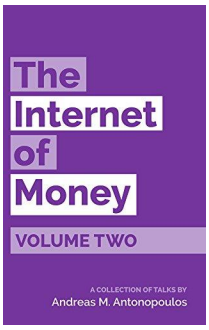

YOUR KINDLE NOTES FOR:

The Internet of Money Volume Two (English Edition)

by Andreas M. Antonopoulos

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55 Highlights

Highlight (Yellow) | Location 220

> hype arose this fantastic saying, "Blockchain is the technology behind bitcoin," which is incorrect. Blockchain is one of the four foundational technologies (Blockchain, Proof-of-Work, P2P Network, and Cryptography) behind bitcoin, and it can’t stand

Highlight (Yellow) | Location 317

> The whole point of a decentralized blockchain is that you don’t keep the information secure; you spread it out so thin there’s no place to attack it directly. That’s what makes it secure.

Highlight (Yellow) | Location 339

> the people we knew barely had email or didn’t have email. You can’t build a system of complexity that depends on many-to-many interaction with high density when the market is still focused on delivering applications that are one-to-one with low density.

Highlight (Yellow) | Location 356

> adoption. Currency is the email of blockchains. Payments are the fundamental infrastructure that will enable density of adoption. It’s very, very

Highlight (Yellow) | Location 459

> Bitcoin is not trying to become a national currency. Oh no, it’s doing something far more dangerous. It’s encouraging people to put their savings outside the system.

Highlight (Yellow) | Location 477

> People are taking their savings and, instead of putting it into a deposit account where it becomes the basis for fractional-reserve lending, they’re sucking the liquidity out of the economy, and that’s the worst thing you can do with an economy like that. 3.3.1. The "Fake Money!" Hysteria So,

Highlight (Yellow) | Location 536

> Nothing is as immutable as bitcoin; bitcoin defines the end of that scale at the moment, so it redefines the term immutable. That has some interesting implications, including that you can't call the things to the left of that "immutable." You can't call them "immutable-ish," you can't call them "kind of immutable." "Immutable-ish" is like pregnant-ish; it only makes sense as the maximum value, not the maximum minus one. Immutable, once it's redefined, prevents everything else from being called "immutable" any more.

Highlight (Yellow) | Location 550

> The characteristic that gives bitcoin its tamper-proof capability is not "the blockchain"; it's proof-of-work. Proof-of-work is what makes bitcoin fundamentally immutable.

Highlight (Yellow) | Location 576

> Bitcoin is the first planetary-scale, digital monument of proof-of-work. To those who come later, we will be able to say, "Behold this monument of immutability built over decades.

Highlight (Yellow) | Location 593

> Even after the last satoshi (the smallest unit of bitcoin) gets mined, mining continues. It must continue because its purpose is not to create bitcoin but to provide security, to provide validation of all of the transactions and blocks according to the consensus rules.

Highlight (Yellow) | Location 602

> Here's the news: proof-of-work is also proof-of-stake, but proof-of-stake is not also proof-of-work.

Highlight (Yellow) | Location 656

> Bitcoin is not simply a system of accounting; it is the first digital artifact that provides forever-history, that provides true digital immutability. There is no other system that provides digital immutability at that level. It is a planetary-scale, thermodynamically-guaranteed, self-evident system of immutability. Planetary-scale, because in order to do it you need to marshal resources that only exist in a planetary-scale effort. Thermodynamically-guaranteed, because you can calculate the exact amount of energy it took to create it and there is no shortcut. Information theory tells us that to flip x number of bits, it takes this y number of joules, and there is no way to do it otherwise. Self-evident, because the number that is produced as proof-of-work tells you exactly how much work has been done cumulatively. It really is a monument.

Highlight (Yellow) | Location 718

> Bitcoin uses mathematics to introduce the concept of unalterable, predictable outcomes into a payment system. This is totally alien because we've never done it in financial systems before, and the initial reaction to that is often, "Well, that's broken."

Highlight (Yellow) | Location 732

> What bitcoin gives us is a hard promise: the program will execute exactly as specified.

Highlight (Yellow) | Location 743

> If you have a system of payments that is subject to review, revision, censorship, authorities, courts, others—that system can never guarantee anything. Every promise it delivers can be broken; every promise can be reversed.

