

TWO ECONOMIES: COMMERCIAL AND SHARING

An “economy” is a practice of exchange that sustains itself, or is sustained, through time. A “practice of exchange.” For example:

1. A gives something to B.
2. B (directly or indirectly) gives something back to A.
3. Repeat.

The “something” could have tangible, economic value—money, or hours of labor. Or it could be intangible, and without ordinary economic value—friendship, or helping a neighbor with a flat tire. In either case, the trade occurs within an “economy” when it is a regular practice of social interaction. People participate within that economy so long as they get enough back relative to what they give. This doesn’t mean everyone gets back exactly what he or she contributes (or more): A talented lawyer working for a public-interest-housing law firm gives more than her meager salary returns. (Meet my wife.) But it does mean that people operating within an economy evaluate the exchange, how much they get versus how much

they give, and that we should expect they will continue in that economy so long as they get enough from the exchange relative to what they give.

“Economies” in this sense differ in many ways. In the story that follows, however, I radically and crudely simplify these differences to speak about three types of economies only: a commercial economy, a sharing economy, and a hybrid of the two.

Following the work of many, but in particular of Harvard professor Yochai Benkler,¹ by a “commercial economy,” I mean an economy in which money or “price” is a central term of the ordinary, or normal, exchange. In this sense, your local record store is part of a commercial economy. You enter and find the latest Lyle Lovett CD. You buy it in exchange for \$18. The exchange is defined in terms of the price. This does not mean price is the only term, or even the most important term. But it does mean that there is nothing peculiar about price being a term. There’s nothing inappropriate about insisting upon that cash, or making access to the product available only in return for cash.

A “sharing economy” is different. Of all the possible terms of exchange within a sharing economy, the single term that isn’t appropriate is money. You can demand that a friend spend more time with you, and the relationship is still a friendship. If you demand that he pay you for the time you spend with him, the relationship is no longer a friendship.

So, again, there’s nothing odd about your local Wal-Mart insisting that you give them \$2.50 for a bottle of juice. You might not like that demand; you might well think \$2.00 is the right price. But there’s nothing inappropriate about Wal-Mart’s demand. In our culture at least, that’s just the way a Wal-Mart is supposed to deal with us.

Nor is there anything odd about a softball team demanding that every member make at least ten of the twelve games in a season. Again, you might not like the demand; you might wish you could miss four rather than just two games. But there's nothing inappropriate about the team's demand. Indeed, it is a perfectly reasonable way to make sure participants within this sharing economy actually participate.

But it would be very odd if a friend apologized for missing lunch and offered you \$50 to make it up. And it would be very, very odd if your girlfriend, at the end of a great date, offered you \$500 to spend the night. Or if Wal-Mart asked all customers to "pitch in and help Wal-Mart by sweeping at least one aisle each time you shop." Or if McDonald's asked you to "help out" by promising to buy hamburgers at least once a month. Money in the sharing economy is not just inappropriate; it is poisonous. And "helping out" is not just rare in a commercial economy. It is downright weird.

Viewed like this, we all live in many different commercial and sharing economies, all at the same time. These economies complement one another, and our lives are richer because of this diversity. No society could survive with just one or the other. No society should try.

The Internet has many examples of commercial and sharing economies. In this chapter, we consider examples of both. But the aim throughout this chapter is simply preliminary: to set up a richer understanding of a much more interesting phenomenon—the hybrid—that we'll consider in the chapter that follows.

Commercial Economies

My wife (to be) and I were at an Italian restaurant. In Italy. I ordered pasta with a mushroom sauce. She ordered pasta with a

tomato sauce. After the waiter served us, he offered my wife some Parmesan cheese. She accepted. He grated the cheese for her and then began to leave. I stopped him and said I too wanted Parmesan cheese.

“No,” he told me.

“No?” I asked.

“No,” he said again. “The cheese would overwhelm the taste of the mushrooms.”

Startled a bit, I hesitated. “But what if I want the taste overwhelmed?”

“That’s not my concern,” he informed me, and walked away.

You learn a great deal about who you are by noticing the things that enrage you, and then working out just why. This was one of those moments for me. What “right” did this waiter have to interfere with my eating my pasta as I wanted? It wasn’t as if I was going to complain to the locals about the taste of the pasta. Nor was I likely ever to return to this village or this restaurant. Indeed, to the contrary, the exchange made me resolve never to return to this restaurant. The waiter was out of line. I would take my business elsewhere.

My reaction came from a certain view I held (unnoticed until that moment) of my relationship to a restaurant. It was, in the sense I mean in this chapter, for me simply a “commercial” relationship. This was a transaction within a “commercial economy.” Had the waiter said, “Sure, extra cheese costs an extra euro (for both you and your wife),” that would have been totally appropriate. Price is how we, in commercial economies, negotiate things. If there’s something I want that they want to ration, then let them use the market’s most ubiquitous tool for rationing—money. The business of business is to make money—not, as this waiter saw it, to avoid insulting mushroom-strewn pasta.

Of course, there's nothing natural or necessarily right about my view of my relationship to this beautiful Italian restaurant. But I take it that anyone living within a modern commercial economy would have the same or a similar response in at least some part of the commercial economy. Imagine the dry cleaner who refused to clean an old sweater: "That design went out ages ago." Or a coffee shop that insisted, "Tell us about your day!" before the barista would take your order. ("It's the friendly way to be!" the shop insists.) All of us, somewhere in our life, relish the simplicity of the market. And some of us (myself included) yearn for ways to make more of our life governed by the simple logic of markets.

If we're in a place where we feel such simplicity should reign, where we're not insulted when someone mentions money, where we meter the relationship with price, then we're within a "commercial economy." The market is the engine that drives this commercial economy; if well designed (meaning regulated to protect participants from force or fraud), the market is an extraordinary technology for producing and spreading wealth. The commercial economy is a central part of modern life; it has contributed to human well-being perhaps more than any other institution created by humankind. We are well beyond the point where it makes sense to oppose the flourishing of the market.

A critical part of the Internet is just such a commercial economy. Indeed, for some, it is the most important part. The Internet has caused an explosion in the opportunities for business to make money by making old businesses work better. It has also made possible new businesses that before the Net weren't even conceivable. And while we're just beginning to get a clear sense of what makes business prosper on the Internet, we can already see that this new bit of social infrastructure offers a staggering potential for growth

and innovation. In 1994, there were 1,700 dot-com domain names. Twelve years later, there were more than 30 million.² There was no category called the “e-commerce sector” in 1994. In 2005, the e-commerce sector was estimated to be worth \$2.4 trillion: \$1.266 billion for manufacturing, \$945 billion for wholesale, \$93 billion for retail, and \$96 billion for selected service industries.³

What makes the Internet’s commercial economy work? Or why does it work so well, or differently from real-space economies? In the balance of this section, we will consider a few key features that explain its success. My aim is salience, not comprehensiveness. I want only to draw out a few features that will make the relationships among commercial and sharing economies clear.

Three Successes from the Internet’s Commercial Economy

Begin with some familiar examples of Internet success, from which we can draw some lessons of success.

NETFLIX

More than thirty years ago, in November 1976, America’s film industry launched a war against a technology that was quickly becoming ubiquitous: the (what we now call) VCR. The VCR had been designed to record programming “off air.” Most of that programming was copyrighted. Copying copyrighted works without the permission of the copyright holder was, Universal and Disney claimed, a crime. The VCR, they thus argued, was a tool designed to enable a crime.

Eight years later, the Supreme Court disagreed.⁴ By a close vote, the Court held that the VCR itself was not illegal, because although it could be used to infringe, it was also “capable of a substantial noninfringing use.” At least some of the copyright owners, the Court noted, whose work would be taped were happy that it would be taped. (Mr. Rogers was the Court’s favorite example.) And for those not happy that their work was being recorded, the Court held that at least sometimes, this “time-shifting” of content was a protected “fair use.” These noninfringing uses thus saved the technology from being banned by copyright law. Hollywood would have to figure out how to make money despite the technology.

In the thirty years since Hollywood lost that case, it has become clear just how lucky it was to lose. Video sale and rental revenues far surpass what the film industry makes in the theater.⁵ Had the studios won, it’s not clear just how much the platform of that success would have spread.

Blockbuster Video was a key reason losing the war on VCRs was a victory for Hollywood. For the Blockbusters of the world soon brought more revenue to Hollywood than its own blockbusters in theaters did. The store first launched in Dallas in 1985, with eight thousand tapes and 6,500 titles. Because of the spread of VCRs, there was a ready infrastructure to support Blockbuster’s business. Two years later there were fifteen stores and twenty franchises. By mid-1989 there were more than seven hundred stores. At the end of that year there were one thousand stores.⁶

Blockbuster was a brilliant innovation in the distribution of film. But it had important drawbacks. However convenient it made finding a film, you still had to go to the Blockbuster and browse through endless fluorescent-lit aisles of videos to find it. And however endless those aisles of videos, each Blockbuster

could in fact carry a relatively small number of films. There was thus more choice than TV, and on your own schedule. But not endless choice. And though convenient, the system still had its costs.

In 1997, Reed Hastings had a better idea for delivering video to consumers. Rather than a harshly lit store at a strip mall, Hastings thought, the Internet would be a pretty good way to browse for films. Indeed, using smart preference-matching technologies, the Internet would be a better way to browse for film because the machine would help you find what in fact you wanted. He thus launched one of the Internet's most famous success stories: Netflix. Customers paid Netflix a flat monthly fee; in exchange, they could rent DVDs of favorite films; those DVDs were sent through the mail, with simple return envelopes included; the monthly subscription entitled the customer to hold a fixed number of DVDs. Thus, if you had a three-DVD subscription, you paid about \$17 a month. You ordered three movies that you wanted to see, and Netflix sent them. You could hold on to these movies for as long as you wanted (hence, no late fees). And when you returned one, the next on your queue was sent. The only inconvenience of this system was that you had to plan ahead a bit. The great advantage was that if you planned a bit in advance, the films would be waiting at home whenever you wanted to watch them.

