



The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism

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In *The Zero Marginal Cost Society*, *New York Times* bestselling author Jeremy Rifkin describes how the emerging Internet of Things is speeding us to an era of nearly free goods and services, precipitating the meteoric rise of a global Collaborative Commons and the eclipse of capitalism.

Rifkin uncovers a paradox at the heart of capitalism that has propelled it to greatness but is now taking it to its death--the inherent entrepreneurial dynamism of competitive markets that drives productivity up and marginal costs down, enabling businesses to reduce the price of their goods and services in order to win over consumers and market share. (Marginal cost is the cost of producing additional units of a good or service, if fixed costs are not counted.) While economists have always welcomed a reduction in marginal cost, they never anticipated the possibility of a technological revolution that might bring marginal costs to near zero, making goods and services priceless, nearly free, and abundant, and no longer subject to market forces.

Now, a formidable new technology infrastructure--the Internet of things (IoT)--is emerging with the potential of pushing large segments of economic life to near zero marginal cost in the years ahead. Rifkin describes how the Communication Internet is converging with a nascent Energy Internet and Logistics Internet to create a new technology platform that connects everything and everyone. Billions of sensors are being attached to natural resources, production lines, the electricity grid, logistics networks, recycling flows, and implanted in homes, offices, stores, vehicles, and even human beings, feeding Big Data into an IoT global neural network. *Prosumers* can connect to the network and use Big Data, analytics, and algorithms to accelerate efficiency, dramatically increase productivity, and lower the marginal cost of producing and sharing a wide range of products and services to near zero, just like they now do with information goods.

The plummeting of marginal costs is spawning a hybrid economy--part capitalist market and part Collaborative Commons--with far reaching implications for society, according to Rifkin. Hundreds of millions of people are already transferring parts of their economic lives to the global Collaborative Commons. Prosumers are plugging into the fledgling IoT and making and sharing their own information, entertainment, green energy, and 3D-printed products at near zero marginal cost. They are also sharing cars, homes, clothes and other items via social media sites, rentals, redistribution clubs, and cooperatives at low or near zero marginal cost. Students are enrolling in free massive open online courses (MOOCs) that operate at near zero marginal cost. Social entrepreneurs are even bypassing the banking establishment and using crowdfunding to finance startup businesses as well as creating alternative currencies in the fledgling sharing economy. In this new world, social capital is as important as financial capital, access trumps ownership, sustainability supersedes consumerism, cooperation ousts competition, and "exchange value" in the capitalist marketplace is increasingly replaced by "sharable value" on the Collaborative Commons.

Rifkin concludes that capitalism will remain with us, albeit in an increasingly streamlined role, primarily as an aggregator of network services and solutions, allowing it to flourish as a powerful niche player in the coming era. We are, however, says Rifkin, entering a world beyond markets where we are learning how to

live together in an increasingly interdependent global Collaborative Commons.

The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism Details

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From Reader Review *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism* for online ebook

Miles says

A hefty portion of humanity's uniqueness can be traced back to future projection. We constantly weave narratives that stretch moments and months and millennia ahead, even as we fumble to figure out what to do with today, each day. Everyone needs some kind of intellectual framework to navigate this tricky tension, which is where futurists come in—they synthesize data, make observations, and construct arguments for why we should think one way or another about what's to come. Futurists should be judged not solely by the accuracy of their predictions, but also by their ability to identify the values and perspectives that constitute pragmatic advice for the present and hope for tomorrow. By this standard, Jeremy Rifkin's *The Zero Marginal Cost Society* is an example of futurism at its best. Rifkin provides a thoughtful and bold vision of how the near future might play out, and highlights a plethora of ways people can get to work carving out a niche in this brave new world.

The idea of “zero marginal cost,” which Rifkin wields with subversive flare, originates from the traditional capitalist playbook. Marginal cost is the cost of producing an additional unit of product beyond the initial investment required to produce a single unit. The deep irony of capitalism, as Rifkin sees it, is that ruthless competition to reduce marginal cost (and therefore maximize profit) eventually leads to the invention of technologies that reduce marginal cost to near zero. At this point, additional units of product become nearly free, and profits begin to dry up. A simple example from recent history is the development of the music recording industry over the last few decades, which became far less profitable once tracks could be digitized and copied at near zero marginal cost. Rifkin predicts that 3D printing, renewable energy, and other technologies will soon do the same for many of the physical objects that are currently provided by the traditional capitalist marketplace. This will give rise to a new sharing economy platformed on a Collaborative Commons that will be dominated by collectively owned social networks rather than privately-owned capital. Rifkin tips his hat to capitalism for getting us to the point where basic goods can be produced at near zero marginal cost, but claims it is now time to transition to a new economic paradigm.

The sharing economy's enabling factor is the Internet of Things (IoT), which is comprised of a Communications Internet, an Energy Internet, and a Logistics Internet. These decentralized, distributed networks will wirelessly link any electronic device to groups of sensors implanted throughout our natural environment and physical infrastructure. These sensors will detect inefficiencies and instruct electronic devices to coordinate with each other to adapt their usage, maximizing energy output and reducing waste. I don't possess the technical expertise to critique this model, but if it works as Rifkin claims, it will drastically reduce the cost of living for anyone plugged in. The long-term end game is that once initial investments in IoT infrastructure are made over the next few decades, people will be able to stop worrying about basic necessities and fully invest themselves in the Collaborative Commons—a multilayered system of peer-to-peer networks that foster social relationships, experiential richness, and human creativity.

Sound too good to be true? I thought so too. Making participation in capitalist markets optional for workers is an issue so close to my heart that my first impulse was to buy Rifkin's vision wholesale. Knowing this weakness in myself, I tried to critique his book as best I could. Though I had dozens of unanswered questions along the way, I was ultimately satisfied with Rifkin's determination to establish a set of values and tools for living more sustainably and cooperatively—what he calls the “biosphere lifestyle.”

