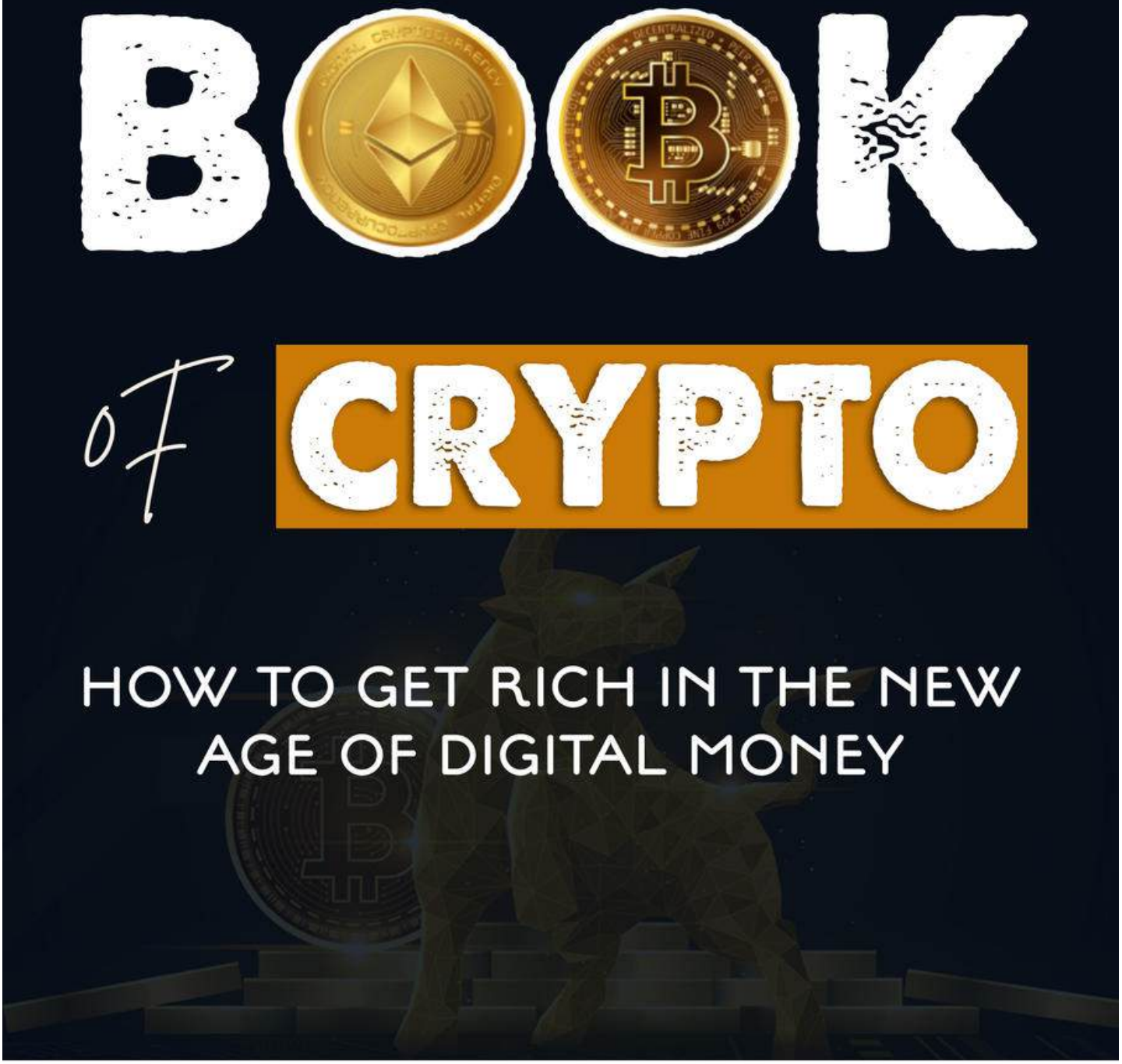
THE BIG BOOK OF CRYPTO



HOW TO GET RICH IN THE NEW AGE OF DIGITAL MONEY

James Altucher
Chris Campbell

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Preface

JAMES ALTUCHER

"Cryptocurrencies are here to stay. But don't be stupid." That's what I wrote in my cryptocurrency book in 2017. I also said: "Yes, crypto-millionaires and billionaires will certainly be minted in the coming years. There will be plenty of rags-to-crypto-riches stories to go around. And maybe you will be one of them. (If you're reading this, you're an early adopter, so it's possible.) But don't be stupid." I wrote it because I was worried about all of the scams. I said so in the sixth paragraph:

> The cold, hard truth, if you can handle it: Up to 99% of the cryptocurrencies that exist today are total SCAMS.

I was right. I knew this because I'd been tracking the space for nearly five years. In 2013, I told people to buy Bitcoin at $63. I set up the first online bookstore that accepted only Bitcoin. I sold my book *Choose Yourself!* exclusively for Bitcoin. CNBC had me on, also in 2013, to talk about Bitcoin. I called it the "Choose Yourself currency."

Later, I said Bitcoin was going to $50,000. People laughed. It was like when in the 2000s I said on Larry Kudlow's show, "Apple will be the first trillion-dollar company." Everyone laughed then, too. Or when in 2007 I said on CNBC that Facebook would be a $100 billion company. Laughter. *Impossible. Who is this guy!?*

You already know what happened to Apple. To Facebook. And to Bitcoin. In 2021, Bitcoin shot up way past $50,000. I think it'll go higher. Way higher. But I think another coin will surpass Bitcoin's market cap. People have laughed about this prediction, too. In two years, I doubt they'll be laughing. But you might be laughing if you read this book. All the way to your crypto wallet.

Another way I've been able to skip the line: I've spent the past decade building and honing a solid network. When I have a question, I call the pros. When I want to know something, I invite people onto my podcast. They give me the strategies. And then I test them out. If they work, I find a way to give them to my readers. That's why we wrote this book. From just a few strategies in this book, I...

- Made millions just from crypto... and helped thousands of people make money in the crypto markets
- Bought my house with money I made from crypto (even though I said I'd never buy a house again, but that's a story for another day)
- Turned $300 into over $300,000 from just one cryptocurrency
- Made several key predictions about the crypto markets that turned out to be true.

The Best Time to Get Rich

In this book, I'll share with you my new predictions about this space. We'll also show you everything you need to know about the cryptocurrency industry. The good, the bad, the ugly. As you might know, I make a lot of predictions about a lot of things. Some of my predictions in the past have been wrong. But thing is: When you are wrong, the worst you can lose is 100% (I'm assuming you won't put 100% of your money into ideas I talk about. If that's what you are planning on doing, take a break from this book and take a walk in nature.)

I usually only make predictions about asymmetric opportunities with tremendous upside. When I'm right, the results could be in the thousands of percent, which make up for any bad predictions. Crypto is an asymmetric bet. Perhaps the largest one in human history. New asset classes don't come around too often. That's why right now is the easiest time in the world to build wealth. It's also the easiest time in the world to *lose* untold wealth. Don't be stupid.

Why We Wrote This Book

JAMES ALTUCHER

Since 2017, I've been building a team to help my readers benefit from the rise of cryptos. This book is part of our biggest and most ambitious project yet. In the pages to come, my co-author Chris Campbell and I want to give you a comprehensive view of everything happening in the crypto space. Obviously, we have lots to cover. Fortunately, we were able to jam a lot—pretty much all you need to know—into this book.

We'll be talking about the big picture, the basics, how to stay safe and how to make money in crypto gaming, Web3, NFTs, the rise of quantum computing, the metaverse and a whole lot more. But here's why we wrote this book: Since about 2016, people often write me and ask, "What do you think of Bitcoin?" Or... "What do you think of cryptocurrencies?" Back then, I never wanted to answer. Why? I believe the first questions are: What did you do for your physical health, emotional health, creative health and spiritual health today? These are the keys to success. There is nothing else. Wealth is a side effect of applying these ideas every day. So I never wanted to write about something so specific as cryptocurrencies.

But then, in 2017, I saw so many of my friends and followers talking about cryptocurrencies that were pure scams. And today, I see people piling into NFTs, DAOs, obscure DeFi tokens, gaming coins and Web3 applications. Problem is, when I ask them what

they're buying, they have no clue. They can't even tell me what DeFi or NFT means. Bigger problem? Crypto is rife with manipulation. Governments, whales, hackers, media, Wall Street—everyone is trying to make you lose money. They want you to give up your crypto. They understand something I figured **out** years ago:

> The rise of cryptocurrencies is part of a 3,000-year-old historical trend in the direction and evolution of money. It's not a fad. But irrational investors are swarming in and treating it like the latest investing fad. They are going to get burned.

The Crypto Bubble

The picture is too familiar. I saw this in 1997, people flipping penny internet stocks or any company that put the suffix ".com" at the end of their name. It's a painful memory. Do you know why? Because I was one of those suckers born every minute too. I learned my lesson. I started my first internet company in 1995. My job: to actually convince corporations they needed websites and that I should build them. People didn't realize the internet was not just a fad. Companies like American Express or Time Warner actually had to be convinced to create a website. That this was the future and they needed one. So there was value in the internet.

The internet and then the mobile internet and now the "internet of things" were here to stay. I told them that. Some scoffed, but it kept growing. It's still growing. And the scams got flushed out. Anyone in them went broke. The same thing is happening here. The internet was ultimately a multitrillion-dollar opportunity. It's clear now, and you would have been laughed at if you said this then, that many internet companies will be worth well over a trillion dollars. Apple, Amazon, Facebook, Google, Uber and on and on.

Now, here's the thing that gets me laughed out of the room today: Cryptocurrencies are not just a trillion-dollar opportunity but worth *hundreds of trillions...* potentially even a qua-

drillion-dollar opportunity. This sounds ridiculous. But there's simple math here. Simply ask, "What is the demand for money?" The demand for money, if you count derivatives, is in the quadrillions. That's how much money is out there.

But fiat currency, as it stands, has many problems. If a currency or idea came along that solved these problems, then the demand for that new idea would be worth hundreds of trillions... maybe quadrillions. It would be such a big deal that owning none is just as risky as going all in.

In this book, we'll describe why and how and what and where. But long story short, cryptocurrencies solve the problems created by "regular" currencies. Security, privacy, forgery, double-spending, centralized control, risks of inflation and manipulation and on and on. But let's get one thing straight.

95% of Cryptocurrencies Are (Still) a Scam

Sometimes people ask me, "What do you think of ABC?" where ABC is the latest hot cryptocurrency. I say, "It's a scam."

They say, "No, it isn't."

I say, "Then why did you ask me?"

"Well, why is it a scam?"

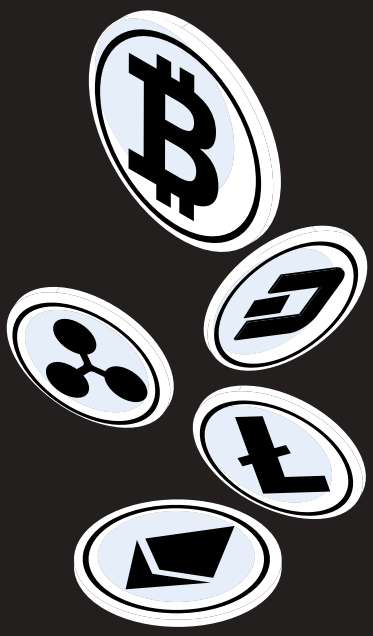
And I break open the code and show them where in the code it looks to me like a scam. (In the book, I'll show you the exact things I look for. Don't worry. You don't need to know how to code... or anything about computers.) I try to explain my philosophy of cryptocurrencies and why if something doesn't fit into that philosophy, then I'm willing to bet I can open the code and find out exactly why it's a scam.

Because people think of me as a "lifestyle guru," they forget my roots. I'm an old-school programmer. I wrote my first program in 1982 on an Apple II Plus. Went to graduate school for it. Then, I worked as a programmer for six years. After that, I started software companies for another 12. Even when I traded it was

often using strategy-based software. And I almost always wrote the software.

Do I have experience with cryptocurrencies? Yes. And I've taken plenty of lumps, too. But again, I see people about to lead a very bad life because of cryptos. And by the way, you can also now live an AMAZING life if you have the right knowledge of cryptocurrencies. Knowledge that we're going to share here in this book. Knowledge that could set you up for the rest of your life.

BIG PICTURE



The Great Solar Flash

CHRIS CAMPBELL

"Money is the apogee of human tolerance. Money is more open-minded than language, state laws, cultural codes, religious beliefs and social habits. Money is the only trust system created by humans that can bridge almost any cultural gap, and that does not discriminate on the basis of religion, gender, race, age or sexual orientation."
—Yuval Harari, Sapiens

Children born today will live in a world where banks as we know them will cease to exist. Bold statement, I know. Here's another one: Children born today will live in a world where the modern corporation will come to have very little power over their lives. If you're furrowing your brows right now, thinking, *Yeah, and I'm gonna live in a mansion on Mars, right next to Elon Musk,* you wouldn't be the first. But hear me out. By the time you reach the end of this book, I bet your outlook on the future will have radically transformed. You'll see that we're almost certainly living through the largest tech renaissance in human history.

> Bitcoin will do to banks what email did to the postal industry.
> —Rick Falkvinge, founder of the Swedish Pirate Party

Of course, prediction is a difficult, entirely impossible, business. Especially, as physicist Niels Bohr put it, "about the future." Traditional rug producers and prayer mat makers—from, I'm told, the Amish to the Muslim—have long had the idea of

the imperfect stitch. They would deliberately botch a stitch as a reminder that nothing in this earthly realm is perfect. (Maybe it's a religious ritual or maybe traditional rug makers aren't known around town for their humility. Maybe both.) Similarly, this book is full of imperfect stitches—but unlike the rugs, none of them deliberate.

Making things more challenging, we don't yet have a fully formed vocabulary to describe the shift into which we are headed. For the most part, cryptonauts are haphazardly creating it on the fly—*NFTs, rollups, sharding, WAGMI, NGMI, GM, hodl, bearwhale*—the list is endless. The authors of this book might hold a brighter lantern within this strange and mysterious space, but we're also still roaming through dark caves, stumbling through all the same. Having gotten that disclaimer out of the way, here's the bold claim:

This shift will be far more dramatic than 99% of the world's population understands. But as it usually goes, hindsight will be 20/20: On the other end of it, the shift will seem self-evident. Long term, it will change the world more than the inventions of TV, radio, cellphone, and the internet combined. And you just happen to have a front-row seat... alongside the opportunity to get in on the ground floor and make generationally life-changing wealth. Many will try; few will reach the potentially monstrous levels of wealth we're aiming for in this book. That's in fact why we wrote it. We want to help you break through the noise and be ready for what's to come—crypto's Great Solar Flash into the mainstream.

Not Bullish Enough

If you are bullish on crypto, however bullish you are, you're wrong. Long term, you're not bullish enough. But only if you understand how to play the game. And even 99% of those who understand the whipsaw, white-knuckle cyclical nature of crypto fold their cards far too early. Thing is, crypto is the greatest asymmetric bet you and I will ever see in our lifetimes. The pos-

sible downside is a pittance compared with the massive potential upside if crypto succeeds in its ambitious aims. Around every corner is a potential loonshot that could shoot skyward. That's not to discount the risk. It's incredibly risky to put *any* money into crypto.

The golden rule of crypto: Never invest more than you can afford to lose. But for reasons we'll lay out in this book, it's also risky to have zero exposure to Bitcoin or any other cryptocurrencies. Relatively speaking, compared with all fiat currencies, Bitcoin is digital beachfront property. What most don't understand is the crypto market is designed to reward those with conviction, vision and patience. Only a small creative minority will see truly life-changing gains in this market. This book is our best advice on how to be a part of that burgeoning crypto elite.

In the pages to follow, furthermore, we'll be talking about something far more than just a new asset class. In an age of historically relative material abundance (yes, even amidst growing shortages), crypto injects scarcity into the digital world. The implications of this seemingly simple innovation are staggering. But it's not immediately obvious why. As you'll see, crypto provides us with a whole new way to coordinate capital, resources and collective intelligence at scale *while also* transcending gatekeepers, rent-seekers, middlemen (and middlewomen) and third parties of all stripes. It has the potential to change every single industry on Earth, create new ones and turn our financial sector right side up. And even that is an understatement.

There's another reason I'm personally excited about what crypto can offer: the creativity and ingenuity that could unlock in its wake. As automation and AI eat away at the so-called "left brain" tasks—and blockchain kills the middleman—we will gradually unleash humanity's creative potential in a way that's never been possible in history. And not a moment too soon. In the coming years, if we are to solve the many problems we face on Spaceship Earth, we'll need artists, designers, visionaries, creative problem solvers and big-picture thinkers more than ever.

Crypto can help to unlock their potential, alongside revealing an underappreciated truth: Our problems cannot be solved by lone experts in a top-down fashion. Despite the ubiquitous modern myth of the "expert," no single individual or small group of elect individuals has enough information or brainpower alone to resolve all conflicts, pressures, dislocations and tensions. In the future, we will look back on this archaic idea the same way we look today at bloodletting, drilling holes in skulls (trepanation) and mercury therapy. Crypto, as a 21st-century tool, can help us create new models to overcome and transcend this antiquated paradigm.

"Can't Be Evil"

Yes, crypto is a new system of money. But it's also a new system of trust and a new language for expressing value. As programmable money, it solves many problems of modern money and the much-maligned "business as usual." Consider, for thousands of years we've had to rely on trusted third parties to hold our secrets, our public balance sheets and our private wealth. History reveals that such "trusted" third parties—more often than not—create bottlenecks and chokepoints, express anti-competitive and anti-cooperative behaviors and, oftentimes, create dire existential risks for everyone (such as, in extreme cases, tyranny).

Bitcoin, smart contracts, DAOs, NFTs, DeFi and much more provide us the opportunity to design entirely new ways of coordinating capital and brainpower. They allow for a more bottom-up approach that leverages the fact that genius is evenly distributed while in the past access was not. Instead of the value of our networks getting sucked to the top, blockchains allow for it to be pushed to the edges of the network distributed to the users, creators and participants and sucked away from the abusers.

Again, the implications are hard to overstate. We have no historical precedent for such a major societal shift. At its highest potential, this technological *tour de force* means our biggest institutions will be forced to adapt. Due to the radically transparent na-

ture of blockchain—a printing press with a jet engine—institutions can go from "Don't be evil" to "Can't be evil." The demand is certainly present for transparency in our systems. The technology exists. And blockchain's staying power is far greater than any public servant's will to power. But this is all madman babbles, right? Except, as you'll see in the pages to come, perhaps not.

To be sure, I'm no Pollyanna. I don't believe crypto is going to usher in the Golden Age. We have plenty to sort out within ourselves before we can even begin to think about an age of unfettered peace and prosperity. But I do believe this technology has the potential to change our political, economic and social systems for the better. At the very least, it can radically transform the way we build businesses, transact, shop and make money. Our networks will no longer turn us into products and consumers, but participants, partners and creators.

That's just one benefit of many. But before we get too ahead of ourselves, we must point out the neon-yellow elephant in the room. You see, this book is also a story of duality: a tale of two industries. On one end, we're verging on mass adoption. On the other, we're witnessing crackdowns, incessant threats and impending harsh regulations. Why? It's obvious. Mass adoption means the current incumbents gradually... and then dramatically... get hollowed out. Here's why I believe crypto will win.

Open Beats Closed

Step back. Look at the growth of the number of users in crypto. On average, it's growing over 100% per year. That's twice the adoption rate of the internet. It's the fastest adoption rate of any technology in history. It's no accident. Crypto is an inherently open and permissionless system. Centralized entities are about as fast as their slowest rabbits, as strong as their weakest links. Decentralized entities—because of a phenomenon called synergy—can be faster than even their fastest ones. (When there's synergy, the whole becomes greater than its parts. Open systems foster more synergy than closed systems.)

But there's a caveat here. When we think of crypto, many believe its innovation is moving at warp speed. In a way, as figures show, that's true. But in another way, it's all an illusion. Truth is, the space might be moving fast, but the *innovation* isn't moving as fast as everyone is led to believe. All of the tech coming to fruition today has been percolating for decades. Everything we see blossoming in crypto was conceived by early Bitcoiners and cypherpunks a decade ago or longer. While it seems like there's a ton of innovation happening, in reality, ***there's just a whole lot of noise***. If you understand this, you're light-years ahead of 99% of people within this space. Guaranteed.

Again, we want to help you break through the noise and be ready for what's to come—crypto's Great Solar Flash into the mainstream. Soon, all of the supertrends happening in crypto will converge and the real money will be made by those sitting in the right seats. Our mission in this book is to help you see what's coming and catch it with a glove the size of Pluto. Here are a few of the supertrends we'll be talking about: Web 3.0, NFTs, DeFi, crypto gaming, the metaverse, quantum computing, DAOs (decentralized autonomous organizations).

Crypto Is Eating the World

In 2011, Marc Andreessen famously said, "Software is eating the world." With hindsight, it's clear Andreessen wasn't just right—he was prophetic. Even in 2011, it wasn't clear what impact Big Tech would have on the world. Investors hated technology. When Facebook acquired Instagram in 2012, *The Atlantic* published this headline: "It's Time to Accept the Existence of a Social Media Bubble." Today, in late 2021, Instagram is valued at around $200 billion.

Today, crypto is eating the world. Keep in mind, this is an entirely different beast than what FAANG employed to take over the world—but what it has to offer is nothing entirely new. The demand for what it can give us—transparency, immutability, privacy and programmability—has existed since the dawn of civilization.

If you're an incumbent in this environment, you're probably not going to like what happens next. But name one technological innovation that hasn't faced opposition? The printing press... the railway... the automobile... refrigeration... indoor plumbing... and on. Consider how well it worked for those who opposed them.

Our Agenda

Look, everyone has an agenda. When Jamie Dimon said Bitcoin "is a fraud," he obviously had an agenda. Dimon's business model can't afford for Bitcoin to win. What's our agenda? What is our business model? Well, it certainly isn't the same as Jamie Dimon's. We want this book—and our crypto letters—to be a blinding success. We want to make a lot of money in this new asset class. Most importantly, we want to help you make a lot of money. (On many levels, we only succeed if you do too.) We also want to make sure you don't get wrecked. We've built the team and network to do that.

We're also happy to always be the first in trends. "Cryptocurrency," James told me, "is the most exciting thing I've seen since I first used the world wide web in 1992." This book will tell you why. It will give you the history and everything you need to sound like a genius at the dinner party. It will also show you how to make a fortune in this burgeoning new space... and more importantly, it'll show you how to keep it. It's something James and I had to learn the hard way over the years. Learn from our trials and triumphs. They're all right here in this book... yours for the taking.

Big Predictions

JAMES ALTUCHER

"Prediction is very difficult, especially about the future."
—Niels Bohr

In 2013, I tweeted that Bitcoin "is a fad, or a scam, or a Ponzi scheme, or worse." To this day, trolls on Twitter won't let me live it down. It took me a few months after that tweet to figure out the consequences of Satoshi Nakamoto's white paper. That same year, I admitted my mistake and embraced Bitcoin. In fact, I was the first author in the world to accept Bitcoin for my book, *Choose Yourself!* I called Bitcoin the "Choose Yourself currency" on MSNBC. I believed it. I still do.

Look, I've been wrong a lot in my life. But you only need to be right about a few things to make a fortune. I was wrong about Bitcoin, but I won't be wrong about the next $1 trillion coin. (See Chapter 10.) Even though I was wrong, I've made a fortune in cryptocurrencies. Maybe it took you a while to warm up to crypto. Maybe you think you're too late. You're wrong. (We're all wrong!) If this book will show you anything, it's that you're allowed to be wrong. To err is human. To course-correct and keep going is divine. And you only need to be right a couple of times to make a fortune.

The Mother of All Booms

Historians will one day call today's cryptocurrency market the biggest boom ever. This is the greatest tectonic shift in money and wealth that we will see in our lifetimes. It won't always be a smooth path, and there will be setbacks. In 2017, right in the middle of the crypto bull market, I wrote an article with 10 of my biggest cryptocurrency predictions:

1. At least one country's currency will likely fail soon—probably Argentina's or Venezuela's. I believe this event will lead to massive adoption of Bitcoin within that country. Bitcoin could rise more than $50,000 when it happens. (El Salvador is first. Who's next?)
2. Mainstream banks will accept Bitcoin. They'll also begin offering storage and software access. More importantly, I believe they'll also create cryptocurrency derivatives—as the CME is about to start doing. CME is the world's leading derivatives marketplace.
3. There will be a crash and 95% of cryptos will go away—just like what happened with the dot-com bust. But the surviving coins will survive and shoot even higher. (Happened on a smaller scale. And will happen again on a larger scale.)
4. Everyone thinks the government wants to kill cryptos. But I believe the U.S. government will secretly begin to accumulate one of the smaller cryptocurrencies. That makes it easier for gray-area transactions with other countries that the government wants to remain secret. This has already started happening but will increase in 2018. (This has definitely accelerated.)
5. China will invest heavily in another cryptocurrency, but I don't think it'll be Bitcoin. It will want a cryptocurrency competitive with Bitcoin but that it can centrally control. China's adoption will provide legitimacy to all cryptocurrencies. (China now has its own CBDC.)

6. One major problem with cryptocurrencies now is their volatility. Bitcoin can swing hundreds of dollars a day. I expect at least one crypto—basecoin—to dramatically reduce that in 2018. (Stablecoins are ubiquitous.)
7. More companies will pay freelancers with crypto. That will lead to renewed calls for tax reform. Greater regressive sales taxes will be called for, which will ultimately require government cuts and eventually less power for national governments. This is a more of a long-term prediction. (Several professional sports stars are getting paid in Bitcoin. That's just the beginning.)
8. In the same way the internet changed the phone industry monopoly, crypto will undermine the monopolization of government-backed money. This will be an ongoing process. (Happening.)
9. A new government bureaucracy will be created to analyze regulation of cryptocurrencies. This will, ironically, lead to a huge upswing in Bitcoin and other cryptos that provide real utility. (Happening.)
10. Thousands of crypto companies will be created. But only a few will be massive successes. It's those survivors that I'm focused on. (Four years later, I haven't changed my mind.)

In my eyes, nothing has changed. I wouldn't change a word of these predictions. All that's *really* changed is the cryptocurrency space has gotten more dynamic. So here are my updated predictions:

- *Ethereum will be the next trillion-dollar coin, hitting $100,000 before 2023 (see Chapter 11 for the full rundown)*
- *DeFi tokens are to banking what BTC was to currency. Banking is a quadrillion-dollar industry if you take into account derivatives. Long term, therefore, crypto is a quadrillion-dollar industry*
- *Tokenization via crypto will lead to thousands of new business models (e.g., tokenizing future income to help pay for college loans). You can use*

crypto to buy 10% of a student's future income. Why use crypto? So an exchange can be created and people can buy and sell these derivatives. (Ditto for selling off part of your home, etc.)

- *Governments will start to convert their currencies to stablecoins and this will require the ETH platform or other platforms similar to ETH*
- *People will revert to DeFi tokens to take advantage of the special yields and arbitrage situations these coins create as opposed to leaving money in a 0.5%-paying savings account*
- *BTC will replace gold as a store of value, which will give it about a $300,000–500,000 price. This is also something we predicted back in 2017*
- *The problem with crypto is it's hard to buy BTC and other crypto. My mother is not going to do it right now. It's too difficult. Last year there were 20,000 BTC ATMs in the U.S. Now there are 40,000. There are 422,000 regular ATMs in the U.S. So BTC is just 10% of those. But exponential growth could mean BTC gets a lot larger market share over the next few years. This makes getting BTC a lot easier.*

In this book, we'll cover all of the new mega trends—everything from the Bitcoin Lightning Network and NFTs to quantum computing, DeFi and more. They are where the real fortunes will be made. Around 5% of cryptos are legitimate and will be here to stay. Think of Amazon. Yes, it was a creature of the dot-com craze of the 1990s. But while most of the others collapsed and were never heard from again, Amazon is still around and doing better than ever.

If you miss out, you could be cheating yourself out of the only chance you'll ever have to turn a single $100 bill into an absolute fortune. Those who understand what's going on are already making life-changing fortunes. But if you fear you've missed the Bitcoin boom, don't worry—this trend is just getting started. But you must first do your due diligence in understanding this space inside out. That's how myself and my team can help. Welcome to what we're calling "the third inning."

The Third Inning

CHRIS CAMPBELL

"I have only one superstition. I touch all the bases when I hit a home run."
—Babe Ruth

We are approaching the third inning of crypto. Understanding what this means, and why you should care, will give you an unfair advantage. Not understanding it—or, worse, *misunderstanding* it—however, could set you up for death by a thousand burns. This is the most tumultuous time to be an investor in the crypto space. Especially for those prone to panic. Why? Because the coming months and years are going to have the highest level of friction, manipulation, shakedowns, fear, doom, gloom, crackdowns and more. There are three things you need to know about what's to come. These three will be true for the next decade.

3 Things You Need to Know

1. Inning one for the cryptocurrency market is over.
2. Inning two, where we're at now, is laying the foundation for inning three, which is where real wealth will be created.
3. Smart investing and patience will win out in three. Not luck.

Inning One: The Year of the ICO

2017 was, in many ways, the year of the **initial coin offering (ICO)**. It was like an IPO for crypto projects. Except they gave

no equity, just coins. If you were lingering around the space in 2017, you know the deal. Teams of developers (and, yes, scammers) that couldn't raise any money the traditional way went the ICO route—and many of them raised tens or hundreds of millions of dollars.

For the record, out of principle, we never talked about any specific ICOs back then. Ninety-nine percent of the time, the only people who made money were those who got in *before* the ICO. They were the "advisers" and investors who got tokens for free or for 90% off. By the time the ICO happened and the small fish got in, the early guys dumped on them and ran. We saw this happen early on and began warning people NOT to do any ICOs. Also, the writing was on the wall. We knew the regulators were going to step in on ICOs. Sure enough, they did. That brought us into inning two.