Highlight (Yellow) | Location 745

> How many people here have money in the bank? None of you has money in the bank. You have all extended a mostly unsecured loan for a pathetic level of interest, to a bank that is holding that money as their own and using it to earn very high interest from other people. Maybe, if you walk up to an ATM or bank teller, you can get some of that back. Unless you're Greek, Argentinian, Cyprian, Venezuelan, Ukrainian, Brazilian… The list goes on and on through the decades, because those promises are soft.

Highlight (Yellow) | Location 752

> Here, the difference is we still believe the illusion that the rule of law delivers justice for all. But those who benefit from it the most are quite clear that even here, money, influence, political power, connections, can swiftly override the rule of law.

Highlight (Yellow) | Location 773

> chaos, disorder. I have news for you: it's not a line, it's a Cartesian plane. The opposite of authority is autonomy. What the blockchain demonstrates is a system that substitutes authority with autonomy. What it gives us is not chaos; what it gives us is the highest of order, which we have never seen before. It gives us predictable outcomes that are not subject to the whim of authority.

Highlight (Yellow) | Location 782

> This technology allows us to re-envision the social order, creating systems that—instead of authority—use autonomy to deliver order. But it's better than that, because this form of order is unprecedented. Imagine that every individual has the ability, when they create a transaction, to specify exactly the conditions under which that transaction will be executed and then be absolutely guaranteed that those conditions will be met. What is the value of that to individuals? What kind of world does that create? It certainly creates a world in which the people who are clinging to authority are both terrified and, more importantly, irrelevant.

Highlight (Yellow) | Location 799

> The bitcoin blockchain gives us a network-centric system where there is no authority and the outcomes are predictable.

Highlight (Yellow) | Location 810

> The current system of recourse doesn't protect consumers; it's not even a factor for most consumers. When Wells Fargo debits your account $35 to open a credit card that you never asked for, it takes 10 years and a Congressional inquiry and maybe you'll get your $35 back. Maybe they'll fix your credit score. But no one will go to jail.

Highlight (Yellow) | Location 836

> Let me throw out some names of countries and you see if you can see something in common: Greece, Cyprus, Spain, Venezuela, Argentina, Brazil, India, Turkey, Pakistan, the Ukraine. What do these countries have in common? Wonderful people and great food, yes, but they each are also currently embroiled in either a domestic or an international currency war. The people in these countries are hostages in these currency wars.

Highlight (Yellow) | Location 853

> Now there is global war on cash. We have reached that point in history where it is within the grasp, within the vision, of world governments, once and for all, to eradicate cash. Cash—being the ultimate peer-to-peer, transparent, private form of money that allows individuals to transact locally within a community—is now being eradicated in favor of digital transactions on platforms that allow for surveillance, control, confiscation, and negative interest rates. All of these things will follow very closely once cash is no longer part of the picture. That's their dream. I hope you'll be joining me in ruining that dream.

Highlight (Yellow) | Location 873

> If you disagree with the idea that pensioners should pay for the national debt and to bail out the banks, if you disagree with the idea that a whole generation of young people should find themselves permanently unemployed or underemployed or working in "McJobs," then you are a traitor to the nationalist ideal of solving crime and black money and corruption. They'll say, "You probably have some corrupt money hidden, don't you? That must be what motivates you."

Highlight (Yellow) | Location 913

> There were other interesting features, too: you could build an entire city and then launch a tornado, an earthquake, a massive fire, a tsunami, or even a Godzilla attack, on your city. And guess what? None of those attacks was as successful at draining your city than raising the income tax.

Highlight (Yellow) | Location 926

> I'm just a coder, I'm just a talker; I'm not a terrorist, I'm not a thug. But if I have the opportunity to build an exit from this system, then I will take that opportunity—because I know who the real terrorists are. There is no greater form of terrorism than creating war against your own people, by deliberately disrupting the very lifeblood of an economy, when there is no crisis; creating a natural disaster of enormous proportions simply to fight a currency war against another country.

Highlight (Yellow) | Location 1017

> What did the banks and large corporations do with their first attempt to join the internet? Did they connect TCP/IP (Transmission Control Protocol/Internet Protocol) systems directly to the internet and build robust applications that could communicate over TCP/IP? No. They built moats and walls. They implemented perimeter security. They built firewalls and demilitarized zones. They used all of these military analogies to wall themselves in. Then, what did they deploy behind these walls? Did they deploy the common open-source protocols, capabilities, and applications of the internet? No. They deployed highly denatured, weak equivalents like Outlook and FrontPage. They built intranet websites with stale and obsolete content that was only accessible during working hours through a VPN (Virtual Private Network) with no influence from the outside. They said, "Look! We're doing internet. We're so cutting-edge, we're so hip." That's how they "did internet"; they built highly isolated environments and often labeled them "internet". For a very long time, the prevailing idea was that, by building these isolated environments, they were more secure—because they could control things through the firewall, they could control access to data, creation of data, access to systems.