The biosphere lifestyle can be summarized by two basic assertions: (1) every economic system generates its own justificatory (but not necessarily accurate) interpretation of reality and (2) the privatization of public assets is incompatible with a robust sharing economy and ecological vibrancy. The history of economics, Rifkin argues, is rife with interpretations of reality that correspond with and seek to legitimize economic systems. Monarchs and feudalists purported a universe in which social roles were fixed in a great chain of subservience, with God driving the bus and master/slave relations all the way down. 19th and 20th century capitalists flocked to skewed interpretations of Darwinism that posited a cosmos dominated by rational self-interest and the will to triumph over others in the race for scarce resources. In recent decades, a new intellectual framework is emerging, one that emphasizes humanity's eusocial nature and seeks a balance between competition and cooperation. This paradigm shift is happening in tandem with the rise of the sharing economy as people seek ways to unplug from the zero-sum game of traditional markets in order to pursue work that generates social capital and products that can be shared directly in peer-to-peer networks (e.g. Etsy, Bandcamp, Airbnb, Uber).

This way of life is antithetical to privatization and overuse of finite natural resources for short term gain. Although Rifkin does not foresee the end of capitalism or private property altogether, he contends that ownership of goods and services will become increasingly distributed and less important than access. Instead of amassing private capital for exclusively personal use, individuals will participate in democratized, laterally distributed communities that will plug into the IoT infrastructure, forging myriad virtual links between local and global populations. A hard battle must be fought to expand universal access to democratizing technologies and wrestle public resources from the hands of those who would (or already do) possess them. To shape the new Collaborative Commons, we need to cut out the middlemen standing between producers and consumers by allowing people to play both roles—to be what Rifkin calls “prosumers.” Social ranking systems will also be implemented to hold community members accountable and minimize freeloading.

While overwhelming in scale, the task of constructing the IoT infrastructure is actually a potential benefit. This multi-decade project opens the way for millions of traditional wage jobs for workers who will update and install sensors in existing infrastructure, turn millions of buildings into micropower plants, and develop the foundational software for the Communications, Energy, and Logistics Internets. This will be the final gasp of the purely capitalist economic model, and the first draft of the platform on which the sharing economy can flourish. It isn't a perfect solution to the current jobs crisis, but it's a better response to chronic unemployment than any I've heard. As the IoT infrastructure takes shape, workers will be increasingly empowered to step away from wage labor and plug into the Collaborative Commons. It might take a generation or two, Rifkin admits, but eventually our descendents will be baffled that the value of an individual was ever measured primarily by his or her contribution to a capitalist marketplace.

Rifkin focuses more on the positive developments to come than on the details of existing problems, and most of his book could rightly be criticized as overly optimistic. However, Rifkin doesn't pull any punches when addressing two imminent and potentially catastrophic threats: climate change and cyberterrorism. These “wild cards” could potentially destroy the sharing economy before it gets started. They are real threats, and Rifkin in no way thinks the sharing economy is guaranteed if we don't act soon to transition to renewable energies, democratize access to electricity, and decentralize distribution networks so they are less vulnerable to cyber attacks.

There are still many open questions about how this vision (or something similar) might come to be. The two I want to focus on are: (1) Why emphasize energy more than food and water? and (2) How do we implement quality standards and public safety measures in the sharing economy? Perhaps because it's his area of expertise, Rifkin discusses energy issues far more than nutrition. Though he certainly thinks nutrition is

important, access to food and water seem less crucial to him than access to electricity and the Internet. I wish he had included more information and offered suggestions for how the sharing economy can improve access to healthy food and clean water. It's too important of an issue to take a back seat here.

It's also unclear how Rifkin expects a zero marginal cost society to regulate goods in the sharing economy. I'm all for transitioning away from the vertically integrated corporate business model, but one of the historical benefits of that model has been the ability to set quality and safety standards for big industries. Though corporations haven't always complied or been held accountable for not following standards, it still seems easier to regulate a top-down business than to ensure that the variegated elements of a sharing economy don't put out dangerous products. Are reputation algorithms, user reviews, and social capital enough to keep independent producers honest, or should we just accept that one of the drawbacks of the sharing economy is that we will—at least in some cases—have less assurance of knowing exactly how products are made? It's also unclear how the proliferation of new currencies, such as Bitcoin and community-specific units of exchange, will facilitate this process or muddy the waters. These issues beg the bigger question of exactly what role government should play in the zero marginal cost society, a topic on which Rifkin is strangely taciturn.

Rifkin is not a great writer, but he has written a terrific book, one that contains many useful frames for argument and action. In a world brimming with experts who propound capitalism as humanity's economic apotheosis, it's refreshing and invigorating to encounter someone demanding a better way of organizing human commerce. I'm not convinced things will play out exactly as Rifkin claims, *but I doubt he is either*. This book is much more about the foundational values of the zero marginal cost society than the particular shape of that society. It's about birthing a radically new way of understanding labor and production, one that prioritizes social bonds over impersonal market fluctuations. It's about creating a sustainable home for generations to come, one we can be proud of once we're gone, and that will give our successors every chance to flourish. And most importantly, it's about rejecting ecological exploitation in favor of a symbiotic way of life that honors and conserves the complex web of living things and elements on Earth.

This review was originally published on my blog, [words&dirt](#).

Bianca Klein Haneveld says

Wonderful book. It not only offers many hypotheses and credible arguments to be hopeful about a 'future of abundance', but describes one major flaw in capitalistic thinking very well. Human beings are not the egotistical, 'always out for nr 1.' beings that are assumed to love the money-powered systems of capitalism. We want the best for others and the world. Capitalism has done much good in this respect, providing a better life for many. But it has large drawbacks. 'Many' is not the same as 'everyone' and capitalistic endeavours have taken toll on nature.

Rifkin provides a lot of evidence that humans are empathic by nature and still growing in that aspect. He provides a large number examples of inspirational projects that very probably will lead to a new economical 'system' (a combination of a 'commons-responsibility for production/distribution', sharing between peers and capitalism). And this will improve living standards globally substantially. Not for 'a lucky few', but for the complete next generations and the world they live in.

This book made me change my lifestyle - consuming less, giving more. Not many books had this much impact on me!

Highly recommended.

Keith Swenson says

This is a book I would recommend to most people as interesting, well written, and informative.