Inning Two: Regulatory Shakedown

Inning two arrived when the SEC announced they could consider all token ICOs securities. "The force that pushed us into the second inning," James said, "was the SEC—when they announced that they could consider all token ICOs securities. In other words, tokens could suddenly be treated like stock offerings. People go to jail for violating these laws. So it's not surprising that the freewheeling, unbridled money grab dried up.

This was necessary if we wanted to see this new asset class become an established part of commerce, law and finance. As much as we love the thrill of being in the Wild, Wild West, crypto would've remained in the fringes without clear signals from regulators. Although decentralized exchanges (DEX) are on the rise, regulation of location-based exchanges was all but inevitable—which is why exchanges like Binance have been nimble on their feet, moving from country to country when it suits them. Inning two, then, is about accumulating the best—those that'll weather the regulatory storms and come out stronger. This lays the foundation for inning three.

Inning Three: Flooded With Institutional Capital

The smart money has been inching into this space for years. The past few years have seen an explosion of investment. All of this is small potatoes compared to what's coming next. But it won't happen overnight. A lot of the *real* money will be made by getting in and sitting tight. As James has put it elsewhere:

> Smart money managers, banks and financial firms are positioning themselves to invest in cryptocurrencies. But they have strict regulations regarding how they invest, audit trails, how investments are secured and held and the way they must securely store their investments.

While the infrastructure is being built out, you have the opportunity to get in before the flood. Bottom line? Welcome to inning three. It's presenting a heck of an opportunity for those who missed the chance to get into cryptos during the first phase of growth. This kind of opportunity will not come later as the crypto market matures. Inning three is the convergence of the major trends, making up what's set to become a QUADRILLION-dollar market: DeFi, Web3, NFTs, crypto gaming, the metaverse and much more. We're currently on the ground floor. Don't waste this opportunity.

Crypto Is Inevitable

JAMES ALTUCHER

"Bitcoin is almost to computers what quantum mechanics is to physics."
—Naval Ravikant

Why is crypto emerging right now? Some people think it's just a fad. They're wrong. Crypto is part of a 5,000-year historical trend. The more you zoom out, the more obvious this becomes. Nearly every industry in history is following the same historical trend: theism (a belief that a higher power will solve our problems) to humanism (a belief that humans will solve our problems) to dataism (a belief that data will solve our problems). Each successor solved problems that their forebears not only couldn't solve but often created. Crypto is taking money out of the hands of humans and putting it into the hands of cryptographically provable math—dataism.

Since this is a book about money—the bubble that never pops—let's look at the trends and problems in money. From barter to precious metals to government-controlled currencies to where we are now. We will see that in the history of money the demand for a data-based currency solves critical problems that must be addressed in the decades and generations ahead. First things first...

Crypto Is a Natural Evolution of Money

Human error and frailty and weakness will be the downfalls of traditional currency and they has already begun. Think about it

this way: I want to send money to Joe. Many things have to now happen. I tell my local bank. They tell the local Reserve bank. They tell the Federal Reserve (who quietly also tells the IRS). The Federal Reserve tells the central bank of Joe's country, who then tells Joe's local bank. And finally Joe goes to his ATM and takes out the money. Well, let's break down what just happened:

A) Six discrete steps occurred. There was the possibility of human error at every step. There were also transaction costs at every step. These transaction costs are the built in inflation of a centralized banking system.

B) James and Joe lost all rights to the privacy of the value they have spent their lives creating (think IRS, NSA, FBI, CIA, DEA or DIA). Maybe it doesn't matter to them. But sometimes it does.

C) Not only is human error a risk but humans control the value they sent. Hidden transaction costs are baked into every step of the system. And there are also the various "black boxes" inherent in centralized banking systems: for instance, how much new money is the Federal Reserve printing today?

We simply don't know. They don't tell us every way in which they create new money without permission. Value is determined by supply and demand. What happens to the value of your hard-earned money if people you don't know and have no faith in are completely deciding supply (and then value) without your knowledge or permission?

The Philosophy of Cryptocurrency

I'm not a money conspiracy theorist. These issues have always existed and these issues have toppled empires but so far the United States has proven superior to the fallen and forgotten. Hopefully that will always be true. But history says it won't always be true. When and where and why and how are not known. All we know is direction. Direction is the philosophy of cryptocurrencies.

With Bitcoin, there are thousands of copies of the blockchain running all around the world. Anyone who has a copy of it can do a full validation of the transactions in the full chain. Historically, it was the central bank that validated the transactions. Now blockchain allows everyone on the network to have a copy—and autonomously validate all of the transactions together. You can see how this not only eliminates the need for a central bank—but also the need for human intermediaries at all.

Let's look at the five main philosophies of a cryptocurrency:

1] **Security.** If James sends money to Joe, Joe gets it.

2] **Decentralized**. There are no geographic borders to the currency.

3] **Anonymity.** Nobody needs to know about my transaction.

4] **Forgery.** This is really the same as "A" but in some situations slightly different: If James sends money to Joe and Joe sends to Bob, Bob can trust that the money is not forged by someone along the way. There is no "duplicate money."

5] **Controlled supply.** It should always be known by every party how much supply exists and under what conditions supply would stop, and in probably every case, supply should have a maximum. For instance, the maximum number of bitcoins that will ever be mined is 21 million bitcoins.

Dataism & Money 2.0

There is another aspect of cryptocurrency that has never before been seen in civilization. This aspect exists only because of the rise of data. You can make a currency that also has a function (much like an app on a phone). I'm not going to get into the details of that right here because I want to stick to the basics. But we will talk about it later in this book in more detail. I will say this: Possible applications in the cryptocurrency space (meaning the functionality is built into the data itself) include data storage, the internet of things, digital health care, escrows and wills and on and on. The implications are hard to understate—positively massive.

Paper Money Problems

JAMES ALTUCHER

"I don't know what they want from me
It's like the more money we come across
The more problems we see."
—Biggie Smalls, "Mo Money Mo Problems"

As I revealed in the previous chapter, cryptocurrencies are the future. How do I know this? Ultimately, as I said, it's because they solve all of the problems created by paper money. When technology solves problems, people adopt it. It's simple. But let's unpack this.

What is paper money? And what problems does it have? Put simply, paper money is a contract with the government. Paper money began as an agreement that the paper can be converted into gold. This was great for transactions (it's easy to carry paper money). This was great as a store of wealth (put the money in a bank and you can go anywhere). The first banks for paper money backed by gold helped fund every war in Europe in the 1800s. Good job!

When paper money is backed by gold it also puts a clamp on inflation. You only have as much paper money in a country as there is gold in that country. So you can trust the government to not go crazy printing money that is not backed by gold (like Germany in the 1920s when trillions of marks were printed and the country went into an inflationary death spiral that was at least one cause for World War II).

BUT it also creates problems. Why benefit the countries where gold is easy to mine and punish the countries where gold is hard to mine? Also, the world is expanding in every way: more people, more technology, more innovation, more THINGS. I'm not sure this is a good thing or a bad thing (see Germany above) but sometimes countries need to balance debt with money printing to manage their fiscal policy.

The U.S. went off of gold in the early '70s to fund the financial needs of both the Vietnam War and the social programs of the day. This created inflation. Paper money will often lead to this situation. Someone will say: Why do we need the gold part? Again, might be good or bad. There's a lot of debate. Did money printing save the U.S. in 2008 and 2009? Maybe. Or will there be future problems caused by this? Maybe.

Nevertheless, there are other problems with paper money that need to be solved. Some of this overlaps with the last chapter, but it's important to let these problems with paper money sink in:

a. No Privacy. If I'm making a sizable (greater than $1,000) transaction, I'm usually not using cash but either a credit card or a money wire. So that means your bank knows. Other banks know (the bank you are sending money to, the Federal Reserve, the local Reserve bank, etc.). Government agencies know (the IRS, the NSA, etc., etc.). Potentially sites like Google and Amazon know, depending on what payment services you use and what you are buying. So you have no privacy on your transactions with paper money.

b. Fees. If I send a friend in Korea money, I go through my bank (fee), local Reserve bank (fee), Federal Reserve (fee), international wiring system (fee), their central bank (fee), their local reserve bank (fee) and their local bank (fee).That's a lot of fees. Those fees help create inflation because every transaction needs to have a profit on top of those fees.

c. Forgery. Something like $200 billion in forged money is circulating right now.

d. Human Error. This is a CRITICAL problem. There are so many opportunities for human error. When you transfer money, they can send to the wrong account. Or a bank's software can be hacked and you lose all of your money. Or most importantly, the Federal Reserve in the U.S. can decide to print another trillion (like in 2009) and without your permission the value of your dollar has gone down. In the U.S. we've been lucky. But all of South America hasn't been so lucky (all of their currencies crashed in the '80s. Most of Asia wasn't so lucky in the '90s (their currencies wiped them out). Russia in 1997 was wiped out.

e. What Is Backing Paper Money? Only our trust. I don't want to be a conspiracy theorist. But the reality is: A dollar is a piece of paper. Just like gold is just a rock. How do they make us trust that the money has value? They put "In God We Trust" on it. They put George Washington on it. They put the signature of the secretary of Treasury (pretending it's a contract) on it. And for the weirdos, they even put a pyramid with an eye on it. And that's supposed to be why we trust it. I don't trust it.

ENTER BITCOIN

Bitcoin solves the problems above. You'll notice some overlap from the five main philosophies of cryptocurrency mentioned in the previous chapter:

a. Privacy. I can send you Bitcoin and nobody knows who is sending it or who is receiving it and no government institutions are aware of it.

b. Fees. Some Bitcoin transactions have small fees. But it's nothing like the fees of going through six banks in the transaction described above.

c. Forgery. The software guarantees that Bitcoins can't be forged.

d. Human Error. There is no printing of this money. There is a fixed supply of 21 million coins.

E. What Is Backing Crypto? There are about 1,000 years of science backing Bitcoin.

The underlying technology of Bitcoin involves heavy amounts of cryptography, financial know-how and basics of contract law, plus the "blockchain" has hundreds of use cases that we have only just begun to use. Even if Bitcoin is never used as a coin (although note: It's being used every day as money) there are hundreds or thousands of other uses for Bitcoin that have nothing to do with the basic money use.

I won't get into the weeds here: But suffice it to say that ALL of contract law can be (and will be) eventually replaced by Bitcoin. And ALL of logistics will be replaced by Bitcoin (e.g., UPS is replacing all of their internal logistics, tracking millions of packages every day going from millions of locations to millions of other locations). There's nothing behind paper money or gold like this.

Now... Bitcoin has problems also. Hence the need for other cryptocurrencies. But that's OK and not the topic for here. Suffice it to say, Bitcoin solves all the basic problems of paper money, which solves the problems of gold, which solves the problems of barter.

Well, What Should I Do Now?

Don't listen to me.

a. Get an account on Coinbase (or wherever). Buy $10 worth of Bitcoin just to taste and feel it.

b. Then read. Read a lot.

Here are some books not about Bitcoin that are worth reading:

Sapiens by Yuval Harari

The Evolution of Everything by Matt Ridley

The Ascent of Money by Niall Ferguson

Antifragile by Nassim Taleb

There's a lot of discussion of cryptocurrencies on Reddit and Twitter. DO NOT read those. Most of those discussions are filled with trolls although there are some decent sources there. Blogs/sites: Start with CoinDesk and Cointelegraph. You'll find the rest as you read more.

The Case Against Crypto

JAMES ALTUCHER

"Everything to do with cryptocurrencies and blockchains is the domain of fast-talking con men. If anyone tries to sell you on either, kick them in the nuts and run."
—David Gerard, Attack of the 50 Foot Blockchain

One question I get sometimes is, *"Are there any cryptos I should avoid? What's a popular one I shouldn't buy?"* I'll keep this short, sweet and to the point. My quick answer to what cryptocurrencies people should avoid is ALL of them. This space is rife with scams. It's also facing impending regulation, insider trading, manipulation, rug pulls, etc. But if I had to give you five:

1.] Dogecoin (DOGE)

2.] Tether (USDT)

3.] Saitama Inu (SAITAMA)

4.] Shiba Inu (SHIB)

5.] Any dog coins, forever

Of course, these might change. Who knows? Maybe Elon Musk is right and the universe loves irony. Perhaps Dogecoin—which began as a joke—becomes the global currency. Personally, I'm not betting on it. I'm sticking to my rules. Here's the bare-bones basics. Unless you're at least educated enough to know to look for the following three things—and have them firmly implanted in

your mind—you shouldn't invest a penny. Remember, the (in theory) GOOD cryptos:

- have a limited supply
- fit with the cryptocurrency philosophy. It's secure (if James sends money to Joe, Joe gets it first and foremost, not anyone else), decentralized (no geographic borders), anonymous (nobody needs to know) and forgery-proof (no "duplicate money" is possible)
- solve a problem that Bitcoin doesn't already solve.

If they don't fit those criteria AT LEAST, run away.

How to Spot a Scam

It's just a fact. In every boom market there are always going to be scammers. It happened in the dot-com boom. Companies showing no profit went public—just to make the founders rich. It happened in the housing boom, where a lot of scammers got rich. And it's happening in the cryptocurrency boom.

At every turn, there's a new coin you can mine, a product to invest in, an NFT that's going to mint you a million, a crypto that promises incredible payouts. I promise you—they're mostly all scams. They are just land mines waiting for some fool to step on them. The vast majority of coins you see on the market won't exist in five years. Most people can't see that. That's part of the reason I started writing about cryptocurrencies. I'm tired of seeing good people getting scammed.

Thing is, people hear about all of the great things cryptocurrencies can do and they get starry-eyed. They suspend their disbelief for the "hot new thing." They see a Bitcoin millionaire teenager in the news and think it means they can become a millionaire in crypto too. Charlatans then rush in droves. They're told, "You've missed the boat on Bitcoin, but not on XXXCoin!" They hear really complicated presentations that sound impressive but don't mean anything.

They use a lot of buzzwords like "decentralization" and "blockchain" and "trustless" without putting them in the proper contexts. They sound like geniuses to the laymen, but they're really stupid and very wrong. But many people just sit there and nod because they don't want to seem stupid themselves—and they *want* to believe what the con men are saying is true. It's often said the difference between a scam artist and an entrepreneur is the former takes something simple and makes it very complex and the latter takes something complex and makes it very simple. The value can always be found in simplicity. Here's a general rule of thumb I like to stick to. For what it's worth:

- If it started with a massive pre-mine (like for example DASH), I'd generally stay away
- If it's mined almost exclusively by a central authority (like, for example, STEEM), I'd be wary
- If it doesn't solve any problems in the real world, it's not worth looking at
- If it claims to be able to solve MANY problems at once, it's probably hype
- And finally, if it doesn't have a strong community on social media or otherwise (Facebook, Twitter, Reddit, Slack, Discord, etc.), then it's probably not going to go anywhere.

People always want a simple answer. I gave you five cryptos to avoid but it's the wrong answer to a wrongheaded question. The good answer is to avoid ALL OF THEM—until you're sure you know what you're looking at.

My $2 Million Crypto Blueprint

JAMES ALTUCHER

"A million dollars isn't what it used to be."
—Howard Hughes

I've made a king's ransom in crypto. It's not by accident or luck, either. On top of keeping my finger on the pulse of the space, talking to the smartest people I can find—and, when necessary, digging into the code myself—I take a "value-based approach" to crypto. I treat it like any other investment. You might ask: How do we estimate value in crypto? The same way any value investor would.

Consider first supply and demand, which are often determined by trustworthiness as well as usefulness. (e.g., you go into a McDonald's anywhere in the world and you trust that you will have the same experience. Plus, it solves a big problem: hunger). When supply and demand are temporarily misunderstood for irrational reasons we can identify, this creates a trading opportunity. *And* it takes lots of reading and studying and talking to other trusted players in the space in order to make estimates on the above.

How to Build a Crypto Portfolio

I'm going to keep this stupid-simple. Crypto is a complicated space. But the simpler your portfolio is, the better.

> **RULE #1:** To build a proper crypto portfolio, you must be able to determine which coins follow the pure cryptocurrency philosophy.

These legit coins belong in a diversified portfolio of cryptocurrencies. But it's VERY DIFFICULT to determine what's legit.

> **RULE #2:** Volatility is your friend. Because of the great volatility as the world tries to determine intrinsic value for this brand-new asset class, we can take advantage when volatility creates a big gap between current price and our estimation of value for each legit currency in the portfolio.

Why does volatility create opportunity? Because it's rare that intrinsic value changes very quickly from day to day. **Example:** We know everything there is to know about McDonald's and thousands of analysts research the company. The intrinsic value of McDonald's will almost certainly never go down 20% in a day. But if the stock went down 20% in a day (example: a 9/11 event occurs causing a mass fear sell-off across all stocks), then McDonald's would become a value buy because the volatility exceeded the normal change in value.

Volatility is a mainstay of the cryptocurrency world. And it presents plenty of opportunities for skilled traders to make money. But first focus on the basics—go for the gains that are much more guaranteed over time.

The New Gold Rush

In the Gold Rush, the picks and shovels companies thrived. Some people got rich on gold. And some didn't. And some found fool's gold. But blue jeans thrived. The same thing will happen here. Chip companies, financial companies, retail companies, security companies and companies in every industry will have winners and losers in the crypto space.

The winners will go up many thousands of percent, regardless of what happens in the economy. In fact, a recession might even

be good for these companies as people get nervous about their currency (it's no coincidence that the origin of cryptocurrencies occurred exactly at the moment that faith in the U.S. dollar was tested as a result of the financial crisis of 2008–2009.)

But what if this is all theory and cryptocurrencies take decades to get accepted by the masses. No problem. Many of the companies are "picks and shovels" into the cryptocurrency industry. I.e. they have many, many uses and are already successful companies.

I'll start with one example in this chapter. In 2017, I called out Nvidia as a safe "pick and shovel" play. Back then, it traded around $25. Today, upon writing, it's well over $200. I still consider Nvidia a hold. Why? Nvidia is known for making high-performance chips for computers specializing in games. Games require high-speed graphics and the chips to handle that. In every cryptocurrency transaction, there are computers that specialize in validating transactions.

Some companies have thousands and thousands of computers set aside JUST to validate transactions. Computers that validate transactions get rewarded in very controlled ways by making more coins for their efforts. These are called "miners" (the Gold Rush analogy again). Miners benefit when their chips are fast. Nvidia makes the chips that are most popular with miners right now. And when other trends converge, like crypto gaming and the metaverse, Nvidia will benefit even more.

So regardless of the economy. NVDA will sell more chips each year than the year before as the rise of cryptocurrencies continues on pace. Revenue growth is up 50% year over year and earnings growth is up 143% year over year. Good things are happening with this company regardless. Those are the opportunities you should look for. And it's the same type of opportunities we'll cover in our newsletters to come.

The Case for $1 Million Bitcoin

CHRIS CAMPBELL

"The future of blockchain technology is assholes in suits doing interviews about the future of blockchain technology. Forever."
—Saifedean Ammous, author of The Bitcoin Standard (in 2017, after I asked him if he wanted to do an interview about blockchain)

Bitcoin is digital waterfront wealth. Anthony Scaramucci has likened it to going to Miami Beach in 1921 and buying premium oceanfront property. Those who got in early have watched that property appreciate thousands of percentage points. And according to Bitcoin's most fervent advocates, we haven't seen anything yet. In 2017, Chamath Palihapitiya, an early Bitcoin evangelist and former Facebook executive, made the case for $1 million Bitcoin in the next 20 years. Wences Casares, CEO of Xapo and member of PayPal's board of directors, also said Bitcoin could hit $1 million—but in five-10 years. During the speech where he gave this prediction, Casares said that the biggest mistake you can make is to buy more Bitcoin than you can afford to lose. The *second*-biggest mistake? Not owning any Bitcoin.

Since, the bulls have been growing. Raoul Pal, a former Goldman Sachs hedge fund manager (whose catchphrase is "irresponsibly long") said $1 million could happen in five years. Harold Burger, an AI lead at Selligent Cortex, said Bitcoin could hit $1

million no earlier than 2028 and no later than 2037. Of course, the ever-bullish John McAfee was the first to publicly make the $1 million prediction, adding, "If not, I will eat my dick on national television." In 2020, he reneged on his promise when Bitcoin barely squeaked past $30,000. Such is life.

$1 Million Is Cool. $10 Million Is Cooler

If $1 million Bitcoin sounds insane, asset management firm Lucid Investment Strategies took it even further, making the most bullish call of all: **Bitcoin could hit $10 million, become the new gold standard and solve the world's debt crisis in one fell swoop.**

Reasoning? The ratio of global debt to wealth has gone so completely off the rails it's created a "grotesque imbalance" of wealth inequality. In the past two decades, debt has shot up far faster than wealth. And the wealth that's been created has been sucked straight to the top. For this reason, the strategists at Lucid suggest, the status quo is unsustainable and the world economy must find a solution to address this growing debt crisis. Thus, the five most likely strategies to come are:

1.] Adoption of a gold standard.

2.] Creation of a new commodity/currency basket.

3.] Rapid economic growth.

4.] Default on sovereign debt.

5.] Mass investment in Bitcoin.

Granted, Lucid's strategists admit No. 5 is hardly the most probable scenario. But they did say it's the best possible scenario, as it would provide a "permanent fix" to the debt crisis while also limiting the upheaval and consequent economic damage that would arise with the other options. In that scenario, they conclude, Bitcoin could easily be lifted to $10 million. Why $10 million? Lucid President and Chief Investment Officer Dean Tyler Jenks and Executive Vice President Leah Wald wrote: "At that

level, Bitcoin would provide a sufficient reserve to alleviate the world debt burden."

They added:

> Is this feasible? Probably not. But we believe it is possible and we believe it offers the greatest benefits with the least collateral damage to the least number of individuals, corporations, institutions and countries. Most importantly, it would provide a permanent fix, a quality that none of the other solutions provides.

Hyperbitcoinization

This scenario, by the way, is not a new idea. It's what Bitcoiners have long called hyperbitcoinization. "Hyperbitcoinization," Bitcoiner Daniel Krawisz wrote back in 2014, "is a voluntary transition from an inferior currency to a superior one, and its adoption is a series of individual acts of entrepreneurship rather than a single monopolist that games the system." Krawisz made two points, which echo Lucid's thesis:

> 1. A hyperbitcoinization event will be much quicker than a hyperinflation event. I have two reasons for this. First, the government will have a much greater difficulty preventing bitcoins from entering the country due to the impotency of capital controls upon it. Second, hyperinflation is inherently an attempt to fool people, whereas hyperbitcoinization is quite regular and predictable (at least by comparison). Therefore people will more easily see that they had better switch over. Thus, as fast as hyperinflation is, hyperbitcoinization will be even faster. It will happen much faster than you expect.
>
> 2. Hyperbitcoinization will not disrupt the economy to nearly the same degree as hyperinflation. The currency is the instrument of the division of labor, and hyperinflation makes it unreliable and forces people to use worse alternatives. In a hyperbitcoinization event, people switch from a fundamen-

tally inferior currency to a superior one, whereas in a hyperinflationary event people will only switch to a new currency once the old currency becomes worse than the next-best alternative, such as gold or detergent. Hyperbitcoinization should be accompanied by a rapid improvement in productivity and wealth.

The Case for $1 Million

Now that $1 million seems a little more tenable (only by comparing it with $10 million). For Bitcoin to hit $1 million, its market cap must reach $20 trillion—twice as big as gold's. Possible? Well, according to the pundits we've heard from so far, the odds are certainly non-zero.

In Chapter 16 ("Buy Bitcoin Easily"), we explain what problems Bitcoin solves. Put simply, what the internet did to communication, Bitcoin is doing to payments. First of all, bitcoin (little "b"), the asset, is distinct from Bitcoin (big "B") the network. With Bitcoin, you're going to see a grand dematerialization of all independent monetary networks with fixed costs, credit risks, counterparty risk and balance sheet float. Visa, Mastercard, Western Union: they're all set for disruption by Bitcoin the network. Bitcoin is a global monetary standard that can perform settlement (with the help of the Lightning Network) instantly and at no cost. In this way, owning bitcoin (the asset), you own a share of the network effect of Bitcoin. Therefore, rather than the value of the most valuable financial network getting sucked to the top, it is distributed to the edges, creating a virtuous loop with which it's increasingly difficult to compete.

For perspective, the high-end estimate of all the money in the world is just over $1 quadrillion. That includes all investments, derivatives and cryptocurrencies. If 1.75% of that got sucked into Bitcoin, we'd hit $1 million per bitcoin. Meaning, if everyone had a little less than 2% of their assets in Bitcoin, $1 million Bitcoin would be a breeze.

But there's also the stock-to-flow ratio to consider.

One Ratio to Rule Them All

The stock-to-flow ratio tells you how scarce something is by how long it takes to produce the existing stock. It's become increasingly popular in Bitcoinland. Mainly because it's lined up quite well with Bitcoin's price movement over the years.

> How the stock-to-flow (S2F) works:
>
> "Stock" is the size of the existing stockpiles or reserves. "Flow" is the yearly production. If you divide the stock by the flow, you get the stock-to-flow ratio.

Gold and Bitcoin differ from commodities like copper, zinc, nickel and brass because they have high stock-to-flow ratios. Historically, gold has the highest. From 1900–2010, the average S2F ratio of gold was 66. That means it would take 66 years to produce the existing stock based on current production.

Most commodities usually have a S2F around 1. This is to be expected. For consumables, existing stock is typically equal to or lower than yearly production. When it comes to commodities, it's difficult for them to rise way above 1. Whenever someone hoards them or there's a disruption, prices rise, production rises and the price falls. A healthy market adapts. But when something is provably scarce, like gold, it's a completely different story.

"$100,000 by Christmas"

A popular analyst who goes by the moniker "PlanB" is known for his stock-to-flow Bitcoin modeling. He and many other S2F proponents insist that if the models are correct, $1 million Bitcoin is possible... probably sooner than even many Bitcoin bulls believe. Bitcoin currently has a stock-to-flow ratio around 25. "This," says PlanB, "places Bitcoin in the monetary goods category like silver and gold."

As you know, the supply of Bitcoin is fixed at 21 million. New bitcoins are created every 10 minutes (on average) with each new block. And a "block" is just a timestamped ledger of transactions. When a miner solves a complex (to put it simply) math problem, the miner has the opportunity to compile and timestamp the newest block onto the blockchain and win a reward.

The first transaction in each block, called the coinbase, contains the reward. This reward is made up of transaction fees from transactions in that block, *and* the newly created coins are called subsidies. The subsidy began at 50 bitcoins per block and is halved every 210,000 blocks—typically around every four years. With each "halving" of bitcoin's subsidy, the S2F ratio goes up, making Bitcoin more scarce. But you might be thinking: *Given it's all digital, is Bitcoin really scarce?* Good question.

"Unforgeable Costliness"

Famous cryptographer and early cypherpunk Nick Szabo has a useful definition of scarcity: "unforgeable costliness." Bitcoiners insist that Bitcoin is scarce because it's the purest form of unforgeable costliness. Why? Simply because it costs a lot of electricity to produce new bitcoins. Therefore, producing bitcoins is not easy to fake. Unlike fiat, you can't just print trillions of new bitcoins out of thin air. Furthermore, although it's relatively difficult to fake $100 bills, it's quadrillions of times harder to fake a bitcoin than it is a $100 bill.

Bitcoiners therefore see Bitcoin as a natural safe haven from the funny-money economics plaguing our world. That's why they believe that $1 million Bitcoin is not only possible; with each year of monetary malfeasance it becomes more and more likely. PlanB puts it like this:

> People ask me where all the money needed for [$1 trillion] Bitcoin market value would come from. My answer: silver, gold, countries with negative interest rates (Europe, Japan, the U.S. soon), countries with predatory governments (Venezuela, Chi-

> na, Iran, Turkey, etc.), billionaires and millionaires hedging against quantitative easing (QE) and institutional investors discovering the best performing asset of last 10 years.

The benefits of Bitcoin, they say, are plain and simple as the truth. With just a little bit of knowledge on how to secure your bitcoins, they cannot be stolen from you and cannot be lost in a fire. A million dollars worth of $100 bills weighs 22 pounds. A million dollars worth of Bitcoin can fit in your pocket and can be sent instantly anywhere in the world for a few cents. Try doing that with a duffle bag full of cash or gold or even $1 million in the bank.

Again, if less than 2% of all of the money in the world made its way into Bitcoin, $1 million for a bitcoin is on the low end. None of this is to say it *will* happen. It's just to show you that Bitcoin is one of the greatest asymmetric bets—if not the greatest asymmetric bet—in the world. *Owning none is far more risky than owning some.*

Rise of the "Altcoins"

JAMES ALTUCHER

"November is one of the riskiest months to invest in crypto. Other risky months are December, January, February, March, April, May, June, July, August, September and October."
—Old investor saying

There are Bitcoin, Ether, Ripple, Solana, Cardano, blah, blah, blah. Anything that's not Bitcoin is often referred to as an "altcoin." People who love Bitcoin and hate altcoins sometimes call themselves "Bitcoin maximalists." They believe Bitcoin is the only true cryptocurrency—and everything else is a scam. To their credit, they're not completely wrong.

Of the 10,000-plus cryptocurrencies out there, about 90–95% are complete Ponzi schemes and will eventually go to zero. That's just the truth. Unfortunately, the only way to know this is to read the code and there are hundreds of thousands of people using these currencies right now, unaware of the trap they are in. But that doesn't mean the Bitcoin maximalists are completely right, either. So... why more than one? Why didn't they stop at Bitcoin?

Well, for one, it's extremely easy to create a new currency. You don't even need to know how to code. You can be a teenage "script kiddy" and just copy and paste the Bitcoin code, slap a new logo on a WordPress page and *voila*. For example, here's all you need to create a new token on the Ethereum platform. You

could just copy and paste this into a new contract in the Ethereum wallet and create your token in minutes.

```
contract MyToken {
/* This creates an array with all balances */
mapping (address => uint256) public balanceOf;
/* This initializes contract with initial supply tokens to the
creator of the contract */

function MyToken(
uint256 initialSupply
) {
balanceOf[msg.sender] = initialSupply;
// This gives the creator all initial tokens
}

/* Send coins */
function transfer(address _to, uint256 _value) {
if (balanceOf[msg.sender] < _value) throw;     // This checks
to see if the sender has enough
if (balanceOf[_to] + _value < balanceOf[_to]) throw; //
Check for overflows
balanceOf[msg.sender] -= _value;          // Subtract from the
sender
balanceOf[_to] += _value;             // Add the same to the
recipient
}
}
```

If you know how to code, you could customize it to your specifications. Or you could just copy and paste from other currencies and add features you liked. It doesn't really take much more than that. And thing is... as time goes on, it'll only get easier to make,

and customize, your own cryptocurrency. Sure, most of them will be useless. But there's a good reason to have them around. I don't think there will be "One Coin to Rule Them All." And I don't think that's a practical idea. I think there will be many winners.