Netflix has radically changed the video rental market. The best evidence of its effect is that in 2004, Blockbuster changed its business model to mirror Netflix's to better compete.⁷ Wal-Mart's service was taken over by Netflix in 2005.⁸ Hastings's model thus became the industry standard.

AMAZON

Perhaps the first dramatically successful example of Internet commerce began as a simple bookstore. Founded in 1994 (as Cadabra.com) and launched in 1995 (as Amazon.com), Amazon set out to do more efficiently what bookstores had always sought to do: sell books. When the online store opened, it had only two thousand titles in stock. But within the first month it had orders from all fifty states and from forty-five countries outside the United States. Sales in 1997 reached approximately \$150 million. Two years later, sales were \$1.6 billion. Two years after that, because of third-party deals with companies such as Target and America Online, sales exceeded \$3 billion. In 2003 the company crossed \$5 billion. In 2006 sales totaled more than \$10 billion.⁹

Once again, this store had advantages very similar to the advantages of Netflix. Rather than browsing a Barnes & Noble superstore, the customer used his computer to see what books there were to buy. And rather than the customer using his car to collect the books he wanted, Amazon used the U.S. Postal Service. Amazon founder Jeff Bezos's bet was that the convenience of browsing would outweigh the delay in receipt. More important, Amazon could far surpass any bricks-and-mortar store in the size of its inventory.

Amazon's success, however, didn't come naturally. The company has been relentless in building innovation to drive sales. In 2003 the company launched the Amazon Associates program, which enabled independent sites to become sellers for Amazon. The Associates earn revenue from referrals to Amazon. In 2005 it launched Amazon Connect, which enabled authors to post remarks

on the book pages for their books. In 2006 the company launched Amazon S3, offering high-bandwidth storage and distribution for large digital objects. In January 2007 the company began Amazonpedia, “a collaborative wiki for user-generated content related to ‘the products you like the most.’”¹⁰ In the decade since Amazon launched, it has delivered to the market an extraordinary range of innovation. Everything it does is aimed to drive sales of its products more efficiently.

One of the techniques that Amazon uses mirrors the technique of the Internet generally: Amazon has opened its platform to allow others to innovate in new ways to build value out of Amazon’s database. Through a suite of tools called Amazon Web Services (AWS), Amazon enables developers to build products that integrate directly into Amazon’s database. For example, a developer named Jim Biancolo used AWS to build a free Web tool to track the price difference between new products and used products (plus shipping). And a company called TouchGraph used AWS to build a product browser that would show the links between related products. Enter Cass Sunstein’s, for example, and you’ll see all the books in Amazon that relate to Sunstein’s books in subject and citation.

Amazon sells some of these AWS services. Some it leaves free. But it develops these services if it believes such development will drive the sales of its products, and perhaps even teach Amazon something about how to better offer its products. Of course, it ultimately controls the platform. What others add, Amazon can take away. But in a limited way, the platform invites innovation from others. That innovation rewards others and Amazon both.

GOOGLE

Without a doubt, the most famous example of Internet success is Google. Founded at Stanford by two students (the first URL was <http://google.stanford.edu>), the company radically improved the effectiveness of Internet searches. Rather than selling placement (which can often corrupt the results) or relying upon humans to index (which would be impossible given the vast scale of the Internet), the first Google algorithms ordered search results based upon how the Net linked to the results—a process called PageRank, referring not to “page” as in Web page, but “Page” as in Larry Page, Google cofounder and developer of the technique.¹¹ If many Web sites linked to a particular site, that site would be ranked higher in the returned list than another Web site that had few links. Google thus built upon the knowledge the Web revealed to deliver back to the Web a product of extraordinary value. The company was founded in 1998. In 2005 its market capitalization was \$113 billion; in July 2007 it had risen to \$169 billion.¹²

One might well say that all of Google’s value gets built upon other people’s creativity. Google’s index is built by searching and indexing content others have made available on the Web. As I’ve described, the original algorithm built its recommendations upon the links it found already existing on the Web; later, the algorithm also adjusted its recommendations based upon how people responded to the results Google returned. In all of these cases, the value Google creates comes from the value others have already created.

Some draw a downright foolish conclusion from the fact that Google’s value gets built upon other people’s content. Andrew Keen, for example, a favorite from chapter 5, writes, “Google is a parasite; it creates no content of its own.”¹³

But in the same sense you could say that all of the value in the *Mona Lisa* comes from the paint, that Leonardo da Vinci was just a “parasite” upon the hard work of the paint makers. That statement is true in the sense that but for the paint, there would be no *Mona Lisa*. But it is false if it suggests that da Vinci wasn’t responsible for the great value the *Mona Lisa* is.

Like Amazon, Google also offers its tools as a platform for others to build upon. We’ll see this more below as we consider Google Application Programming Interfaces (APIs). And more successfully than anyone, Google has built an advertising business into the heart of technology. Web pages can be served with very smartly selected ads; users can buy searches in Google to promote their own products.

The complete range of Google products is vast. But one feature of all of them is central to the argument I want to make here. Practically everything Google offers helps Google build an extraordinary database of knowledge about what people want, and how those wants relate to the Web. Every click you make in the Google universe adds to that database. With each click, Google gets smarter.

Three Keys to These Three Successes

These familiar stories of Internet success reveal three keys to success in this digital economy.

LONG TAILS

The first of these three is also perhaps the most famous. Each of these three Internet successes takes advantage of a principle that

Amazon's Jeff Bezos recognized in 1995, and that *Wired's* editor in chief, Chris Anderson, formalized in 2005 in his book *The Long Tail*.¹⁴

The Long Tail principle (LTP) says that as the cost of inventory falls, the efficient range of inventory rises. And as transaction costs generally fall to zero, the efficient inventory rises to infinity. Put differently, the less it costs to hold a particular book or DVD in inventory, the more books or DVDs a particular company can profitably hold. Thus, Amazon can offer its customers more books than any bricks-and-mortar store could, since it can store these books efficiently at inventory locations around the country. And more important, a big share of Amazon's profits come from titles that are unavailable anywhere else. Chris Anderson estimated that 25 percent of Amazon's sales come from its tail (where the tail represents products not available in a bricks-and-mortar store). More generally, the current data at Rhapsody, Netflix, and Amazon show that the tail amounts to between 21% and 40% of the market.¹⁵ Netflix profits in the same way. Netflix offers seventy-five thousand titles today (about twelve thousand in 2002) in more than two hundred genres on its Web site. Blockbuster offered seven thousand to eight thousand in 2002.¹⁶

The Long Tail dynamic benefits those whose work lives in the niche. A wider diversity of films and books is available now than ever before in the history of culture. The low cost of inventory means wider choice. Wider choice is a great benefit for those whose tastes are different.¹⁷

Those who doubt the significance of the Long Tail are quick to argue that the amount of commerce generated in the Long Tail is small relative to the market generally. Anderson calculates 25 percent of Amazon's sales come from its tail; but the *Wall Street*

Journal's Lee Gomes comments, “[U]sing another analysis of those numbers . . . you can show that 2.7% of Amazon’s titles produce a whopping 75% of its revenues.”¹⁸

But this criticism misses two important points. First, all the excitement in a market is action at the margin. Like with runners in a 100-meter dash, the difference between first and last place may be just .02 seconds. But that is the difference that matters, and the difference produced by sales in the Long Tail will matter lots to companies struggling to compete.

Second, and more important, the breadth of this market will support a diversity of creativity that can’t help but inspire a wider range of creators. For reasons at the core of this book, inspiring more creativity is more important than whether you or I like the creativity we’ve inspired.

Perhaps the best evidence of this comes from another increasingly successful example of this Internet economy, launched by one of the key entrepreneurs changing an operating system called Linux from a hobby to a business: Red Hat and its cofounder Robert Young. After Red Hat went public in 1999, Young moved on to start his next great idea: Lulu Inc., a technology company that helps people “publish and sell any kind of digital content.”

Lulu’s aim is to out-Amazon Amazon, to “put all the books in a bookstore that can’t fit on Amazon.”¹⁹ The market is not the niche that Amazon’s Long Tail serves, but the “small niche market” that is beyond even Amazon’s reach. As Young told me, “Amazon’s business model is built around the business model of the existing book-publishing industry. Lulu’s business model is a completely different Internet-based business model that . . . doesn’t even look at what the publishing industry does.”

Lulu does this by working hard to educate authors about how

best to write to compete. “If you’re going to write a detective novel,” Young explained to me, “that competes with Agatha Christie, figure out what your hook is.” “Why should your detective novel sell?” Lulu asks its authors. “Is there something unique about it?”

Lulu’s aim is not to spread free culture, if that means culture you don’t have to pay for.²⁰ “We think sharing is easy,” Young told me. “What’s difficult is empowering people to actually get paid for content they are producing.” Lulu focuses not on all of the “ninety-nine out of a hundred” authors who get rejected by the traditional publishing market. Instead, it focuses on the “forty-nine out of a hundred”: people who “actually have something valuable to say and should have a market.” These are people who are

writing for too small a market or they’re writing another book on a subject that the publishers have already published a book on. Either way, the publisher doesn’t want it because he doesn’t see any profit in it. Not...because it’s a bad book. He admits it’s a valuable book. It’s just he doesn’t want it because he’s already got two other books on [for example] programming in Java. So he doesn’t want a third.

Once again, on the margin, what will make Lulu successful where vanity presses were not is the efficiency with which creative work can be produced and distributed way down the Long Tail. Young is fanatical about the challenge in selling down the tail. There’s nothing automatic. It takes hard work by both Lulu and the author. Success gets made; no “Long Tail magic” makes it for anyone.