Rifkin tries to give us an expansive, big-picture view of some of fundamental changes we are experiencing. Driven by information technology, we are seeing a host of second order changes with real consequences. In short, the internet of things is tied to the collaborative commons, and possibly bringing about the end of capitalism. That is the big story: the END of CAPITALISM. Can it be true?

He starts with a historical view to point out that capitalism did not always exist. Roman and middle age societies worked on principles that were very distinct from capitalism. In a feudalistic society, the idea of ownership was very different from what we have today. People worked (but not very hard) and produce was distributed (but not very fairly) and people got by. It was the emergence of enlightenment ideas, and the subsequent industrial revolution, that brought about (1) the concrete ideas of ownership and (2) capitalism that you invest in and benefit from owning means of production. America is a country where the ideas of capitalism are so well integrated into the culture that it is hard to separate them, and hard to imagine a world that is different.

Many information technologies are disrupting: specifically (1) sustainable power generation (e.g. solar), (2) 3d printing replacing manufacturing, (3) MOOCs and essentially free education, (4) ubiquitous communications infrastructure. There is no doubt in my mind that these are causing dramatic transformation. Look at music recording industry, how movies are changing, how much of the entertainment is direct person to person sharing on Facebook, Twitter or Pinterest. Like web 2.0, he talks about people evolving from one-direction consumers, to bi-directional prosumers. In these kinds of things, it is certainly true that we are evolving into a collaborative commons because the marginal costs are driving to zero.

One of his key points is that capitalism only works when there is scarcity. If the marginal cost goes to zero, then things become both free and plentiful. The idea of investing and controlling makes no sense if everyone can have as much as they want. He spends a lot of time talking about the collaborative commons, and how the tragedy of the commons is easily avoided by social norms which are enforced in places where a real commons exists. Don't worry, there are ways for collaborative commons to work -- and his points are credible.

However, there is more to the economy than this. He does not talk at all about production of food: wheat, corn, hogs, cattle, chickens, fruit, vegetables, etc. Automation does bring down the cost of these, but certainly NOT to zero. Who will produce my wine for \$0? We all have to eat, and we need clothes, and a warm place to sleep. These are not going to zero cost, and so there is no reason to believe that capitalism will disappear entirely. Sure, the Internet of Things (IoT) will dramatically effect entertainment, learning, and maybe even dramatically improve patient-led medical research. But IoT will not feed and cloth us.

The second half of the book is a wealth of information about the ways that these transformations are going on around us. Cars are being replaced by car sharing programs. ThredUP allows parents to effectively share children's clothes. SharedEarth allows landowners find people who want to garden. Craig's List is decimating classified ads. AirBNB and Couch surfing is transforming overnights. Crowdfunding like Kickstarter is reforming how you invest and how you get loans.

What makes us happy? We used to believe that owning things would make us happy, but there is plenty of evidence that is not so. This is the great thing about collaborative commons: we might be happier with fewer things, but still having access to more than we need. The sharing economy is very promising indeed, and Rifkin covers it well.

Yet, overall, I feel a little let down. The IoT will have a dramatic effect on our lives, but only on PART of our lives. Our social lives are likely to be radically changed. Anything to do with communications and interaction might be morphed beyond recognition. Cooperation will be transformative. Reading this part is a wild and entertaining ride.

BUT ... certain physical requirements exist. 3D printing might get powerful enough to print entire automobiles, but the metal (and plastic) is still not free. The IoT will not allow us to raise cattle in our apartments, or mine for ore in our backyards. Capitalism has nothing to worry about. The entire society will not be zero marginal cost. Only parts of it. I do wish Rifkin had covered the COMPLETE economy, and not just the amazing parts which are being transformed. To really understand the future, we need to consider the entire picture.

Peter Mcloughlin says

Jeremy Rifkin writes in a visionary style. Most political and technological writing when it is not in horror story mode adopts the visionary style. In politics and technology, there is always a world to be won a vision of the future. Rifkin does a good job talking about the possibilities which abound in new technology mainly digital copies which have near zero marginal cost per unit spilling over into the world of objects and how it will bring about a transformation of not only the economy but capitalism itself as it morphs into the sharing economy. No one who looks around can possibly think that things are going to stand still in the coming decades and a vision can be a healthy thing. Rifkin talks about platforms that will launch this new world but as much as I like visionary tracts it is good to keep in mind that the future rarely comes out the way futurists predict. Still, it is worthwhile to try to chart it.

Jose Papo says

Jeremy Rifkin books are usually polemical. I liked this one a lot. The future he describes is possible if we as a global society really start to invest in more science and engineering education. The truth is that we need more engineers and less lawyers (nothing against lawyers, but in some countries it seems that priorities are upside down).

I don't believe the technological disruptions will end capitalism, but it will surely change and can be more human and collaborative if we help the sharing economy to thrive.

Johan Haneveld says

If it were possible to give six stars I would (which goes to show there's something wrong with how I rate books ...). I'm not exaggerating if I say this book changed my life. Also, it has been a long time since I read out whole passages to my wife, and sent them to friends to inspire them. And it's a book about economy, a

subject I professed to have zero interest in. I'm as surprised as you are! I myself would probably not have picked this book up, because the title makes it sound pretty technical ('marginal costs', that's something economical isn't it?). But a friend recommended the book to me after a talk we had, in which I claimed to be depressed about the prospects of our world, hearing doom scenario after doom scenario: escalating climate change, loss of biodiversity, wars and floods, and christians claiming the lord will return this year (again, after many, many times of such claims not being substantiated). My friend countered that there were more positive stories to tell about the world and our future, and this was one of the books he told me to read. Before I got around to order it, I already concluded that as a human race we have a bias for apocalyptic scenarios, and thinking everything was better in the past and the world is about to end. Even the egyptians thought their youth was morally bankrupt, and the same was true in the 19th century. In the mean time not only have we developed technologically, worldwide welfare and quality of life have improved too. And the human consciousness has developed as well. From stone age tribes who saw everybody outside the tribe as 'other' and 'demonic', to the extension of the own group to include co-religionists (the family of faith), to including people from your own nation, to the psychological insight that people are like you on the inside and have their own story, even if they're different then you are. All these changes were accompanied by innovations in the availability of energy (agriculture, wind power, steam power, gasoline, electricity) and in communication (the written word, the printing press, the telegram, the telephone etc). Now there are more innovations coming. The internet is already here, making worldwide communication a reality. But it will be followed by the availability of green energy in an 'Energy internet', production costs will fall due to the rise of '3D-printing', making everybody a producer ('prosumer'), and efficiency in transportation will be reached by the 'internet of things'. According to Rifkin this is a 'third industrial revolution'. It will change our economy, as our economy has changed by each earlier innovation: from feudalism to capitalism, and now to a new economy in which capitalism is pushed to the sidelines. In this economy of abundance instead of sparsity (due to availability of energy and 3D printing) in which everybody will be able to provide for him/herself what he/she needs to survive, we will find access is more important than ownership, and we will want to share rather than buy the rest. Rifkin uses the example of the 'Commons' an age old system used for example in Switzerland, where villages share the meadows in the mountains, so that these remain in health and productive for more than 800 years. In the same way we will see more and more parts of the world and of life as our shared responsibility, as 'commons'. This will also mean our worth is no longer measured by how much we buy and sell, but by our social status, by the meaning we add to our own lives and others'. This is coupled with another evolution of consciousness, where our expanding empathy is now going to include everyone, regardless of sex, race or sexual orientation, even the biosphere.