Highlight (Yellow) | Location 1071

> Decentralization, open protocols, open source, collaborative development, living in the wild—these aren't just features of bitcoin; they are the whole point. If you take a permissioned ledger and say, "That's all nice, we like the database part of it. Can we have it without the open, decentralized, peer-to-peer, open-source, non-controlled, distributed nature of it?" Well, you just threw out the baby with the bath water. You're never going to build a bubble strong enough to secure financial information.

Highlight (Yellow) | Location 1085

> Three days ago, the internal presentations and PowerPoints of the U.S. Department of Defense, about their drone assassination program, leaked. You built a panopticon? Four billion pairs of eyes are staring back. The real

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Highlight (Yellow) | Location 1099

> "Sir, we had all of the drone assassination things behind a firewall, but someone burst through the bubble." "All right, call the General. Get me two bubbles, we're going to double up! Bubbles within bubbles." "Sir, they burst through our double-bubble." "Titanium bubbles! If we paid Lockheed Martin $100 million, maybe they can build us a double titanium bubble to hide all our data behind?" "Sir, it lasted 30 seconds before Anonymous ripped it to shreds and threw all of our data on the internet." "Hmm, I wonder if we can build more bubbles?"

Highlight (Yellow) | Location 1111

> Security is a process—a process of openness and exposure. It's a process of continually adapting to new attacks, and in that process, dynamically becoming more and more robust, less and less fragile.

Highlight (Yellow) | Location 1130

> On the internet, some of the most interesting things are things that do not work in theory but do work in practice. My favorite example is Wikipedia. If you think about Wikipedia objectively, based on what you know about

> human nature, it shouldn’t work. Why would anyone spend months of their time writing an article about a single Pokémon card for free? That doesn’t make any sense, and yet people do that. We underestimate human nature sometimes.

Highlight (Yellow) | Location 1143

> In my opinion, with the invention of internet money, we are now starting to see the first models of the network-centric evolution of money, where different forms of money compete as species. They compete by finding an environmental niche and adapting to that niche through simple competition. This has never happened before.

Highlight (Yellow) | Location 1169

> Bitcoin is not the money of the current generation; it is the money of the generations to come.

Highlight (Yellow) | Location 1193

> The unbanked, debanked, and underbanked are the majority. The disenfranchised, disempowered are the majority. That is the niche that bitcoin is tapping into.

Highlight (Yellow) | Location 1203

> whom do they represent a threat? Really, the question you should ask yourself is: what kind of government and what kind of organization is threatened by the idea of people having independent financial control and empowerment over their own money? A government that is threatened by that is threatened by the fundamental concepts of the Renaissance, of the Enlightenment, freedom of association, freedom of expression, freedom of speech, freedom of commerce. A government that is offended by freedom is not a government I want to support.

Highlight (Yellow) | Location 1215

> Everything in Australia is trying to kill you. Australians actually love to remind tourists about this; they even make up species that don’t exist just to scare tourists. But why did species in Australia evolve that way? Because they were isolated and pressured. When you isolate and pressure something, it adapts by increasing its stealth, increasing its venom, increasing its resistance.

Highlight (Yellow) | Location 1233

> You can imagine currencies that represent loyalty to an artist, a sports team, a friend, a business. You can imagine currencies that are used to represent commodities or assets, that represent sharing tokens for a taxi service or represent all kinds of things that we haven’t imagined yet. This is a completely new space.

Highlight (Yellow) | Location 1262

> I realize how old I am when I get to a traffic stop and want to ask the other person for directions, and I make this roll-down-your-window gesture, and it doesn’t mean anything anymore, because we haven’t had a car window

> that opens like that for 25 years. If the person I'm making that motion to is older, they get what I mean, but to a young person it's a mystery. These things are the relics of old thinking.