But the consequence of his success will be a much wider range of people creating. And this is the most important consequence for society generally. Just as Jefferson romanticized the yeoman farmer

working a small plot of land in an economy disciplined by hard work and careful planning, just as Sousa romanticized the amateur musician, I mean to romanticize the yeoman creator. In each case, the skeptic could argue that the product is better produced elsewhere—that large farms are more efficient, or that filters on publishing mean published works are better. But in each case, the skeptic misses something critically important: how the discipline of the yeoman's life changes him or her as a citizen. The Long Tail enables a wider range of people to speak. Whatever they say, that's a very good thing. Speaking teaches the speaker even if it just makes noise.

Little Brother

The Long Tail alone, however, is not enough to explain the great success of the Amazons/Netfixes/Googles of the world. It's not enough that stuff is simply available. There must also be an efficient way to match customers to the stuff in the Long Tail. I may well want to buy a book that only five hundred others in the world would want to buy. But I'm not about to sift through the 10 million other books on Amazon's shelf to find that one that I'd be eager to buy. Amazon (and Netflix and Google) have got to do that for me. And each of these companies does it well by, in a phrase, spying on my every move. An efficient Little Brother (a relative of Orwell's Big Brother) learns what I'm likely to want and then recommends new things to me based upon what he has learned.

Collecting data about customers is, of course, nothing new. But the key to the efficiency of this Little Brother is that it builds upon a principle described best by VisiCalc co-inventor Dan Bricklin in an essay called "The Cornucopia of the Commons."²¹

Bricklin's essay was inspired by a quibble he had with those who said Napster was so successful because it was a peer-to-peer technology. Napster's success, he argued, had nothing to do with peer-to-peer. First, the system was not in fact a "peer-to-peer" technology. Second, not using a p2p architecture may well have been a better technical strategy to serving the ends that Napster sought.

Bricklin argued that Napster's success came not from a technical design, but from an architecture that produced value *as a by-product* of people getting what they wanted. When you installed Napster, by default it made shareable the music you had on your computer. The more people who joined, the better the "database." And as a Napster user added content to his library by, for example, ripping a CD, "creating the copy in the shared music directory [ould] be a natural by-product of [his] normal working with the songs."²² "Increasing the value of the database by adding more information is a natural by-product of using the tool for your own benefit." "No altruistic sharing motives need be present" to explain the network's extraordinary success.

Bricklin made the same point about a service called CD Database (CDDB). CDDB was originally created by volunteers who wanted a simple way to get track information about their music. CDs ship with the track identified simply by a number and a total track time. But by using cryptographic signing technologies, it's fairly easy to get a unique signature for every song on any CD. Using that signature, an Internet database can easily identify which song is on your CD if that song's signature has already been entered onto the database along with information about the song's name, artist, etc. Thus, by getting people to add that information into the database, the database becomes more valuable to everyone.

Notice a corollary to Bricklin's design law suggested by a

commenter on Bricklin's original essay, Evan Williams: Design the database so people use the data they enter, thus increasing their incentive to get it right.²³ Apple's iTunes does that right now. If you put a CD into your iTunes-enabled computer, chances are it launches iTunes. And if iTunes is connected to the Internet, iTunes then compares the track information from the CD with the (now) Gracenote CD database. If it finds the CD, then it substitutes the uninteresting "Track 01, Track 02" titles provided by the CD itself with the artist and track information. But if it doesn't find the track information, then it informs you, and invites you to enter the data yourself.

Once you've entered the data, iTunes then gives you a simple way to send that data to Gracenote. Gracenote gets to choose whether to accept the submission or not, but the point is, Gracenote knows (because it is filtering the input through services like this) that it's likely the data you've entered is valid. It's a hassle to enter the data in the first place; it would be a real hassle to enter false data, submit it, and then enter the real data. And no doubt, Gracenote can hold inputs till it gets corroboration.

The critical point again is that the design of Gracenote elicits the valuable data, not any particular love for Gracenote or Apple. The design "add[s] . . . value [to] the database without [adding] any extra work [to the user.]"²⁴

Perhaps the best example of this kind of by-product value creation (in theory at least; the lawyers never allowed this system to get going) was the aspiration of the company sued into the Dark Ages, MP3.com. Michael Robertson, the company's founder, wanted to remake the world of music production by finding a better way to market new bands to existing customers. A strong believer in the

efficacy of Little Brother, Robertson thought the best way to market is to understand your customers perfectly. And one way to understand your customers perfectly (or as perfectly as humans can) is to see what stuff they already own.

Robertson had a brilliant, Cornucopia of the Commons way to learn just this. He gave the customers something they wanted in exchange for them giving him something he needed.

The service he gave them was called my.MP3.com. It promised to give customers access to “their music” wherever they were. To do this, customers would simply need to show MP3.com what “their music” was. The customer would submit a CD that she (presumptively) owned to a program called Beam-it. Beam-it would identify the CD and report its identity to MP3.com. MP3.com would then give the user access to that music wherever she was (on the Net at least). Thus, in exchange for learning what music customers had, MP3.com gave those customers access to their music everywhere. And then, using the complex of preference data MP3.com would collect, the company could predict which of its own catalog its customers were likely to love. So if it saw that I liked Lyle Lovett, and then saw that I liked one of its new artists too, then it would have a good reason to try to promote that new artist to others who liked Lyle Lovett. (Of course, the real algorithm was much more complex than this; but that’s the basic idea.)

Once again, this design would work because it asked nothing more of its customers than the ordinary effort the customers would expend to get what they wanted. It would thus efficiently gather the data necessary to make the business work. And this ability to gather this data efficiently is a key reason Internet businesses can beat their bricks-and-mortar equivalents. Just think of the revolt there would

be if Barnes & Noble superstores had clerks following you around, recording what books you looked at and which you bought. Yet this is precisely what Amazon can do, simply by designing its system well.

All three of my examples of Internet successes build upon the Bricklin insight to feed Little Brother, none perhaps as comprehensively as Google. Every Google product is designed to give a user what he or she wants and, at the same time, to gather data that Google needs. You don't have a choice about helping Google when you use Google's search engine. Your search is a gift to the company as well as something valuable to you. The company efficiently serves you a product, and very efficiently learns something in the process.

There are many who are troubled by Little Brother. Professor Jeff Rosen once described the terror and outrage he felt at knowing Amazon was "watching" what books he bought in order to recommend new books to him. When I heard his description, I realized that one of us was from a different planet. No doubt Amazon might abuse the data it collects. But also, no doubt, it has a huge incentive not to. (Unlike the U.S. government, if Amazon screws up, I can take my business elsewhere.) Anyway, it's not as if Jeff Bezos is reading my (almost daily) orders. Some computer somewhere is simply responding to input collected from me. And while I might care lots about what my neighbors, or students, or friends think about me, I don't care a whit about what some computer thinks about my tastes.

This is not to say we shouldn't be concerned with how these data might be used. When the United States government demanded that Google provide it with search queries relating to pornography in the context of the government's defense of the Child Online Pro-

tection Act, Google fought the demand fiercely in court, no doubt in part because it didn't want its users to think that their every search might be made available to the government.²⁵ Likewise, the company has recently taken steps to partially anonymize the data it holds, to avoid demands like this in the future and to respond to harsh criticism by privacy groups that claim Google's database is in effect a privacy time bomb.

These are important concerns, but beyond my focus here. They emphasize, however, a central design feature of the successful Internet economy: build the technology to feed Little Brother with the mouse droppings of happy customers. (Okay, that sounds gross, but you get the point.)

LEGO-IZED INNOVATION

The final feature of these three Internet successes that I want to highlight is ultimately one that generalizes to the Internet itself. All three of these successful Internet businesses build their value in part by allowing others to innovate upon their platform. Functionality gets LEGO-ized: it gets turned into a block that others can add to their own Web site or their own business.

Netflix does this the least among the three, but it does it nonetheless. (The company was scolded by one of the Net's leading bloggers in 2004 for failing to offer APIs.²⁶ It is slowly responding.) Its purpose is to "improve the accuracy of predictions about how much someone is going to love a movie based on their movie preferences."²⁷ To achieve this end, Netflix runs a "Netflix Prize"—offering a grand prize of \$1 million to anyone who improves Netflix's own system by more than 10 percent. To enable this competition to happen, Netflix shared "a lot of anonymous rating data." The company

also increasingly offers through RSS feeds access to ranking information about its users' choices.

Amazon does this through its Amazon Web Services. And Google does this perhaps most of all, through Google APIs that encourage what has come to be known as the Google mash-up. Don Tapscott and Anthony Williams describe one example of the Google mash-up in their book, *Wikinomics*.

In May 2005, Paul Rademacher was trying to find a house in Silicon Valley for his job at Dreamworks Animation. He grew weary of the piles of Google maps for each and every house he wanted to see, so he created a new Web site that cleverly combines listings from the online classified-ad service craigslist with Google's mapping service. Choose a city and a price range, and up pops a map with pushpins showing the location and description of each rental. He called his creation housingmaps.

While a useful tool for helping people find a place to live, on the surface it hardly seems groundbreaking. And yet, Paul Rademacher's site quickly became a poster child for what the new Web is becoming, not because of what it was, but for how it was created. Housingmaps was one of the Web's first mashups.

Google Map mashups, for example, have emerged to do everything from pinpointing the locations of particular crime sites, to outing celebrity homesteads, to enabling fitness buffs to measure their daily running distance. Or, for the price conscious, there's CheapGas, a service that mashes Google Maps and GasBuddy together to identify gas stations with the lowest pump prices.²⁸

The integration is often transparent (meaning, in the weird way that word works, that you can't see the machinery that links one

service to another company). But it enables the sharing of powerful functionality across many different sites. Not only does everyone not have to reinvent the wheel. They also don't have to build it. Web services enable the invention and the building to be shared among many different entities.