Rifkin is honest about the chances of this becoming a reality, as climate change and cyberterrorism could seriously disrupt the scenario, and the powers of the old regime will surely put up a fight, so to speak. But he has an ace up his sleeve: the view of human nature at the basis of capitalism does not correspond to reality. People are not inherently selfish, solely out for their own gain, not thinking about others. Studies show people are instead inherently social, the most social of beings, thriving on empathy and taking care of each other (though there are exceptions). The tenets of capitalism were supported by an interpretation of evolution (the survival of the fittest, which was a mis-interpretation, because to Darwin it never meant survival of the strongest) based on competition. Now, however, we start to see how it's not species that evolve on their own, but ecosystems that evolve. Giving rise to more and more complex interactions (e.g. symbiosis). And fundamentalist christianity, and the evangelical churches that started in the 19th century, helped support capitalism as well by claiming that man was inherently evil, the heart was not to be trusted, and no motive is ever pure. We were born sinful, and would die sinful as well. I myself have been influenced by that kind of teaching, and it surely did a number on me. But it was not true. We are not inherently evil, we are the image bearers of God, and share in his nature. Yes, it has been hidden under the disease of selfishness, but that was not our nature. And the work of Christ is to restore his image in us, and resurrect us to new life (our real life). That will save not only us to our humanity, but our whole ecosystem, the world, as well! There have been christians throughout the ages who have said the bible teaches this: that we live in the millennium, where

Gods kingdom, which is already present among us, is becoming visible. Not just by the efforts of christians, but by the force of the kingdom itself: like yeast in bread. It cannot be stopped, just as the advance of sharing communities on the internet and new ways of living cannot be stopped. This will become reality: and just like Jesus said about the kingdom, the invitation is for us to join in. I think this fits with a sacramental interpretation about God and faith: his eternal truth becoming visible for us, if we open ourselves up to share in it.

I will probably write more about this on my blog. But for me, in short, this was the first book in a long time that gave me hope for the future and made me look forward to thrive and not just survive. It also revealed in me an inner radical, as I do believe that the tenets behind the new economy are right: we are made to share with each other, and people should freely have access to idea's books and songs. Since reading this book I see examples of its ideas all around me: in the newspaper and talking with people - this is really happening! I look forward to living from this renewed vision in the coming years!

Chris Chester says

Hmm. Let me see if I can sum up Rifkin's argument. The two previous industrial revolutions were defined by new energy paradigms that were facilitated by new forms of communication. He envisions a new, third industrial revolution driven by distributed green energy and the Internet.

From there, he loops in technological advances, saying some combination of the Internet of Things, 3D printing, free online education, and automation will create an era of abundance driven by zero marginal costs. Structured around the collaborative commons and intelligent infrastructure, this new paradigm will eventually supplant capitalism.

Rifkin touches on just about everything a millennial could ask for in a new world order: car sharing, the death of advertising, the preservation of the ecosystem... it's a very seductive web he weaves.

But the story he tells is a fairly complex one, and any number of things can knock the larger narrative out of whack. He touches on climate change and cyberterrorism at the end of the book, but the perils go far beyond that. The transition to a green economy is not happening at the speed required, at least in the United States. The fossil fuel economy could also fall apart much more quickly than he imagines. Saying nothing of more nefarious hiccups, like the corporate takeover of the sharing economy, using our social capital to circumvent taxation, government regulation, and minimum wage.

And as nice as a "zero marginal cost society" sounds, especially when you say it over and over again, it ignores the radical upheaval that this transition would cause. Standards of living are slipping, government debt is exploding, underemployment and employment participation are going down, the industrial economy is being dismantled.

From my perch of privilege, this third industrial revolution seems pretty cool. Less advertising, cheaper goods, sustainable economies green energy. Problem is, lots of people don't stand to gain quite as much.

Nice book, good food for thought, but probably wildly optimistic.

David Kinchen says

BOOK REVIEW: 'The Zero Marginal Cost Society': Welcome to the Brave New Workerless World

"The Capitalists will sell us the rope with which we will hang them." --Vladimir Ilyich Lenin (1870-1924)
First Leader of the Soviet Union

Marginal cost is the term used in the science of economics and business to refer to the increase in total production costs resulting from producing one additional unit of the item. Zero marginal cost describes a situation where an additional unit can be produced without any increase in the total cost of production. Producing another unit of a good can have zero marginal costs when that good is non-rivalrous, meaning that it is possible for one person to consume the good without diminishing the ability of others to simultaneously consume it as well. --Wise Geek.com

* * *

Maybe economists like Jeremy Rifkin will stop writing books like "The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism" (Palgrave Macmillan, 368 pages, \$28.00) when they are replaced by robots who can do the same work as human economists at far less cost.

This is already happening in academia, as many prestigious teachers are offering online courses for free or for a modest fee, he writes in a book that will probably discourage the hell out of many people already at the end of their job-seeking tether. At the same time, Rifkin's book is that rarity, a book about economics that general readers can understand and enjoy, even.