Data-based currency is an important evolution. And the children inherit traits from the parents. Let's look at today's paper currencies. There are many valid currencies. For instance, there are "dollars" and "euros." Why are there two? Because dollars are in America and euros work in Europe. This is based on the arbitrary and fictional geographic borders that were set up through human-led trade agreements, wars, etc.

With cryptocurrencies there are no geographic borders. Bitcoin and ether, for instance, can work just as well in every single part of the world. New cryptocurrencies develop for two AND ONLY TWO valid reasons (in my opinion, based on years of studying this).

Two Reasons Crypto Exists

There are two reasons crypto exists:

A) To solve a problem in the currency. For instance, years ago, Bitcoin was very slow to validate a transaction. So it was hard to buy a cup of coffee with it (there are a lot of technical details on this but it is a legitimate problem of Bitcoin). Hundreds of people across the world can work on the software and say, "Ahh! I found a possible solution." They can then implement it and if the solution works, then for those types of transactions that require speed, their currency might get more popular and get used. Or they find ways to use it on the Bitcoin network. Both have happened.

Several altcoins have figured out creative scaling solutions. And people like Elizabeth Stark and Lightning Labs created the Lightning Network for free and instant micropayments "off chain," settled on the Bitcoin network. Jack Mallers and Zap created the Strike app to make Lightning Network easy to use. El Salvador

created a partnership with Zap to roll out the Strike app to all El Salvadorans when the country made Bitcoin legal tender. Innovation feeds on innovation.

Another problem: privacy. Bitcoin transactions have privacy. But not total anonymity since every transaction is stored (without names) on the blockchain. Many currencies have developed to help solve this problem. Monero and Pirate Chain are popular choices for privacy, but even Litecoin is implementing advanced privacy protection. Legitimate problems in certain use cases, and NOT geographic borders, are what create new cryptocurrencies.

B) A data-based currency can have some functionality. It's like traditional currency mixed with apps. For instance, there is a coin (full disclosure: I own some) called Filecoin that creates peer-to-peer storage. What does this mean? Let's say you store data on Dropbox or Google Drive. That's not peer to peer. Your data sits on servers owned by Google or Dropbox. There is a potential for human error and privacy loss. A cryptocurrency where transactions include the ability to allow people to store data with your currency (allowing you to get more currency if you let your "digital wallet" be used in this way) solves a problem.

Again, problems in specific use cases are the "data boundaries" that have replaced geographic boundaries. This is a lot for this introduction. But it gets to the heart of the matter and I can sum it up:

- Cryptocurrencies (or, as I almost prefer to call them, data-driven currencies) are here to stay and only going to get bigger. I've already described the potential size of the cryptocurrency space in previous chapters. It's in the quadrillions.)
- 95% of currencies are scams. How come? Because in any euphoria, criminals are created. We saw it with internet stocks in 1999, we saw it with hedge funds in the 2000s, we saw it with mortgage-backed securities in 2008 and now we are

going to see it in cryptocurrencies within the next year or so. But the industry itself will boom.

Cryptocurrencies are a very complicated subject. Like I said, to actually know for sure if a cryptocurrency is legitimate or not, the only way is to read the actual software that created it. The good news is that unlike with the dollar, the software is available. And I've read it.

We NEED New Cryptocurrencies

Unless they're blatant scams, new coins and/or a fork in Bitcoin are attempts to solve the above problems. There is NO SINGLE solution. Many solutions may exist, hence why there may be more than one winner as cryptocurrency evolves. Analogy: America has dollars. Mexico has pesos. In fiat currencies, both currencies have "won."

The problem solved above is that Americans might trust the U.S. government and Mexicans might trust the Mexican government. Geographic boundaries create new currencies. But geographic boundaries are man-made and artificial and many possible untrustworthy middlemen are required. In crypto terms, Zcash might be used for transactions requiring high anonymity. Filecoin might be used for transactions that have a specific storage application. In other words, "crypto boundaries" are determined by real problems being solved rather than artificial geographic boundaries.

The Next Trillion-Dollar Crypto

JAMES ALTUCHER

"And now it was time to confront that other nagging question: What should Ethereum be?"
—Camila Russo, The Infinite Machine

By 2010, a young Vitalik Buterin had spent thousands of hours playing the game World of Warcraft. During this time, he'd built up his characters exactly how he wanted them. They were perfect. He was proud. But one day, the game's creator removed a key feature of one of the main characters, effectively destroying hundreds of hours of gameplay in milliseconds. "I cried myself to sleep that night," said Vitalik. Shortly after, he quit the game. The idea that someone could just destroy his hard work willy-nilly led him to hate the centralized architecture of the internet and video games.

He'd already felt that way about political structures; now it was obvious to him that unhampered centralization was a problem in all systems. This disgust was first planted in his mind by his father, Dmitry Buterin, who grew up in Russia and saw firsthand what authoritarian regimes are like. Dmitry taught Vitalik to value openness, freedom and transparency. (See the Addendum for a never-before-seen "lost interview" with Dmitry Buterin from 2017.)

It was because of these values that Bitcoin fascinated Vitalik, but he didn't think Bitcoin was enough. Fixing monetary policy alone won't inherently fix the problems of centralized institutions. Bitcoin, Vitalik realized, doesn't fix the problems of trust, transparency and ownership on the internet and in real life. We need ways to coordinate capital in a decentralized, frictionless way. We need "programmable money." So he set out to find the solution. It helped that Vitalik is a boy genius. He learned fluent Mandarin in a matter of months. If anyone could figure it out, it was him.

Yes, Bitcoin was big. Bitcoin is still a big deal. It minted no shortage of millionaires and billionaires. But the next trillion-dollar coin is Ethereum. Not everyone thinks this, but time will prove me right. Ethereum is what Facebook, Google, Netflix and Amazon were over a decade ago. Most people just haven't figured it out yet. I'll tell you in this chapter why I think Ethereum has such incredible potential. But please, do your own due diligence. As I'll explained in Chapter 6, you shouldn't jump into any of these currencies without understanding what you're buying. Cryptocurrencies have a purpose.

Politically, they are built to help you gain independence in your life from institutional whim. You can cut out the middlemen. Someone in Brazil can pay someone in Switzerland without having to get permission from someone (or something) in New York City. And further, they're just the natural evolution of money. An evolution, as mentioned, from theism to humanism to dataism. Bitcoin is the first sketch. We're going to find in the coming years that cryptocurrencies can do much more than just disrupt traditional banking—they have the potential to change the face of every industry on Earth. And I believe Ethereum will lead the way.

Ethereum to $100,000

The core idea behind Ethereum is that the internet should be built for and owned by its users. The computers running the internet should be decentralized. Ethereum is a big decentralized

computer, what author Camila Russo calls in her book of the same name *The Infinite Machine*. Ethereum uses smart contracts to enforce trust between peers, driving out the middlemen.

Why is this important? Middlemen tend to have their own agendas not always aligned with peers'. Nine times out of 10 they create inefficiencies and friction in the marketplace. Smart contracts automate the middleman. Automation unlocks other parts of human intelligence to show up in the world.

Automation disrupts, dislocates and creates upheaval in our lives, but it also solves a lot of problems. Our purpose here on Earth is to solve problems. Ethereum solves billions of them. Because of its permissionless nature—meaning, anyone can participate in it without any arbitrary barriers to entry—Ethereum will unlock more creativity, genius and ingenuity on Earth than any technology in history. That's why I believe Ethereum will hit $100,000 within the next couple of years. But that's not the only reason.

For the record, I said the exact same thing about Ethereum in my 2017 crypto book. I told my readers that if they wanted to get into crypto, it was simple: Buy and hold Bitcoin and Ethereum. You don't have to do anything more complicated than that. Those who listened are up tremendously. (Those who didn't are probably still calling me a scammer.) I was bullish on Ethereum when it was $10. Now, I'm even more bullish. What's changed? Three main things that will drive the price upward:

1.] Supply is decreasing.

2.] Ethereum is scaling.

3.] Developers are staying.

I'll tackle No. 1 first. Since the latest upgrade—known as the "London hard fork"—the supply of available Ethereum being traded keeps going down. If you imagine Ethereum as a virtual highway, the London upgrade is expanding the lanes and stabilizing the toll prices. It's also driving people to, in one way or

another, hoard their Ethereum. Upon writing, the freely available supply of Ethereum sits at around 13%. Where's the rest? It's locked away in various projects, being staked or being taken out of exchanges and put in cold storage.

Point is, the amount of Ethereum available to buy keeps going down. That's the current trend. And when that happens, the price eventually goes up. It can't NOT go up. That's why I consider $10,000 Ethereum inevitable. And I think it could go as high as $100,000 in the next two–three years. Again, people laugh. But they laughed when I said Bitcoin would go to $50,000... back when it was below $10,000.

I'm not the only one to think this. Ex-Goldman Sachs banker Raoul Pal recently made the same exact case in a series of tweets:

> Basically, there is 13% of all the free float of Ethereum available. Everything else is being staked, locked and hoarded. They've just made the supply more difficult. The supply is lower. The Ethereum that is in free-float is falling every day...
>
> Most people are going to start staking the Ethereum that they hold. There is no Ethereum available. And demand is going exponential. Exponential demand, meets fixed supply, equals exponential price rise.
>
> One of the best setups I've ever seen.
>
> —Raoul Pal, @RaoulGMI

And No. 2: Ethereum is scaling. Upon writing, transaction fees are through the roof. It's the reason why other smart contract coins like Polkadot, Cardano and others have skyrocketed in the past months—people want alternatives. Ethereum's scaling solutions are admittedly limited. But other solutions are set to pick up the slack. These are called "sidechains" and "layer 2 protocols." If you imagine Ethereum as a main highway, sidechains and layer 2 protocols are high-speed underground monorails that dramatically ease the burden on the main highway. Best part?

These solutions cost pennies on the dollar compared with the highway they're used to using.

Finally, No. 3: Ethereum is infinitely programmable. The biggest trends in tech—decentralized finance, smart contracts, NFTs, blockchain games— are all enabled by Ethereum. That's why the usage of the Ethereum network is higher than it has ever been. Sure, Ethereum has competitors.

Think about it. Since most of the software is open sourced, and anyone can check the code for themselves, Ethereum's competitors are also providing solutions for the Ethereum ecosystem. Consider that Ethereum settled $1.5 trillion in transactions in the first three months of 2021. That's big-league momentum with big brains backing it up. Ethereum isn't going anywhere.

Again, I'm not alone in my thinking. On April 27, 2021, the European Investment Bank issued 2-year digital bonds on Ethereum through Goldman, Santander and Société Générale. Why would they do that? Perhaps because they also see the writing on the wall.

Ethereum Is "Bitcoin 2.0"? No. But…

Many Ethereum fans call it "Bitcoin 2.0." Vitalik Buterin, the founder of Ethereum, doesn't like it. It's like, he says, "calling a smartphone a pocket calculator 2.0." Henning Diedrich, author of *Ethereum,* says it's as wrong as calling "a calculator factor a cal-

culator 2.0, because one can program something like Bitcoin on top of Ethereum."

Earlier I showed you some code. I don't expect you to understand it. But that is what one of the most basic "contracts" on Ethereum looks like. With simple code, anyone can create a new cryptocurrency, and set the initial supply, in minutes. Once you deploy this contract and create your token, it's executed all over the world and made real on the blockchain. Everyone on the network must recognize it is real. And because nobody owns the network (in theory), there's no central command to destroy, block or censor your token from being created and used however you want.

So while Bitcoin is focused on being a store of value and a currency, Ethereum is focused on smart contracts and, further, the construction of decentralized applications on the blockchain. Again, the biggest trends in tech—decentralized finance, smart contracts, NFTs, blockchain games— are all enabled by this simple code.

Smart Contracts

When people talk about blockchain, they talk about disintermediation. They also talk about things like "contracts" without lawyers. The buzzword people use is "smart contracts," a phrase coined by programmer Nick Szabo (who might even be Bitcoin's creator, Satoshi Nakamoto).

Here's the gist of smart contracts. Law school 101: Property and contract law are the fundamental building blocks of commercial society. Smart contracts will allow us to enforce these aspects of society in a decentralized, "trustless" way. Our contracts become that fly in the amber I mentioned earlier.

Once set into the blockchain, they become immutable and unstoppable. Anything "signed" onto the blockchain becomes global and permanent. Moreover, data and programs are auditable by anyone. This means...

A] It's impossible to renege on a "contract" or a decision once it's coded and set into motion on the blockchain.

B] Anyone can audit the blockchain and prove you did what you said you did.

Let's dig deeper into what a "smart contract" is to understand the implications.

Smart Contracts

Nick Szabo, an interdisciplinary legal scholar, is the father of smart contracts. (We're also pretty convinced he's Satoshi Nakamoto. But more on that later.) Szabo coined the term. He wrote about smart contracts in the mid-'90s. Way before Bitcoin. Way before Ethereum. I trust his definition:

> A smart contract is a set of promises, specified in digital form, including protocols within which the parties perform on these promises.

In an interview with Tim Ferriss, Szabo simplifies the idea:

> The primordial granddaddy of all smart contracts is the vending machine. So the vending machine in contract law terms, it verifies performance. You put in a quarter and it verifies you put in the quarter through its mechanical [slot]... I'm talking about the old-fashioned ones. It has logic in it that says you put in a quarter, the soda costs a dime, so I'm going to give you a dime and a nickel back and the soda you selected.

The simplest form of a smart contract in cryptocurrency is a transaction on the Bitcoin blockchain.

- James owes Jerry money in the form of Bitcoin
- James uses Bitcoin code to send a transaction
- Jerry receives Bitcoin transaction code per agreement
- Code contract is fulfilled.

But smart contracts can go much further than that. For example, with the help of these smart contracts, according to Ethereum founder Vitalik Buterin:

> Ethereum can be used to codify, decentralize, secure and trade just about anything: voting, domain names, financial exchanges, crowdfunding, company governance, contracts and agreements of most kind, intellectual property and even smart property thanks to hardware integration.

There are thousands of potential use cases for Ethereum. Decentralized apps (dApps) could eat the world, run from the Ethereum network. Think about Airbnb and Uber, which have already revolutionized their own respective industries, being run 100% P2P. Meaning, no middlemen to speak of. Imagine, too, YouTube and Facebook becoming P2P, where the users get paid to show ads, rather than a central commander sucking out all the value Think: contracts... assets... shareholder agreements... prediction markets... voting systems... domain registries... peer-to-peer finance... derivatives... hedging... insurance... escrows... decentralized online storefronts (censorship-resistant)... smart property... decentralized exchanges... savings accounts... wills... intellectual property... and more.

Ether Tokens Are the Fuel For the Network

Without going too deep into the weeds, ether tokens are the "gas" fueling the Ethereum network, an ecosystem of distributed applications. It's a way to incentivize developers to build efficient, clean apps (wasteful code costs more ether) and so that people are compensated for helping to run the network. The more applica-

tions built on the Ethereum network, the more valuable Ethereum becomes.

It's the network effect on steroids. And it just takes one killer dApp to make the Ethereum network worth it. But I think there will be many. I said all of this in early 2017—back when Ethereum's low was $10. The best time to buy was then. The second-best time to buy is now.

Life After Big Inc.

CHRIS CAMPBELL

"The Age of Corporations is coming to an end. The traditional corporation won't vanish, but it will cease to be the center of gravity of economic life in another generation or two. They will live on as religious institutions do today, as weakened ghosts of more vital institutions from centuries ago."
—Venkatesh Rao, Ribbonfarm

There's an unspoken assumption in the modern mind that history has come to an end. The structures we have today will be the structures we'll have in 100... 300... 500 years. It's true of currency. It's true of finance. It's true of governance. It's true of science. It's true of business structures. It's true of social structures. It's true of everything. But it's a lie. And it's not even a good lie. What's most profound about our time is we are currently—as in right now—on the precipice of a new epoch. History reveals that new structures are constantly being formed while old structures fight against them... and lose.

The introduction and rise of the LLC is a great example of how quickly new models can take over. The LLC is ubiquitous in America's business world. It's the most popular choice for new businesses, holding companies and all types of business ventures. Why? Because it combines the tax benefits of a partnership or a sole proprietorship with the limited liability of a corporation. But it's also a fairly new invention and, no surprise, the government fought it tooth and nail.

The first LLC Act, established on March 4, 1977, wasn't the product of government innovation. Rather, it was pulled together by several accountants and lawyers working for the Hamilton Brothers Oil Co. Though states embraced it, the IRS resisted it for decades, refusing to issue its final ruling on LLCs until 1996, and only when its hand was forced. Like I said, new structures are constantly being formed. And old structures fight against them and lose. This is a constant. We live in a time, however, when all structures are being redefined nearly simultaneously. The biggest—and most shocking—change we'll see, maybe in our lifetimes, is the death of the corporation.

Peak Centralization

In 1600, the world's first corporation was founded—the East India Co. (EIC). By 1772, the East India Bubble popped. As Venkatesh Rao writes in Ribbonfarm, "Between the founding of the East India Co. in 1600 and the post-subprime world of 2011, the idea of the corporation was born, matured, overextended, reined in, refined, patched, updated, overextended again, propped up and finally widely declared to be obsolete." In short, says Rao, the corporation as it exists today and as it has existed for over 400 years is dying. "Between 2011 and 2100," he says, "it will decline—hopefully gracefully—into a well-behaved retiree on the economic scene."

Of course, the corporation has been useful. It managed the migration of electrons efficiently enough to light up and connect the world. It gave us our modern conveniences and many creature comforts. It built fantastic tools that you and I happily use every day. The corporation unlocked an incredible amount of innovation and created an enormous economic boom. But it also created a trend toward centralization. And as corporations grew in power so too did governments in tandem.

Today, we reap the inevitable end of centralized power: Banks hold your assets hostage, encouraged by the government and transnational entities. Tech giants control your digital assets and

data behind walled gardens. While the internet scored a few points against Goliath in the early days, Goliath hit back hard and took back any freedoms the internet gave us. Today, if the state wants your domain name, it takes it. (Not the case with blockchain domains, but we'll get to that.) Historically and presently, governments have proven they have the ability to strip away basic civil liberties in a crisis. This is the existential danger of centralization. Fortunately, the 5,000-year-old trend is our friend.

The Most Powerful Trend in History

CHRIS CAMPBELL

"We know how many electrons it takes to form a single byte. And we know the mass of an electron. So with a little bit of math, you can figure out that the entire internet—everything on it—collectively weighs 0.2 millionths of an ounce… the amount of mass of the smallest possible grain of sand."
—VSauce, How Much Does the Internet Weigh?

About 790,000 years ago, our ancestors mastered fire. Though the cultivation of fire might seem a little trite today, it was the biggest technological advance ever—and as you'll see, what's happening now in the digital age is an extension of this first innovation. It only differs in levels of sophistication. Consider this was the first time humanity learned to control the migration of electrons to survive and thrive.

Understandably, many of our ancestors were likely frightened by the idea of integrating fire into their lives. Meanwhile, others were undoubtedly championing its cause. All of them probably overestimated what honing fire could do for them in the short term—both the promises and risks. And without a doubt, *everyone* underestimated the impact this breakthrough would have on the world in the long run.

Amara's Law

This is the first example of what Matt Ridley, author of *How Innovation Works,* calls Amara's law. It's named after American futurist Roy Amara, the first to observe that we almost always overvalue an innovation's impact in the short term and underestimate it in the long term. In fact, at the beginning of any major technological innovation, says Ridley, there's little difference on the surface between it and a fad. Take, for example, humanity's second major advancement in managing the migration of electrons—electricity.

Although electricity's foundational components—light bulbs, dynamos, turbines and motors—were all ready to go long before electricity was mass-adopted, it took decades for it to live up to its initial hype and potential. Only when most people had written off its amazing wonders did it begin transforming the world. And then, later, it exceeded even some of the most starry-eyed expectations—much later, especially with the rise of the internet.

The internet is yet another extension of this trend. The internet gave us all the power to *micro-manage* the migration of electrons to carry information and transcend our former limitations of time and space. As YouTuber VSauce pointed out a decade ago, if we add up everything on the internet—games, pictures, videos, emails, absolutely everything—the mass of electrons would weigh no more than a grain of sand. This is how profoundly our ability to manage the migration of electrons has progressed.

Crypto is the next leg up. It's the ability to, using advanced cryptography and physics, control the migration of electrons in such a way that we can build a virtual world with real-world characteristics. For example, in the real world our private thoughts remain private. With encryption, our private thoughts remain private so long as we don't give away the key—the equivalent to getting drunk and letting a secret slip.

Crypto's radically transparent ledger allows for what Munch CEO Rodrigo Silva calls "embedded benevolence." Under a blockchain-based system, individuals can publicly verify that gov-

ernments, charities and other established institutions are spending their money wisely. No longer would corruption be able to hide in creative accounting. Moreover, with crypto we can create a parallel digital world that mirrors the physical one—an idea some are calling the "metaverse."

Fire → electricity → internet → cryptocosm

The cryptocosm is a paradigm shift. For money, it's bigger than when we switched from tally sticks to paper money. But this shift is not just limited to money. It will touch every aspect of our political, financial and social lives. But as Ridley warns, when it comes to major innovations, predictions are unreliable: "Forecasting technological change is almost impossibly hard and nobody—yes, nobody—is an expert at it. The only sensible course is to be wary of the initial hype but wary too of the later skepticism." So at best, technology forecaster Paul Saffo's mental framework comes in handy here: "Strong opinions, weakly held."

Crypto is currently between two worlds, making it even more mercurial. Its initial castle in the air—built on 2017's hype storm—has crumbled. *And* its true potential is beginning to dawn. This, says Ridley, is innovation's most fragile and precarious stage.

The Most Powerful Trend

Bitcoin has had its fair share of skeptics, understandably. The initial knee-jerk reaction to major innovation, says Ridley, is resistance. This resistance is amplified by those who stand to lose the most if the innovation succeeds. Ridley writes:

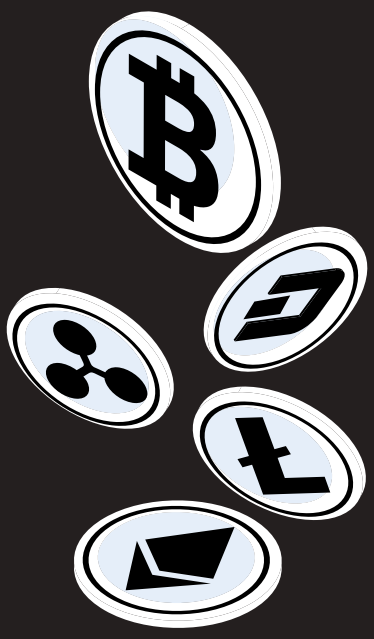
> Unless it is of obvious use to ourselves, we tend to imagine the bad consequences that might occur far more than the good ones. And we throw obstacles in the way of innovators, on behalf of those with a vested interest in the status quo: investors, managers and employees alike. History shows that innovation is a delicate flower, easily crushed underfoot, but quick to regrow if conditions allow.

Upon writing, politicians are debating the so-called "infrastructure bill," which, within its pages, holds wide implications regarding the cryptocosm's future in the United States. Legislators, in short, want crypto to be regulated precisely like the legacy financial systems. Predictable perhaps... but it's yet another example of politicos trying to jam a square peg into a round hole. (Upon writing, despite the current uncertainty, Bitcoin's price has been appreciating rapidly.)

Without a doubt, Bitcoin has moved from the fringes of finance to the big leagues. And the cryptocosm is bigger than Bitcoin. It's not just money. It's not just digital commodities. It's not just decentralized finance. It's an emerging open parallel system. And the whole is much greater—and far more powerful—than its individual parts. Some nations will be on its team, embracing it with open arms. Others will fight it tooth and claw.

I side with my colleague Jeffrey Tucker who on this subject wrote: "It's the future: You can slow it down, but you can't stop it." Yes, the growing hype around the cryptocosm might underestimate the power of legacy systems. But perhaps the skeptics underestimate its staying power. This is just the beginning. And even the low-hanging fruit hasn't been fully picked. Everything you need to understand the big picture of where we're headed is in this book. But remember: *Strong opinions. Weakly held.*

DRILLING DOWN



End of an Era

Chris Campbell

"We have it in our power to begin the world over again."
—Thomas Paine, Common Sense (1776)

Remember the world before the internet? If so, you're lucky. You have a leg up on those who haven't experienced such a massive paradigm shift in their lifetimes. That's because yet another one is coming with money. The only difference is this shift represents a massive convergence of nearly every technological advance in the past 50 years—what I'm calling the Great Solar Flash. Before we get to that, let's consider the biggest shift from pre-internet to post-internet age: email.

Email for Money

Remember when you sent your first email? Back then, it was a strangely gratifying experience. And it sure beat the heck out of snail mail. *I just write it up and hit send and they get it instantly? Seriously?* This was over 20 years ago. Today, it's no big deal. Billions worldwide do it every day. Email was an incredible invention. For the first time in history, you could instantly send a message to another person on the other side of the planet. Magic! How it came to be isn't straightforward. There are hundreds of books on the rise of email and all of the technological innovation that had to happen first. Even so, 99.99999% of the people who use

email have no idea how it works or how it came to be. It doesn't matter. It works.

The same will be true of Bitcoin. Bitcoin is like email for money. For the first time in history, you can instantly send money to another person on the other side of the planet without the need for any central authority. It is an incredibly powerful tool with, as you'll see in this section, vast implications for the future of humanity.

Collapsing the Infinite

Until 2009, it was impossible to have a digital currency. As everyone who has ever downloaded anything online can tell you, digital files can be endlessly copied. You can print as many digital copies as you want, flooding the internet if you wanted. Money that can be copied endlessly eventually ends up worthless. We're seeing this play out in real-time with the U.S. dollar. The Federal Reserve prints as many dollars as it wants, diluting the value of the dollar, causing prices on everything to go up over time, enriching those holding assets and further impoverishing those who do not.

The only logical endgame of such a lopsided system is the creation of a large permanent underclass ruled over by a small group of elites. Of course, this is nothing new. Banking institutions and third parties have monopolized money and global finance for centuries. But now, with Bitcoin, banks are obsolete. Bitcoin does something on the internet previously thought impossible. It creates digital scarcity. Bitcoin collapses the infinite.

Let's take one practical example of why Bitcoin is so valuable and the problems it solves. Big and small retailers alike get charged around 2.9% to accept payments from a payment processor like Visa. Whether you're a big retailer like Costco or a small retailer on Main Street, that 2.9% adds up. What are they paying for? They're paying for settlement. Visa takes on the credit risk, counterparty risk and the balance sheet float.

Today, innovations like the Lightning Network charge precisely zero for settlement. Why? Because there's no credit risk, counterparty risk or float. There are no fixed costs. Strike app, which does all of the grunt work to get retailers set up on the Lightning Network, charges around 0.05%. If Visa tried to charge 0.05%, it'd go bankrupt. The fixed costs are too much to bear. But Bitcoin solves all of the problems that Visa solves. And with the help of layer 2 solutions like Lightning Network and Strike, it does it faster, better and cheaper. Again, that's just one example.

The Language of Value

Money isn't paper. It's not metal. It's not a government decree. Ultimately, money is a language and technology for expressing value: both objective and subjective value. It's fundamental in the construction of social structures. Someday, as some suggest, we might not need it. But it's unlikely to be the case anytime soon. In a world of individual and tribal differences, money—if it is honest—is the great mediator. In Chapter 1, we began with a quote from Yuval Harari's book *Sapiens.* Harari sums up this idea nicely:

> Money is the apogee of human tolerance. Money is more open-minded than language, state laws, cultural codes, religious beliefs and social habits. Money is the only trust system created by humans that can bridge almost any cultural gap, and that does not discriminate on the basis of religion, gender, race, age or sexual orientation.

Paradoxically, history reveals that an abundance of money creates scarcity (poverty) in the economy, whereas scarcity of money creates abundance. Money that is honest creates honest societies. It also creates more prosperity (and peace) for the many as, the theory goes, it fosters a healthy balance between cooperation and competition. Unsound money encourages the opposite because it tends to tilt the scales fully toward a mode of hypercompetition.

This is all overly simplified, but it is generally true. And it has everything to do with why Bitcoin is a boon for society.

Bitcoin is digital property. It's stored digital energy. As Bitcoin bull Michael Saylor has pointed out, with electricity, you can take a megawatt of power and sell it on the market for $1 million. But if you try to store that energy even with the best batteries you lose 2% every month. If you try to send it 500 miles, you lose 6% along the way (thus you're paying 6% in "transaction fees"). You can't even send it overseas.

But here's the thing. If you mine Bitcoin, you have converted electrical energy into encrypted, immutable, untouchable digital energy. You can store this energy for a hundred years. You can send it to anyone in the world in an instant. You can take it with you anywhere in the world. Three days ago upon writing someone moved $2 billion worth of Bitcoin for less than a dollar halfway across the world. That's revolutionary.

Bitcoin is open, neutral, global value expression. For the first time in history, human beings can express value as pure electrons, transmitting it using ANY communication medium, from anywhere in the world. Since it is an ownerless ("trustless") network, with no central gatekeeper or CEO, anyone can access it. Because Bitcoin is not a company, anyone can use *it* without permission or registration. To be sure, it's a misnomer to say Bitcoin is "unregulated." It is heavily regulated—not by man, by math. And it works precisely the way it's supposed to work.

Finally, Bitcoin allows you to participate in the world's first truly global economy. It is fundamentally blind to race, religion, creed or age. That is something to embrace.