Highlight (Yellow) | Location 1329

> Now, I'm not connected to Taylor, but Taylor is connected to Rowan, and Rowan is connected to Jesse, and Jesse is connected to Casey. I am connected to Casey, so I will give Casey 1 millibit, but only if Casey gives it to Jesse, only if Jesse gives it to Rowan, and Rowan gives it to Taylor. When Taylor receives the millibit, then Rowan gets paid, Jesse gets paid, and I pay Casey. And that's Lightning Network in a nutshell: it's a series of simple smart contracts.

Highlight (Yellow) | Location 1380

> (okay, I don't actually own any Justin Bieber, but just as an example). The bottom line is that we now value not the permanence of music but the experience of music. It's changed how we experience music.

Highlight (Yellow) | Location 1392

> What happens when we start streaming money? If we can do payments that are on a millisecond frequency, that are as low as a satoshi, why not get your salary paid every minute? This has some really important implications. If you think about it purely from the perspective of salary, now you're working in real time. Money becomes a real-time thing and its nature fundamentally changes. I watched an interesting video the other day. A team at a university created a camera that could take 1 trillion frames per second. They shined a beam of light through a plastic bottle and recorded it with their camera. In the video, the beam of light suddenly changes into a chunk of light that moves through the bottle. You can actually see photons, individual photons, clumped together as a pulse of light, moving through the bottle. Light is actually quanta, it's discrete units. But in our everyday experience, it's not: it's a wave, it's a flow. Nature is like that. What happens when you change

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Highlight (Yellow) | Location 1403

> Cash is a flow; it's a continuous stream that has no meaning as an amount. Imagine doing accounting in businesses on a real-time basis, based on flows of money coming in and flows of money coming out. We have not even scratched the surface. Until now.

Highlight (Yellow) | Location 1417

> When I say "streaming money," it's going to take 15 years for us to really understand what that means: what that does to human payments, what that does to corporate payments, what that does to cross-border payments, what that does to the nation-state. I don't know what that will be yet, but I do know one thing: it's going to be big. That's what streaming money is.

Highlight (Yellow) | Location 1450

> As you use the tool, you change the tool. Your interaction with technology changes its nature. It molds to become what you want it to be. That is true of centralized technologies; it is 10 times as true of decentralized, open systems, where innovation does not require permission, where the development is guided by consensus.

Highlight (Yellow) | Location 1486

> Bitcoin cannot do many of the things that Ethereum does. Ethereum cannot do many of the things that bitcoin does. But they can both do something miraculous: they can re-order fundamental institutions of society around network-centric systems of organization instead of institutions.

Highlight (Yellow) | Location 1525

> When you're thinking about a killer app, it's not simply the set of applications that might be implemented. It's also about what can be implemented with what you have today. What requires the least infrastructure investment? What requires the least density of users and yet provides a viable solution to a real problem? That's the question that I spend a lot of time thinking about.

Highlight (Yellow) | Location 1540

> If you just take a database and shove some hashes in it, that does not an immutable blockchain make! But it does make some good money for consultants.

Highlight (Yellow) | Location 1552

> But eventually, there's going to be a time when what you do is disruptive and interesting enough that they're going to say the magic words: "We're interested in the technology behind Ethereum (dapps), not Ethereum itself." Sound familiar?

Highlight (Yellow) | Location 1561

> There's a particular type of contract that's the most interesting; what's the first contract you should do in any business? Articles of organization. It's the "Hey partner, don't screw me over and run away with all the money" contract. It's how you make sure that the people with whom you are forming this association, this venture, this vehicle, are going to behave the way you expect them to behave. That's the first contract.

Highlight (Yellow) | Location 1566

> Ethereum can reinvent what it means to be a corporation in the modern world: the very essence of a corporation, the decentralized autonomous organization, or DAO. That's the killer app.

Highlight (Yellow) | Location 1579

> with a smart contract, money is the fuel and the smart contract is governance.

Highlight (Yellow) | Location 1594

> the challenge with Ethereum right now, but also the tremendous opportunity. The killer app is smart contracts that redefine the modern corporation. The DAO, the decentralized autonomous organization. But if you search for the DAO, what do you find? "TheDAO" blowing itself up into a giant

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kindle

Highlight (Yellow) | Location 1676

> You should invest as little of it as you're willing to lose in a very volatile market. That may mean something like 5 quid a week. Some people suggest, and I think it's a good idea, that you invest by taking a vice and turning it into an investment. For example, have two fewer Starbucks coffees or reduce smoking by one pack a week and use that money to buy bitcoin.

Highlight (Yellow) | Location 1906

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