Brick and mortar universities will be replaced by massive open online courses (MOOCs) that also operate at near-zero marginal cost, he predicts. And young social entrepreneurs are establishing ecologically sensitive businesses, crowdsourcing capital, and even creating alternative currencies in the new sharable economy. As a result, "exchange value" in the marketplace -- long the bedrock of our economy - is increasingly being replaced by "use value" on the collaborative Commons.

Rifkin describes how zero marginal cost economics has already changed the face of manufacturing and has contributed to the jobless "recovery" from the financial meltdown of 2008 in a book that further confirms my view that economics is truly "the dismal science."

The rope that Lenin spoke of is probably manufactured in an Asian country by automated machines, with only a few people around to make sure they're functioning properly.

Shades of Charlie Chaplin's dystopic 1936 movie "Modern Times" -- said to be inspired as his iconic "Little Tramp" character struggles to survive in the modern, industrialized world. According to the Wikipedia entry on "Modern Times": "The film is a comment on the desperate employment and fiscal conditions many people faced during the Great Depression, conditions created, in Chaplin's view, by the efficiencies of modern industrialization."

In his 1995 book "The End of Work" Rifkin said that "more sophisticated software technologies are going to bring civilization ever closer to a near workerless world."

Unemployed "Little Tramps" need not apply!

Rifkin quotes himself on page 122 of his new book, adding : "In the interim years, the projections I made back in 1995 of IT-generated automation leading to technology displacement in virtually every sector of the economy became a troubling reality, leaving millions of people unemployed and underemployed across every country in the world. If anything, the original forecast proved to be a bit too conservative."

Is that dismal enough for you?

He goes on to cite statistics on the people in the U.S. and worldwide who are unemployed or underemployed, who have given up looking for jobs that have disappeared. (Chapter Eight "The Last Standing Worker" Pages 121ff.). And see below my reference to Cornell University economist Robert H. Frank.

Retailing will change drastically. If you've been in a Walmart recently, you've probably seen the self-checkout stations (I refuse to use them, hoping that at least some jobs will remain!). It's no secret that the Walmart management people -- and other retailers -- would like to see workers disappear, with customers doing all the work.

Rifkin writes that many people -- especially younger consumers who are already buying most everything online -- are using big-box stores to try on garments that they will later buy online,. And stores are reacting by charging them to use the fitting rooms -- or convincing them to use their own online service, making the store distribution center, he tells us.

The capitalist era that Lenin hoped to see disappear inevitably will do so, Rifkin writes. Replacing it will be a new global collaborative Commons that will fundamentally transform our way of life.

Ironically, capitalism's demise is not coming at the hands of hostile external forces. Rather, "The Zero Marginal Cost Society" argues, capitalism is a victim of its own success. Intense competition across sectors of the economy is forcing the introduction of ever newer technologies.

Rifkin explains that this competition is boosting productivity to its optimal point where the marginal cost of producing additional units is nearly zero, which makes the product essentially free. In turn, profits are drying up, property ownership is becoming meaningless, and an economy based on scarcity is giving way to an economy of abundance, changing the very nature of society.

Rifkin describes how hundreds of millions of people are already transferring parts of their economic lives from capitalist markets to global networked Commons.

"Prosumers" are producing their own information, entertainment, green energy, and 3-D printed products at nearly zero marginal cost, and sharing them via social media sites, rentals, redistribution clubs, bartering networks, and cooperatives.

For Rifkin's 1999 speech "The Third Sector -- and the Rebirth of Civil Society":
www.jobsletter.org.nz/art/rifkin04.htm

I was particularly intrigued by Chapter Ten, "The Comedy of the Commons", where Rifkin discusses Garrett

Hardin's 1968 essay "The Tragedy of the Commons" and law professor Carol Rose's re-examination of the ancient principle of the commons in what Rifkin calls a "salvo" entitled "The Comedy of the Commons." This chapter also includes an account of Elinor Ostrom's publication of "The Governing of the Commons" in 1990. Ostrom (1933-2012) won the Nobel Prize in Economics in 2009 -- the first woman ever to receive the honor, Rifkin writes. Ostrom was associated with two universities: Arizona State and Indiana University. From the Nobel Prize site on Ostrom: http://www.nobelprize.org/nobel_prize.....

In this new era, identity is less bound to what one owns and more to what one shares. Cooperation replaces self-interest, access trumps ownership, and networking drubs autonomy. Rifkin concludes that while capitalism will be with us for at least the next half century, albeit in an increasingly diminished role, it will no longer be the dominant paradigm. We are, Rifkin says, entering a world beyond markets where we are learning how to live together collaboratively and sustainably in an increasingly interdependent global Commons.

I have some issues with this: I don't think utility companies will be giving away their electricity or natural gas anytime soon. I expect my electric utility company --TXU, based in Dallas -- will continue to send me bills every month, despite all the talk in Rifkin's book about the Internet Commons. TXU and other utilities will be among the biggest holdouts, if I'm correct in my guesses.

I just (March 28, 2014) watched Cornell University economics professor Robert H. Frank being interviewed by Ronan Farrow on MSNBC (Yes, I watch this channel, especially for Farrow, whom I'm convinced is Frank Sinatra's son, not Woody Allen's!). Frank, the professor, not the singer/actor (and he was frank in his assessment of the economy) said the problem with unemployment is that there are no jobs for those seeking them. Potential employers are sitting on mountains of cash and are unwilling to hire actual people. Job training is not the answer when nobody's hiring, at least hiring American workers.

At last, an economist who tells it like it is! His website: www.robert-h-frank.com/. Frank, born in 1945, was blunt in his statement that the recession isn't over. I sensed that he doubts that it will ever be over, with the oxymoronic "jobless recovery" continuing for the foreseeable future. Without jobs, consuming will decrease and companies will find themselves without customers. Despite the "Internet of Everything" that Rifkin describes, customers are vital. When they're gone, the company disappears.

It almost happened to Ford Motor Co. when they stopped making the Model T, and took months to develop the Model A in the fall of 1927. Ford never regained its position as the biggest of the Big Three automakers. Bill Bryson describes Ford's blunder in his excellent "One Summer: America 1927" (Doubleday, 2013), which I've just read and which I recommend without reservation. I love Bryson's books.