A Brief History of Bitcoin

"Owning bitcoins is one of the few asymmetric bets that people across the entire world can participate in."
—Vijay Boyapati, The Bullish Case for Bitcoin

In 2008, two wrecking balls hit the Earth. One of them brought with it the biggest downturn since the Great Depression. The other began the greatest technological revolution in human history. The latter, given its scope, started rather innocently; an anonymous individual (or individuals) named Satoshi Nakamoto joined a relatively small mailing list of what would soon become America's most valuable misfits: the computer nerds.

In his first email, sent on Halloween, Satoshi casually mentioned he was "working on a new electronic cash system that's fully peer-to-peer, with no trusted third party." Nobody outside of this list would've had any clue what that meant—but this small group knew exactly what he was saying. And nobody would blame them for not believing him. Satoshi, whoever he was, was implying he'd solved what many cryptographers believed was virtually unsolvable: what they called the "double spending problem."

To prove it, Satoshi shared his nine-page PDF—the Bitcoin white paper—describing how the system worked. The first line of the abstract explains deeper: "A purely peer-to-peer version of electronic cash would allow online payments to be sent directly from one party to another without the burdens of going through a financial institution." (And they looked over the culmination of all that he had made and they saw that it was good.)

Bitcoin

Satoshi launched the Bitcoin software in the wake of the Great Financial Crisis on Jan. 3, 2009. Inside that first block, he left a message: "The Times 03/Jan/2009 Chancellor on brink of second bailout for banks." So began a journey leading to the nearly $1 trillion market cap we see today. But Bitcoin wasn't created in 2009. As with all major innovations, it was the fruit of several technological breakthroughs decades prior.

"As a thought experiment, imagine there was a base metal as scarce as gold but with the following properties: boring gray in color, not a good conductor of electricity, not particularly strong... not useful for any practical or ornamental purpose... and one special, magical property: can be transported over a communications channel"
—Satoshi Nakamoto, 2010

"Bitcoin itself has an inverted origin story," Arthur Falls, an early Bitcoin adopter told me during an interview. "It went live in 2009 but the technology can be traced back to a 1985 paper by David Chaum: "Security Without Identification: Transaction Systems to Make Big Brother Obsolete." In fact, by 1990 all of the technology needed to develop a Bitcoin-like system existed. And a shadowy anarchist/libertarian-minded group of mathematicians called the cypherpunks were working to do just that. It just took a long time to materialize. The relatively untold story of their tremendous labor and despair at apparent failure is both heartbreaking and inspiring.

For me reading the Bitcoin white paper for about the fifth or sixth time, I had a gnostic moment. I've never appreciated a work of genius before. Classical music to me is just a bunch of violins, poetry that doesn't rhyme is just bad prose, but Bitcoin was, and is, a work of mechanical beauty and elegance that puts a lump in my throat and stirs me to the core." [**Chris' note:** I interviewed Arthur Falls in 2017, but the transcript was lost in a freak accident in Guatemala shortly thereafter, only to be recovered recently. See the Addendum, "Lost Interviews," for more recovered

conversations—with Dmitry Buterin, Pavol Luptak, Beautyon and more—and the full transcript from Falls.]

Life Post-Bitcoin

When Johannes Gutenberg introduced the printing press to Europe, it was initially forbidden in parts of Germany. Ironically, this only served to proliferate its popularity. Whenever it was stamped out in one place, it simply traveled somewhere else. In this way, it was exposed to more people more quickly than it would've been otherwise. Censorship actually proliferated the technology used to fight it. Therefore, the printing press was perhaps one of the first examples of the Streisand effect—the idea that the more you try to censor something the more popular it inevitably becomes.

The understatement of the century: Bitcoin is an even bigger deal than the printing press. And it's even harder to stamp out. Some Bitcoiners believe future generations will refer to 2009 as 1 AB—After Bitcoin. That's a stretch. And yet I do agree Satoshi Nakamoto's white paper could go down as the beginning of a new epoch in human history. Upon writing, as Bitcoin crashes 35% from its all-time high (again), it doesn't seem that way. But those who've been through many Bitcoin flash crashes remain unfazed. Others, however, are about as cool as a Carolina Reaper.

When crashes happen, newbie friends text me at midnight, asking if they should sell. Other, more distant friends are doling out their "Bitcoin is dead" messages on Facebook for the 15th time in the past decade. Just like they did when China cracked down on Bitcoin (which I saw as a good thing). Like they did when the "Bitcoin is only good for criminals" narrative reached fever pitch (a yarn that's so disastrously easy to debunk I'm embarrassed for them). Like they did when pundits screamed Bitcoin is killing the planet (when in fact it's provably the No. 1 driver of renewable energy adoption on the planet). They seem to relish in bad news. Meanwhile, cryptonauts have simply invested in bigger earbuds and keep showing up for work.

"$10 Million per Bitcoin"

Bitcoins, Nakamoto explained in his white paper, are issued at a predetermined rate to reward individuals who volunteer their processing power for verifying the transactions spinning through the network. Issuance, he said, will be capped within a predetermined time frame. After his debut email, the excitement in the cryptography mailing list was building. Although there were a few, one man sticks out as taking an immediate interest in Bitcoin—Hal Finney.

"How large do you envision it becoming? Tens of nodes? Thousands? Millions?"
—Hal Finney in an email to Satoshi Nakamoto

Finney was an established computer scientist and active cryptographic activist (or "cypherpunk"). Cypherpunks like Finney had dreamed for decades of a digital money outside of the confines of the central banking system—decentralized enough to be well beyond their reach and secure enough to make it prohibitively expensive to track, confiscate and shut down entirely. Finney contributed to the early proof-of-work research and it was his dream come true when he received the first Bitcoin transaction from Nakamoto.

Well aware of the implications of Nakamoto's creation, Finney was most interested in whether or not Bitcoin could scale to become a global payment system. In private and public conversations with Nakamoto, he posited that if Bitcoin became the world's dominant payment system, then its value "should be equal to the total value of all the wealth in the world." Added up, he arrived at $10 million per bitcoin.

With each passing month, the excitement around Bitcoin began to spread to other techie groups. In 2010, programmer Laszlo Hanyecz made the first known purchase using Bitcoin. He bought two pizzas for 10,000 bitcoins. (Upon writing, those pizzas are worth about a half a billion.)

Granted, some probably weren't as immediately taken by the Bitcoin hype. Been there, done that. Doesn't work. Digital cryptographic money had been tried over and over, continually running into the same unsolvable problems. But Nakamoto was obviously well aware of the past failures. His solutions attacked every objection from all angles. And as his protesters soon learned, he was right. He'd solved it. He'd created an elegant and provable method for digital scarcity on the internet.

The Byzantine General

Bitcoin is the practical solution to a problem called the Byzantine General's Problem, first theorized by the mathematicians Leslie Lamport, Marshall Pease and Robert Shostak. Imagine you have a group of generals spread throughout a region. For maximum effectiveness, they must all agree on a common battle plan. Unfortunately, word on the cobblestone is some of the generals are traitors. That is the Byzantine General's Problem. How do you make sure a peer-to-peer, distributed network with no central planner can make correct decisions, even if some of the nodes (generals or letter carriers) turn rogue? Is it possible to make a distributed system that is "trustless" and doesn't assume participants are going to act ethically and work in the interest of the group?

Nakamoto's solution and the system he built from it—Bitcoin—allowed, for the first time ever, for value to be quickly transferred, at great distance, without a bank or intermediary. He solved the problem of the Byzantine General. The implications of this solution are the most profound thing to come out of both economics and computer science in the past century.

"Someone smart points out to me that Satoshi Nakamoto will probably be remembered on the same tier that Isaac Newton is. I ask him if he really thinks that solving digital scarcity is going to be as big a deal as modeling gravity. He replies to me succinctly: 'It's going to change everything, just watch.'"

—Jordan Leigh

Be Your Own Bank

Bitcoin's true innovation is its distribution model. There's no single point of failure. That's because there is no center to the Bitcoin network, no CEO, no server farm, nothing to target. Moreover, the enforcement of trust is distributed evenly without discrimination or arbitrary barriers to entry. Moreover, Bitcoin also has absolutely no counterparty risk. It means complete ownership of your money when you store it *and* when you transfer it. Nobody can prevent you from having it or spending it. Even if someone breaks into your secret vault at home or if a government tries to confiscate your wealth (as happened with gold in 1933).

Fifty million dollars can fit on a USB stick or a piece of paper (or in your mind) and can be taken anywhere in the world—and can be sent anywhere in the world. Time. Space. Borders. All meaningless. "If Bitcoin succeeds," says Erik Vorhees, "it is likely that PayPal and Western Union would be removed from the marketplace. The Federal Reserve (and every central bank) would be made redundant. 'Disruptive technology' is thus an understatement."

"If in fact you can't crack that at all, if the government can't get in, then everybody is walking around with a Swiss Bank account in their pocket. There has to be some concession to the need to be able to get into that information somehow."
—Barack Obama speaking at 2016 SXSW

To be sure, Nakamoto wasn't a lone genius. Nakamoto stood on the shoulders of giants. The long and byzantine path to Bitcoin began when the military created the standard for cryptography in the '70s. After that, a few major innovations over the next couple of decades laid the tracks for a ragtag, ever-fluctuating group of hackers and nerds to eventually emerge in the '90s. This group, the aforementioned cypherpunks, drove the idea of an anonymous, decentralized currency forward. But the creator of Bitcoin, Satoshi Nakamoto (also, for all intents and purposes, a "cypherpunk") is unknown. We have a theory. More on that in a moment. First, the cypherpunk origin story.

The "Spiritual Father" of the Cypherpunks

Beginning in the '70s, ' 80s and ' 90s, governments began using technology to erect surveillance states. Many could see this happening and understood the implications. Many of them tried protesting and raising awareness. The cypherpunks didn't think that this would stop Big Brother. Instead, they focused their energy on creating code that enforced privacy. In the '70s, three men at Stanford—Ralph Merkle, Whitfield Diffie and Martin Hellman—laid the groundwork for the cypherpunks. They developed a protocol for trading private digital messages without trusting a third party. In 1977, the trio filed U.S. patent 4200770 for "public-key cryptography," marking what many consider the beginning of the cypherpunk revolution.

In the '80s, a cryptographer named Dr. David Chaum started writing about anonymous digital currencies and reputation-system economics. His goal was to "catapult currency into the 21st century... in the process, shattering the Orwellian predictions of a Big Brother dystopia, replacing them with a world in which the ease of electronic transactions is combined with the elegant anonymity of paying in cash." In 1983, putting his theories to action, Chaum created an anonymous digital currency called eCash. The Mark Twain Bank in St. Louis tested it for micropayments. When the bank was bought out by Mercantile Bank only three years later, eCash was killed, as Mercantile saw no use for it.

And therein sat the problem: This eCash was still dependent upon banks agreeing to incorporate it. It was beholden to central entities and, in that respect, it was hardly disruptive. The cypherpunks saw this as a lesson: to survive, digital cash must be decentralized, with no single point of failure. It needed to be outside the influence and control of nation-states, which historically—from ancient Rome to Weimar Germany to Zimbabwe to Venezuela—have a sordid track record of abusing their monopolies on money.

So the question came up: How do you *not* be dependent upon the established institutions? Better yet, how do you ensure a sin-

gle actor doesn't have control of the money supply? That was a big, and, some maintained, probably unresolvable problem. In 1992, partly as an effort to try to figure this out, a few guys in San Francisco—led by John Gilmore, Eric Hughes and Timothy May—started meeting up monthly to discuss the ideas presented by Chaum and how cryptography could preserve freedom. They eventually created a mailing list so they could chat online. These guys became the original cypherpunks. From there, the pieces began falling into place.

In 1993, in a stroke of luck, the cypherpunks came across a paper by Cynthia Dwork and Moni Naor, "Pricing via Processing or Combating Junk Mail." This paper provided another piece of the puzzle: the concept of proof of work. And then another paper—a manifesto—crystallizing the cypherpunks' vision. Where there is no vision, the people perish. Where the vision is powerful, however, the people move mountains.

The Cypherpunk Manifesto

One member, Eric Hughes, wrote "A Cypherpunk's Manifesto," stating the cypherpunk's purpose: to secure privacy for the individual in all ways imaginable, especially through, if possible, financial transactions. Unless the cypherpunks could accomplish this, they posited, privacy would undoubtedly be chipped away at by governments and corporations until it's eradicated completely. Rather than lobbying, voting or pleading for change, the cypherpunks believed that permissionless change was the only way forward, echoing the sentiment of futurist Buckminster Fuller, who wrote: "You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."

Cypherpunks write code… Our code is free for all to use, worldwide. We don't much care if you don't approve of the software we write. We know that software can't be destroyed and a widely dispersed system can't be shut down.
—A Cypherpunk's Manifesto

That manifesto inspired many weirdos and misfits in their generation. Here are, as a result, the most notable cypherpunks and their contributions:

- Jacob Appelbaum: Tor developer
- Julian Assange: Founder of WikiLeaks
- Dr. Adam Back: Inventor of Hashcash, co-founder of Blockstream
- Bram Cohen: Creator of BitTorrent
- Hal Finney: Main author of PGP 2.0, creator of Reusable Proof of Work
- Tim Hudson: Co-author of SSLeay, the precursor to OpenSSL
- Paul Kocher: Co-author of SSL 3.0
- Moxie Marlinspike: Founder of Open Whisper Systems (developer of Signal)
- Steven Schear: Creator of the concept of the "warrant canary"
- Bruce Schneier: Well-known security author
- Zooko Wilcox-O'Hearn: DigiCash developer, Founder of Zcash
- Philip Zimmermann: Creator of PGP 1.0.

All of these people, directly or indirectly, contributed to the creation of Bitcoin. And fought, in one way or another, with 1s and 0s—bits and bytes—in the mostly silent "Crypto Wars."

Rise of Crypto Wars

In the '90s, the first Crypto War began. Governments (mainly the U.S. government) set out to ban cryptography for private use on the grounds it would strengthen criminal networks and terrorists. The U.S. government officially classified cryptography as munitions, alongside fighter jets and aircraft carriers. They tried to ban

the export of encryption software to kill its use globally. Government officials argued only the government should be able to use (theoretically) unbreakable encryption. And private citizens should only be allowed weak encryption with back doors or that could be broken within a few days by, guess who, government officials. If you were working on or talking about cryptography online, it was a tumultuous time to be in the United States. You were almost certainly on a list. The Clinton administration was actively trying to crack down on encryption, promoting the use of "clipper chips," developed by the NSA to create back doors in all devices.

Cryptographer Phil Zimmermann first released strong cryptography into the public domain, calling it Pretty Good Privacy (PGP). PGP was a simple software allowing for message encryption in emails. The cypherpunks rallied behind him. The only way they could release it legally was to publish the source code in books and then sell it worldwide. This was still legal—as much as it infuriated the feds—because printed books were constitutionally protected.

People would buy the books and then copy it down—"compile" it—into software they could use. This was an incredibly painstaking process, but it worked. PGP became the most widely used email encryption software in the world. We take for granted that our websites and personal data are secure with cryptography. But Zimmermann is the reason strong crypto left the military domain and found use around the world, even with something as simple as entering your credit card on a website.

The Fall of the Digital Berlin Wall

The Crypto Wars came to a head in one landmark case called Bernstein v. United States, which ended with the Ninth Court of Appeals ruling that cryptographic code is protected by the First Amendment. Software code, in other words, is speech. Cypherpunks obviously saw this as a huge deal. Some likened it to the

fall of the Berlin Wall. It would surely usher in a new era. Privacy for the individual, they cheered, was all but a given.

What had the feds so spooked about plebs using strong cryptography? It's simple. Crypto isn't just used to keep secrets, but to expose them and to protect people (dissidents, whistleblowers, activists, even intelligence agents). This led to the rise of Julian Assange and WikiLeaks—impossible without strong encryption. Strong cryptography, the cypherpunks believed, levels the playing field—a lesson we've learned in every major war in history.

From this cryptography, anonymous and pseudonymous remailers, the precursors to today's Tor network, were developed and basically created chaos for those who numbered and controlled everyone. It became much more difficult to suppress information. Usenet, the early internet, was built to route around censorship. Cryptography made that original vision possible again.

> Side note: No digital encryption is completely, 100% unbreakable... it's just that the strongest encryption online today would take hundreds or even hundreds of thousands of years to break with current technology. Quantum computing could change this, but some developers are ahead of the curve, already creating (theoretically) quantum-safe cryptography. More on this in later chapters.

Emboldened by victory, the cypherpunks kept working on stronger methods of encryption (see the bulleted list above) and to create this mythical digital cash not controlled by any central entity. If they could crack that nut, it would be unstoppable. And it would change the world forever. The skeptics still scoffed, but new ideas kept surfacing anyway and, layer after layer, little did they know, Bitcoin was being built. And then came Satoshi Nakamoto.

Who Is Satoshi Nakamoto?

Nobody has been able to pin down exactly who Satoshi Nakamoto is. During a podcast, one of James Altucher's guests—who shall not be named—made him cut off the cameras and the sound equipment and make sure nobody else was listening. He said Satoshi Nakamoto is Nick Szabo. Others have said they have irrefutable proof that Szabo is Nakamoto because of little hints in Szabo's blog Unenumerated. We can't say either way. Nakamoto has chosen to remain anonymous. He let his creation go and it has taken on a life of its own. Exactly as it was designed to do.

What Is Blockchain?

CHRIS CAMPBELL

"Work on a crypto-system, and your work may last lifetimes. Work on a walled garden, and your work will land in the dustbin of history."
—Naval Ravikant

Years ago, I was invited to an overnight event hosted by the federal government at the Baltimore Aquarium. (Against my better judgment, I went.) The attendees were challenged to come up with a solution to a pressing problem—overfishing in Southeast Asia. No surprise, the government had found something to throw money at halfway across the world. And no surprise, they were at a loss as to how to do it. Somehow, they said, they needed a way for fishermen to report their catches on a mobile device. Everyone scratched their heads. Fishermen in Southeast Asia... getting free mobile devices from the U.S. government... *and* they had to be trusted to report their fish honestly.

I shook my head. Impossible. "You need to find a way make it automated," I blurted out. "Fish finders on the boats, maybe? It has to be incorruptible in order for this to work. And there have to be real incentives in place. Not just take this device and count your fish."

The room got quiet. *"Incorruptible?"* one guy finally scoffed. "We're talking about the government!" Everyone laughed. Even the lady from the government. I agreed.

"Good luck," I said. I left right after they let me pet the sharks.

Of course, this is the problem all big-budget government projects face. They have no way of knowing if their projects are working. Most don't want to know. Results don't get funded... problems do. What the project needed was a way to store information on a ledger that couldn't be corrupted. And the fishermen needed incentives to stay honest. If the government was serious about solving the problem, they needed to create communities of value centered around this one specific cause. They needed to empower individuals to solve the problems, not thrust harebrained schemes onto them and hope they work. All of those things are the essence of what blockchain developers have been working on for years. All of this is what the much-hyped blockchain is ultimately about.

What Is Blockchain?

Let's keep it simple. Blockchain, a fancy term for a shared ownerless ledger (think: an automated shared Excel sheet), is managed in a decentralized fashion by mining. Mining is a contest for guessing the solution to a complex math problem. The winner gets to update the ledger of balances and receives a prize. A "block" is just a timestamped dataset of transactions. (This is why some have proposed that a blockchain should actually be called a "timechain.") On the blockchain, everyone holds the same copy of the ledger, with no central controller. The data itself is stored in an ever-growing series of encrypted and time-stamped datasets—blocks. Each block is linked to its previous block in the past all the way until the beginning of the chain's first block—known as the genesis block.

A Tale of Two Keys

To keep your coins safe, the blockchain uses what's called public-key cryptography, or asymmetric cryptography. This method of cryptography uses pairs of "keys"—one key is a public key (which can be shared) and a private key (which cannot be shared). When you hear someone say, "Not your keys, not your coins,"

they're talking about the *private key*. Effective security requires keeping the private key private. (Note: If you've ever come across a "seed phrase"—a random string of 12, 24 or even 48 words—it's what allows you to access your private key.)

Blockchain Security

A blockchain is just layers upon layers of cryptography. Each block is its own "digital safe." With each safe added, the whole chain becomes more secure. Cryptographer Nick Szabo likens this process to an ancient mosquito trapped in amber. Each block is like another layer of amber, making it harder and harder to get to the mosquito. With each layer of cryptography, then, the genesis block becomes harder to crack open and the network as a whole becomes more secure. The longer the blockchain lives, the longer it will likely live.

Miners and Nodes

The network is kept secure by a swarm of miners and nodes. All you really have to remember is:

Miners create blocks.
Nodes validate blocks.

Miners (which can be seen as the modern-day gold rushers) lend their processing power to the network, which the network uses to shuffle through the queue of transactions coming in (from the Bitcoin users) and turn them into a batch of transactions (a block). The miners then, individually, take all of the information within that block and transform it into a single random string of letters and numbers called a "**hash**."

The miners are all competing simultaneously to get the correct hash attached to their block by guessing random numbers (nonce). When the correct nonce is produced, the miner "wins" and its block will be sent to the nodes for verification. There is no way of knowing ahead of time what nonce (again, just random numbers) will create the next acceptable hash. The protocol does

have a level of control over *when* the nonce is created, though, as it is designed in such a way that, on average, the correct nonce is calculated about once every 10 minutes.

This process is called "**proof of work**" because it proves that a miner expended a substantial amount of computing power to find the correct hash. The proof-of-work mechanism, by the way, is designed to make trying to lie, cheat and scheme the network cost-prohibitive. It's always more profitable, then, to play along and be honest than it is to scam the system. Bitcoin is designed to make it easier to play than to cheat.

After the block is broadcast to enough nodes and they accept the winning block as valid, the victorious miner is paid and the block is added to the entire blockchain. The "digital gold" has been "mined." Once the new block is added, it's immutable, meaning it's (theoretically) impossible to erase or change. The more time it passes through unchanged, the less likely it is to ever be changed. (The harder it is to get to the mosquito.)

Follow the Rules, Not the Leader

In order for the blockchain to function properly, every participant (or node) must agree that all of their copies are the same. They must all follow the rules of the protocol projected out by the majority of nodes. If a participant doesn't, the majority simply won't recognize this outlier as a player and that participant will no longer operate as part of the network. (Until it gets up to speed.)

This solves the problem of having to trust a centralized entity. You trust the agreed-upon protocol, not a human. You trust mathematics to be objective and neutral. You trust, simply, that 1+1 will always equal 2. In this way, you don't have to trust humans (central powers) not to cheat, lie, censor or blacklist. You can trust that the objective and neutral power of math will trump the subjective whims of the human.

Sharing a ledger means nobody has to keep their own books because there's a common book we all agree upon and trust to be accurate forever. The books are ownerless and trustless. Meaning, nobody owns or controls the books. No government, corporation or powerful criminal organization can manipulate the data in their favor. Furthermore, anyone with an internet connection can participate without the permission of said powerful entities or any artificial barriers to entry.

So it's an enormous digital record. There are no gatekeepers and nobody is in charge of keeping or protecting this record. The record is maintained by a swarm of devices spread throughout the world. It is controlled by its protocol, which it follows without fail without the need of a central command. This level of automation allows individuals to transmit and store value in a borderless, free and transcendent environment.

Liars Figure

There's a profound elegance to having math autonomously rule a currency rather than fallible humans. Mathematics is not a matter of opinion. It doesn't care about feelings. It doesn't discriminate by color, gender or pronouns. Math doesn't have a bad day and stop functioning as it is. It doesn't have a temper, can't get hooked on drugs and doesn't get greedy. It can't be swayed by lobbyists, either. It doesn't have weak moments. It can't be cajoled into doing something unsavory in view of a hidden camera—it can't be blackmailed. It's incorruptible.

You rely on mathematical constants every single moment of every single day without realizing it. F = Gm1m2/r2 holds you to the ground so you don't fly off into space. Your genes replicate and repair themselves with incredible mathematical precision. You are largely unconscious of these happenings—and understanding how they work isn't required for them to work every time and without fail. With blockchain technology, in the same way, individuals can program forces of nature into existence. Man can build his own natural constants and constraints into his reality.

In the words of the inimitable Mark Twain, "Figures don't lie, but liars figure." Blockchain makes the figures king and the liars obsolete. It allows those who align most with the ideals of transparency, accountability and honesty to gain prominence. It incents good behavior while driving out the bad. It doesn't care for arbitrary power and doesn't work to maintain hierarchies. It just works. And that's enough.

Buy Bitcoin Easily

*"We just ripped the pin out of the grenade and tossed it into the crowd. Buying Bitcoin will not cost more than it takes to acquire. Buying Bitcoin will not subsidize sh*tcoin casinos."*
—Jack Mallers, founder of Strike

Earlier this year Jack Mallers, founder of Bitcoin app Strike, made a huge announcement. When El Salvador declared Bitcoin legal tender, officials chose Strike as their primary partner. There are three things here worth digging into here:

1.] Why El Salvador embraced Bitcoin.

2.] Why El Salvador chose the Strike app above all others (and why you should too).

3.] And what this could mean for the future of crypto.

Cutting to the chase: The main takeaway is that **Strike** is, upon writing, the fastest, easiest and best way to buy Bitcoin right now. Especially since Twitter integrated the ability for users to tip their favorite content creators on the platform using Strike. The longer takeaway is that though Bitcoin's success isn't written in stone, don't sleep on it. The so-called "Bitcoin maximalists" make a lot of great points about Bitcoin. And most people would be better off simply holding Bitcoin and Ethereum and forgetting about it. Here's how, with the help of Strike, Bitcoin could reach mass adoption within the next decade... maybe sooner.

El Salvador

First, let's consider *why* El Salvador decided to embrace Bitcoin and Strike. Says Jeff Wilser for CoinDesk:

> This didn't happen because El Salvador farmers are hoping their Blockfolio balances will "go to the moon." This wasn't fueled by dreams of a BTC index fund. This wasn't about price speculation. In a nation with a 70% cash economy, villagers and farmers are actually *using* Bitcoin, sending small amounts of satoshis (or "sats") to buy fruits and vegetables, embracing the original peer-to-peer vision of Bitcoin that would make the actual Satoshi smile.

Consider that before the government's declaration, El Salvador was already seeing wide adoption of Bitcoin using Strike. Understanding why is simple. While 70% of Salvadorans don't have a bank account, remittances account for 24% of El Salvador's gross domestic product—and a massive chunk of that goes toward transaction fees. On the other hand, transactions made through Strike are cheap and virtually instant. This is why, in March, according to Chainalysis, Bitcoin transfers to El Salvador under $1,000 hit $2.5 million... almost entirely through Strike. (Strike also allows you to cash out in your native currency.)

Strike also makes small Bitcoin transfers easy, fast and cheap, despite potentially hefty transaction fees on a bloated Bitcoin blockchain. Here's how:

The Lightning Network

Strike is powered by the Lightning Network (LN). Put simply, the LN is a separate blockchain that runs transactions "off chain" through a decentralized network of remote nodes, recording them on the main Bitcoin blockchain in batched intervals. This elegant solution dramatically lowers the fees and the time it takes to send Bitcoin. (LN transactions are instant.)

Lightning Network has been in the works for years as a solution to Bitcoin's low transaction capacity. Upon writing, the LN can

handle up to 25 million transactions per second (compared to the Bitcoin blockchain's capacity of seven transactions per second) and is expected to grow as the network grows.

I know what you might be thinking. **Visa** rarely exceeds 1,700 transactions per second. So why in the world would the Lightning Network need more than 25 million? One thing the Lightning Network makes possible is ***micropayments***. Strike, along this vein, is working on the ability to **stream payments** through the LN, whether it's salaries or royalties or to get beyond paywalls without giving up personal information. Consider what's possible with "stream payments":

1.] Pay-as-you-use model: You only pay for what you consume (disrupting the current centralized subscription model).

2.] The get-paid-as-you-work model: Theoretically, you could get paid every five seconds you work, rather than once every week or two weeks (bye, bye predatory payday loan sharks).

The project's goal is to get 1 billion people using Bitcoin within the next decade. Sound unreasonable? Maybe not.

The Path to 1 Billion Bitcoiners

Consider...

→ **Jack Dorsey, the founder of Twitter, just announced Twitter would be integrating the** Lightning Network. (Upon writing, Twitter has 330 million active users.)

→ **Video game developers have already found ways to integrate LN into live-action video games**, allowing for gamers to play in matches where the financial stakes are real, and the money is made in real-time, as you play.

→ **Breez, another Lightning Network app, among other things, allows podcasters to stream and earn money** by what's called the "value for value" model (V4V)—listeners

> stream micropayments at the rate they choose while listening. (Impossible on ad-dependent, centralized platforms.)

In this way, beyond just podcasts, the Lightning Network could disrupt the entire current subscription model. Consider how it works now. Subscribers often pay for stuff they're never going to use, and users who consume less content end up subsidizing those who consume more. LN offers an alternative: the aforementioned pay-as-you-use model. Instead of paying for access every month—and having a mess of monthly subscriptions you often use infrequently—this model charges you only for what you consume—even if, say, you don't finish watching a video or listening to a song. This is precisely how Breez works and can extend to all forms of content on the web.

With micropayments, there's no need for paywalls that require any personal information. With the LN, you can agree to pay 0.0001 cents (or whatever it is) and access the information without giving up your credit card, email or even your name. Lightning's co-founder and chief technology officer Olaoluwa Osuntokun said this:

> In this new web, rather than a user being tracked across the web with invisible pixels to serve invasive ads, or users needing to give away their emails, subjecting themselves to a lifetime of spam and tracking, what if a user were able to pay for a service and in the process obtain a ticket/receipt which can be used for future authentication and access?

This is just a scratch of the surface of what's possible with the Lightning Network. And I believe Strike will help lead the charge.