This is a pattern that will grow dramatically as more companies follow the same path. When you go to a blog, for example, the comments might be handled by a special comment company (necessitated by evil spammers). Or when you answer a poll at a Web site, some other Web site will actually be running the poll. But visible or not, the effect will be quite profound. These technologies will radically reduce the cost of doing business in this increasingly important commercial space.

LEGO-ized innovation is just one component of what Tim O'Reilly first tagged "Web 2.0."²⁹ It may ultimately be the most important. For it demonstrates both how the Internet is uniquely poised to exploit a general tenet of economics and how the Internet takes advantage of the principle of democratization that is its hallmark. Consider these two in turn.

Economics

In 1937 Nobel laureate Ronald Coase was wondering why there were firms in a free market.³⁰ If the core of a market was that resources should be allocated by price, why within a firm wasn't it price that determined who got what? Within a firm it was the command of a "boss." Life inside the firm thus looked more like the "economic planning" of communism than the competition of a marketplace. Why? Why weren't firms built like free markets?

The answer was "transaction costs." It cost money to go to the market: time, bargaining costs, costs of capital, etc. Coase reasoned that this cost would help explain the size of a firm. A firm would go

to the market to obtain a product when doing so was cheaper than producing the product inside the firm. It would produce the product in house when the costs of the market were too high. Yochai Benkler summarizes the point:

[P]eople use markets when the gains from doing so, net of transaction costs, exceed the gains from doing the same thing in a managed firm, net of the costs of organizing and managing a firm. Firms emerge when the opposite is true, and transaction costs can best be reduced by bringing an activity into a managed context that requires no individual transactions to allocate this resource or that effort.³¹

It follows from this insight that as transaction costs fall, all things being equal, the amount of stuff done inside a firm will fall as well. The firm will outsource more. It will focus its internal work on the stuff it can do best (meaning more efficiently than the market).

LEGO-ized innovation is simply the architectural instantiation of this economic point. Through the architecture that makes Web 2.0 possible—including what many have called Web services—the transaction costs of outsourcing functionality drop dramatically. Why set up a payment service—exposing yourself and your firm to the risk of fraud, for example—when you can simply contract with PayPal? Why run your own servers when a firm can really promise 24/7 service with its own? Some realms, like national security, might well want to opt out of this sort of outsourcing. But the obvious point is that it will make sense not to outsource less and less.

Democratization

LEGO-ized innovation also teaches us something critical about innovation on the Internet itself. In each of these Web 2.0 examples,

the platform allows innovation to be, as MIT professor Eric von Hippel describes, “democratized.” Once again, that term does not mean innovation gets implemented as strategy was decided in the early brigades of Soviet soldiers—by gathering around and voting on the next strategic move. Instead, “democratized” here means that access to the resource—the right to innovate—has been made more *democratic*, that is, made dependent upon your membership in some community, and not upon a special status or hierarchy within some company or government.

Amazon and Google democratize innovation when they open their Web services to people outside Amazon and Google. The Internet did the same, just better. The original architecture of the Internet was called “end-to-end,” meaning innovation and intelligence in the network were to be at the edge of the network (the machines that connect to the network, not the network itself); the network itself was to be as simple as it could be.³² As a result, anyone was technically free to innovate for this network. All you needed to do to innovate for the Internet was to conform your design to the Internet’s protocols. Once you did that, you were in. There was no committee or design group or Agency of Internet Innovation that needed to approve your idea. Nobody could stop you from building whatever you wanted to build on the Internet. That freedom is a critical reason for the Internet’s extraordinary success.

The Character of Commercial Success

You can tell a great deal about the character of a person by asking him to pick the great companies of an era. Does he pick the successful dinosaurs? Or does he pick the hungry upstarts?

My taste is for the hungry upstarts. One great feature of modern society is the institutionalized respect we give to processes designed to destroy the past. The free market is the best example. Democracy is another. In both cases, constant flux is not the objective (we have courts to protect private property; we have constitutions to slow the will of the democracy). But in both cases, the aim is to assure that the past survives only if it can beat out the future.

The commercial economies of the Internet are a fantastic example of exactly this dynamic. The neutral platform of the Internet democratized technical and commercial innovation. Power was thus radically shifted. The dropouts of the late 1990s (mainly from Stanford) beat the dropouts of the middle 1970s (from Harvard): Google and Yahoo! were nothings when Microsoft was said to dominate. This success of the new against the power of the old was made possible by a constitutional commitment in the architecture of the network to democratize innovation.

No government could have planned these successes, and not just because governments are unlikely to have the talent of the geniuses at the likes of a Google or an eBay. Rather, governments couldn't plan these successes because governments, at least as we Americans know them, are inherently corrupted—not by bribery, not by greed, but by the reality of campaign financing, which lets them understand the views of only the last great success, and never the views of the next great success (which, as yet, lacks the funds to influence the government).

Nor did these successes come from the dominant business of the time: Amazon beat (the more established) Barnes & Noble. Netflix beat (the innovator) Blockbuster. And Apple beat Dell. That's not because Barnes & Noble was stupid and Amazon was smart.

Rather, as Clayton M. Christensen put it in his justly acclaimed book, *The Innovator's Dilemma*:

Despite their endowments in technology, brand names, manufacturing prowess, management experience, distribution muscle, and just plain cash, successful companies populated by good managers have a genuinely hard time doing what does not fit their model for how to make money. Because disruptive technologies rarely make sense during the years when investing in them is most important, conventional managerial wisdom at established firms constitutes an entry and mobility barrier that entrepreneurs and investors can bank on. It is powerful and pervasive.³³

Smart for one time does not translate into smart for the next time. For that, we need new businesses.

The Long Tail, Little Brother, and LEGO-ized innovation explain part of the success of the Internet economy. They explain why commerce in the Internet economy can function better (that is, more efficiently) than commerce in real space.

Yet not all of the value from the Internet comes from this commercial economy. Indeed, a more surprising source has nothing to do with commerce at all. It is to that part we now turn.

Sharing Economies

Sitting next to me on a cross-country flight was a representative of America's youth. He was about seventeen, dressed in a complicated mix of black and silver (the metal, not the color). He had a

computer far cooler than mine. And when the chime indicated that “it is now safe to use approved electronic devices,” he pulled from the seat pocket in front of us a huge portfolio of DVDs.

All of them—there must have been two hundred at least—were copies. And as he paged through the binder, my envy grew. I wanted to know more about his collection and him. So I did something simply awful, something that I never do: I struck up a conversation with the person sitting next to me on an airplane.

I asked Josh (it turned out) about his collection. Was he a film studies student? Did he work in the industry? He wasn’t. And he didn’t. He was just a collector. Indeed, a collector of “everything,” he told me. This was just part of his collection. He had “gigs” of music as well.

The more we spoke, the more conflicted I became. I admired his knowledge. He knew his culture better than I knew mine. But he was, according to the laws of our country, a thief. Or something like that. In building his collection, he had violated a billion rights. Don’t start with me about how those rights are unjustly framed, or too expansive, or outdated. I know all that. I’ve killed forests explaining all that. All that aside, what this kid was doing was making my work harder. I fight for “free culture.” My position is weakened by kids who think all culture should be free.

When the frustration of the conflict became too much, I looked for an easy escape. Josh had a film I had always wanted to see. My book was finished. My e-mail was just annoying. I decided I’d ask to watch one of his DVDs.

“So,” I said, “could I rent one of those from you? How about \$5?”

I’m not writer enough to describe the look of utter disappoint-

ment on his face. Suffice it to say that I had found the single most potent insult to hurl at Josh.

“What the fuck?” he spit back at me. “You think I do this for money? I’m happy to lend you one of these. But I don’t take *money* for this.”

I had crossed a line. But with that crossing, my respect for Josh grew. I didn’t agree with how he had acquired his collection. Yet his rebuke reminded me of a different economy within which culture also lives. There exists not just the commercial economy, which meters access on the simple metric of price, but also a sharing economy, where access to culture is regulated not by price, but by a complex set of social relations. These social relations are not simple. Indeed, these relations are insulted by the simplicity of price. And though I hope not many trade on capital acquired as Josh acquired his, everyone reading this book has a rich life of relations governed in a sharing economy, free of the simplicity of price and markets.

If the point isn’t completely obvious, consider some more examples:

- You have friends. That friendship lives within a certain economy. If you only ever ask and never give, the friendship goes away. If you meter each interaction and demand a settlement after each exchange, the friendship also goes away. Certain moves appropriate in some places are inappropriate here. For example: “I need to talk to someone. Can I give you \$200 for an hour-long session?”
- You have, or have had, or will have, lovers. That relationship exists within a complex sharing economy. The statement “Wow, that was great. Here’s \$500!” isn’t gratitude in such

relationships. It might be perversion, though if not matched by perversion on the other side, it will likely be terminal to the relationship. Lovers make demands on each other. Those demands are designed to be complex. Simplify them according to price, and you destroy the relationship. (The other side to this story follows directly as well: Prostitution is sex within a commercial economy. Both sides seek the simplicity of cash. Crossing that boundary is the stuff of novels or career-launching movies [Julia Roberts, *Pretty Woman*].)

- You have neighbors. They (or you) will sometimes need help. Once one asked me: “My car battery is dead. Can you give me a jump?” After we got his car started, he tried to hand me \$5. “What the hell, Ted,” I said. “This is what neighbors do.” Then I thought, but didn’t say: Anyway, if you were going to pay me for this hassle, it’s going to be a lot more than \$5.