For Frank's clear exposition of the "vicious circle of income inequality" see: www.nytimes.com/2014/01/12/business/t...

I suspect that most people will continue to be consumers, buying cars, houses, cell phones, TV sets, instead of renting them. Sharing bikes and cars won't be the norm outside of a few cities. Corpus Christi, TX, the nearest large city to where I live on the Texas Gulf Coast, is not Portland, OR: People there will need cars to get around a sprawling metro area with no rapid transit -- unlike the excellent Portland system, my favorite on the West Coast.

On my first reading of Rifkin's tome, I was reminded of the predictions trumpeted by Popular Science and Popular Mechanics magazines when I was in grade school, in the 1940s and '50s. You know the ones: Every suburban house with an autogyro in the driveway...expressways where cars moved like trains, etc. etc. On

further reflection, I recalled the disappearance of three places in the town I live in where you could rent a DVD of a movie. Netflix and video on demand killed them, leaving fogies who like to play DVDs limited to the handy Redbox kiosks at a couple of locations.

My own profession, journalism, is not immune to the zero cost marginal society.

In an article on "robo-journalists" (<http://www.infowars.com/robo-reporter...>) "Computer algorithms are already being used to manufacture news stories about earthquakes and other data-rich issues and this same process could soon be employed for sports games and eventually more complicated news stories – rendering many journalists obsolete.

"Human editors would probably still be needed to check stories before publication, but the actual process of writing articles could be handed over completely to artificially intelligent software programs."

The story goes on to say, citing a report in The Vancouver Sun, "that the Los Angeles Times is already using robo-reporters for some of its content, thanks to a computer program developed by the newspaper's digital editor Ken Schwencke." The L.A. Times is where I worked for more than 14 years, from 1976 to 1990.

"The article explores the ethical concerns of assigning "routine news tasks" to robo-reporters, which would 'lighten the load for everybody involved' according to Schwencke. Alfred Hermida, associate professor at the University of British Columbia, concluded that if the computer algorithm was created by the reporter, the generation of news stories by a robo-reporter would be acceptable."

* * *

"O, brave new world
that has such people in't!" ? William Shakespeare, The Tempest

KMO says

I didn't reach the end, but I've just changed the status from "reading" to "read" to make the fact that I've stopped reading it official. I got through most of it. Like the previous Rifkin book I tried to read, The Empathic Civilization, I found this book to be way too long and filled with redundant examples and details. This book reads as if the author were getting paid by the word. I like my non-fiction, social analysis denser than Rifkin delivers it. A skilled writer really could have conveyed the core content of this book just as effectively in the form of a long magazine article. Still, the topic is of interest to me, and I look to Jeremy Rifkin to point the way for fruitful exploration. I think his interviews and lectures communicate the essence of his thinking without all the tedious piling on of example. I don't mean to disrespect the man or his work. I will continue to keep current on what he's up to, but I don't see myself embarking on another of his books. I'm a reader, but I'll be following Jeremy Rifkin's thinking on YouTube rather than on the page.

Andy Oram says

One has to be in a certain mood to appreciate Rifkin, who envelopes you with an effusive flood of statistics

and seemingly unconnected facts pulled together eventually into support for his claims. With books of this type, which put forward grand views of worldwide trends, it's not worth quibbling about oversimplifications (I found several among the areas I know something about) or ask whether history will really play out the way the author suggests (history never does). One has to just ask whether one can take the author's insights and start looking at things in a new way that may be helpful. I believe this book meets that test. For instance, I see more hope for renewable energies now, accepting Rifkin's prediction that they will spread through local communities rather than central planning. I share Rifkin's confidence in the ability of the Internet to spread knowledge and of open-source hardware to bring valuable technologies to developing regions. Capitalist enterprises will definitely survive (for instance, how else will anybody make all our food, as well as the computer chips, communication fibers, and plastics on which decentralized production depends?) but we'll all learn Rifkin's new paradigm too.

Sten Vesterli says

This book is collection of specious arguments and logical fallacies construed to support a pre-conceived conclusion. It is an interesting criticism of capitalism, but as logically flawed as that of Marx and Engels.

The author looks at market capitalism and believes that because the capitalism part is under pressure, the market part will collapse with it. Unfortunately, this is based on an egregious logical error.

He is right that the cost of an item will move towards the marginal cost of producing it, but he misses that this happens over time. He claims that because the marginal cost approaches zero, profits will disappear, but they won't. When a new item appears, it will initially be priced at whatever the market will bear, and that will be way over the marginal cost of production - just look at an iPhone. Over time, the item becomes commoditized as more vendors appear, and the price drops. But at that time, the initial cost will have been recouped, so the market economy does not collapse.

The correct part of his analysis is that we are moving towards a decentralized society. Since the defining feature of capitalism is the need for lots of capital in order to construct big, centralized units, he is right that capitalism as we know it will decline. But the market existed since the first time a society moved beyond subsistence farming, at it will survive into all foreseeable future.

I'm giving the book two stars (rather the one the content deserves) because the author does present a lot of detailed data points and observations with thorough notes. Unfortunately, every time I checked one of his notes, he was taking facts out of context and over interpreting them. But even though the author is misusing the fact in support of his argument, the facts themselves were interesting and taught me things I did not know.

Alan Zundel says

Despite its unenticing title, I emphatically recommend this book. It is easily the most important book I've read this year, as it gave me a better comprehension of the wrenching changes our world is going through as well as providing some welcome hope for our collective future.

The full title is “The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism,” most of which was opaque to me until I read the book. It was the phrase “eclipse of capitalism” that caught my curiosity, and the author’s familiar name that sealed the deal.

Jeremy Rifkin is known for his best-selling works making sense of social, economic and technological trends in the modern world. I’ve read two of his nearly two-dozen previous books, “Own Your Own Job” (1977) and “The End of Work” (1995), one on worker ownership and the other on the impact of automation on employment. Both were targeted on topics I was puzzling through when I came across them, and this one fits the same pattern. The guy must be psychic!

His topic this time is how the internet is radically changing the world economy. And he really means radically in its literal sense—going right to the roots. According to Rifkin, we are experiencing the beginnings of a shift from one economic era to another that is as big as the shift from feudalism to industrial capitalism. We’re talking big, folks.