The Best Way to Buy Bitcoin

If you're looking for a quick-and-easy way to buy Bitcoin, Strike is the way to go. They have a browser plugin for Chrome (or Brave) and an app for your iPhone or Android. The only downside? You can only buy Bitcoin. The upside is it has major advantages over

major crypto exchanges like Coinbase Pro, Kraken and Binance. All of these exchanges not only charge a fee for buying and trading, but they also charge a fee for transferring your Bitcoin out of the exchange. (One exception: Gemini, upon writing, allows for 10 free transfers a month.) The fees on Strike are the lowest I've found anywhere and you can transfer your Bitcoin out of the wallet for free.

Soon, using Strike, says the founder, you'll also be able to "get paid in Bitcoin, get rewards in Bitcoin, round up savings in Bitcoin and much more." In fact, many of these features are already functional. (Strike is how pro football player Russell Okung is allocating a portion of his salary in Bitcoin—a feature that's set to go public soon.) **Check out Strike at: https://strike.me/.**

Hack-Proof Your Crypto

CHRIS CAMPBELL

"Cryptography is the essential building block of independence for organizations on the internet, just like armies are the essential building blocks of states, because otherwise one state just takes over another."
—Julian Assange

"Not your keys, not your coins." This is a phrase often used in the cryptosphere to encourage newcomers to use wallets instead of exchanges. Keep in mind: Even if you don't own *any* cryptocurrencies, if you're online this phrase—"Not your keys"—applies. Fact is, you rely on cryptography every single day to protect your private information from those who might use it for nefarious purposes. With this in mind, we're going to show you how to protect every aspect of your digital life—including **cryptocurrencies and every single account you use online.** Let's start with the basics.

The Wallet

The first thing to understand is **wallets**. Simplified, a "wallet" is any software or hardware capable of holding cryptocurrencies. Most people start with an exchange wallet like Coinbase or Binance and then move to a hot wallet (usually a mobile app) and eventually to a cold/hardware wallet as the need for security increases. If you hold any meaningful amount of any crypto, **it is**

highly recommended that you consider a hardware wallet for maximum security.

Hardware wallets are also known as "cold wallets" because they're not connected to the internet (or "hot"). Even when connected to your computer, hardware wallets are stand-alone—meaning, even if your computer is compromised, they're still difficult to compromise. Cold wallets, therefore, protect your coins against viruses, malware, phishers and even key loggers that may or may not be hiding on your computer.

Best Hardware Wallets

Today, there are several hardware wallets to choose from. If you're new, this can get a bit overwhelming. *Satochip… Tangem… SecuX… SafePal… Keystone… OPOL Cosmos… BitBox… Opendime… Coldcard… and on.* The most popular and trusted hardware wallets are Trezor and Ledger. Forced to choose between the two, I'd choose **Trezor**. Trezor is simple to use, it supports most cryptocurrencies (over 1,500 of them)—and all Ethereum tokens—and integrates easily with the **Exodus wallet**. Whatever hard wallet you choose, however, the principles are the same. When setting up your hardware wallet, there are three items to keep in mind:

***Public Address*—**think of this as the public username for your wallet, or the public address you or others send crypto to.

***Private Keys*—**this is similar to a password to access your wallet. The private key is held and encrypted safely inside your hardware wallet.

Seed Phrase—12-48 words to recover your wallet in case you lose your device.

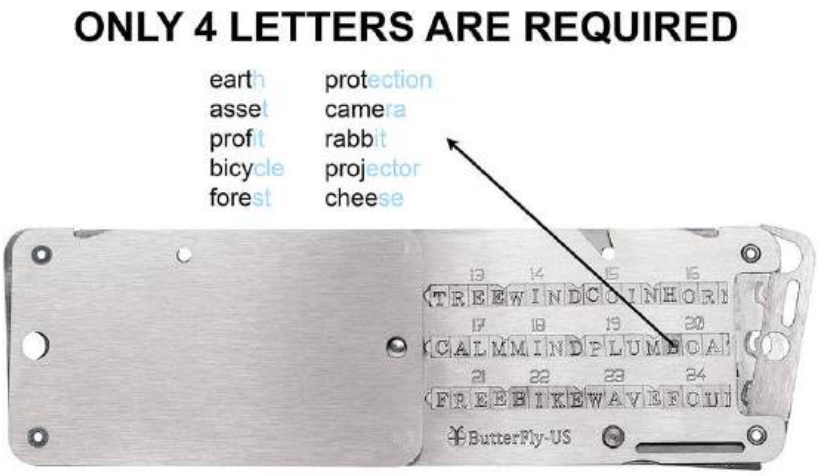
If there's one thing you want to keep safe, it's the seed phrase.

If you lose your hardware device, for example, it will still be protected by a pin of your choosing. And you can still access your funds with the seed phrase (and then, ideally, move them to a new device). Conversely, if someone finds your seed phrase, they have access to everything. Trezor provides two small booklets to write down your seed phrase.

But there's also a way to beef up this security.

"Brain" and "Steel" Wallets

A "brain wallet" is when someone remembers their 24-word (or in some cases 12- or 48-word) seed phrase. I'm not that confident in my memory... and you probably shouldn't be either. The more secure, weatherproof option is a steel wallet. Most people don't go to this extreme, but if you're looking for max security, consider it. In short, you engrave your 24-word seed into a piece of steel and lock it closed. **Note:** You only need the first four letters of each word. Wherever you enter your seed phrase to recover your coins, it will autofill the rest. Some brands offer steel wallets with letters included, no engraving required. (You can find these on Amazon or through a simple search on any search engine.)



BIP39 standard specifies that only **the first 4 letters** are needed to identify each word in the password phrase.

YubiKey

Beyond cryptocurrencies, there's one more layer of security to consider **for all of your online accounts.** You've probably noticed that most services now require you to use two-factor authentication, whether it's a text code, email or Google Authenticator. All three of these are imperfect. They are insecure and prone to attacks by savvy hackers because, again, ***you*** **aren't holding the private keys that unlock your accounts.** For that, there's **YubiKey**.

YubiKeys are physical keys that you hold (or keep plugged into your computer). With YubiKey, even if hackers know all of your passwords, without this key, they can't access your accounts or move any of your crypto. YubiKeys can be used for almost all of the major cryptocurrency exchanges and you can use them in tandem with any major password managers (like LastPass). These keys work with everything from Brave browser to Coinbase to your operating system.

The upside is the added security, especially if you use a password manager like **LastPass**. The downside is the loss of convenience—especially if you use multiple devices—you'll always need the physical key to log in to your accounts. (This also, it should be noted, doesn't prevent hacks on exchanges, websites or any third-party accounts.) Many sites will allow you to keep extra keys on file for redundancy, in case you lose one. Some, like Binance, won't. So no matter what you're doing, keep your keys safe. Not your keys, not your crypto.

Action: Take your security seriously. Buy a hardware wallet.

Make Money in Crashes

"Cash combined with courage in a time of crisis is priceless."
—Warren Buffett

So Bitcoin crashed, eh? Don't panic. It's happened before and it will happen again. As you're realizing, Bitcoin is volatile. But there's good news. As you'll see in a moment, there are several reasons to believe it's becoming less volatile over time. (Unless, of course, it isn't.) Even so, you shouldn't fear volatility. There are simple ways to double... even triple... your money during crashes.

> ***DISCLAIMER:*** *While some of the methods herein are relatively benign, many cryptonauts—due to ego inflation, greed, recklessness and envy—have found themselves completely wrecked by (at least) one of them. (Namely No. 2, and mostly because they didn't use the "safety rails" I'll reveal.) Many have ended up broke, angry, humiliated and hopeless. Affirm: Rule No. 1. Don't get wrecked.*

In this chapter, we're going to reveal three ways to make money during a crypto crash. *And* another way that helps keep those lower angels of our nature in check.

1.] Buy the dip—and time it right.

2.] Short Bitcoin—with safety rails.

3.] Easy arbitrage—with a couple clicks.

4.] (Bonus) HODL—and relax.

1.] Buy the dip. I know. Easier said than done. You always need to be careful you're not "buying a turd mid-flush," as a friend once put it. Winston Churchill once said, "There are two things

that are more difficult than making an after-dinner speech: climbing a wall which is leaning toward you and kissing a girl who is leaning away from you." That's still true. And as yet another friend also added: "There are two other things more difficult than an after-dinner speech: buying an investment you love when it's going down and taking profits when it's screaming higher."

The challenge is a dip can mean two things. It can mean a healthy correction in a bull market... or a crash resulting in a bear market. It's impossible to truly know where the dip will end. But tools like the **BTC/USD chart** will give you a good idea of where the next zone of support might be. For what it's worth, here's what many technical traders use to consider a good price point to buy the dip:

> → Moving average indicators (EMA) → Bollinger Bands → Trading volume (decline in sell volume + increase in buy volume = bullish) → Relative Strength Index (RSI)

If we zoom out, there's another thing to consider: As adoption of Bitcoin has increased, volatility has decreased. All of the big dips in 2021 have been around the 30% range. **In previous years, this number was over 50%.** Who knows if this trend will stick? My guess is it will. The SEC is already targeting DeFi for regulation. One thing they have their sights on is the obscene amounts of leverage in DeFi. Chances are, this means that a lot—maybe all—of the leverage is going to get wiped from the centralized exchanges. (It won't go away completely, but it'll kill 90% of it.) The massive amounts of leverage are what are driving much of the volatility these days. Also consider that institutional investors are also buying the dip. Especially when news breaks causing fear, uncertainty and doubt (FUD), rinsing out the weak hands. Big money is patient and methodical. They time their buys and take advantage of dips. Wise investors follow their lead. But what if you think Bitcoin is headed south and don't want to buy the dip? Well, there's an easy way to make money as Bitcoin falls.

2.] Short Bitcoin. Look, I'm a buy-and-hold guy. But there's a way to make money when Bitcoin is going down. And there's also a way to hedge your bets—with "safety rails"—to make sure you don't lose your shirt. If you want to short Bitcoin, there's a simple way you can do it on the **KuCoin exchange**. Buy the coin **BTC3S**. BTC3S shorts Bitcoin futures at 3X leverage. Meaning, if Bitcoin drops 10%, you make 30%. **Of course, you might not want to use leverage for obvious reasons. I don't.** Problem is, KuCoin only offers 3X leverage. But you can get around that. The trick is you also buy **BTC3L**, a Bitcoin long at 3X leverage. BTC3L is a bet that Bitcoin is going up. It's also a proper hedge for BTC3S. For example, say you want to short Bitcoin, but don't want 3X leverage... you could buy **$300 of BTC3S** and **$200 of BTC3L**. This evens it out. You can play with this allocation to fit your risk appetite. And you can do the same when you think Bitcoin's going up—just reverse the allocation.

3.] Easy arbitrage. Sam Bankman-Fried is a 29-year-old crypto billionaire. He made his initial fortune by capitalizing on what's known as the "Kimchi premium." In short, he capitalized on a massive arbitrage opportunity on South Korean exchanges. (He's since gone on to build one of the largest, fastest-growing digital asset exchanges in the world, called FTX.) **Crypto arbitrage is one way savvy traders make consistent income in the markets… no matter if Bitcoin is high or low.** Often, exchanges have different pricing mechanisms, meaning the price on one exchange can be higher or lower than on another—sometimes, though rarely, dramatically. Here's a simple example of how it works:

Buy Ethereum on Coinbase for $3,000. Sell Ethereum on KuCoin for $3,300. Pocket the profit.

Most crypto scalpers spend hours flipping through multiple exchanges trying to find an opportunity. Here's a better way. **It's called Atani.** Atani allows you to trade cryptocurrencies on multiple (20-plus) exchanges from just one secure app. You can easily track and trade 1,500-plus cryptos, put up stop losses and limit

orders and take profits. And here's the opportunity for arbitrage: **Once you link all of your accounts on Atani, you simply click each coin and it shows you the price on each exchange. Arbitrage can be done in a few clicks on ONE platform.**

Atani is a trustless platform, meaning they have no access to your funds or account. Best part? There are no additional fees tacked on. In fact, upon writing, the fees are some of the lowest in the industry.

4.] HODL. While these methods are useful, consider the sage advice from Warren Buffett: "The stock market is a device for transferring money from the impatient to the patient." The biggest mistake many early adopters made was they tried their hand at trading the crypto markets. Not only did they put their Bitcoin at risk on shoddy exchanges, but 99% of them would be much further ahead if they just held Bitcoin and Ethereum and focused on other things in their lives.

Plenty of studies show that people who simply buy and hold in the stock market almost always come out on top over those who try to time the markets. Same goes for crypto. If you do trade during crashes, it's prudent to have a HODL bag of cryptos that you refuse to touch. That way, you'll always have a core portfolio. The long-term trend is intact and if you can muster up the strength to white-knuckle the volatility, you'll be glad you held.

How to Earn Crypto

CHRIS CAMPBELL

"The ultimate purpose of money is so that you do not have to be in a specific place at a specific time doing anything you don't want to do."
—Naval Ravikant

The college degree ain't what it used to be. We've been singing this song for years—well before politicians started talking about the "student debt crisis." Truth is, the education system has been broken for decades. There's plenty of blame to go around. But that's not the point. Point is, nine times out of 10 there are better, quicker and more meaningful ways to get ahead than the traditional routes of success. Especially now, in the 2020s.

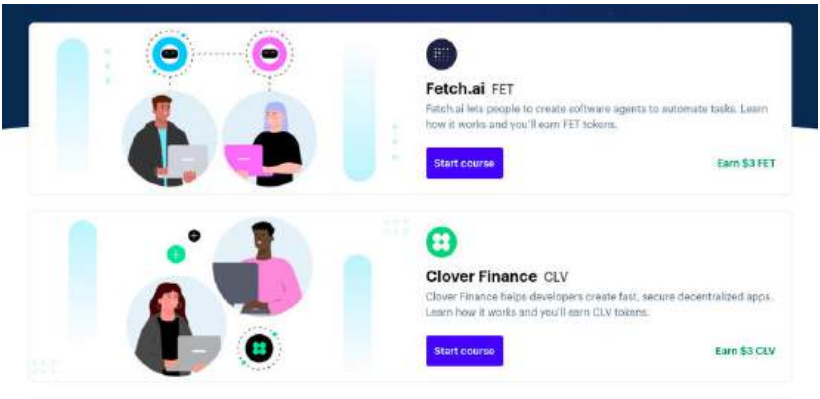
Even more traditional ways of making money, like working for a big corporation, are increasingly dropping the college degree requirement. Fortunately, we're on the cusp of a whole new way of learning, working and doing business. Cryptocurrencies are making it easier than ever to have multiple sources of income and learn new skills without the gatekeepers and other traditional barriers to entry. For example, **what if I told you there are "crypto colleges" online where they pay YOU in crypto to attend?**

No, you're not going to get an Ivy League degree or get rich. But you will get a well-rounded education in one of the biggest tech revolutions in human history... and get paid. And that's just one of three ways you can begin earning crypto starting today. Check it all out below.

"Crypto College" Pays YOU

If you're new to crypto—and even if you're not—this is a great way to make money while learning about new cryptocurrencies. Both **CoinMarketCap** and **Coinbase** offer an "earn to learn" education service where *they pay you in cryptos for taking short courses*. It's simple.

> Watch a few short videos > Take a quick quiz > Earn crypto



Check it out at these two sites:

> coinbase.com/earn

> coinmarketcap.com/earn

Get Free Coins/NFTs

This one's called "airdrop chasing." Often, in order to generate a buzz, new projects will "airdrop" (give free) tokens to people who perform a few simple tasks. **Airdrops seem cheesy, but they are a great way of taking early advantage of emerging projects.** Because airdrops allow you to get into a project on the ground floor, I know more than a few people who've made thousands of dollars from participating in simple airdrops.

Once the project hits exchanges, those tokens can be traded for other coins or sold for cash. Tasks often include:

- Following their social media channels

- Sharing posts
- Signing up on their platform
- Completing a form about the project
- Downloading their app.

There are many websites that list airdrops and bounties. If you're looking to stock up on some emerging crypto coins, here's where you to start:

> Search for "Airdrop lists" on your search engine

> Follow accounts on Twitter that follow airdrops.

Check out these websites:

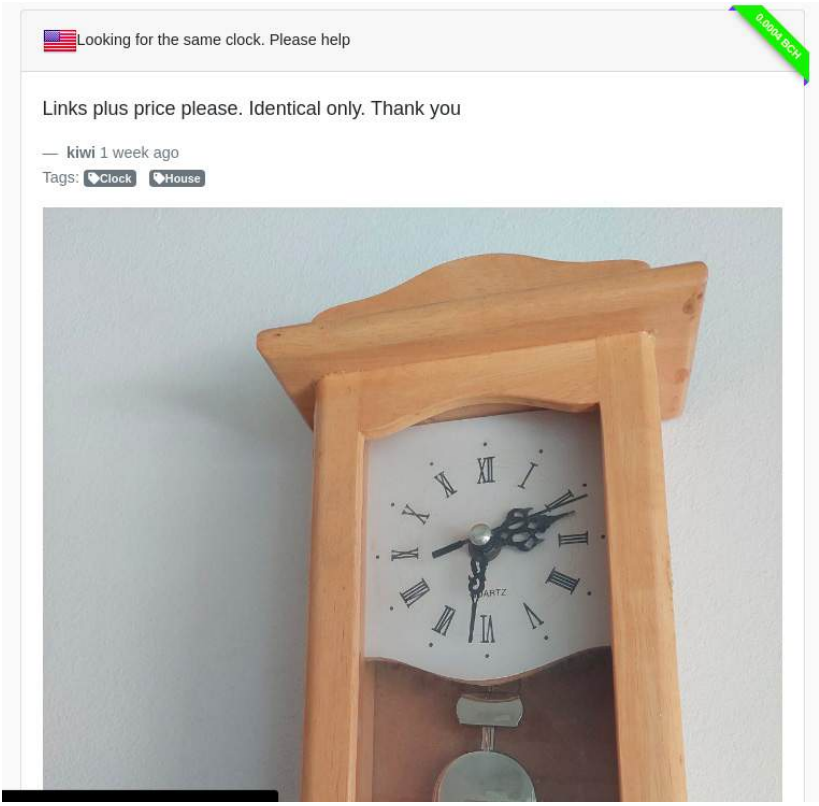
> airdropalert.com

> coinmarketcap.com/airdrop/

Get a Crypto Job

There are two methods here. One way to earn crypto is through microtasks. These are small, one-time gigs you perform in exchange for crypto. The second is contract jobs with the option of paying in crypto.

First, microtasks. A few sites allow you to accept microtasks and earn crypto. (I expect these types of websites—and microgigs—to grow exponentially once crypto begins to mainstream.) For example, this person is looking for help finding a specific clock online, paying out in a small amount of Bitcoin Cash.



For potential microtask jobs, check out:

> Bitfortip.com

> Bitcoinget.com

You can also find jobs in the cryptosphere that offer crypto as payment. While it might be a bit risky to accept Bitcoin payments due to the volatility, you can always opt for stablecoins like USDC. And you don't have to be a tech wizard to apply. Sometimes, you'll find fairly off-the-wall jobs like this one. (And sometimes they pay in dollars or give you the option.)

Creative Writer for SciFi Fantasy Novel

Levana

Levana Protocol is hiring a scifi fantasy writer to write a 350 page novel around our lore.

You will be working with the founding team to help flesh out the characters, build a world and it's background and create a novel that can stand on its own.

Apply now

*Please let **Levana** know you found this position on Cryptocurrency Jobs as a way to support us so we can keep providing you with quality crypto jobs.*

LOCATION
Remote

JOB TYPE
Contract

ROLE
Other

COMPENSATION
$10K – $50K

KEYWORDS
Content Writer, Gamification, Non-Tech, Story Telling, World Building

If you're looking to get into the crypto business, here are a few places to start:

> Laborx.com

> Cryptocurrencyjobs.co

> reddit.com/r/Jobs4Bitcoins/

Accept Bitcoin Payments

Do you own an e-commerce website? Well, you're in luck. Platforms like Shopify or WooCommerce allow merchants to accept cryptocurrencies as payment through their website. And not just Bitcoin. WooCommerce allows its users to accept some 50 types of crypto coins, while Shopify goes even higher, with more than 300. And it's simple.

For Shopify, all you have to do is enable an alternative payment method from your Shopify account. For WooCommerce, you'll have to install an additional plugin, such as **BitPay** or **CoinGate**. Once installed, just activate it, configure it and you'll be good to go.

Rewards Cards

There are several crypto rewards cards cropping up right now. The best I've found so far is the Crypto.com Visa card. The rewards include free and unlimited LoungeKey Airport Lounge Access, interbank exchange rates and no overseas fees. Select cards will also have:

- **Travel discounts.** 10% purchase rebate on each Expedia or Airbnb booking
- **FREE Spotify.** Get 100% rebate for your standard subscription plan
- **FREE Netflix:** Get 100% rebate for your standard subscription plan
- **8% spending rewards.** Up to 8% back on spending, local or overseas, no minimum or maximum spending required.

> crypto.com/cards

Mining

In September 2021, it became headline news in the cryptosphere that a young pair of siblings—14 and 9 years old—started mining crypto for $30,000 per month. They were successfully mining Bitcoin, Ravencoin and Ethereum. The 14-year-old, named Ishaan, said in an interview that he watched YouTube videos to learn how to convert his gaming computer into an Ethereum miner. From there, the siblings could afford more expensive mining equipment and, with their parent's permission, built a bigger mining rig in their garage.

Mining cryptos is a viable option. While Bitcoin mining requires high-end equipment such as an ASIC (application-specific integrated circuit), others can be mined with just a regular computer. For example, two websites—**NiceHash** and **Cudo Miner** allow you to mine several cryptocurrencies using your regular computer. All you need is a relatively fast laptop and a little bit of work to get started. These two options are relatively easy to use

and manage. Cudo Miner has options for **internet cafes** to make money from empty seats, **laptops** and **gaming computers**.

Check out:

> Nicehash.com

> Cudominer.com

Faucets

Though they're far from the best choice, if you have time on your hands, faucets can be a good way to make crypto during dips. Faucets, put simply, are places online you can earn free crypto. It may take some time and determination, but in the long term, it will generate decent revenue. There are many cryptocurrency faucets that you can join. Most pay in Bitcoin or Ethereum.

Generally, you have to watch ads, complete surveys and play games to be rewarded a small portion of a cryptocurrency. Then you can cash out your cryptocurrency once you reach the minimum withdrawal limit. Although it can feel relatively slow, a crypto faucet can get you to earn your first Bitcoins. Again, if you have the time. (Note: If they involve an app you have to download, they're likely collecting data in some way, shape or form. Mind the terms and conditions.)

> Cointiply.com (earn by completing surveys, watching vids, playing games and more)

> Bitcoinaliens.com (earn by playing games)

> bitcoinker.com (earn by completing CAPTCHAs)

> btcclicks.com (earn BTC by clicking ads)

> satoshiquiz.com (earn BTC by taking quizzes).

How to Mine Crypto With Radio

Chris Campbell

In 1999, an 18 year-old dropout, racing against the clock, stared at his screen and then furiously typed. He'd been doing exactly that for days; staring, typing, staring, typing, staring, typing. Sprawled out in his uncle's Internet company office (a company called chess.net), he'd already hit 60 hours without sleep. Against all odds, he was going to manifest into reality the idea that had been a splinter in his mind for over a year.

Little did he know, not only would the program work... *Time* magazine would soon write a story about him. Not just that, they'd put his face on the cover. And they would even write about those sleepless nights, too. "He worked feverishly," the *Time* article announced, "because he was sure someone else had the same idea, that any day now some software company or media conglomerate would be unveiling a version of the same application, and then Fanning's big idea wouldn't be his anymore." Yes, the kid was Shawn Fanning. The idea was Napster.

All the Rave

"Nobody has ever built a reliable peer-to-peer service," he later told the *New York Times*, "where people can really access all the music they want in one location... Once I got it into my head, I couldn't imagine the media space without one." And, as he told Esquire: "There was no Internet bubble at the time. My family thought I was playing games and messing around. They had no idea that I was diving into this completely new world. And it wasn't something I knew how to explain, because I was trying to

make sense of it myself." (This, by the way, echoes the experience of many who dive headfirst into crypto.)

Napster would begin a decade-long rollercoaster of screaming highs and desperate lows for Fanning; a story detailed by respected cyber security reporter Joseph Menn in his book, *All the Rave: The Rise and Fall of Shawn Fanning's Napster*. Within the next decade, Fanning would get screwed out of the Napster deal. He'd hobnob with Silicon Valley's elite. He'd sell a company called Snocap for $5 million – and just in time in 2008. Then, that same year, he'd also sell a social network gaming startup for $15 million to Electronic Arts. He'd co-found two more companies after that. And he'd become an early investor in Square and Uber. In short, he'd do pretty well. Fast-forward to 2013, he'd help create a company called Helium; an innovative project almost too ahead of its time – until crypto. Today, it's the fastest, easiest way to earn income by mining crypto while using the same amount of energy as a 5 watt lightbulb.

Things on the Internet

In 2014, during a Hardwired NYC event, Helium co-founder Sean Carey announced Helium's mission: "Helium," he explained, "is building physical infrastructure that makes it painless and cheap to get smart devices online and exchanging data without being tied to complex hardware components and protocols."

In essence, he said, Helium is in the business of "putting things on the Internet" through city-wide mesh networks. Even back in 2014, Helium had hardware bridges that could speak to one another between four and ten miles apart. Furthermore, each bridge could service up to 64,000 active devices. "The idea is," Carey said, "we want to make it so cheap that your pet rock could connect to the Internet and update your Twitter account. We want to make it so that thousands and thousands of devices can connect and intercommunicate... and be cheaper than mobile."

Helium was built on a revelation. It's the same revelation that's now attracting Big Tech brainpower to crypto: continuing to build our technologies out in a centralized manner no longer makes

sense. It's better to decentralize them, allowing them to operate in a peer-to-peer fashion; just like Napster did, but in overdrive.

Even better, the Helium team found a workaround to the red tape tying down traditional telecommunication companies. The low frequencies used for Helium's network has no laws, licensing, or regulations attached. LongFi is plug-and-play. The only problem back in 2014 was the lack of incentives. Helium had no ways of convincing people to set up their bridges, so progress nearly grinded to a halt. But then came crypto.

Mine Crypto With Radio

In July 2017, the Helium team discovered the Filecoin white paper, describing a decentralized storage network. The paper said, "The Internet is in the middle of a revolution; centralized proprietary services are being replaced with decentralized open ones; trusted parties replaced with verifiable computation; brittle location addresses replaced with resilient content addresses; inefficient monolithic services replaced with peer-to-peer algorithmic markets."

This was Helium's light bulb moment. By June 2019, Helium launched its first physical miner hotspot devices, which would power its peer-to-peer IoT infrastructure. "Telcos aren't our future," Helium's website said in bold letters. "You are." One month later, Helium launched its cryptocurrency HNT. Back in 2019, HNT was a fledgling coin sitting at about 11 cents. Today, it's a relative beast with almost a $3 billion market cap. By becoming a host and running a miner hotspot in your home, you can earn HNT, which can be traded into cold, hard cash. And, the good news: Mining is easy and still lucrative.

Here's how it works: Hosts mine HNT and maintain network coverage while enterprises and developers use the Helium network to connect devices and build Internet of Things applications. Once up and running as a host, you don't have to do anything; your hotspot takes care of it. How does the network make money? Enterprises and developers use the Helium Network to connect devices and build IoT applications. They pay transaction

fees for private wireless data transmissions on the network. The Helium network is currently used to track everything from electric scooters to rat traps.

Helium miner hotspots are just like the routers you use for WiFi. Only difference is hotspots don't transmit a WiFi signal, but a "LongFi" signal, similar to radio, giving Helium a range 200x further than WiFi. Helium hotspots are also connected to the Internet. This makes it possible for developers to request data from any compatible devices within LongFi range. For example, electric scooter company Lime tracks their scooters using Helium with little burden on the scooter's batteries. Another Helium network user, the rat trap company, uses the Helium network to send notifications when rats have been caught.

When you run a hotspot in your home, you're rewarded in HNT. Best part? The electricity cost is nearly negligible. The low signal frequency used by LongFi – on top of Helium's low-energy "proof-of-coverage" model – means the Helium miner/hotspot uses about the same amount of electricity as a 5 watt lightbulb. **Fortunately, Helium created a great explainer video to bring it all together. (Link: https://www.youtube.com/watch?v=Vx9YyS7-d3g)**

In many cases, users were able to break even with their miners in less than a month... and made up to $2,000 each month afterwards. Upon writing, it's probably the easiest and coolest way to mine cryptocurrencies. Though you have several choices, our crypto friends recommend the Bobcat hotspots.

The Best Crypto Bank

"Wealth is assets that earn while you sleep"
— Naval Ravikant, HOW TO GET RICH:

How much are you earning in your traditional savings account? According to personal finance site Bankrate, the highest-yield savings accounts are:

> SmartyPig by Sallie Mae–0.70% APY

> Affirm–0.65% APY

> Axos Bank–0.61% APY.

This is the BEST the banks can do, apparently. Banking's "dirty little secret"? They *could* pay you more. They just don't. We've become so accustomed to giving them our hard-earned cash for nothing in return... *why would they?* Over the decades, banks have gotten away with lowering the payout rate as they merged with other banks, reducing competition. In fact, the consolidation of power in the banking industry in the past 30 years alone is astonishing.

Now consider most banks generally see 14-25% returns on their capital. By paying customers less than 1% in interest, they're making an absolute killing. This is NOT how banking is supposed to work. They are supposed to work *for* you. Everything about it is flipped upside down. YOU, the customer, are getting screwed. Fortunately, there's a new type of bank in town. And it's flipping the way banking is supposed to work right side up, providing some much needed competition.

Earn 10%+ on Your Money

Consider that many average Joes—right now as you read this—are making up to 17.7% in what are called "crypto banks." These crypto banks offer:

> Crypto-backed loans > High-yield interest accounts > Cryptocurrency exchanges (although limited)

Some of these banks have a service allowing you to pay and get paid in crypto. Others offer Bitcoin rewards cards that let you earn cash back in Bitcoin when you shop. Why are crypto banks superior?

1.] Rather than giving 80% of total revenue to shareholders, crypto banks give that to their customers. This is how banking is supposed to work in a competitive environment. And this is how you can earn 10%-plus on your money.

