of the keyboard. How do we prevent them from trying to sell that single asset to two unknowing buyers? And if they do, how do we decide who is the rightful owner?

That’s where the public ledger comes in. As a comprehensive and up-to-date record of transactions, it allows anyone to verify transfers of ownership and catch fraud before it happens.<sup>53</sup> So when you go to buy your ebook, you—or more likely, some software on your device—would check whether the seller actually owns it. If they already sold it to someone else or never owned it in the first place, that would be reflected in the ledger, and the transaction would be canceled.

But if all goes well, you pay for the ebook, and your purchase is entered into the ledger where it will be bundled together with a number of other transactions that make up a “block.” Bitcoin, for example, bundles transactions into a new block every ten minutes, but that time period can be adjusted as needed. The sequential addition of new blocks is what forms the block chain. Once a block is added to the chain, it becomes part of a complete record of transactions that track changes in the ownership of every asset in the system.

Safeguarding the accuracy of the block chain is obviously of major importance. Someone with the ability to add false information to the chain has the power to reassign ownership of digital assets. Normally, we manage this risk by centralizing control in the hands of some trusted official—the county clerk or the Patent and Trademark Office. But the block chain has no central authority. Instead, the system is trustworthy because adding a block requires a significant investment of resources. That fact doesn't completely prevent false information making its way into the block chain. But it does provide a high enough degree of reliability for users to treat the block chain as proof of title.

Blocks are added to the chain through a process called mining. Miners use computers—in many cases, machines built specifically for the task—to solve a block. Without overwhelming you with technical detail, solving a block involves a sophisticated guessing game. And the more miners there are, the harder it is to guess the right answer. Whoever wins this mathematical lottery gets to add the block to the chain and receives some modest financial reward. With tens of thousands of miners competing to verify transactions and add them to the block chain, a would-be crook would need to consistently guess correctly faster than the rest of the mining community, a task that would take a nearly impossible degree of computing power. And the larger the network of miners grows, the more secure and valuable the block chain ledger becomes.

Relying on the block chain technology pioneered by bitcoin, we can envision a marketplace for digital assets. In that marketplace, consumers could buy, sell, lend, and trade the ebooks, music, movies, applications, and games they buy—and even virtual objects they discover or craft, like the Jade Rabbit, a powerful weapon in the video game *Destiny*.<sup>54</sup> Those transactions would be secure and verifiable, guarding against cheating that could harm both consumers and IP rights holders. The public ledger promises the technological infrastructure to help us transition to what legal scholar Joshua Fairfield calls “bitproperty”—property interests that are decoupled from any tangible object.<sup>55</sup>

## Conclusion

Everyday objects are being replaced or supplemented by information. The media we consume is stored in the cloud, not in our hands. Our cars, watches, and clothes—though still physical—incorporate a layer of code that both increases and constrains their functionality. A digital economy structured around interconnected devices and data holds immense promise.

But it also entails risks. Perhaps most troublingly, this new economy has the power to redefine or even eliminate the notion of personal property. If we aren't careful, ownership will become a thing of the past. The loss of ownership puts us all at risk of exploitation. It imposes significant but broadly dispersed costs on society. And it takes decisions about how to live our lives out of our hands and entrusts those choices to a handful of private companies.

Technology alone, no matter how groundbreaking, can't fix the ownership problem. But in conjunction with meaningful legal reform, new innovations can preserve the notion of personal property in this emerging economy. Without legal change, those same technologies become just another tool for rights holders to enforce restrictions on our behavior. Code can reinforce property rights; it can make them easier to transfer and cheaper to track. But it can't create them. Ultimately, property rights are a product of law. Calling an interest a property right—whether it's a neighbor's interest in their home, a copyright holder's interest in their expression, or your interest in the products you buy—is a statement about the degree to which the law will protect that interest in the face of competing claims.<sup>56</sup>

The label “property” carries a great deal of rhetorical force. That's why patent and copyright holders have adopted the language of property, and why they have seen such success in both the courts and Congress in their efforts to strengthen, expand, and extend those rights. But those efforts themselves reveal something crucial about property as an institution. What counts as property, the specific rules and exceptions, and the way we resolve conflict between property owners, are things that change over time. They are decisions that we—through the legislative and judicial processes—make in response to changing conditions and values. Once lawmakers realize that both IP rights holders and consumers can lay equal claim to the property mantle, they are better positioned to balance their competing, and in some ways complementary, interests.

We think meaningful personal property rights in digital assets will benefit consumers, creators, and the market as a whole. Consumers get stable and predictable access, greater privacy protections, and the freedom to make economically and socially valuable uses of the products they purchase. That added value provides something essential from the perspective of creators—a good reason for people to spend their money. People want the freedom to lend, resell, and give away the things they own, and they are willing to spend more to get it. And because ownership reduces infor-



mation costs and increases competition, it increases the efficiency of the market overall.

None of that is to say that ownership is the only model we need in the digital economy. What we stress is the importance of meaningful choice. We should all have the opportunity to pick and choose from a menu of options, just as we always have. Sometimes rentals make sense, sometimes subscriptions, and sometimes ownership. But a market overrun with complex bespoke bundles of rights like our current licensing-driven regime defeats the purpose of property. It offers no clarity, no certainty, and imposes massive costs on the public. It survives today as the result of misinformation, the absence of genuine alternatives, and legal inertia. Embracing digital ownership would address all three of those problems. The ideal set of rights in the digital property bundle will almost certainly be different from its analog counterpart. And calibrating those rights will not be an easy task. But unless we are content to read about personal property rights in history books—ones that we can't lend and don't own—crafting a notion of ownership applicable to digital goods is a task we can't put off any longer.



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# The End of Ownership

## Personal Property in the Digital Economy

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