Each era’s energy/communications/transportation nexus determines the kinds of economic and social institutions that dominate it. Human energy, oral communications, and travel by foot gives you one kind of world (a prehistoric hunter-gatherer one), and animal energy, written communications, and travel by wheeled vehicles another (a settled agricultural civilization). Advances in technology cause these shifts.

Fossil-fuel energy, radio and television communications, and national highway systems gave us the mature industrial economy of the 20th century, the world I grew up in. This was a world of huge corporations (needed to amass the capital for extracting fossil fuels and transmitting the energy to industry), mass advertising, and automobile-dependent lifestyles. The mindset of such a world is predominantly one of profit-seeking, status through ownership, and the desire for individual autonomy. That world still has a grip on us, but a new world is prying us away.

The primary game changer, of course, is the internet. Energy can now be produced by renewable sources like the sun and the wind, generated at individual homes and businesses and managed for greatest efficiency by smart meters connected through the internet. Communication is also through the internet, where everyone can contribute and receive information and ideas from everywhere. Transportation can be managed by radio devices on every item being sent somewhere across a networked system of transport vehicles, and people travel by accessing cars, bikes, trains and other vehicles via their smartphones.

Together, these and other changes—3D printers that can create products, including cars, houses, and human organs, at homes or nearby locations; online college courses; ebooks and audio and video streaming—are developing a whole different socio-economic paradigm.

The common factor is that the cost of producing and distributing each additional unit of the stuff we need or want is approaching, or has already reached, zero. (Thus “Zero Marginal Cost.”) Once the infrastructure is paid off, stuff becomes free. This change will produce an age of abundance with less stress on the environment, and means the end of capitalism, top-down corporations, and the old mindset.

The new mindset, seen especially in the Millennial Generation, is one of collaboration, of sharing instead of owning, and of seeking human connection with other people. The latter is the latest in a trend, with each succeeding era, for people to be able to empathize with a larger circle of life. We’ve gone from tribal consciousness, to identifying with co-religionists, to nationalism, to an emerging world consciousness of identifying with all people and even the biosphere itself.

But don't expect the transition to be easy. The representatives of the old order have been busily trying to strangle the new one in its crib, seeking to exert control over the new technology and privatize its benefits. We see this in current political contests, such as over open access to the internet. How this struggle plays out will make the transition longer or shorter, rougher or smoother, but the end result is foreordained by the nature of the new technology.

Unless, of course, disaster strikes us first. Rifkin identifies two primary threats to this rosy picture of abundance and human connection. One is climate change, which if not stopped will throw us into unimaginable devastation. The other is cyberterrorism, which when everything is plugged into the net can bring down society's basic life-support systems.

Counter-balancing these threats is Rifkin's hope in the shift of consciousness to greater and wider human empathy, a hope I sorely want to believe in. Whether he is right or not, we'll need hope as we pass through the challenges and threats of this new era.

One wrinkle he does not sufficiently address, in my opinion, is how people will earn a living in the transitional period to utopia. Jobs are being destroyed by technology faster than they're being created, yet people will still need a money income to purchase many of the basics of life as well as access to the internet (for now).

Rifkin predicts that many workers will shift into new technology areas, such as renewable energy and digital products, as is already happening. But most people will find employment in the non-profit or semi non-profit sectors. (Semi non-profit companies temper profit-seeking with social and environmental goals.)

But where will the non-profit sector get the money from? Money is now rapidly flowing to a small percentage of the population, primarily the owners, top managers and financiers of the old economy. How can that money be redirected to the non-profit sector in amounts large enough to create jobs for everyone who will need them? It will probably take a revolution of some kind, hopefully a non-violent one.

Rifkin has obviously written a thought-provoking book, as it provoked the thought I just shared with you. And not only that one, lots of thoughts—plus an “aha!” lightbulb blinking on over my head as I began fitting a hodge-podge of impressions and information into a new cognitive map.

Read it if you want to understand what is going on all around you.

David says

A compelling theory of economics for the coming century. Inspiring in many ways. A long read. Lots of historical context. I learned about the Enclosure movement and got to think deeply about property and why we treat so many things as commodities when they could be held in trust by communities in a commons-based approach. If this sounds like communism, it is and it isn't. As the title suggests, we're moving beyond capitalism/communism and into something more interesting as prices plummet for many life essentials. This could allow communities to reclaim some agency over things like energy, reducing our reliance on centralized control from corporations or governments. This heavy book gave me a ton of food for thought.

Timothy Volpert says

Excellent analysis of the situation I've been following for a while: what happens to capitalism once technology has demonetized everything? We've already seen this with the music industry, for instance, and it's not going to go away as 3d printing becomes more viable, etc. Rifkin's main thesis is that this may not be a disaster. I agree! It's a beautiful thing that it is so easy to find new music for cheap or free on the internet--the only downside is how do the musicians make a living? He is not a wide-eyed optimist by any means; he spends some time on how climate change and cyberterrorism may derail this new society, for instance.

Where I depart from Rifkin, though, is his idea that as the "collaborative commons" rises up to become the dominant economic model, the capitalist market will sort of gracefully fade into a diminished role, if not be phased out completely. The capitalist class has never given anything up without a fight, and I highly doubt their death throes will be that serene. If we don't stop them, they'll impose antiquated profit models onto the new technologies, like they've tried to do with DRM, and now the attempts to kill net neutrality. It doesn't cost any more (that is, there is no marginal cost) to create a copy of an MP3 than it did to create the original--but if the RIAA can keep you from making that copy, they'll sure as hell charge you as if it did.

I think the collaborative commons is absolutely an achievable goal, but one we'll have to fight for. The only thing I'd really add to this book is a stronger rallying cry.

Eustacia Tan says

Hey, so a while back, I tried doing a liveblog of this book I had to read for school (and I actually really enjoyed it). It first went live on Dayre (see [Part 1](#) here and [Part 2](#) here), and I thought I'd share it here as well.

The premise is pretty fascinating. It's arguing that as the collaborative commons rise, capitalism will play a smaller, more streamlined role in the economy.