2.] The good crypto banks only issue asset-backed loans. Every dollar borrower gives up as collateral at least 100% of the value of the loan they take. Big banks, on the other hand, lend $10 for every $1 in deposit—a technique called "fractional reserve lending." On average, a bank has 10X as many loans outstanding as they have deposits. Not so with GOOD crypto banks.

3.] Though their rates are subject to change, the good banks are transparent about why their rates are changing. Plus, the good crypto banks make everything verifiable on the blockchain.

4.] GOOD crypto banks insure your coins against unforeseeable losses, whether it's hacks, errors, bugs or otherwise.

What's an example of a "good" crypto bank? Glad you asked.

The Best Crypto Bank

If you already own crypto and want to earn money from it, you have thousands of options in DeFi. Unfortunately, most of them

are complicated and involve a lot of technical know-how. Let's keep it simple. Although the following rubs up against my ethos to always keep your private keys, here's my favorite crypto bank: **Celsius.**

> Celsius offers interest payments for 41 coins. You can earn up to 10%-plus APR on stablecoins and up to 17.7% on high-demand altcoins. Best part? There's no minimum investment amount

> Celsius is currently rolling out a self-insurance plan for all Celsius

> Celsius is also planning to release a Celsius card. With it, you can earn rewards on your credit card spend while earning weekly rewards on your crypto collateral.

Check it out:

> celsius.network

Stake Your Coins

"You can only be financially free when your passive income exceeds your expenses."
—T. Harv Eker

One of the best ways to earn in crypto is by staking your coins. With staking, you can earn up to 15% consistently—no matter how much you hold. Once staked, everything is done automatically. For your "work," you get paid in either new coins or coins gathered by transaction fees. It's a good gig if you do it right. But before we get to what projects you should look at for staking, let's get back to the basics.

Some people call cryptocurrencies unregulated, but that's a misnomer. They're heavily regulated, but by math and not governments. There are two main types of "regulatory consensus algorithms" in cryptoland. One is proof of work (PoW), which is what Bitcoin uses. The other is proof of stake (PoS), which is what many other altcoins use and Ethereum is currently moving toward. While PoW requires users to mine the blocks and confirm the transactions through pure computational power, PoS works totally differently. In a PoS system, the person to confirm the creation of a new block is chosen in a deterministic way, based on the number of coins he or she already holds.

Staking, therefore, is a method of consensus for proof-of-stake blockchains. Remember, all cryptocurrencies solve the problem of the central authority. Blockchain, a fancy term for a shared ownerless ledger, is managed in a decentralized fashion by mining and staking. Staking is a way to contribute your coins as col-

lateral for the opportunity to validate transactions and secure the network. And, of course, get paid.

The Easiest and Safest Way

There are two ways to earn income by staking. One is to become a validator. This option requires a bit of work and technical knowledge. The easiest way is to become a delegate, meaning you delegate your coins to a validator and you earn a certain percentage—a little less than the validator.

Sometimes the validators require you to move your coins out of your wallet and into their wallet. Typically, this isn't recommended. Many coins allow you to keep your coins in your wallet and stake. There are tons of great coins to stake. If you want to chase the best rewards, go to **stakingrewards.com**. I'll give you one example of a solid "blue chip" coin a lot of smart people I know are staking right now.

Cardano

Cardano (ADA) is an alternative smart contract platform, similar to Ethereum, that aims to be the go-to platform for institutions, governments and individuals. It's a work in progress, built for projects that require massive scaling. Charles Hoskinson, a co-founder of Ethereum, left Ethereum in its early days and later started Cardano. Though the Cardano development moves slowly, the Cardano team is making important moves in Africa and around the world.

If you time your entry right (I'd say anything below $3 if you plan to hold long term), Cardano could be a great long-term bet. Best part? You can stake your Cardano coins and earn passive income—currently about 6%. This number will go down over time, but it's still a great deal. Even better, your coins never leave your wallet. (Not your keys, not your coins.) If you decide to hold long term, this is a no-brainer.

To get started, first of all, you can buy Cardano on Coinbase. The best and most secure way to stake your Cardano is to move it off of Coinbase and onto the **Daedalus wallet**. This wallet was built by the Cardano team for staking. Simply download the desktop wallet at **daedaluswallet.io.**

Again, you're probably not going to want to be a validator. As mentioned, this requires a bit of work and technical know-how. Instead, you're going to want to delegate your coins to validators. To do so, simply open up the wallet and send your coins from the exchange to the address provided in the wallet. Once your coins are in the wallet, click on the **network** icon on the left side. That brings you to the **delegation center.** From there, you can click on **stake pools** and delegate your Cardano to a number of trusted validators from your wallet.

Moreover, unlike many projects, Cardano doesn't have a lock-up period. Meaning, you don't have to lock up your coins while you stake them. You can move them in and out of the wallet freely. Again, this is a great choice because your private keys stay in your wallet—your keys, your coins. Let's take a look at Cardano and a couple of other coins and see how they stack up.

CARDANO (ADA)
Validator: 6%
Delegate: 5.5%
Lock-up: None
Where: Daedalus wallet or Exodus wallet
Risk: Low risk

POLYGON (MATIC)
Validator: 13% APY
Delegate: 12.6% APY
Lock-up period: 8–10 days
Where: Matic Network web wallet
Risk: Medium risk

VECHAIN (VET)
Validator: 2.3%
Delegate: 1.36%
Lock-up period: None
Where: Exodus, VET wallet or ANY wallet
Risk: Low risk

Again, if you want to find the best staking rewards at any given time, check out **stakingrewards.com**. This website will show you the projects with the highest rewards. But keep in mind, the best rewards don't always mean the best project. With staking, longevity is everything. Find projects that will make it in the long run. Cardano, Cosmos and Solana are three solid examples. Happy staking!

How to Mint an NFT

CHRIS CAMPBELL

"There are no excuses to ignore web3, crypto, or NFTs at this point."
—Greg Isenberg

In 2013, Vitalik Buterin, the founder of Ethereum, met Amir Chetrit at a Bitcoin conference in Amsterdam. Amir was working on a new project called Colored Coins, aimed at representing and managing real-world assets as tokens on top of the Bitcoin network. Soon after their encounter, an intrigued Vitalik traveled to Israel. Soon after that, he inserted himself into the team and began working on the Colored Coins white paper. The idea was that the most admirable traits of blockchain—no central point of failure, censorship resistance, cutting out the middlemen, bypassing the gatekeepers and immutability—could have other applications outside of money. "Given all of these advantages," Vitalik wrote, "the natural question is: Is it possible to use the same functionality for other applications as well? The answer, it turns out, is yes."

The same technology that runs Bitcoin, Vitalik explained, can be used to maintain ownership of anything that can be represented as a digital asset and is a "rivalrous good"—something that only one person can own at a time. But Bitcoin wasn't equipped to do it on its own, Vitalik said. Something else was required: "an overlay network of issuance of distinct instruments encapsulated in a design we call 'colored coins." Colored coins were the first

generation of NFTs. The most successful project back then—laying the groundwork for everything we see today—was Counterparty (XCP). As early as 2014, Counterparty had access tokens, community currencies, NFTs (collections like Rare Pepe and Spells of Genesis) and much more.

Everything we see today is wildly familiar to anyone who paid any attention in 2013–2014—just magnified. And that is a brief history of NFTs. In Chapter 29 ("WTF Are NFTs?"), we show you why NFTs are a big deal. In this chapter, we'll show you how to mint one of your own. Going through this process is the *best* way to learn about Web3 and the future of the internet. If you do it, you'll be far ahead of the curve.

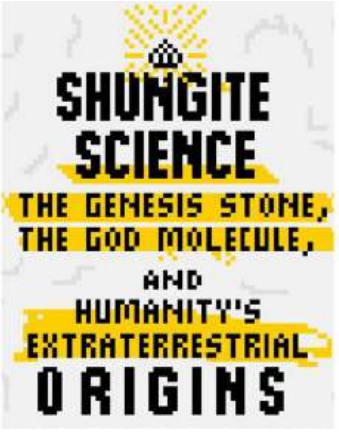
> Free:
>
> $0 = Learning about Web3
>
> $0 = Starting an internet community
>
> $0 = Designing an NFT
>
> Expensive: Ignoring crypto and Web3 altogether
>
> —Greg Isenberg (@gregisenberg)

In Section III, I'll show you why NFTs are a multitrillion-dollar market in the making. Probably bigger. I'll also define NFTs. NFTs aren't just JPEGs. They're much bigger and much more important for the future of the internet. **NFTs are digital property rights to network effects and communities.** If you understand this, you're gmi (gonna make it). In short, they flip the current Big Tech model on its head. Instead of the value of a network getting sucked up to the top, it is distributed throughout the network—to the users, stakers, adopters and makers. Having been in this space for years, I can see that people in crypto are *beginning* to wake up to the power of creating communities of value through shared ownership. This concept will turn every business model we hold dear upside down.

> NFTs defined simply: NFTs are distributed digital property rights to network effects and communities. They are programmable and irrefutable unique identification tokens used to prove authentic ownership of anything from digital media to event tickets to blockchain domains to... eventually... anything that can be owned and tokenized.

There are many ways to use NFTs. We'll cover all of them in Section III. The next two trends in NFTs set to explode are crypto gaming and digiphysicals. There's also a clear overlap between the two.

An example of digiphysicals: In the future, when a teenager buys a pair of sneakers, it will come with an NFT that can be worn in his favorite video game or in the metaverse. This concept can be applied to any physical product. Earlier this year, I sold the first NFT tied to my upcoming book, *Shungite Science*. (The first-ever book pre-sell exclusively through NFTs.) The NFT itself is a pixelated version of the book cover. Below, I'll show you how I did it.



Synopsis: *How a 2 billion-year-old stone (shungite/Genesis Stone) and an ancient space-faring molecule (C60/God Molecule) helped with the rise of life on Earth… and what this means about the universe at large and your unique place in it.*

Each NFT is tied to a physical book or product on my OpenSea store. (OpenSea is currently the world's largest NFT marketplace.) You don't just own the book, but an immutable piece of this book's history. Right now, to be frank, the digiphysical is just a mildly interesting way of selling physical products. (**But also a great way to amplify a side hustle**.) With digital art going ballistic right now, digiphysicals are rearing up for a hype cycle. I want to catch this trend with a glove the size of Pluto.

If you're interested in minting an NFT of your own and imprinting yourself into immutable immortality, here's how you do it step by step. I'll explain each step below:

1. Set up a **Coinbase** account.
2. Buy about $100 **Ethereum**.
3. Hire an artist on **Fiverr**. (Or do the art yourself.)
4. Set up a **MetaMask** wallet in your browser.
5. Transfer the ETH from Coinbase to your MetaMask wallet.
6. Go to OpenSea.io and link your MetaMask wallet.
7. Pay the initial account fee (fluctuates depending on Ethereum "gas prices").
8. Set up a collection on OpenSea.
9. Create new NFTs in that collection, edit the NFT descriptions, publish them, sell them... profit.
10. There's no cost to mint on OpenSea, but it does charge you a fee on the final sale price. **Pro tip: You can set up a royalty on resales of your NFTs. Meaning, if a buyer later sells it, whatever percent you set the royalty to will go automatically into your wallet.**

The Steps

First, I had an artist on **Fiverr** do the artwork. And I'm printing pre-release copies of my book through **CreateSpace**. Second, I opened up a **MetaMask** account.

MetaMask is the gateway to the decentralized web. You use it to interact with Web 3.0—an array of decentralized apps (dApps) and crypto-based marketplaces and exchanges. In plain terms, it's a cryptocurrency wallet you download to your browser that interacts with specific websites.

Web3 tools like MetaMask get rid of the need for passwords and login names and giving up your private information. You log into the site by connecting MetaMask. Your crypto address is your "login name."

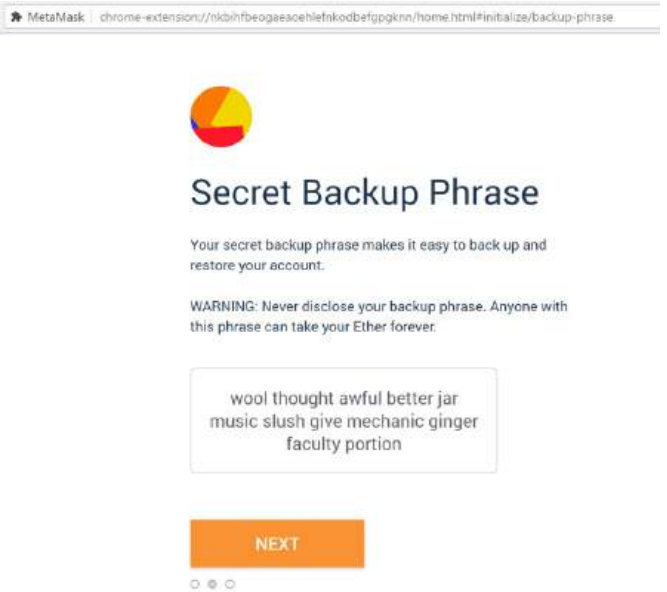
metamask.io

Step 1: Install MetaMask on your Browser

It works on Chrome, Firefox, Opera and Brave.

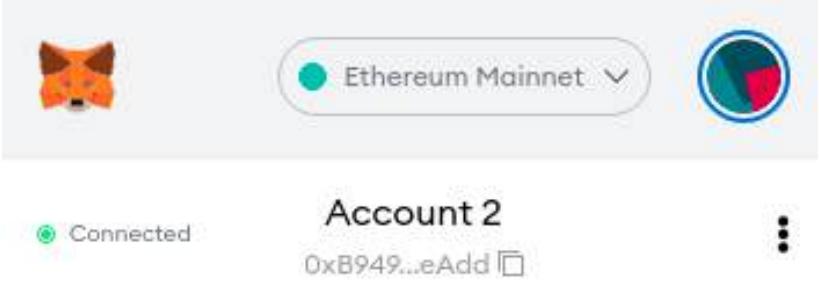
Step 2: Create an Account

Click on the extension icon in the upper-right corner of your browser to open MetaMask. You'll be asked to create a password and **write down your seed phrase.** Your seed phrase is a 12-word code that unlocks your wallet. Write it down. Keep it safe.



Step 3: Deposit Funds

If you have any Ethereum, send it to the address provided in your MetaMask account. (If you don't have Ethereum, buy it on Coinbase.)

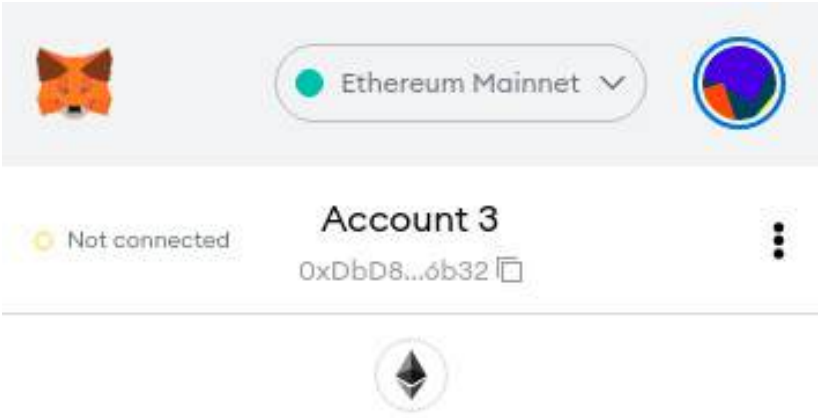


You'll need MetaMask to mint your NFTs on OpenSea—the world's largest NFT marketplace.

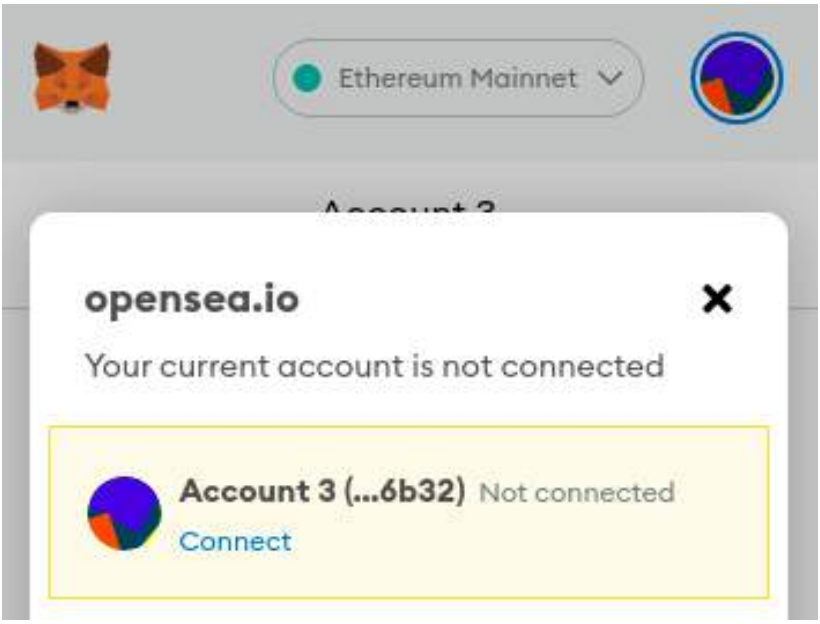
Next, go to **OpenSea** (site: OpenSea.io)

Step 4: Connect Your MetaMask to OpenSea

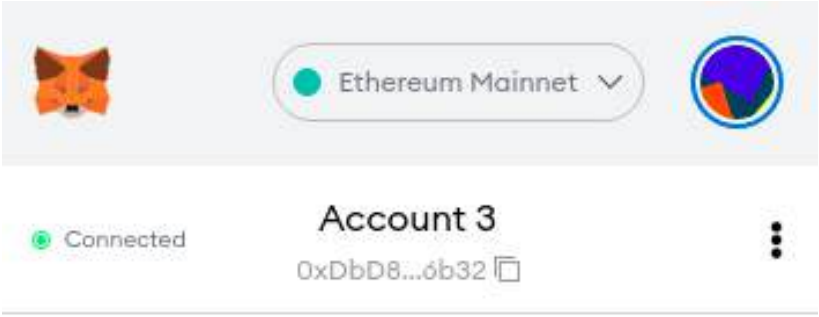
To connect, open MetaMask and click that little button that says **"Not connected."**



Then click **"Connect."**



It might tell you to connect through the website. If so, look for a **"connect wallet"** button on the website. (In this case, OpenSea.) When you get a green light, you're connected!

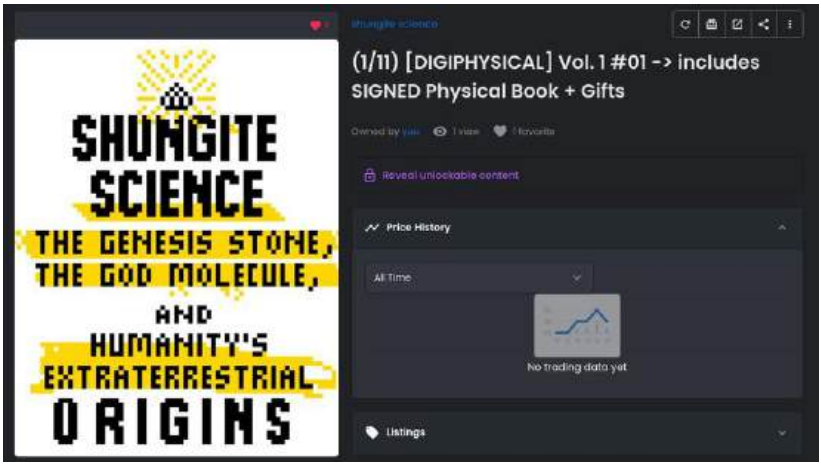


Once connected, you can edit and customize your page.

Step 5: Mint Your NFT

Now it's time to mint your first NFT. At the top of the page, you'll see a **"Create"** button. Click that. From there, you can upload your image, give it a name and describe it. There are a lot of options on the Create page, but don't worry about all of that stuff now (you can always edit later). For mine, I added **"locked content."** That way, when someone buys the NFT, they unlock the instructions on how to claim their book. Click **"Create"** at the bottom to publish.

Once your NFT is created, go to the NFT's page, double-check everything is correct and, if you're ready, hit **"Sell."** Name your price and you're done. Bam. Congrats. You have a freshly minted NFT.



Welcome to Web 3.0. This is just the beginning.

Whale Watching 101

CHRIS CAMPBELL,
JUSTIN GUPTA

"I know not all that may be coming, but be it what it will,
I'll go to it laughing."
—Captain Ahab, Moby Dick

"Warren Buffett works for me," James told Yahoo Finance back in 2012. At the time, Altucher was managing partner at Formula Capital. He searched far and wide for ways to "piggyback" smart money. Buffett didn't really work for him. But he kind of did. Because Buffett worked hard. Altucher worked smart.

One smart way was through what's called a 13F, or Form 13. In the U.S., money managers who control more than $100 million must file a Form 13 within 45 days of the end of each quarter, disclosing their investments. James made a list of "whale" investors—those with super-sized portfolios—and followed their investments closely through this form. If it made sense, he piggybacked their investments. Especially if their picks were down.

Think about it... The whales have hundreds, maybe thousands, of investment researchers. They work through data with a fine-toothed comb. They have the most sophisticated tools on the market. James especially liked following the activist whales, those who made demands of companies... guys like David Einhorn, Dan Loeb and Carl Icahn. You'd be a fool not to listen to them.

This is one way to "whale watch" in the stock market. And in the arena of cryptocurrencies, whale watching gets even more

interesting. Yes, a Form 13 can show you what happened at least 45 days ago... the blockchain can tell you what's happening *right now*. Remember, the blockchain is public and radically transparent. Those savvy enough to sift through the data can watch what the whales are doing in real-time. This information can tell you whether we're entering a bull market... whether the whales are about to sell... or even what else the whales might be investing in.

Machine Learning

Of course most "normal" investors are too intimidated to do this kind of tracking and analysis. And it's no surprise. You must be tech-savvy enough to create and use multiple tracking tools. You must also have a talent for recognizing key patterns in an ever-changing ocean of information (and misinformation), especially within the fast-moving and volatile cryptocurrency markets. In short, it demands someone skilled in analyzing the technicals of the blockchain along with the human behavior tied to it. Fortunately for you, I've found such a guru: he's my new friend Justin Gupta.

Justin knows how to make critical observations and choices under intense pressure. In fact, in a situation entirely unrelated to crypto (but relevant to his gumption), he was once held at gunpoint by masked men in an attempted robbery. In an act of intelligence and bravery, Justin freed himself and three others from their bonds and timed a getaway, allowing all hostages to escape with their lives unharmed before law enforcement could arrive.

Besides having the right personality and temperament, it turns out Justin's professional background nearly perfectly parlays into the ideal whale-hunter. For 15 years, Justin worked as a civil engineer simulating countless storm events, to estimate and then predict things from erosion and stream flow to nutrient content in waterways, using high-tech infrared satellite imagery. He can test different scenarios and many possible outcomes from complex systems. A true renaissance man, Justin is a graduate student, lifelong musician and computer programmer... who now leverages all of his skills to build machine-learning models that track whales on the blockchain. I'll let Justin take it from here...

The Tip of the Spear: How to Spot and Track Crypto Whales for Massive Gains

Justin Gupta

Everyone knows it, but everyone also ignores it. The whales make the markets. More than anything else—the news pundits, politicians or major events—they decide whether you have a good day or a bad day in the markets. Want to beat the market? Well, there's only one way I know of to do it consistently: "whale watching."

Ray Dalio on Speed Dial

Imagine if you had legendary investors Ray Dalio, Carl Icahn, Michael Burry or Warren Buffett on speed dial. Even better, imagine you could watch their trades in real-time and follow them into (and out of) investments before ANYBODY in the world. That's what I do in the crypto markets—and it's the ONLY reason why I'm up 1,000% this year.

See, the beauty of blockchain is it's *radically* transparent. Though I don't know *who* the whales are, it doesn't matter. I know they move markets. And I can see their every move as they do it. Before I buy a single crypto, I check with the whales: 24/7, 365 days a year, I watch the whales. I believe it's the SMARTEST way to play the markets... and only a few elite traders in the world are doing it. In this chapter, I'm going to share with you some of my secrets. Now, here's the first trick: To see where the whales are going...

Look Upstream

Here are a few simple things you, even if you're a newbie, can do to get started:.

1. Spot the next big whale move by monitoring exchange inflows (whales moving coins to exchanges). When whales transfer money or stablecoins onto exchanges, get ready for a big pump (or a dump when they transfer crypto assets). That's because whales become visible on the blockchain as they come up for air before the next big move. I constantly monitor wallets like these (the three largest wallets ever spotted on the blockchain) to see what moves the whales are about to make:

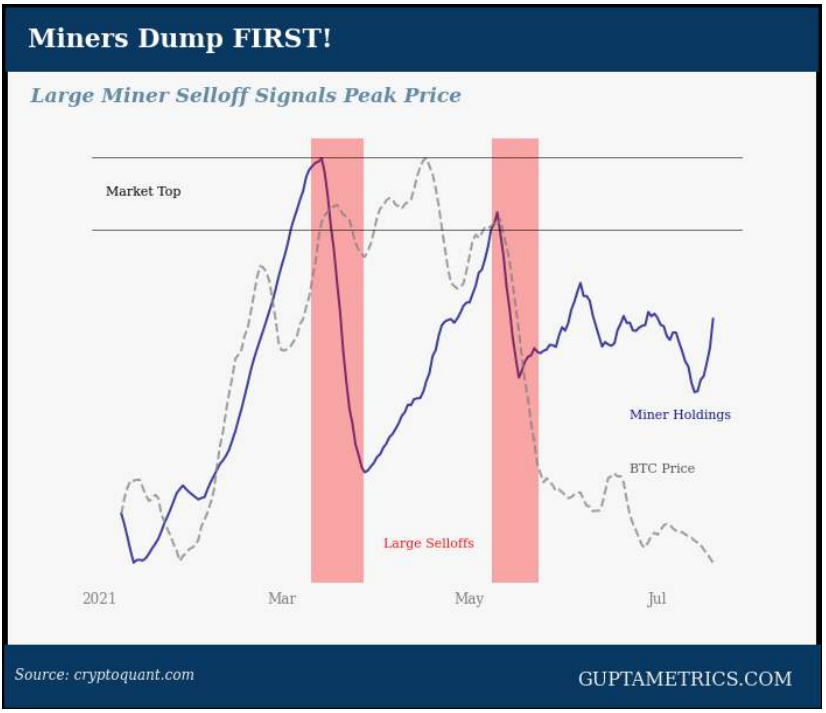
1.] 1P5ZEDWTKTFGxQjZphgWPQUpe554WKDfHQ

2.] 37XuVSEpWW4trkfmvWzegTHQt7BdktSKUs

3.] 1FeexV6bAHb8ybZjqQMjJrcCrHGW9sb6uF

You can put these addresses into **blockchain.com/explorer** to see real-time transactions directly from the wallet.

2. Forecast market conditions by watching the miners. Miners are some of the biggest whales on the blockchain. After all, they give birth to each and every coin and decide when they're ready to "leave the nest" and fly off to the exchanges. That's why miners are some of the most influential whales on the blockchain—they control the flow of coins into the market. And the miners aren't stupid. When they accumulate coins rather than selling them, it's because they sense a bear market and think their coins are undervalued. But when miners start to sell, get ready for a big pump! That's because they sense the bull run and want to begin taking profit. This will continue until they have a major sell-off, signaling the market top and incoming correction. That's why I constantly check miner activity on sites like **glassnode.com** and **cryptoquant.com**.



3. Buy this guaranteed pump (or dip) at exactly the same time every single month. Investors love options—especially in life-changing bull markets like crypto. Just like with the stock market, they typically set options to expire on Fridays, with the last Friday of each month typically having the most expirations. That's why I place my orders every Friday at exactly 3:00 p.m., when most options expire. The whales always steer the market toward the max pain price to flush out overleveraged traders and clear the path for the next leg up. And I sit back and ride the wave. You can use websites like **coinoptionstrack.com** to see options data for crypto.

coinoptionstrack.com/options/BTC/open-interest

But There's an Easier Way… Bots

These are all great options if you want to get a handle on the important data in the Bitcoin space. If you don't love data analyt-

ics, this can be a painful, time-consuming process. I get it. I have three kids, so I don't have all the time in the world to stare at a screen, either. That's why I'm using my expertise to create a bot that tracks whales for me automatically. It'll tell me when to buy, when to sell and when to sit on the sidelines. There are plenty of bots in the crypto markets you can use to help you trade. But as far as I can tell, none of them cuts to the chase. None of them watches the whales. More on this project to come! Stay tuned.

Tip: Stay tuned for more insights from Justin on whale watching and bots in our newsletters and at Guptametrics.com.

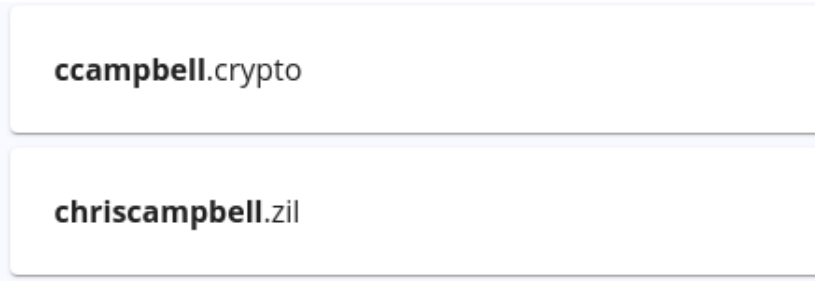
Why You Need a Blockchain Domain

CHRIS CAMPBELL

"You affect the world by what you browse."
—Tim Berners-Lee

In 1999, someone bought **business.com** for a whopping $7.5 million. In 2007, it was sold for $345 million to RH Donnelly, the third-largest print and online Yellow Pages published. (In 2009, probably not unrelated, the company filed for bankruptcy.) **Lasvegas.com** sold for $90 million in 2005. **Insurance.com** sold for $35 million in 2009. **Carinsurance.com** sold for $49.7 million in 2010.