As with any economy, the sharing economy is built upon exchange. And as with any exchange that survives over time, it must, on balance, benefit those who remain within that economy. When it doesn’t, people leave. Or at least they should (think about the battered spouse).

But of all the ways in which the exchange within a sharing economy can be defined—or put differently, of all the possible terms of the exchange within a sharing economy—the one way in which it cannot be defined is in terms of money. As Yochai Benkler puts it, in commercial economies “prices are the primary source of information about, and incentive for, resource allocation”; in sharing economies “non-price-based social relations play those roles.”³⁴

Indeed, not only is money not helpful. In many cases, adding money into the mix is downright destructive.³⁵ This is not because

people are against money (obviously). It is instead because, as philosopher Michael Walzer has described generally, people live within overlapping spheres of social understanding. What is obviously appropriate in some spheres is obviously inappropriate in others.³⁶

Both academic literature and ordinary life are filled with a rich understanding of the differences between commercial and sharing economies. My favorite is Lewis Hyde's *The Gift*, which describes in great historical detail the different but related understandings that cultures have had about giving. Think, for example, about the term "Indian giver," which I always understood to be derogatory. It meant someone who gave something but expected to take it back. But the origin of the term invokes the idea of a sharing economy directly—not that you will take the same thing back, but that you understand you're part of a practice of exchange that is meant, over time, to be fair: "In 1764, when Thomas Hutchinson wrote his history of the colony, the term was already an old saying: 'An Indian gift,' he told his readers, 'is a proverbial expression signifying a present for which an equivalent return is expected.'"³⁷ So why then do people give such gifts, the man from Mars asks? Why do they risk the gift's misfiring? Why not simply give cash, which is guaranteed to transfer efficiently?

The answer is because the gift is doing something more, or different, from simply transferring an asset to another. Again, as Hyde describes it:

It is the cardinal difference between gift and commodity exchange that a gift establishes a feeling-bond between two people, while the sale of a commodity leaves no necessary connection. I go into a hardware store, pay the man for a hacksaw blade and walk out. I may never see him again. The disconnectedness is, in fact, a virtue

of the commodity mode. We don't want to be bothered. If the clerk always wants to chat about the family, I'll shop elsewhere. I just want a hacksaw blade.³⁸

Gifts in particular, and the sharing economy in general, are thus devices for building connections with people. They establish relationships, and draw upon those relationships. They are the glue of community, essential to certain types of relationships, even if poison to others. It is not a gift relationship that defines your employment contract with a steel mill. Nor should it be. But it is a gift relationship, or sharing economy, that defines your life with your spouse or partner. And if it isn't, it better become so if that relationship is to last.

Sometimes organizations trade upon this kind of economy in order to trade upon the kind of connections a sharing economy produces. Hyde points to the extraordinarily successful example of Alcoholics Anonymous:

AA is an unusual organization in terms of the way money is handled. Nothing is bought or sold. Local groups are autonomous and meet their minimal expenses—coffee, literature—through members' contributions. The program itself is free. AA probably wouldn't be as effective, in fact, if the program was delivered through the machinery of the market, not because its lessons would have to change, but because the spirit behind them would be different (the voluntary aspect of getting sober would be obscured, there would be more opportunity for manipulation, and—as I shall argue presently—the charging of fees for service tends to cut off the motivating force of gratitude, a source of AA's energy).³⁹

Likewise, communities that were defined as sharing economies radically change when money is brought into the mix. Hyde quotes MIT geneticist Jonathan Kind:

In the past one of the strengths of American bio-medical science was the free exchange of materials, strains of organisms and information. But now, if you sanction and institutionalize private gain and patenting of micro-organisms, then you don't send out your strains because you don't want them in the public sector. That's already happening now. People are no longer sharing their strains of bacteria and their results as freely as they did in the past.⁴⁰

In all these cases, price is poisonous. Money changes a relationship—it redefines it. Indeed, it would most likely insult the host. “Money-oriented motivations are different from socially oriented motivations.”⁴¹ And crossing the line will either show a profound misunderstanding of the context, or suggest you did understand the context, but simply wanted to change it.

These lines of understanding, of course, are not drawn by God. They are culturally and historically contingent. In Victorian England, for example, “the presence of money in sport or entertainment” reduced the value of that sport or entertainment, at least for “members of the middle and upper classes.”⁴² Obviously, Americans feel differently today. In nineteenth-century America, the idea that you would tell your personal problems to a paid professional would seem outrageous. Today, it is called therapy—and the phrase “hey, save that one for the couch” signals an increasing appreciation that some personal matters are not to be within a sharing economy. Some personal matters should simply be professionalized.

Thus, no distinction between “sharing” and “commercial” economies can be assumed to survive forever, or even for long. My only claim is that when such a distinction exists, then “adding money for an activity previously undertaken without price compensation reduces, rather than increases, the level of activity.”⁴³ *Often*, not always. Conservatives in America insist upon keeping prostitution illegal because they fear that adding money to sexual exchange will increase the “activity previously undertaken without price compensation”—i.e., sexual activity outside a monogamous relationship. In that case, the fear is money increases the activity, not decreases it.

Commercial and sharing economies coexist. Indeed, they complement each other. Psychologists don’t begrudge friendship, even though the stronger the economies of friendship in a society, the weaker the demand for shrinks. The band Wilco doesn’t begrudge a church choir, even if the choir gives its work away for free, while Wilco charges plenty for one of their (too infrequent) concerts. We all understand that similar things can be offered within different economies. We celebrate this diversity. Only a fanatic would advocate wiping away one economy simply because of its effect on the other.

Yet sometimes we’re all fanatics. Puritan society has waged war against economies for sex that compete with sex within a monogamous relationship—believing both fornication (a competing sharing economy) and prostitution (a competing commercial economy) put too much pressure on an idealized sharing economy. Likewise, the content industry today wages war against economies for exchanging copyrighted content—peer-to-peer sharing economies, where people don’t necessarily know one another, as well as friend-

ship sharing economics,⁴⁴ where they do. In both cases, the judgment that the one economy is poison to the other may well be right. But whether right or not in a particular case, the key is that these fanatical cases are the exception. In the vast majority of cases, we permit this intereconomy competition to flourish. In many cases, we encourage it. No one is called a communist because he plays in a Thursday-evening softball league (competing with professional baseball) or helps clean up at a local church (competing with the janitor of the church). To the contrary: we idealize one who can trade within a range of societies, with a significant part of his or her life outside the society of commerce.

Now consider a distinction among the possible motivations that might explain participation within a sharing economy. Sometimes these motivations are “me-regarding”—the individual participates in the sharing economy because it benefits him. Sometimes these motivations are “thee-regarding”—the individual participates in the sharing economy because it benefits others. So if I join a local softball league, I may be driven largely by me-regarding motivations. If I volunteer at a local soup kitchen, I’m probably driven mostly by thee-regarding motivations.

Obviously, me and thee motivations are not unrelated. One can always view motivations that are thee-regarding as being ultimately me-regarding—I choose to help my neighbors because I want to be, or I want to be seen as, the sort of person who helps my neighbors. That’s a perfectly sensible way to understand the vast majority of thee-regarding motivations. My aim is not to insist that sharing economies are economies of selflessness.

Yet even if thee-regarding motivations are ultimately me-regarding, they are still, in one sense, more complicated to explain than the

simple me-regarding motivations we all understand intuitively. We're tolerant of weird me-regarding motivations (we call some "fetishes," others simply "taste"). But weirdness about thee-regarding motivations makes us wonder whether the person even understands what he's saying. For example, I understand the statement "I'm working to spread the goodness of the National Rifle Association." I understand it even though I wouldn't do the same. But the statement "I'm working to spread the goodness of Exxon" is not just unusual. For anyone not actually employed by Exxon, we'd wonder whether the person really understood what he was saying. Thee-regarding motivations plug into existing understandings of communities or causes. Me-regarding motivations (for us, in modern tolerant societies) aren't so constrained.⁴⁵

Using this distinction, then, I will call "thin sharing economies" those economies where the motivation is primarily me-regarding; "thick sharing economies" are economies where the motivations are at least ambiguous between me and thee motivation. Thus, in thin sharing economies, people do not base an exchange on price or money. But they're making this exchange simply because it makes them better off, or because it is an unavoidable by-product of something they otherwise want to do for purely me-regarding reasons. One person doesn't necessarily mind that his actions might be helping someone else. But there's no independent desire to help someone else. The motivation is about me.

Three examples will illustrate what I mean.

- Think about a stock market. In most major stock markets, people share information—ordinarily information about how much is bought at what price, but even if that were hidden, the market would share the information about how

prices were changing. You could describe this sharing as constituting a sharing economy. But plainly, it's a very weird sort of person who would buy and sell stocks simply to help the market collect information about prices. People buy and sell stocks to make money. A by-product of that behavior is the information that gets shared with others. If this is a sharing economy, it is a thin sharing economy.

- Think of the “Voice Over IP” service called Skype. With Skype, you can make free Internet calls, and very cheap Internet-to-regular-phone calls (and vice versa). But Skype is designed to use, or “share,” the resources of the computers connected to this VOIP network. When you're on the Skype phone, Skype is using your computer to make its network work better.⁴⁶ This is like AT&T drawing electricity from your house when you use the telephone, as a way to keep its electricity costs down. I don't mean to criticize Skype for this: it certainly helps make the service better. But when someone participates in this “sharing economy” of computer resources, what is the most salient motivation? Is it to advance the cause of Skype? Or is it simply a by-product of people's desire for cheap calls? I suggest the latter, making this too a thin sharing economy.
- Think finally of AOL's IM network. The value of that network increases for everyone. This is a consequence of network effects: the more who join, the more valuable the resource is for everyone. There are many contexts in which this network effect is true. Think, for example, about the English language. Every time someone in China struggles to learn English or a school in India continues to push English as a primary language, all of us English speakers benefit. But

in neither of these cases—with AOL or English—are people joining the movement because it is a movement. People join because it gives them something they want.