Makes sense when you think of how we're used to sharing things we make for free (like on Dayre) and using things for free or near free.

While the capitalist market is based on self-interest and driven by material gain, the social Commons is motivated by collaborative interests and driven by a deep desire to connect with others and share.

Chapter 1: Chapter 1 introduces the basic concepts of the book and provides definitions (always good, except now I have yet another definition of IoT (Internet of Things) that I have to work in).

What was new to me was the idea of IoT as the 'soulmate' of the Collaborative Commons. I've been thinking about it in terms of supply chains and productivity, but it does make sense, especially if you're considering it in a broader sense.

While capitalism operates through the free market, free markets don't require capitalism.

Chapters 2,3,4: These 3 chapters are a summary of economic history, and probably a way for the author to reframe our thinking so we're more receptive to his ideas (is that too cynical?)

But basically, the premise is that with the industrial revolutions, we moved towards vertical integration with a central command, but with IoT and the Collaborative Commons (CC), we're moving towards everything integrated but decentralised.

Which begs the question: why are the main movers big companies?

Saw the "study online for almost free" meme. But Coursera does charge for a certified accreditation thing, and that isn't 'nearly free'. So unless employers are willing to accept the free certificates of achievement, MOOCs won't help people who don't have the money to go to university

How then do we ensure an open, transparent flow of data that can benefit everyone while guaranteeing that information concerning every aspect of one's life is not used without their permission and against their wishes in ways that compromise and harm their well-being?

Chapter 5 is about productivity, IoT and free energy. For the energy thing, which was new to me, the author says that renewable energy is the near-free energy, after you recoup the installation (and I suppose switching) costs.

It is true about fossil energies being finite and hence unable to go to free, but I think they do have a role to play in the near future, as we transition. Hence the role of microgrids and virtual power plants.

Smart energy isn't just where the energy comes from, it's also how we manage it. I suspect the IoT/big data methods will apply for all forms of energy - we need to figure out how to adjust supply flexibly and how to predict demand. And of course, on the industrial side, how to use IoT technologies to be more energy efficient.

Chapter 6: 3D printing!! It's something I knew about, but this is the first time that I really see its future tied to the IoT/CC movement. Extremely interesting stuff.

But the author seems to call this movement the Third Industrial Revolution, while in Germany, this is the Fourth Industrial Revolution. Yet another contradiction for my research partners and me...

But I think the concept of moving from mass production to production by the masses is cool. Didn't know Gandhi said something similar:

Knowledge has been enclosed behind the walls of academic institutions whose price of admission excludes all but the wealthiest. That's about to change.

Chapter 7 is about MOOCs and other forms of education. Basically, MOOCs will bring the cost of good education down, and in general, education will become more multidisciplinary and less focuses on rote memorisation.

I mentioned the cost of MOOCs before, but the book is right in saying that it's near free compared to its traditional price. But it may still be expensive and out of reach to the very poor or those with no PayPal or credit cards.

As for the learning style, I love the idea of multidisciplinary themes as the basis of education, but I still feel that for the basics, like the multiplication tables, memorisation is key. Like yes, I can work out multiplication if I needed to, but it's faster to have, say, the times table or Pythagoras theorem memorised, especially when

I'm integrating the skill with others.

What I'm saying is that you don't have to memorise stuff, but it might be more convenient to do so.

Chapter 8,9: chapter 8 is about the worker becoming obsolete, while chapter 9 is about the rise of the prosumer, a consumer who also produces. Both are very interesting ideas, although it feels rather America-centric. I'd be interested in seeing how much of what the author is saying is applicable in developing countries (especially the unemployment stuff).

Chapters 10,11,12: These three chapters are grouped together under the section "The Rise of the Collaborative Commons". I think it's a testament to how powerful 'The Tragedy of the Commons' is as an idea that its refutations aren't as well known as the Tragedy is. The chapters also cover topics from Net Neutrality to Copyright and open source/free software.

Do you know that apparently Singapore has the highest rate of illegal downloads (from a 2012 study - looked it up cause my Senpai is doing something similar for his graduation thesis)? So yeah, the copyright thing has me torn.

Like, I totally understand the appeal of getting something for free. But now that I'm about to self-pub, I'm like "RIGHTS RIGHTS RIGHTS". I mean, I probably won't be an overnight sensation, but if I am, I want my rights to help me earn money.

But at the same time, I love the idea of anyone being able to read my words. (Actually I've been considering this problem for some time, along with pricing issues.)

The other interesting idea was designating companies like Google and Facebook and Amazon as 'social utilities'. This is an argument I don't really buy, especially when you start thinking about how much data about us these companies already hold. Plus, they seem giants now, but giants can fall.

Starting on the fourth part, which would be chapters 13 and 14, and saw this very interesting quote redefining freedom. The first part is "The Internet Generation, however, has come to think of freedom not in the negative sense - the right to exclude others - but rather in the positive sense of the right to include others"

Then some elaboration, and then the quote that struck me:

Freedom is measured more by access to others in networks than ownership of property in markets. The deeper and more inclusive one's relationships, the more freedom one enjoys.

Chapter 13, 14: These two chapters make up the section "Social Capital and the Sharing Economy". It might be the most interesting part of the book for me (since IoT disappeared after the first chapter) as it looks at how people are changing the way they share and consume.

I'm not involved in the sharing community, but it sounds really interesting. And I wish that the second chapter, which covers crowdfunding, was a little longer. Actually, I wish both chapters were longer

[...non-book related stuff...]

So I finished the last two chapters. For some reason, they feel like any other book that pushes a new type of thinking/paradigm. That is, it feels very hopeful and like the author has expanded beyond the IoT and econs

stuff at the start to talk about an 'economy of abundance'

Or maybe my skepticism is due to the fact that the last two chapters reject the principle scarcity, which is pretty much the first thing that any econs student learns, so it's pretty ingrained in me.

All in all, this is a really good books. It's very thought provoking, and I find it easy to believe/accept a lot of what the author is saying. I do wish there was more emphasis on the IoT side of things, but I think that would be a bit too esoteric for most people, and the Collaborative Commons stuff is the more accessible topic.

This review was first posted at [Inside the mind of a Bibliophile](#)