If you think crypto is here to stay, there's one thing you should consider *now* before the mainstream catches on: **blockchain domains**. Blockchain domains are **programmable decentralized domains**. Owning a blockchain domain is like having your own decentralized PayPal and GoDaddy account in one. Even better, unlike traditional domains there are no annual fees *and* they can't be taken from you arbitrarily. Once you own it, you own it for life. I recently purchased two of them:



There's a HUGE difference between a traditional domain name and a blockchain domain. For starters, when you buy a traditional domain, you don't actually own the domain *and* you have to pay annual fees. Even so, some domains ended up being a great investment. Now consider how blockchain domains are different from traditional domain names:

→ **Self-custody:** The domain is stored in your wallet. You own it

→ **No annual renewal fees:** Unlike traditional domains, once you buy it, there are no recurring fees

→ **Uncensorable:** You can build a website tied to your domain on a decentralized storage network that can't be taken down

→ **Send/receive from one domain:** You can tie all of your wallet addresses to this single domain and get rid of complex addresses

→ **Programmable:** You can integrate decentralized apps into your domain name, allowing it to chat with other apps.

The current leader in blockchain domains is **Unstoppable Domains**. Currently, their domain name system supports 260-plus cryptocurrencies and almost 100 wallets, exchanges and browsers. Coinbase, the world's largest cryptocurrency exchange, has already integrated its domain system... alongside Gemini, Brave browser and many popular wallets. Again, the biggest benefit of having a domain name is you no longer have to deal with clunky

addresses. Simply give people your domain name and they can send crypto there. Moreover, you can create a simple website that doesn't require annual fees.

On the speculative side, they could also prove good investments... if you're creative enough with your choices. (The low-hanging fruit isn't all gone.) At the moment, you can grab a domain name for as little as $5.

Action: Check out unstoppabledomains.com

One Crypto Tool I Use Every Day

CHRIS CAMPBELL

"During my 87 years I have witnessed a whole succession of technological revolutions. But none of them has done away with the need for character in the individual or the ability to think."
—Bernard Baruch

XRP to $50. Cardano to $100. Litecoin to $1,000. Dogecoin to $5. Don't believe the hype. There's no shortage of outrageous price predictions on the internet. That's not to say these price predictions are impossible. It's just they're not likely during this bull cycle. Fortunately, there's a simple way you can make sure your future targets on your coins aren't entirely baseless. It's a tool I use every day. **It's called The Coin Perspective (TCP).**

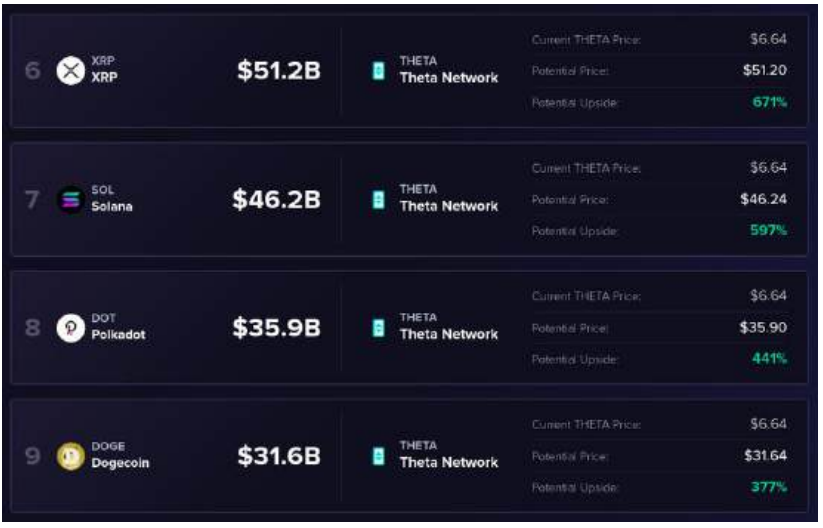
thecoinperspective.com

Before you take a look, consider why it's valuable. For one, it's the ultimate hype killer. **If you understand market cap, volume and circulating supply—all crucial elements of a coin's "tokenomics"—you immediately gain a more realistic outlook on your favorite crypto projects.** There are many questions you should ask before investing in a particular crypto project. Such as...

→ How many coins or tokens currently exist? → How many will exist in the future and when will they be created? → Who owns the coins? Are there some set aside to be released in the future to developers? → Is there any information to suggest that a large number of coins have been lost, burned (send to a permanently closed wallet), deleted or made somehow unusable?

But if you've ever found yourself asking, "If coin X had market cap of coin Y, what would it be worth?" then this tool is for you. With The Coin Perspective, you can see how much your favorite coins would be worth if their market caps rose to, say, Dogecoin's... or any other coin's. (Strictly for fun, I sometimes use Dogecoin as an indicator to see how much a particular coin *could* rise entirely on hype.)

Let's take, for example, the Theta coin. TCP shows us that if Theta had the market cap of Dogecoin, it would be $31.64. (To me, given Theta's use case, that's 100% possible.)



Let's now take a recent price prediction I saw from a random YouTuber. He said that Ripple would reach $50 in less than a year. Consider, in order for XRP to hit $50, **its market cap must**

rise to $2.4 trillion. That's more than the market cap of the ENTIRE cryptocurrency space. Possible? Sure. Probable? No way.

Another crypto YouTuber believes Dogecoin will hit $5 within the same timeframe. In order for Dogecoin to hit $5, it must rise to a market cap higher than Ethereum's and almost as high as Bitcoin's. Possible? I guess. Probable? No.

This is just one way to assess the current price, future targets and potential value of specific coins. It's also a good way to temper expectations and beat back the wild claims online. Currently, TCP supports over 8,000 cryptocurrencies. With it, you can...

→ Quickly simulate market caps, prices and supplies

→ Track your portfolio of coins and set price targets (without giving up any information)...

→ Learn what concepts like market cap and supply mean in the crypto space (see the "Learning Center")

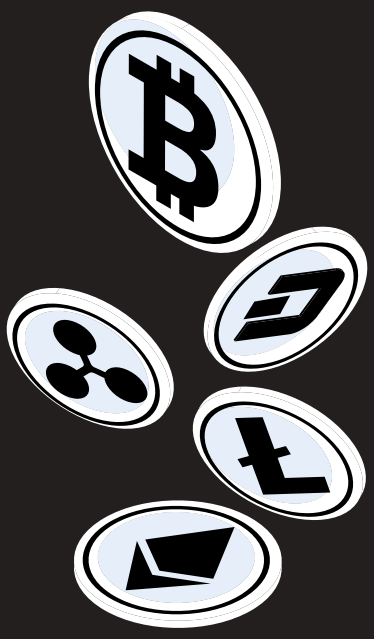
→ See thousands of interactive historical price and volume charts

→ Get no ads, no spam, 100% free.

It's one of my go-to websites for evaluating cryptocurrencies. And if you're interested in crypto, it should definitely be on your radar.

Action: Check out thecoinperspective.com and play around

BLOCK TO THE FUTURE



Block to the Future

CHRIS CAMPBELL

"If my calculations are correct, when this baby hits 88 miles per hour, you're gonna see some serious shit."
—Doc, Back to the Future

In 1967, my intellectual mentor Richard Buckminster ("Bucky") Fuller predicted Bitcoin and the new wealth it could create. During an interview, he said: "I'll talk about something that would be one of the realizations by 2018, a realistic scientific accounting system of what is wealth. Wealth isn't the gold of pirates—wealth is energy." Bucky reckoned that humanity needed a "common energy-value system" where cost is "expressed in kilowatt-hours, watt-hours and watt-seconds of work."

Therefore, money is best expressed by energy and time. Bitcoin is the first currency backed by energy and time, in line with Bucky's vision. Bucky believed we would recognize its importance by 2018. Consider that 2018 was Bitcoin's first great bull market and leap into the public consciousness. How Bucky intuited this speaks to the caliber of his "feeler" for the future. Of this system, he wrote:

> These uniform energy valuations will replace all the world's wildly intervarying, opinion-gambled-upon, top-power-system-manipulatable monetary systems. The time-energy world accounting system will do away with all the inequities now occurring in regard to the arbitrarily maneuverable internation-

> al shipping of goods and the top economic power structure's banker-invented, international balance-of-trade accountings. It will eliminate all the tricky banking and securities-markets exploitations of all the around-the-world-time-zone activities differences in operation today, all unbeknownst to the at-all-times 2 billion humans who are sleeping.

To be sure, Bucky wasn't alone in this reckoning. Before Bucky, there was Henry Ford. On Dec. 4, 1921, the *New-York Tribune* published an article titled, "Ford Would Replace Gold With Energy Currency and Stop Wars." Ford said his ideal currency would be backed by kilowatt-hours and would "be issued only to a certain definite amount and for a specific purpose." Ford even picked a location to kick off his idea: the Muscle Shoals Dam in the Tennessee River, which produces an immense amount of energy.

Ford candidly said the only thing standing in our way of creating such a currency was the banking cartel: "It's simply a case of thinking and calculating in terms different from those laid down to us by the international banking group to which we have grown so accustomed that we think there is no other desirable standard."

Both Bucky and Ford would've found a kindred soul in economist Friedrich Hayek. Hayek wrote: "I don't believe we shall ever have good money again before we take the thing out of the hands of [the] government. That is, we can't take it violently out of the hands of [the] government, all we can do is by some sly roundabout way introduce something that they can't stop."

In 1999, another economist, Milton Friedman predicted that the internet would dramatically change the role of government in our lives. He said: "The one thing that's missing, but that will soon be developed, is a reliable e-cash, a method whereby on the internet you can transfer funds from A to B, without A knowing B or B knowing A."

Coming back full circle, we find one of Bucky Fuller's most famous ideas, one that drove most of his futurist ideas and would likely leave all of the aforementioned nodding in unison:

> In order to change an existing paradigm you do not struggle to try and change the problematic model. You create a new model and make the old one obsolete.

Back to the Real World

In the digital age, with the flow of information moving at the speed of light, we still use a payment system that's pre-internet age—moving at the speed of horse and buggy. It's 40 years old. It's clunky. It's expensive. It's insecure. It's slow. It's ripe not just for disruption... but for total destruction. But this won't be an entirely smooth transition.

Some governments will not react well to this shift and clamp down. Others will embrace it and open up wide, giving their citizens unprecedented economic freedom. Billions of people who currently lack access to basic financial services in the so-called "Third World" will finally be able to contribute to the global and local economy in a meaningful way.. This could spur an incredible amount of innovation in every single industry—and create many industries we can't even fathom yet. It will undoubtedly be the largest shift in wealth in human history.

And we're lucky enough to have front-row seats. Despite all of our problems, I'm shamelessly optimistic for the future of humanity. Futurist Ray Kurzweil once said that the world isn't getting worse, our information is getting better. Though I'm not entirely convinced of Kurzweil's theories, this particular insight rings true—and will become obvious as time marches forward and our information gets better.

Sure, nothing is set in stone. But distributed, open, transparent ledgers—AKA blockchain—have the potential to cast light on our opaque, centralized systems. No longer must we settle for "Trust, don't verify." Instead, we can demand transparency from our public servants and crucial institutions. We will have the freedom to choose between those who embrace transparency and those who prefer to conduct their dealings behind closed doors. I'm

confident the institutions we choose will be those that go from "Don't be evil" to "Can't be evil."

It will become clear that cryptographically certain, transparent, distributed ledgers are the superior way forward. If I'm right, the level of change we will see in the next couple of decades will make the 1980s look remarkably quaint. Those institutions, mostly decentralized organizations, that embrace radical transparency will lead the way. Those who fight them will fall by the wayside. Of course, I could be wrong. The riskiest thing you could do is take all the words in this book as gospel. The second riskiest thing you could do is ignore them completely.

The SoHo Effect

CHRIS CAMPBELL

"Art is anything you can get away with."
—Attributed to Andy Warhol

Hollywood is dead. Music labels are dead. The traditional art world is dead. Gradually and then suddenly crypto will eat them alive. Our great-great-grandchildren will look at their business models the same way we look at film reels... 8-track and VHS tapes... and Walkmans. This is one of the most exciting trends of this decade.

It's not only going to change the face of the entertainment industry... it'll also unlock immense amounts of human creativity *and* help solve a lot of the world's problems. You might think I'm being hyperbolic; I would say you're underestimating the power of this technology and its potential to usher in the most explosive creative renaissance in human history. Web 3, DeFi, NFTs, DAOs, crypto gaming, the metaverse... all of it has the potential to change everything: the ways we work, live, create, collaborate, build, innovate and play.

> NFTs push value accumulation to creators. In Web 3, we'll see:
>
> * Artists > Art dealers/intermediaries
> * Writers > Media distribution
> * Fashion designers > fashion houses
>
> —Aaron Wright (@awrigh01)

Altucher often talks about how crypto is the next natural step in the evolution of money. I'll take it further. It's also the next natural step in how we coordinate brainpower, ingenuity and resources. In his book *Sapiens* Yuval Harari points out that what separates humans from animals is our ability to collaboratively coordinate resources, even absent intimate tribal connections. No other mammal can scale their collaborative efforts like humans can. This is why the human is the only one to have created civilization. For apes, humanity's runner-up, collaboration requires an intense amount of intimate trust.

Apart from that single quirk, however, we're hardly superior. Place one ape and one human on an island and the ape will probably fare far better than the human. Place 100 apes and 100 humans on an island? No contest. In the long run, the humans will win. Furthermore, psychologist Carl Jung pointed out that the evolution of human consciousness throughout history is defined by our ability to differentiate between self and other. To the primitive eye, everything is fungible: connected in a meaningful way. To the modern eye, everything is increasingly nonfungible: distinct and unique. (The next leg up in the future of human consciousness? Everything is fungible again. But that's beyond the scope of this book.) Consider what crypto means in this context.

The Great Solar Flash

Crypto represents an entirely new paradigm for differentiating and coordinating resources and collective intelligence. It unlocks immense creative energy and creates a global sandbox for spontaneous organization, giving us a decentralized, leaderless global brain—in a way, mimicking, accelerating and scaling the decentralized intelligence and genius of nature. Now, here's where the rubber meets the road: The current trends reveal that despite all of our problems—and in large part because of them—we are entering the absolute best time in history to be a "right-brainer." Most creatives don't even know it yet.

Because of a number of technological convergences—what I'm calling the Great Solar Flash—we will increasingly put a premium on right-brained activities unlike at any other time in history. In this chapter, I'll show you why this is happening. I'll show you what it looks like in the context of crypto. And I'll give you an example of a project that represents a convergence of all the major trends. One of my favorite thinkers, Buckminster Fuller, once said that you can't change things by fighting old systems. You can only change things by building new systems to make the old ones obsolete. Crypto is massively disruptive because it is an anti-fragile way of forcing antiquated, frail and corrupted systems into obsolescence. And if history is any guide, the artists will lead the way.

The SoHo Effect

It's often said that politics is downstream from culture. But culture is downstream from its creative minority. It's wildly underappreciated how a small group of visionaries, big-picture thinkers, comprehensivists and creatives historically always set the tone for the ways that we work, play and relate. Traditionally, however, especially in the past 100 years, the great experiment has been one of top-down directives. Vast centralized leviathans have, mostly by brute force and drowning repetitive propaganda, set the tone for culture, creating a power imbalance. No longer are we urged to be creators and participators of culture. In this framework, individuals are merely passive consumers of prepackaged society. Only a few gatekeepers decide what and who is fit for consumption. Crypto is our opportunity to turn culture right-side up. And to see where this is all headed, there's one underrated sector you'll want to look at first: the arts.

The "SoHo effect" says follow the artists. It's a phrase originally meant for real estate developers to figure out the next hot place to build. SoHo was once a dilapidated bohemian hideaway, but now it boasts some of the most expensive real estate in NYC. *Follow the artists.* Today, however, the artists aren't flooding into eccentric

sanctuaries in cities; they're flooding into crypto. They're making money on NFTs. They're contributing to DAOs. They're helping to solve complex problems creatively. And they're also setting the tone for new industries to emerge. Consider why and how this is happening and what's coming:

As automation and AI eat away at the left-brain tasks—and blockchain kills the middleman—we will gradually unlock and set free humanity's creative potential in a way that's never been possible in history. In fact, it's already happening. Artists I talk to are getting rich. The "starving artist" motif will become a thing of the past. In the future, we'll need artists, designers, creative problem solvers and big-picture thinkers more than ever. Crypto is unlocking their creative potential by giving them a sandbox to test new ways of creating communities of value. In 15 years, the largest companies won't be corporations, but DAOs (decentralized autonomous organizations) run by ape NFTs – Bored Apes are a "blue chip" NFT project.

The biggest brands won't be centralized institutions; they'll have distributed ownership models with thousands of owners. The artists are figuring out how these models work right now. If you go on OpenSea (OpenSea.io), you'll find thousands of artists selling their works directly to fans... creating communities... and building innovative new business models. They are on the cutting edge of what will soon disrupt and destroy the status quo in Hollywood... traditional art... music... and, in some capacity, every industry on Earth. *Follow the artists.*

But what does this look like in practice? Well, business is all about creating communities of value. Traditionally, these communities are made up of consumers and producers, leaders and followers, fans and influencers. Crypto blurs the lines between these opposites. It allows for more participatory, fluid and dynamic models not reliant entirely on top-down directives but more on emergence, collective intelligence and spontaneous organization. The most successful creators in crypto tend to operate by three principles:

1.] They seek to own a direct relationship with their audience, rather than renting it from a social media platform. With NFTs, the artists can give everyone a "share" in the network effect. Rather than all value getting sucked to the top—as is the traditional "Big Tech" model—value is distributed outward to the users, contributors and speculators. If crypto succeeds, this is the business model of the future.

2.] They are earning money from cultivating communities and not just building an audience. Crypto provides a monetary incentive for communities of value to coordinate resources and brainpower around specific ideas, causes and shared values. Money is the most powerful incentive in the world because it is how we express value and meaning. Programmable money opens up brand-new vistas in creating and sharing value and meaning.

3.] They choose to build and own their own network effects rather than stay on the content conveyor belt provided by big social media platforms. NFTs and crypto allow fans to own a share of this network effect. This incents everyone to contribute to the creator's success and creates a participatory environment where the leaders follow and the followers lead.

This is in part what makes the crypto industry so groundbreaking. Blockchain and smart contracts allow for creators to interact directly with their fans—and for fans to invest in their favorite projects directly—in an instantly verifiable, fraud-proof way. On the blockchain, there's no question I own art issued by my favorite artists. No need for complicated, fraud-ridden third-party verification. Also, I can instantly use the art I own as an access token to:

→ Get access to exclusive communities

→ Claim physical products

→ Free VIP tickets for life

→ Get free access to future art/events

→ Collaborate with artists on future projects

→ Have a voice in the direction of projects

→ Vote on how money is invested

→ And hundreds of other perks.

This model also allows for creatives to maintain their digital rights and set their own preferred royalty payments in perpetuity. Each time an artwork is sold on a secondary marketplace, they receive a preset royalty coded in the smart contract. For music producers, they can even receive a direct royalty each time the song is played. Again, for the past hundred years, creatives had to give up legal rights to their work—and often their dignity, too— to a third party in order to find an audience. That model is dead. A new model is rising.

Dealing With the Devil

It's a common trope that one must "sell one's soul" or do a "deal with the devil" in order to make one's break in the entertainment industry. It's no secret Hollywood is full of individuals who sacrificed their internal values for the promise of fame and fortune. This dynamic exists because gatekeepers wield incredible power in the industries of art, music and film.

Crypto means that rather than it being led by top-down central institutions, it is emergent, bottom-up and led by the artists and their fans. Creatives can take command of their work and royalties, cut out the middleman and interact directly with their fans. This revolution will disrupt:

→ Third-party industry gatekeepers, know-it-alls and snobs

→ Unethical and "deal with the devil"-style contracts

→ Harvey Weinstein-style "casting couch" industry standards.

Best part? We're still insanely early. Catch any one of the trends I'll show you in this section and you could amass an absolute fortune when they reach the mainstream. (And they will. Sooner than you think.) But in order to understand this shift in its totality, we must first understand what some are calling "Web3" (aka Web 3.0 or Web 3).

Web 3.0

CHRIS CAMPBELL

"The web as I envisaged it, we have not seen it yet. The future is still so much bigger than the past."
—Tim Berners-Lee, inventor of the World Wide Web

Cryptocurrency often portrays itself as an esoteric subject. Really, it all boils down to a new era of the internet—Web 3.0. As Greg Isenberg, CEO of Web3 design firm Late Checkout, says:

> web2: use products to make companies wealthy
> Web3: use products to make communities wealthy

In Web 3, ownership and control are distributed throughout the network. Users and creators can own pieces of the internet by owning tokens, both nonfungible tokens (NFTs) and fungible tokens (like Bitcoin). Web 3 will largely—but not only—be blockchain-based. As we saw, blockchains are special networks that anyone can access but nobody owns. More on what Web 3 will look like in a moment. First, let's see why we want it... and need it.

Web 1

In the beginning there was the computer. Some people saw that it was good and they wanted a way for the computers to communicate. So they created the internet. Through the '70s and '80s, techies developed the protocols that we use today for every email,

text message, file download and phone call. That was Web 1.0, which reigned from 1990–2001.

Web 1.0 is often called the "read-only" web. It was essentially a big information dump that users could browse but not really interact with in any meaningful way. Though littered with static web pages and introduced by a screeching noise from hell, Web 1.0 had plenty of virtues. Web 1 was about open protocols, decentralization and community governance. Most of the value accumulated on the edges of the network—the users and the creators. There were no centralized organizations managing it or choke points throttling it.

But over time, that changed. Especially after the tech boom and bust. From there came Big Tech: Companies like Netflix, Facebook, Google and Amazon built digital empires on top of these protocols from Web 1.0. That's Web 2.0.

Web 2

Web 2, which reigned from around 2001–2021, was about siloed, centralized services run by corporate power. The vast majority of the value amassed to a small handful of companies like Google, Apple, Amazon and Facebook. Web 2.0's business model looks something like this:

1.] Launch app.

2.] Onboard as many users as possible.

3.] Monetize user base.

All centralized platforms have a predictable life cycle. At first, they bend over backward to recruit users, creators, developers and other complementary businesses. They do so to strengthen their network effect. As platforms move up the adoption curve, their power over users slowly grows. Once they begin to plateau, their relationship with participants turns from positive sum to zero sum. The only way they can keep growing is by extracting data

from users, tightening the controls, beating back competition (including former partners) and protecting what they have.

We saw this with Microsoft and what's called the "First Browser War," when Microsoft turned on the former partner and went for the jugular. We see it with Google and Yelp. Once partners, Google is now being accused of essentially blacklisting Yelp from Google's search engine. The list goes on and on—Twitter, Facebook, Apple and Amazon are all under investigation for questionable antitrust practices. Why? Because that's the nature of centralized systems. In order for a behemoth to keep growing, it becomes a game of taking rather than making.

The Dangers of Centralization

Yes, this business model was wildly successful for first-movers. Had you invested in these companies from the beginning, you would've made life-changing gains. And although Web 2.0 allowed for more interaction than Web 1.0, it presented many problems. For example, in Web 2.0, you don't have any control over your own data or how it's stored. That's by design. Companies track and save your data without your knowledge or consent. That's just business. All of this data is then owned and controlled by the companies in charge of the large platforms.

Moreover, individuals who live in countries that clamp down on free speech have plenty to worry about. Because everything is stored on centralized servers, governments can easily shut down servers and seize bank accounts of any dissidents. Furthermore, because banks are now integrated into Web 2.0, governments can just as easily intervene into any individual's finances, too. They can also shut down bank accounts or limit access to funds during times or extreme market volatility, inflation or political unrest. (If you think this can't happen in any Western country... think again.)

Point is the internet has reached a dangerous level of centralization. A few companies control more than half of the digital ad markets. The internet itself has turned into a ghetto of tight-

ly controlled walled gardens. With every keystroke, you're being watched. Every click is more information to use against you. Every movement on the screen is designed to manipulate you.

This is why it's important to understand what comes next... Web 3.0. Web3 will be bigger than FAANG. Doubly so for your opportunities to profit. Really, Web 3.0 is what Web 1.0 wanted to be—but got flipped inside out by a mass consolidation of power. Web 3.0 is the internet turned right side up. If Web 2.0 has become the Goliath, Web 3.0 is David and the simple stone.

The Master Switch

We are now at the very beginning of the era of Web 3. The aim of Web 3 is to combine the decentralized, community-governed ethos of Web 1 and the advanced functionality of Web 2. Web 3 has the potential to put control back into the hands of the user *and* allow the user to gain more from their participation and creation. Rather than all of value of the network getting sucked to the top, Web 3 is about distributing that value throughout the network.

Web3 enhances the internet as we know it today with a few other added characteristics. Web3 is:

- Verifiable
- Trustless
- Self-governing
- Permissionless
- Distributed and robust
- Decentralized
- Fluid for cross-platform identities

In Web 3, identity also works much differently than what we are used to today. Most of the time in Web 3 apps, identities will be tied to the wallet address of the user interacting with the application. Unlike Web 2 verification methods—such as email

and password (that almost always require users to hand over sensitive and personal information)—wallet addresses are completely anonymous unless the user decides to tie their own identity to it publicly. Web3 features include decentralized payments, identification, hosting and more. And it makes possible DeFi, NFTs, DAOs, crypto gaming and the metaverse.

Wanna learn how it works?:

ACTION STEPS:

1.] Mint an NFT (Chapter 22).

2.] Grab a blockchain domain (Chapter 24).

3.) Earn your first $100 in crypto (Chapter 19).

DeFi Defined Simply

"All money is a matter of belief."
—Adam Smith

Hedge fund managers, investment gurus, YouTubers, TikTokers... my last Uber driver. They're all excited about DeFi. *The Economist* just wrote a front-page article about it. Angela Merkel reads *The Economist*. So does Bill Gates. (Oh, boy.) It's the next big thing. It has the potential to revolutionize the world. It's going to change everything from the way we do business, pay our bills, make money, invest, collect royalties and transact to even how we *think* about money. It's big. They know it. But when I ask them to define DeFi simply, they can't. Even hardened crypto vets end up mumbling off something like, "It's a distributed network of decentralized financial applications," which, of course, means precisely nothing to the average Joe on the street.

Defined Simply

DeFi is **Open Finance**. It's a parallel financial system where anyone, anywhere in the world can have access to financial applications and services without giving up their personal information *and* while keeping control over their own money. Compare this with the current banking system. Your money isn't truly your money. You can't have access to financial applications and services without giving up your personal information (and hop over other barriers to entry), and you have virtually zero control over your own money within the system.

Before the internet, information lived in cages, largely controlled from the top down. The internet changed that. Today, our money lives within cages, controlled from the top down. **DeFi** will change that. **DeFi** breaks the cages with one worldwide network. It is open to you. Open to me. Open to everyone. It isn't a system built on arbitrary rules. It doesn't choose sides. It doesn't do favors. It doesn't discriminate. *It just is.* The poorest have the same amount of freedom and access to its rails as the richest. The biggest barrier to entry is know-how.

Best Part?

You don't have to understand complicated smart contracts, cryptographic protocols and complex trading mechanisms to use DeFi any more than you need to understand TCP/IP, HTTP and SSL to use the internet. Chances are you don't understand how the internet works. And chances are you leverage its tools successfully in your life in some capacity each and every day. The same with DeFi. As this parallel financial ecosystem grows and matures, the services within it will become faster, easier and better.

DeFi is one of the best opportunities in the history of money to build wealth, take control of your money and participate in the greatest unlocking of innovation and human ingenuity around the world in human history. *And this is just the beginning.*

ACTION STEPS

> Stake your coins (Chapter 21)

> Check out decentralized exchanges (DEXs) like Uniswap (https://app.uniswap.org/#/swap).

WTF Are NFTs?

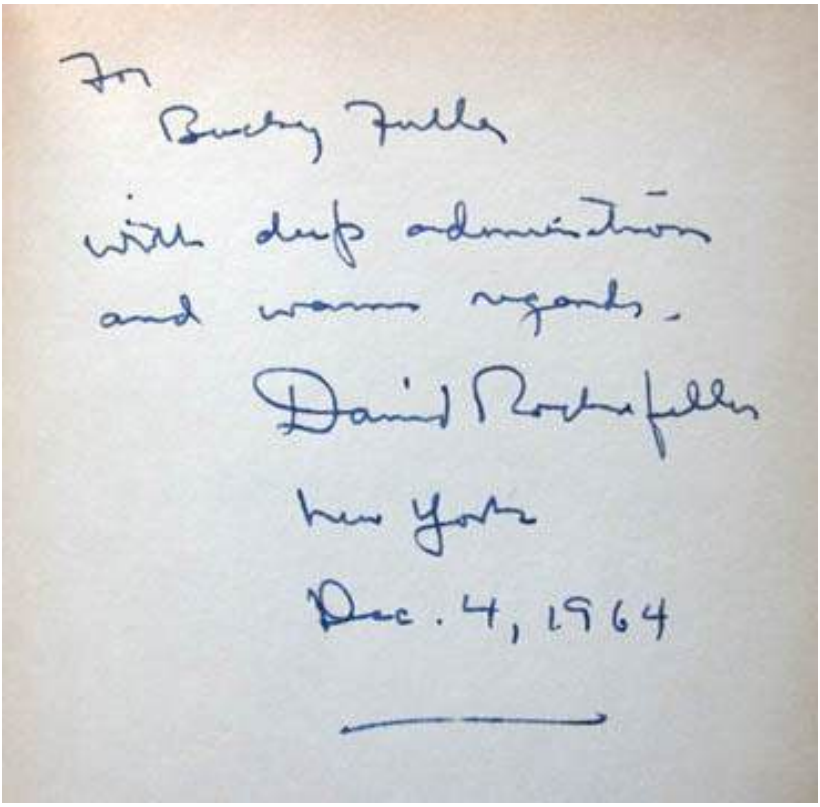
CHRIS CAMPBELL

"After they flippen art, NFTs will start eating brands, they will start eating culture, they will start creating decentralized alternatives to centralized orgs. Are the Bored Apes a silly collectible or are they a decentralized competitor to Supreme?"
—6529 (@punk6529)

Humans are just sophisticated raccoons. We love collecting shiny things. What we collect might have deeper meaning to us than they do to the furry midnight bandit, but the sentiment's basically the same. I'm no different. I collect old books, coins and signed memorabilia from people I admire. Hanging on my wall right above my computer is a Jan. 10, 1964, *Time* magazine cover signed by Buckminster Fuller, authenticated with a signed letter from his personal secretary. Stuffed away, I have a three-page poem typed by Fuller too, signed twice (twice!). And a book signed by David Rockefeller (yes, THE David Rockefeller) to "Bucky" Fuller "with deep admiration." Insane.