In each case, there is a resource that is shared among everyone within the community—information about the market, computer resources to make VOIP work better, the network effect from a popular network. That resource is shared independent of price. But in none of these cases is it realistic to imagine people joining or participating in these networks for thee-regarding reasons. These are me-regarding communities. They are thin sharing economies.

By contrast, in a thick sharing economy, motivations are more complex. A father might spend Sunday mornings teaching a Bible class at his church. Part of that motivation is about him. But certainly, part is also about improving the community of his church—a thee motivation. What the proportion is we need not specify. The only important point is that there are both, and that the more we think that there is a thee motivation, the thicker the community is.

This distinction between thick and thin will be important when considering differences among sharing economies. It will also be important in understanding the likelihood that any particular economy will survive over time. For despite the intuitions that names give to the contrary, a thin sharing economy is often easier to support than a thick sharing economy. This is because inspiring or sustaining thee motivations is not costless. Or at least, all things being equal, a me motivation (for us, now) comes more easily to most. Thus, distinguishing cases where a thee motivation is necessary from cases where it isn't will be helpful in predicting whether a certain sharing economy will survive.

Internet Sharing Economies

The Internet has exploded the range and thickness of sharing economies too. As with commercial economies, the plasticity of the Internet's design, and the scale of its reach, offer a vast range of new opportunities for sharing economies everywhere.

As with commercial economies, these sharing economies flourish in part because of their design. Here too, for example, the best follow a Bricklin-like principle: People contribute to the common good as a by-product of doing what they would otherwise want to do. But some communities demand something more from their members: some will claim, for example, that members owe one another something. Depending upon the community, that demand will often stick. If you told me I had a duty to Amazon, I'd think it a joke. I love Amazon as much as the next guy. But it gets no loyalty beyond the good that it offers in return. But there are plenty of entities within the Internet sharing economy for whom it isn't a joke to say I owe the community something. The best such communities may not depend upon this kind of owing. They may simply make doing good fun. But in some communities, all the participants understand they must "do their part." And failing to do his part opens the deviant to criticism. For these thick sharing economies, the motivations to participate are more complex.

The most prominent Internet sharing economy today, and a paradigm of the type, is one that didn't even exist before 9/11: Wikipedia. But Wikipedia is not the first Internet sharing economy. So after we cover the familiar and dominant, we'll go backward a bit, to better appreciate the continuity between the "barn raising," as

one of the Net's early legal theorists, Mike Godwin, put it, of Wikipedia, and the many barn raisings that happened before Wikipedia was born.

The Paradigm Case: Wikipedia

In 2000, Jimmy “Jimbo” Wales was fishing around for something better to do. He had been a futures and options trader in Chicago during most of the 1990s and had made, he told *Wired* magazine, enough money “to support himself and his wife for the rest of their lives.”⁴⁷ Now he wanted to do something really interesting.

At first he thought about writing an encyclopedia, or at least getting an online encyclopedia written. Using some of the profits from an adult-content site that he had helped start (Bomis), Wales launched Nupedia. The idea—obviously the only sane idea for writing an encyclopedia at the time—was to build a peer-reviewed work. He hired a philosophy Ph.D., Larry Sanger, as editor in chief. And they both watched this pot as the project never boiled.

Frustrated over its slow growth, Nupedia launched a “wiki” to encourage the development of Nupedia articles. A wiki is a platform that lets anyone write or edit in a common space. Wiki software has been around for more than a decade. It was originally intended to enable a team to work on a project collaboratively. Wales and Sanger intended the wiki to be a sandbox for collaborative drafting of articles for Nupedia. Quickly, however, the sandbox became much more than a draft. The growth of articles in this (now dubbed) “Wikipedia” dwarfed anything on Nupedia. The sandbox then took center stage.

Wikipedia, however, is more than software. It is also a set of norms that were built into the practice of using that software. The objective was an encyclopedia. That meant articles were to be written from a “neutral point of view” (NPOV). And the project was to be run by a volunteer community (though Sanger was originally a paid editor so long as Bomis’s funding continued). To assure that the volunteers felt they were part of a community, the rules had to be rules anyone could live by. Thus was born the “ignore all rules” rule, which Jimmy Wales explained to me as follows:

“Ignore all rules” . . . is not an invitation to chaos. It is really more an idea of saying, “Look, whatever rules we have in Wikipedia, they ought to be, more or less, discernible by any normal, socially adept adult who thinks about what would be the ethical thing to do in this situation. That should be what the rule is.” It should be pretty intuitive. And if there’s something that’s counterintuitive, it shouldn’t really be a rule. It might be a guideline or it might be something that we go around and try to encourage people to do. But you can’t get in trouble for not doing it.⁴⁸

Finally, there was a norm about ownership: nobody owned Wikipedia exclusively. The content of Wikipedia got created under a copyright license that guaranteed it was always free for anyone to copy, and that any modifications had to be free as well. This “copyleft” license—the brainchild of Richard Stallman—set the final founding norm for this extraordinary experiment in collaboration.

If you’re one of the seven people in the world who have not yet used Wikipedia, you might well wonder whether this experiment in collaboration can work. The answer is that it does, and surpris-

ingly well—surprising even for Wikipedia’s founder, Jimmy Wales. As he explained to me:

As people get experienced using Wikipedia and they’re reading it a lot, they begin to have this intuition that Wikipedia is pretty darn good about being neutral on very controversial subjects. And that’s a little bit surprising; I know certainly if you had asked me before Wikipedia what a big problem would be, I would have said, “Wow, I’m hoping that it’s not going to be incredibly biased on controversial subjects. I’m hoping that that won’t happen.” It turns out that doesn’t happen, that community is quite good... in part because of the social norm that we’ve had from the beginning about neutrality and about communication.

Not all of the work within Wikipedia is writing original articles. Indeed, the vast majority of work is editing content—correcting spelling or formatting errors, rewriting submissions to conform to the NPOV norm, or simply “softening [a claim] to be more broadly acceptable.” According to one estimate, only 10 percent of all edits add substantive content.⁴⁹ The rest is cleaning up those additions. And even here, more of the work is done by a relatively small number of users. According to Jimmy Wales, 50 percent of all edits are done by 0.7 percent of users—meaning just about 524 users within his sample. The most active 2 percent (1,400) of users have done 73.4 percent of all edits. Counting content, Aaron Swartz found that “the vast majority of major contributors are unregistered and that most have only made a handful of contributions to Wikipedia.”⁵⁰

This division of work is not directed. There’s no “chore” norm at Wikipedia. As Wales describes,

If somebody says, “Well, I know about birds and I’m going to come in and monitor a few hundred bird articles and I’m going to occasionally update them when I feel like it but I’m in and out and I’m not really a core community member. And I, frankly, don’t really have time or feel like dealing with the conflict and I’m not going to run a spell-checking bot and I’m just going to do the parts that I find fun,” that’s considered perfectly acceptable.

These are volunteers doing as they like. It just turns out that when you invite the world to participate, there are enough volunteers in a range of categories of work to make the whole thing function quite well.

The first question many ask about these thousands of volunteers is, why do they do it? (And again, this is a world of volunteers. Until February 2005, there was just one part-time employee).⁵¹ “Why do people play softball?” is a standard Wales response.⁵² The answer of course is simply because they like it more than all the other things they might be doing at the time. But *why* do they like it? In part because there is also a ready, and attractive, thee-regarding motivation surrounding the project. As Wales told Tapscott and Williams, “We are gathering together to build this resource that will be made available to all the people of the world for free. That’s a goal that people can get behind.”⁵³

That goal makes Wikipedians (as they call themselves) a community—not in some abstract sense of a bunch of people with a common interest, but instead in the very significant sense of people who have worked together on a common problem. As Wales describes,

Community sometimes is almost meaningless; it just means there’s people out there doing stuff. But in Wikipedia, what community

means is that they're people who have met each other; they know each other; they've had arguments; they've made up; they've had different kinds of controversies; they've banded together to take care of some problems; they like each other; they don't like each other; sometimes people are dating and then they break up and then there's some rumors and scandals, and all of the stuff that makes a rich human community is what goes inside Wikipedia. It's a complete soap opera actually inside our community.

These people are likely to pick up any litter they see in their streets.

Surprisingly, Wikipedia is even good at things you wouldn't associate with a traditional encyclopedia—reporting and analyzing news events such as the Virginia Tech massacre and Hurricane Katrina. Wales explains:

One of the things that we are doing better, I think, is when we have a mass public event or story with breaking news, one of the things that we've seen is that, in the short run, especially, Wikipedia does a very interesting thing that I have come to appreciate more and more over time, which is a census of the news that's coming out. So, the way I present this is when you have a big event like this, you'll have ten, twenty, or thirty, or fifty reporters all there, on the scene gathering information. But they're each seeing only the piece that they can see and even if they're all absolutely excellent journalists who are doing their very best to get the whole story, they're each coming from a particular perspective and they're each interviewing particular people with particular views. And then that stuff goes out onto the Web where people can read all of it.

The *New York Times* made the same point after the Virginia Tech massacre. As a review article noted, “From the contributions of 2,074 editors, at last count, the site created a polished, detailed article on the massacre, with more than 140 separate footnotes, as well as sidebars that profiled the shooter, Seung-Hui Cho, and gave a timeline of the attacks.”⁵⁴ That article was viewed by more than 750,000 within the first two days. Even the local newspaper, the *Roanoke Times*, commented that Wikipedia “has emerged as the clearinghouse for detailed information on the event.”⁵⁵

I’ve called Wikipedia part of the “sharing economy” even though technically the license governing Wikipedia permits anyone to copy Wikipedia for whatever purpose he or she wants, including the purpose of selling copies. There’s nothing wrong, according to the license at least, with running an ad-supported site with a copy of Wikipedia. There’s no problem in printing a physical copy of the hundred most popular articles and selling those copies for money. The only licensing restriction is that if you make changes to Wikipedia, you have to license the new version under the same license as the old. No one is permitted to improve and then lock up the improvements. They too must remain free.

But Wikipedia is still part of the sharing economy because one’s access to, or right to edit for, Wikipedia is not metered by money. More interestingly, the site itself—the one owned by the Wikimedia Foundation—doesn’t run ads to support its costs. That decision is extremely significant. As one of the top ten Web sites in the world, the decision not to run ads means Wikipedia leaves about \$100 million on the table every year. Why? What drives this site to ignore so much potential wealth?

One reason important to Wales relates directly to the importance of the NPOV. As he explained to me, “We do care that the

general public looks to Wikipedia in all of its glories and all of its flaws, which are numerous of course. But the one thing they don't say is, 'Well, I don't trust Wikipedia because it's all basically advertising fluff.' Forgoing ads is a way to buy credibility, just as a judge forgoing bribes is a way to buy credibility. In both cases, we might imagine the entity taking money would not be affected by that money. But there's no easy way to verify that it's not been affected. So to achieve the value sought—neutrality, or fairness—money must be removed from the equation.

Wikipedia is my paradigm sharing economy. Its contributors are motivated not by money, but by the fun or joy in what they do. Some find that joy because the result is something valuable to society. Others find that joy because there's nothing better on television. Whatever the reason, there's sufficient motivation spread throughout the world to build an encyclopedia for free that each day draws more attention than all the other encyclopedias in history combined. Wikipedia is to culture as the GNU/Linux operating system is to software: something no one would have predicted could have been done, yet which an inspired leader and devoted followers built for free, and to remain free.

Beyond Wikipedia

The Internet learned to share, however, long before Wikipedia. Indeed, as commerce was banned from the Internet until 1991, one might well say that the Internet was born a sharing economy; commerce was added only later. There are many examples. Consider just a few:

• *The code that built the Net came from a sharing economy.* The software that built the original Internet was the product of free collaboration. Open-source, or free, software was distributed broadly to enable the servers and Internet protocols to function. The most famous of these projects was the GNU Project, which in 1983 was launched by Richard Stallman to build a free operating system, modeled upon the then dominant UNIX. For the first six years or so, Stallman and his loyal followers worked away at building the infrastructure that would make an operating system run. By the beginning of the 1990s, the essential part missing was the kernel of the operating system, without which the operating system as a whole could not run.

A Finnish undergraduate decided to try to build that kernel. After tinkering a bit with a version, he released it to the Net for others to add to. This undergraduate was named Linus Torvalds. He named the kernel Linux. Soon, volunteers from around the world had helped improve the kernel enough that, when added to the other components of the GNU system, it built a robust and powerful operating system called either Linux or, better, GNU/Linux. We'll see more about this operating system in the next chapter. The point to remark upon here is it was built by thousands volunteering to write code that would eventually guarantee that people could build upon and share an operating system.

Less famous than GNU/Linux, but just as important to the history of the Net, are the many instances of free software built to supply the basic plumbing of the Internet. As Robert Young and Wendy Goldman Rohm put it in their book, *Under the Radar* (1999):

In 1981, Eric Allman created Sendmail, an open source program that is responsible for routing 80 percent of the email that travels

over the Internet. It is currently still maintained by thousands of online programmers via sendmail.org. In addition, Allman started Sendmail Inc. as a business in November 1998. For a profit, he sells easy-to-use versions of the open source software, along with support and service, to corporations. Another important force in the open source world is Perl. It was created by 43-year-old Larry Wall, a former linguist who created Perl while at Burroughs Corp. on a government-funded project. The software is free, although Wall has sold 500,000 copies of his Perl manuals. Another open source program, BIND, was originally developed at the University of California at Berkeley as freeware. It allows domain names like Linux.com to be entered as textual name addresses instead of machine numbers (called IP addresses, for example, 43.72.66.209), making it much easier for ordinary people to surf the Internet. Apache, the group founded by 25-year-old Brian Behlendorf, got its start when Behlendorf was hired to build *Wired* magazine's Web site. In order to improve the Web server software, he programmed his own enhancements and circulated the results, with source code, on the Internet. Other contributors added their code, and Apache was created. The name came from the fact that the software was "a patchy" collection of code from numerous contributors. Currently, Apache is used by more than half of the Web sites on the Internet. It was chosen by IBM, over Netscape's and Microsoft's closed-source Web server software, to be the foundation of IBM's Web commerce software.⁵⁶

Apache continues to be the dominant Web server on the Internet: for most of the first half of the decade, its market share was over 60 percent; today, despite fierce competition from proprietary

server companies such as Microsoft and Apple, the market share remains in the mid-50-percent range.⁵⁷ All of these products were initially built by people who lived within an economy of exchange. But their interactions within that economy were not metered by money. Some were paid by others so that they could afford to write software that would be free. But the terms of exchange for adding and changing this code were forbidden to be commercial. The core free-software license permits developers to sell their code. But they can never sell the right to modify or change the code they build onto free software. That economy is always to be a sharing economy.

Why does this kind of software development work? Or better, why does it often work so much better than proprietary software?

One reason is structural: when you write software that others are to work on, you must be more disciplined in your coding. Comments must be frequent. Code must be made more modular. That structure helps evaluate bugs. It also invites more to review the work of the coder: “with enough eyeballs all bugs are shallow.”⁵⁸

But there’s a third reason that is frequently ignored. Free and open-source software takes advantage of the returns from diversity in a way that proprietary software hasn’t. As economist Scott Page has demonstrated in a foundational study about the efficiency of diversity, the success of an enterprise in solving a difficult problem depends not just upon the *ability* of the people solving the problem.⁵⁹ Using mathematical economics, Page shows that the success also depends upon the *diversity* of the people solving the problem. What’s needed is not just, or even necessarily, racial diversity, but a diversity in experience and worldviews, so as to help a project fill in the blind spots inherent in any particular view.

That point in the abstract might not sound surprising: sure, diversity helps, just like ability helps. But the really surprising part of Page's analysis is the relationship between the contribution from ability and the contribution from diversity: equal. Increasing diversity, in this sense, is just as valuable as increasing ability.

Thus, between two projects, one in which the workers are extremely smart but very narrow, and another in which the workers are not quite as smart but much more diverse, the second project could easily outperform the first. So even if you believe that proprietary firms can hire the very best programmers, an open-source project (with a wider diversity of coders) could easily outperform the proprietary project.

This dynamic, I suggest, explains a great deal of the success of the software sharing economy. It likewise could explain the success of Internet sharing economies as well.

- *Project Gutenberg is a sharing economy.* Founded in 1971 (yes, 1971), Project Gutenberg is the oldest digital library. Its founder, Michael Hart, launched the project to digitize and distribute cultural works. The first Project Gutenberg text was the Declaration of Independence. Today, there are more than twenty-two thousand books in the collection, with an average of fifty books added each week.⁶⁰ The vast majority of the books in the collection are public-domain works, primarily works of literature. Most are in English, and most are available in plain text only.⁶¹ Hart describes his mission quite simply: "to encourage the creation and distribution of e-books." The economy of Project Gutenberg is a sharing economy. Volunteers add works to the collection; people download works freely from the collection. Price, or money, doesn't police access.

Voluntary contributions are all the supporters can rely upon to keep the work alive.

- *Distributed Proofreaders is a sharing economy.* Inspired by Michael Hart's Project Gutenberg, and launched in 2000 by Charles Franks, the Distributed Proofreaders project was conceived to help proofread for free the books that Hart made available for free. To compensate for the errors of optical character recognition (OCR) technology, the Distributed Proofreaders project takes individual pages from scanned books and presents them to individuals, along with the original text. Volunteers then correct the text through a kind of distributed-computing project. (See the next item for more on distributed computing.) Distributed Proofreaders has contributed to more than ten thousand books on Project Gutenberg. In 2004, there were between three hundred and four hundred proofreaders participating each day; the project finished between four thousand and seven thousand pages per day—averaging four pages every minute.⁶² All of this work is voluntary.

- *Distributed-computing projects are sharing economies.* Distributed computing refers to efforts to enlist the unused cycles of personal computers connected to the Net for some worthy cause (worthy in the eyes of the volunteer, at least). The most famous was the SETI@home project, launched in 1999 and designed to share computing power for the purpose of detecting extraterrestrial life (or at least the sort that uses radios). More than 5 million volunteers eventually shared their computers with this project.⁶³ But there are many more distributed-computing projects beyond the SETI project. A favorite of mine is Einstein@Home. As described by Wikipedia,

Einstein@Home is designed to search data collected by the Laser Interferometer Gravitational-Wave Observatory (LIGO) and GEO 600 for gravitational waves. The project was officially launched on 19 February 2005 as part of American Physical Society's contribution to the World Year of Physics 2005. It uses the power of volunteer-driven distributed computing in solving the computationally intensive problem of analyzing a large volume of data. . . . As of June 3, 2006, over 120,000 volunteers in 186 countries have participated in the project.⁶⁴

The contributions to these distributed-computing projects are voluntary. Price does not meter access either to the projects or to their results.

- *The Internet Archive is a sharing economy.* Launched in 1996 by serial technology entrepreneur (and one of the successful ones) Brewster Kahle, the Internet Archive seeks to offer “permanent access for researchers, historians, and scholars to historical collections that exist in digital format.”⁶⁵ But to do this, Kahle depends upon more than the extraordinarily generous financial support that he provides to the project. He depends as well upon a massive volunteer effort to identify and upload content that should be in the archive. The archive employs “probably less than one-tenth of one person,” he told me. And “there have probably been over a thousand people that have uploaded” creative work to be preserved.⁶⁶ All of the content is shared on the archive. Nothing is metered according to price.

- *The Mars Mapping Project was a sharing economy.* Scientists at NASA are eager to map the surface of Mars. Mapping means iden-

tifying and marking on their maps the locations of craters, the age of craters, and other significant geological formations. For years, NASA and others had done this by hiring professionals. For eleven months beginning in November 2000, NASA experimented with asking amateurs to do what professionals had done.

The theory of the experiment was that “there are many scientific tasks that require human perception and common sense, but may not require a lot of scientific training.” So NASA set up a site where volunteer “clickworkers” could spend “a few minutes here and there” and some would “work longer” doing “routine science analysis that would normally be done by” a professional.⁶⁷ For example, the site included “an interactive interface in which the contributor . . . clicks on four points on a crater rim and watches a circle draw itself around the rim. . . . Pressing a button submits the set of latitude, longitude, and diameter numbers to [the] database.”⁶⁸

The results were astonishing. Once word of the project got out, there were “over 800 contributors who made over 30,000 crater-marking entries in four days.”⁶⁹ Even after error correction, this was “faster than a single graduate student could have marked them, and also far faster than the original data was returned by the spacecraft.” Thirty-seven percent of the results were provided by onetime contributors. And when the results were redundancy compared, the accuracy was extremely high. As the study of the results concluded, “even if volunteers have higher error rates . . . , a cheap and timely analysis could still be useful. In some applications, noisy data can still yield a valid statistical result.”⁷⁰ As Yochai Benkler describes: “What the NASA scientists running this experiment had tapped into was a vast pool of five-minute increments of

human judgment, applied with motivation to participate in a task unrelated to ‘making a living.’”⁷¹

• *Astronomy increasingly depends upon a sharing economy.* Historically, astronomy always relied on amateurs. But as digital technologies have made it possible to gather huge amounts of data, there is a strong push within the field to encourage sharing of these data among astronomers. As the editors of *Nature* observed,

web technologies...are pushing the character of the web from that of a large library towards providing a user-driven collaborative workspace... A decade ago, for example, astronomy was still largely about groups keeping observational data proprietary and publishing individual results. Now it is organized around large data sets, with data being shared, coded and made accessible to the whole community. Organized sharing of data within and among smaller and more diverse research communities is more challenging, owing to the plethora of data types and formats. A key technological shift that could change this is a move away from centralized databases to what are known as “web services.”⁷²

The limits on this sharing are therefore not technical. They are “cultural.” “Scientific competitiveness will always be with us. But developing meaningful credit for those who share their data is essential to encourage the diversity of means by which researchers can now contribute to the global academy.”⁷³

There’s some good evidence this norm is developing. The Digital Sky Project, for example, funded through the National Science Foundation, “provides simultaneous access to the catalogs and image

data, together with sufficient computing capability, to allow detailed correlated studies across the entire data set.”⁷⁴ Likewise with the U.S. National Virtual Observatory, another NSF-funded project, meant to develop “a set of online tools to link all the world’s astronomy data together, giving people all over the world easy access to data from many different instruments, at all wavelengths of the electromagnetic spectrum from radio to gamma rays.”⁷⁵ The emphasis in all these cases is to provide a sharing economy in data, enabling researchers to draw upon the data to analyze and draw conclusions that advance the field of astronomy.

- *The Open Directory Project is a sharing economy.* As a complement to the search algorithms of major search engines, the Open Directory Project “is the largest, most comprehensive human-edited directory of the Web. It is constructed and maintained by a vast, global community of volunteer editors.” Volunteers are asked to sign up to a particular area of knowledge. They are given tools to help them edit and modify links within the directory. The directory asks people to give “a few minutes” of their time to “help make the Web a better place.”⁷⁶ No money polices access to the results of this project, or the right to participate in it.

- *Open Source Food is a sharing economy.* As described by its founder, “Open Source Food came to fruition because me and my father wanted to create a place for people like us. We’re not professional cooks, we just love food. We want to share, learn and improve ourselves with the help of like-minded food lovers. Open Source Food is a platform for that.” Users contribute recipes to the database of recipes. And while recipes as such can’t be

copyrighted in the United States, the site uses Creative Commons licenses to make sure descriptive text and images are available freely as well.⁷⁷ No money meters access to the site. Contributions are all voluntary.

The list could go on practically indefinitely. The Internet is filled with successful sharing economies, in which people contribute for reasons other than money. As Benkler argues, they contribute not because “we live in a unique moment of humanistic sharing.” Rather, the reason for all this sharing is that “the technological state of a society... affects the opportunities for... social, market... and state production modalities.”⁷⁸ We’re living in a time when technology is favoring the social. More vibrant sharing economies are the result.

What Sharing Economies Share

In all of these cases, the people participating in creating something of value share that value independent of money. That’s not to say they’re not in it for themselves. Nor is it to say that they’re not being paid. (A programmer working for IBM may well be paid to add code to a free-software project. But the freedoms that get shared with that free software are not tied to money.) And it’s certainly not to say they’re in it solely to benefit someone else. All the category of “sharing economy” requires is that the terms upon which people participate in the economy are terms not centered on cash. In each, the work that others might share is never shared for the money.

So why do people do it? What's in it for them? What is their motivation?

This question has been studied extensively in the context of free and open-source software. Its answer begins by recognizing how small the "motivation" is that requires any special kind of explanation. For as a corollary to Dan Bricklin's *Cornucopia of the Commons*,⁷⁹ we need to remember that a large part of the motivation for contributing to these sharing economies comes from people just doing for themselves what they want to do anyway.

With free and open-source software, for example, often the work is self-motivated: a programmer faces a problem and has to fix it ("scratch an itch," as Eric Raymond put it). Eric von Hippel estimates in one study that "Fifty-eight percent of respondents said that an important motivation for writing their code was that they had a work need (33 percent), or a nonwork need (30 percent) or both (5 percent) for the code itself."⁸⁰ For these people, the question is not, why does someone write the software? but the much less demanding puzzle, why does someone contribute the solution freely to others? This, as Rishab Ghosh has written, is obviously a simpler problem to explain. You don't lose anything by giving away an intangible good that you've already created; and especially when you've been paid to create it, that's sufficient reason to contribute it to others.⁸¹

Beyond contributions that are explained by the fact that the contributor had to solve the problem himself anyway, theorists have identified a number of other reasons to explain these contributions to sharing economies. Again with software, one voluntary study demonstrates that a significant portion of contributors are motivated by pure intellectual stimulation (45 percent) or to improve

their own programming skills (41 percent listed this as one of their top three reasons.)⁸²

Another reason points to a variant on the argument about diversity I identified in Scott Page's work above. As Steven Weber puts it in *The Success of Open Source*:

Under conditions of antirivalness, as the size of the Internet-connected group increases, and there is a heterogeneous distribution of motivations with people who have a high level of interest and some resources to invest, then the large group is *more* likely, all things being equal, to provide the good than is a small group.⁸³

That means developers of open-source and free-software projects have a strong interest in many people sharing the projects, since the more who share them, the more likely someone will be motivated to improve them.

Peter Kollock identifies another potential motivator as the "expectation . . . of reciprocity. Both specific and generalized reciprocity can reward providing something of value to another. When information providers do not know each other, as is often the case for participants in open source software projects, the kind of reciprocity that is relevant is called 'generalized' exchange."⁸⁴

So we see that there is an abundance, not a lack, of motivations. As Weber writes,

The success of open source demonstrates the importance of a fundamentally different solution, built on top of an unconventional understanding of property rights configured around distribution. Open source uses that concept to tap into a broad range of human motivations and emotions, beyond the straightforward calculation

of salary for labor. And it relies on a set of organizational structures to coordinate behavior around the problem of managing distributed innovation, which is different from division of labor. None of these characteristics is entirely new, unique to the open source, or confined to the Internet. But together, they are generic ingredients of a way of making things that has potentially broad consequences for economics and politics.⁸⁵

In my view, the easiest answer to the motivation question comes from framing it more broadly: Why do people do these things for free rather than, say, watching television?

In some cases, the response is simply that the sharing activity is more compelling. This is a purely me-regarding motivation. I want to play a game (MUDs and MOOs), or write an article (Wikipedia), or whatever, because I like to.

In some cases, the response is more thee-regarding: Some part of the motivation to write for Wikipedia is to help Wikipedia fulfill its mission: "Wikipedia is a project to build free encyclopedias in all languages of the world. Virtually anyone with Internet access is free to contribute, by contributing neutral, cited information." People contribute because they want to feel that they're helping others. Some people help the Internet Archive or Project Gutenberg because they want to be part of their mission: to offer "permanent access for researchers, historians, and scholars to historical collections that exist in digital format" (Internet Archive) or to "encourage the creation and distribution of eBooks" (Project Gutenberg).

But again, even the thee-regarding motivations need not be descriptions of self-sacrifice. I suspect that no one contributes to Wikipedia despite hating what he does, solely because he believes

he ought to help create free knowledge. We can all understand people in the commercial economy who hate what they do but do it anyway (“he’s just doing it for the money”). That dynamic is very difficult to imagine in the sharing economy. In the sharing economy, people are in it for the thing they’re doing, either because they like the doing, or because they like doing such things. Either way, these are happy places. People are there because they want to be.

Or more completely, because “they want to be” there given the options the technology offers. As Benkler has put it most clearly, technology doesn’t determine any result.⁸⁶ But different technologies invite different behaviors. The changes in technology I’ve described here “have increased the role of [sharing] production.”⁸⁷ If they continue to grow, they could well become part of the “core, rather than the periphery of the most advanced economies.”⁸⁸ They have already done much more than anyone would have predicted even ten years ago.