Only a few people would be as excited as I am about these things. But that's one of the beautiful things about being human (and maybe raccoon, too)—we're able to ascribe immense meaning to wildly different things. Plus, such items hold a near-magical power to help us find like-minded communities of shared values and "vibes." This explains, in part, the current and ongoing craze behind nonfungible tokens—or NFTs. On the face of it, NFTs

aren't anything special. They are simply unique tokens to prove ownership of any given item. How they gain their value is a very important question, and the key to understanding why they will radically shift nearly every single industry on Spaceship Earth.



"To Bucky Fuller, with deep admiration and warm regards, David Rockefeller. New York, Dec. 4, 1964."

Nothing F*cking There

In August 2021, a baseball card featuring Honus Wagner sold for $6.6 million, the most ever for a sports card. The sale went largely unnoticed. Million-dollar sales of sports cards—and many other collectibles—are fast becoming commonplace. And they are all getting overshadowed by the billions of dollars flooding in (and

out) of NFTs. If a small piece of cardboard with a picture on it sells for $6.6 million, few bat an eye. But I propose to you that, in fact, the NFT is wildly superior and unlocks doors for collectors that traditional collectibles simply cannot. As just one example, in 10 years, the biggest brands will not be corporate logos—they will be NFTs. Guaranteed. But we're getting ahead of ourselves. First, consider why the aforementioned Wagner card sold for $6.6 million:

- Fewer than 200 were printed (rare)
- It's relatively easy to verify its authenticity (authentic)
- Baseball has its own die-hard community (culture).

When it comes to collectibles, there's a difference between an NFT and a physical card. For one, nobody knows exactly how many Honus Wagner cards were originally printed. The buyer of the Wagner card is knowingly speculating that it is rare and a box of them isn't just going to turn up in someone's attic. Also, highly specialized experts are needed to authenticate each one. So there's a certain amount of risk involved and they're not really easy to sell.

On the other hand, NFTs provide enhanced scarcity, authentication and liquid markets. NFTs provide transparency of issuance and authenticity on the blockchain. They are provably rare and anyone can verify one for themselves. They offer more liquidity, rapid settlement finality, a global marketplace that never sleeps and a collectible that never degrades or tarnishes. While those NFTs might be digital, this only adds to their potential utility. An NFT can provide access into exclusive communities. It can get you tickets to special events. More than a JPEG, the NFT provides provable ownership of a cultural network effect. This is so astonishing and profound that it takes time for the implications to fully sink in.

Granted, if you're a serious collector, the NFT craze might still seem like a repugnant, bastardized fad, an insult to your passion. (Critics of NFTs often say, *"What does NFT mean? Nothing f*cking*

there?") The NFT critics aren't wrong. Most NFTs existing today are trash: 99.999999% of them will go to zero. Bear in mind, this is also true of every other collectible space.

Also bear in mind, I say this as an early adopter. I bought my first one in 2017—before anyone uttered the acronym—for $244. I was able to sell it recently to a private collector for an awkwardly hefty gain. With the help of some savvy Venezuelans, I saw the NFT craze coming a mile away. But focusing on the digital art aspect—the idea of trading JPEG files—is missing the point. It's where the puck is heading, not where it's at that makes NFTs compelling... and can help you make a mint in this market.

> NFTs defined simply: NFTs are distributed digital property rights to network effects. They are programmable and irrefutably unique identification tokens used to prove authentic ownership of anything from digital media to event tickets to blockchain domains to... eventually... anything that can be owned, tokenized and fractionalized. Current NFT projects are global cultural movements and social clubs. This is not just a billion-dollar market. It's a TRILLION-dollar market. It's multiple trillions of dollars. When we begin talking about the convergence of DeFi, NFTs and the metaverse, it's in the quadrillions.

Now let's consider the outrageous and unexpected rise of NFTs. In the first half of 2021, total NFT sales volume surged from basically nothing to $2.5 billion. Then in August 2021 alone, NFTs saw $900 million in sales. Though this seems like an outrageous amount of money, with each passing day the NFT projects themselves are evolving into... something else. They are becoming global online social clubs, movements and business ventures. Digital art NFTs are paving the way for bigger and more valuable decentralized communities of value to emerge. (Such as for example, DAOs, the subject of the next chapter.) Die-hard projects of digital art—like cryptopunks—will survive, inscribed into the annals of internet and blockchain history. But most of them ar-

en't worth your time. To find projects worth your time, however, consider why NFTs are worth our time at all.

The Power of Myths

In his book *Sapiens,* Yuval Harari says humans are distinct from animals because of our ability to coordinate. And we coordinate through myths. Not myths as in "lies." But myths as in stories we tell ourselves and one another to coordinate resources, societies and communities. As an example, Harari asks, "Where is the car company Peugeot?" Peugeot isn't the factories, the shareholders, the employers, the logo, the CEO or anyone in particular. The company itself is just an idea—a myth. Myths are the most important facet of any society, fundamental to human life and civilization. You can't have money or any social structure at all without shared myths. So what does this have to do with NFTs?

"NFTs," says anonymous crypto commentator 6529 (@punk6529), "are the fastest, most scalable, most potent layer ever built to finance and transport 'art' and 'memes.' 'Art' and 'memes' are respectively fancy and fun ways to say 'myths.'" NFTs can decentralize ownership of our myths. For example, whereas only a few people reap the benefits of Nike, Apple, Facebook and others, NFTs provide a new way of sharing in the benefits of our shared stories and networks. Old brands will have to compete on a new landscape where shared ownership, collaboration and cooperation are the biggest competitive advantages.

Follow the Artists

It's an underappreciated fact that in times of great change, wherever the artists go, culture is sure to follow. NFT digital art is the first wave of crypto's ability to help users—artists especially, while using the tools built by another subset of a future-facing traditionally cultural misfit: the nerd—organize decentralized global communities of value. At scale, they are a powerful way to coordinate and hone humanity's collective intelligence in a distributed

fashion. That's where NFT projects are evolving toward—a big part of crypto's Great Solar Flash into mass adoption.

And it's also true 100% of the current NFT market is wild speculation. Yes, so long as the internet keeps kicking and technology keeps advancing, NFTs are here to stay. Transparent, immutable proof of ownership has been missing from the internet. When NFTs become mainstream, they will radically transform the entire digital and physical economy in more ways than we can imagine. Why? Because, for the first time, NFTs allow the individual to own a piece of network effects.

NFTs, in their current form, reveal where true wealth will emerge on the internet: in decentralized communities of value. It's not the NFTs that are valuable. It's the *communities* that form around them. The same, of course, goes for Big Tech businesses. Facebook is a loser without its users. Same for Amazon. Twitter. Google. They only hold the power that we give to them. NFTs take that power back. If you understand this, you'll understand the true power of NFTs: NFTs are digital property rights to network effects. The difference is the value is not sucked to the top of the network but distributed throughout it.

What's to Come

Bigger gains are coming outside of the digital art space. They will come when NFTs become the de facto "access pass" to dynamic insider groups and movements. If you understand the hype cycles to come with NFTs, you can catch each and every one of them for incredibly outsized profits. In fact, NFTs are one of the greatest asymmetric bets and megatrends in crypto. Bonus points, they're also going to be insanely difficult to pin down by regulators. Consider all the ways you'll use NFTs in the future:

Event tickets/proof-of-attendance NFTs: In the near future, every event ticket will be an NFT, some of which will include digital art.

POAP, a platform for minting digital collectibles, allows you to hand out attendance badges as NFTs during events.

Supply chain logistics / transparency / fraud protection: VeChain **(VET)**, a crypto company with huge potential, is working on supply chain solutions using NFTs. Partnerships include Walmart China, Shanghai Gas, H&M, BMW, the Republic of Cyprus and others.

Music: With NFTs, music artists can cut out the middleman and get paid royalties instantly each time someone listens to their song online. NFTs also solve the massive digital ownership issues that currently plague the industry. **Mintbase** and **Rarible** have some exciting projects in the works on this front.

Movies: One of my favorite projects, a broadband sharing software solution called **Theta (THETA)**, was recently granted a patent for integrating NFTs into digital rights management (DRM) systems. The entertainment industry has been trying to crack this nut for decades. Theta's solution aligns all the right incentives: Viewers get paid by the network to watch videos legally (as they share redundant bandwidth in the background with other users). Viewers are happy. Entertainment companies are happy. Theta is happy. Win-win-win.

Blockchain domains: Having a blockchain domain is like having a decentralized GoDaddy, WordPress and PayPal account that you own. (Best part? No annual fees.) For example, I own **chriscampbell.crypto.** Once I integrate wallets into it, anyone can send crypto to me using that domain, without needing to fumble around with complex addresses. Even better, I can build a website that can't be taken down in the same way traditional, centralized websites can. The leader in this space is **Unstoppable Domains.**

Cosmolocalism (global design, local manufacturing): NFTs will become how individuals ensure their digital property rights. At some point, we'll use NFTs to protect and sell proprietary information and designs. Moreover, eventually, you'll be able to buy 3D printer designs of your favorite products—encased inside

NFTs—and get them printed/manufactured near your home. To ensure digital rights, any proprietary aspects of the design will be encrypted inside NFTs and will destroy (or "burn") themselves as they're being printed, ensuring you can't sell the design after use (double-dip) or copy it.

Shared ownership (fractionalization/tokenization): Asset tokenization reduces barriers and will attract new investors through fractional ownership. It also allows individuals to increase portfolio diversification and spread out their risk by co-owning multiple uncorrelated assets at once. (This is legendary trader Ray Dalio's "Holy Grail" strategy of investing.) Today, there's no way to "tokenize" more intangible things, like ideas and future potential. If young kids out of college could tokenize their future earnings to pay off their student loans, for example, I'm sure they would. Soon, they will. Or *you* could tokenize future profits of a book project... art project... or business venture. With tokenization, it's much easier to crowdfund and crowdsource virtually anything, worldwide. Asset tokenization, which will probably be the first wave of this era, is just one way.

Crypto gaming: This trend is perhaps the biggest, which is why we've devoted an entire chapter to it. The "play to earn" model in blockchain-based games is one reason crypto has seen such a massive rise. Axie Infinity, the first blockchain-based game to reach mass-adoption, currently has 2 million daily active users. It recently raked in $220 million in revenue in 30 days. I expect this to continue, even during a crypto winter. Why? Games are traditionally recession resistant—especially games you can make money in.

Digiphysicals: I believe one of the next big hype cycles will be in what's called "digiphysicals." **An example of digiphysicals:** In the future, when a teenager buys a pair of sneakers, it will come with an NFT that can be worn in his favorite video game or in the metaverse. This concept can be applied to any physical product. As revealed in Section II ("How to Mint an NFT"), I sold the first

NFT tied to my upcoming book, *Shungite Science*. (The first-ever book presell exclusively through NFTs.)

The best way to get into NFTs is to take $100 and mint your own. As mentioned earlier, it's a great way to learn about Web3 and get way ahead of the curve. If you want to take advantage of this trend, the only barrier to entry is your creativity, your gumption and your knowledge. The sky is the limit. Though the vast majority of them will end up worthless, NFTs are one of the largest asymmetric bets in crypto. And as they evolve, I expect their popularity—and value—to continue to grow.

> Tip: A project called Entities is a great example of what to look for in the NFT space. It has all the right elements of a great project: community, gamification, DAO, voting and projects lined up. Study it. Site: Entities.wtf

DAOs

CHRIS CAMPBELL

"DAOs will be more powerful than many countries. Today: Apple has more cash than more than most countries. Tomorrow: Top DAO treasuries will have more cash than most countries. It's hard to believe but this is where we're going."
—Greg Isenberg

Prediction: In 10 years, the biggest organizations will be DAOs. DAOs will own the best art. DAOs will be the biggest brands. DAOs will make the best movies and music, own the best nightclubs and have the best parties. DAOs will unlock humanity's creative potential. And nobody—except you—will see it coming. And of course the devs.

"Follow the devs," he said. "You and I might be five years ahead of the masses. But the developers are 10 years ahead of us." That's the advice an in-the-know friend gave to me recently. They build from bits and bytes the digital world we use every single day. In crypto, the developers are those building the future of the internet. My friend tracks dev sentiment more closely than anyone I know. When I asked him what they're excited about, he said: ***"Right now, they're talking about DAOs. They don't want to work for traditional companies. They want to work for DAOs."***

The Tao of DAOs

DAOs are decentralized autonomous organizations. Similar to how Bitcoin is an "ownerless network," DAOs are ownerless businesses. TechCrunch said of them, "The DAO is a paradigm shift in the very idea of economic organization. It offers complete transparency, total shareholder control, unprecedented flexibility and autonomous governance."

Such an organization is possible because of blockchain—the backbone of crypto. Rather than automating away layer zero—the humans—of the economy, blockchains automate the median. On this subject, Vitalik Buterin, co-founder of Ethereum, said:

> Whereas most technologies tend to automate workers on the periphery doing menial tasks, blockchains automate away the center. Instead of putting the taxi driver out of a job, blockchain puts Uber out of a job and lets the taxi drivers work with the customer directly.

The same way we've moved from newspapers and magazines to the internet... and we're moving from fiat currency to cryptocurrency... we are also moving from centralized to decentralized management models. The concept of the DAO has been around since 2013 when Dan Larimer of Block.one brought the idea to the cryptosphere. Almost a decade later, DAOs have become one of the most innovative blockchain-based concepts. The main idea is to create an organization without centralized control.

History has shown us that the hardest money tends to win.
With DAOs, the best governance will likely win in the end too.
—Aaron Wright (@awrigh01)

Because the rules are embedded into the organization, no managers are needed, thus removing any bureaucracy or hierarchy hurdles. One current, though imperfect, example of this is the DeFi platform **Uniswap**, a wildly successful protocol that allows for decentralized and permissionless trading of assets on Ethereum. The Uniswap treasury currently holds almost $3 billion. With this money, they are hungrily hiring individuals to help build out

the ecosystem. Furthermore, the platform averages about $1 billion in trading volume per day. (You can verify this along with treasury movements 24/7; the data is fully transparent.)

Today, we also have smaller DAOs like **PartyBid**, allowing people to do joint purchases on NFT assets and profit from them as a group. The PartyBid DAO becomes the owner of the NFT and its value is automatically distributed to the users in the form of tradeable tokens. This model can extend to almost everything—tokenizing real estate, small businesses, physical art, future earnings, etc.

Olaf Carlson-Wee, the first hire at Coinbase and founder of Polychain Capital, believes that decentralized versions of social media, blogging, chatting and even shopping will be owned, through crypto tokens, by the communities that use them and not big corporations. "Today," he said in an interview with *Fortune* magazine, "DAO ownership units are, to me, the second major asset class that has come out of this whole area."

The Ownerless Business Model

When Bitcoin removed the absolute need for banks as middlemen between individuals and businesses transacting worldwide, Ethereum's "smart contracts" and tokenization model gave us the potential to disrupt intermediaries across virtually all industries. **Defined through this lens, a DAO is a business running on an interconnected web of smart contracts to automate all of its essential and nonessential processes.**

Consider, as only one example, cloud storage. Smart contracts enable decentralized network participants to get paid in tokens for sharing their unused hard drive space. On the other side, buyers can use tokens to pay for anonymous decentralized storage space from the network. This is only one use case of thousands of smart contracts *and* it could entirely cut out cloud monopolies like Amazon Web Services and Google. Moreover, this can be done in an entirely autonomous way, where no single person owns or controls the network.

Imagine also, for example, if all of the users of a "Twitter DAO" got to vote for any changes to be implemented. Rather than changes made by a sole party in a top-down fashion. **Today, we are beholden to arbitrary censorship rules on major Big Tech platforms "for our own good." With a DAO, we as users and stakeholders would decide what is and isn't for our own good.**

The governance model of traditional companies is based on executives, boards of directors, activist investors and on. The governance of DAOs is based on a fluctuating swarm of users, stakeholders and crowdfunding. DAOs' operations are fully transparent and global; meanwhile, traditional companies' operations are opaque and often restricted by borders. A DAO requires no employees or executive managers to run. It doesn't need to worry about salaries, intermediaries or even profits. It can survive on razor-thin margins and only needs to cover the cost of its own existence. Nothing more. Nothing less.

That means instead of all of the value getting sucked to the top, it goes directly to the users and stakeholders of the organization—ideally, those who contribute the most. According to xDAO, more than 700,000 people around the world are involved in DAO operations with more than $8 billion in total assets under management. According to research firm Messari, many DAOs currently hold balance sheets over $50 million.

In theory, the DAO is the most cost-effective and fair organization model ever conceived. DAOs solve many of the problems of traditional top-down business models. Business as usual is rife with central points of failure, middlemen and unaligned shareholder interests. DAOs envision organizations and platforms owned and managed by their members with all of them having a say. DAOs are yet another megatrend happening in crypto. Don't sleep on them. Those who get ahead of this curve stand to make a fortune.

Tip: In the coming years, DAO NFT projects are going to be bigger than some of the largest companies in history. The best art will be owned by DAOs. As will the best brands. The best nightclubs. Perhaps even the best museums and cultural centers. Learning about this trend today will magnify your chances of catching these tremendous opportunities on the ground floor.

Crypto Gaming

CHRIS CAMPBELL

"Things can change so fast on the internet."
—Tim Berners-Lee

An estimated 2.7 billion people around the world play digital games. Furthermore, a study by NPD Group has concluded that around 91% of kids play virtual games on a regular basis. Another study says 60% of all Americans play some sort of game on a regular basis. Fortnite alone, a popular multiplayer game, generates $5.1 billion in revenue. The entire gaming industry is expected to surpass $300 billion. With the rise of augmented reality (AR), virtual reality (VR), esports, blockchain and the metaverse, the gaming industry is going through a massive shift. Right now, when it comes to investing in this space, we're in the sweet spot. *Not too early, not too late.* Make the right moves and **you could see 10,000%-plus gains in the near future.** Even potentially during a crypto winter, when everything else is falling.

Today, we're going to focus on...

1.] The convergence of blockchain and gaming.

2.] How to spot the BIG opportunities before they hit the mainstream.

Blockchain Games

The gaming industry is perfectly positioned for the rise of crypto. NFTs, distributed computing and tokenization allow gamers to participate, own and create in-game assets and earn money while playing and building in the game. Consider three major points:

1.] Gaming is the amalgamation of sound design, animation, art, storytelling, programming and engineering. The best games will be created by millions of the best minds coming together in one permissionless "metaverse."

2.] Gaming is already the world's biggest sport. With the rise of augmented reality, virtual reality and esports, this trend will only magnify. Crypto allows for gamers to *own a piece of the network effect, also gaining from the upside.*

3.] The demand for what crypto offers (in the form of betting markets, play-to-earn and NFTs/digital assets) has existed in the gaming world for *decades.*

In short, the gaming industry has been primed for blockchain technology since games like World of Warcraft introduced in-game currencies. In World of Warcraft, the in-game currencies had no value in the real world. In fact, selling your assets on the gray market could get you banned from the game. This is how all major games work: A gamer could spend hundreds of hours playing a game only to see their tokens, skins, items, weapons, *whatever,* get wiped away (from a ban, hack or otherwise) because they're recorded in a centralized server. Moreover, most of these games thrive on user-generated content while the people who create this content see no value for their work.

On the other hand, if those items were issued as NFTs, the gamer would have full control over them. Moreover, those items can be thrown over the "walled gardens" of traditional games, having value outside of the game. In short, in the gaming world, there's already massive demand for what crypto brings to the table:

→ Digital real estate/assets inside popular games/metaverse

→ Betting and gambling on esports and games

→ Interoperability in between games (moving your characters, weapons, items between games)

→ Play-to-earn games

→ Tradeable user-generated assets (NFTs),

When talking about "mass adoption," **the gaming world is going to see it first.** Again, the demand is already here. Gamers want to be able to own, trade and earn in-game assets. (They already *pay* to be able to do these things.) Ryan Wyatt, head of gaming at YouTube, wrote recently, "I'm bullish on NFTs. I believe play-to-earn is the next major gaming model as well as an open market for in-game digital items; most in-game assets are illiquid, which is insane to me. All of this will change long term through blockchain and NFTs. It's self-evident."

Think about what this shift means. Traditionally, gamers don't get any value from the games they enjoy. Despite all of the time and energy spent playing these games... and even creating new fan-made content for these games ("user-generated content")... all of the value gets sucked to the top. But that's going to change.

Play-to-Earn (P2E)

P2E games allow players to buy, trade and earn tokens and NFTs as they play games. In many cases, players can even create their own assets to use in the game. While traditional gaming is done by a centralized group of programmers, P2E games allow for games to be built by hundreds and thousands of people simultaneously.

Pro crypto gaming investing tip: You need to understand they do literally nothing for months/years. This is WHY they are so good because you can get them when the hype is low and at 50–100X potential. Games take TIME after they get their first $$, there always [is] a huge lull.
—Alex Becker, @ZssBecker

In the **P2E** model, furthermore, rather than all of the value getting sucked to the top, it is distributed throughout the game. (How it's distributed is determined by its tokenomics—or rules laid out on the blockchain.) **Play-to-earn games like Axie Infinity and The Sandbox have exploded in popularity in the past three months.** Axie Infinity is a Pokémon-style game with around 350,000 daily active users, mostly in the Philippines, Venezuela and the U.S. **AXS,** the game's utility token, was trading at 12 cents on Nov. 6, 2020. Today? It just hit $153... a 127,500% gain.

For perspective, had you bought 1,000 AXS tokens in November, worth $120, they would be worth over $153,000 today. Consider also that players are earning money by simply playing the game. The object of the game is to collect "Smooth Love Potions" (SLPs) used to breed new characters. SLPs double as cryptocurrencies and can be bought and sold on various crypto exchanges. At its peak, top players were reportedly earning about $450 per day. Personally, I think it's too late for projects like Axie and Sandbox... the biggest gains have already been made. Moreover, the gaming sector is pretty fickle. Games are hot today and then old news tomorrow. What's better? Picks and shovels!

"The Bitcoin of Gaming"

While you could dig through the crypto gaming communities and find some hidden gems... this isn't always the best strategy long term. **Games rise and fall in popularity fast.** The best approach is the "pick and shovel" plays that allow you to invest in the entire crypto gaming space. Be on the lookout for projects looking to *connect* large games, creators and players. Also, look out for DAOs and funds that invest in crypto games. They'll do the legwork for you. That's not to say you shouldn't dig for hidden gems. If you do, however, spread your bets. Don't go "all in" into a tiny $100 million market cap project. You're asking to get the rug pulled out from under you.

> Studying indie game marketing, game design and game art is perhaps the best way to get stupidly rich from crypto gaming

> in the next few years. It's not about the tech. It's about the game, the marketing and games that get COMPLETED.
>
> —Alex Becker, @ZssBecker

I'll give you one example of a pick and shovel: **Enjin.** Some call Enjin the "Bitcoin of gaming." Put simply, Enjin offers video game developers an easy way to integrate blockchain and NFTs into their games. (Enjin is currently compatible with over 40 games, but no major games... yet.) And it allows businesses, entrepreneurs and artists to create NFTs for these games.

One of Enjin's plans is to create "multiverse assets." These are NFTs that you can use in many different games—whether it's characters, pets, vehicles and weapons. Also, while you can create and buy NFT assets inside games, you can also "melt" them back into Enjin Coin, selling them on major exchanges for money. What gives Enjin an edge? Enjin has created the ERC-1155 token, allowing for instant, secure and free NFT transactions on the Ethereum blockchain.

The downside is that because crypto is such a dynamic market, Enjin has plenty of competition. **But if Enjin can convince one major game developer to use their blockchain, it's a guaranteed winner.** Time will tell, but Enjin is one project to keep on your radar. There are two tokens in the Enjin ecosystem.

- ENJIN (ENJ**):** Enjin is the utility token for the Enjin ecosystem. Upon writing, 83% of the tokens are already in circulation and when tokens are minted as NFTs, they are taken out of circulation, making ENJ deflationary.
- EFINITY**:** Efinity aims to be the best cross-chain NFT blockchain. The project frames itself as environmentally friendly, scalable and built for games, apps, enterprises and creators to deliver their own nonfungible tokens.

Another great example is **Yield Guild Games (YGG).** YGG is a DAO for investing in nonfungible tokens (NFTs) used in virtual worlds and blockchain-based games. By investing in YGG, you're

investing in a distributed fund that's partnering with and investing in the hottest play-to-earn games in the budding industry. Broken down, the guild is an ownerless wallet that votes for and invests in high-value NFTs in popular games. These NFTs are lent out to community members who use them to earn money in the game. The guild takes a percentage of the player's rewards, which are distributed out to all YGG holders. It's one of many wildly unique ways to invest in this space. Simply tracking what YGG is investing in will put you ahead of the curve.

Happy hunting!

WATCHLIST

-> FARALAND (FARA): a play-to-earn role-playing game based on the Binance Smart Chain

-> ILLUVIUM (ILV): an open-world fantasy battle game on the Ethereum blockchain

-> Star Atlas (ATLAS): a big-budget multiplayer gaming metaverse on the Solana blockchain.

The Metaverse

"The metaverse isn't a 3D world owned by some corporation. It's a permissionless market-network which respects and interconnects all user-owned and cryptographically secured digital identities, reputations, wallets, communities, spaces and objects. It's bootstrapping right now."
—Naval Ravikant

Remember buying up as much of Facebook's cryptocurrency, Libra, as you could? No? Yeah, me neither. That venture didn't stop Facebook from continued efforts at reinventing itself. In 2021, just as the politicians began rattling the cages about breaking up Big Tech, Facebook Inc. announced it wanted it to become a "metaverse company." *The Zuckerverse cometh.* "At least," Tae Kim writes for Bloomberg, "that's the story its management wants everyone to believe after a flurry of interviews and announcements over the past couple of weeks." It is just yet another narrative, says Kim, that Facebook is using to plant itself at the bleeding edge of innovation... again. We agree with Kim: "I'm skeptical." But we're getting ahead of ourselves.

WTH Is the Metaverse?

The metaverse is a leap from 2D internet to 3D internet. And... yes... on the face of it, given the current state of Big Tech, the idea can seem a bit creepy. Especially since every depiction of virtual worlds in science fiction is set against a backdrop of dystopia. In fact, the term "metaverse" originated with author Neal Stephenson in his 1992 novel *Snow Crash.* In the book, the metaverse is a virtual space where people interact with one another through

user-controlled avatars. (Another pop-culture example: *Ready Player One*.)

Venture capitalist Matthew Ball has written on the main attributes of a metaverse: mainly a fully functioning pseudonymous (avatar-based) economy, always on and always live, and offering interoperability between all digital assets, content and items.

Tae Kim puts it like this: "Think of it as a futuristic version of an always-on multiplayer video game where you can play, socialize or even run a moneymaking business in a realistic computer-generated environment." And Zuckerberg, during an interview with The Verge, said this: "The metaverse [is] an embodied internet, where instead of just viewing content—you are in it. And you feel present with other people as if you were in other places, having different experiences that you couldn't necessarily do on a 2D app or webpage, like dancing, for example, or different types of fitness."

As Jeffrey Tucker points out, it can't help but feel a bit creepy in light of the recent pandemic:

> People have never been more hungry to get away from digital everything and get back to real life. This accounts for why airports are so full, bars and restaurants are jam-packed despite CDC warnings and why so many people are desperate to get back to classrooms and offices.

Furthermore, anything that gives the tech behemoths even more power might not sit well with a huge chunk of the population. In our minds, any metaverse worth having would wrest control from the digital behemoths, bringing power back to the individual: "Not," Tucker adds, "with the purpose of displacing the physical world but rather providing a more humane integration between the physical and digital, one that behaves in ways that replicate the world we love."

The Zuckerverse?

In his book *Life After Google,* our own George Gilder showed why the slow dawning of this next generation of technology will not be ruled by the titans but that it will eventually push them into obscurity. The cryptocosm, as Gilder calls it, of which the metaverse would be a part, aims to place control and creativity back into the hands of the individual. That is the only metaverse worth its salt.

On this, Tucker says:

> There is something important to the vision of a metaverse future—not to further disembody us from the world, but rather to bring humane individualism to the digital experience. If its progress tracks that of blockchain technology generally, we shouldn't be looking at legacy institutions to drive the progress. That Facebook will have much at all to do with building the next generation of immersive digital experiences is highly in doubt.

With the rise of disintermediating tech, the Zuckerverse, like Libra, is doomed to fall by the wayside. (Don't worry. Zuck will probably be fine.) For you, opportunities abound. Keep in mind, the metaverse will require a slew of innovation from all corners of the infosphere: blockchain, VR, semiconductors, software applications and much more. So who then is ahead of this massive trend of reinventing the net? And how can you invest? We'll stay on the bleeding edge of all of these trends in our newsletters. Stay tuned.

> Tip: Upon writing, if there's one cryptocurrency that has the most chance of being THE metaverse coin, it's Ethereum. If true, James' prediction of $100,000 Ethereum is just the beginning.

CBDCs

CHRIS CAMPBELL

"This is (one reason) why CBDCs are a train wreck in slow motion. We are privileged to watch this crash as it develops."
—Ian Grigg

The Ming Happy Spa on Montague Street in New York City sticks out like bagpipes in a classical orchestra. On a street full of bright shops with see-through windows, it's a shifty joint trying a little too hard to hide in plain sight. It doesn't help that the spa is open until 1:00 a.m., seven nights a week. And that it stays remarkably busy for a small spa—especially the closer you get to witching hour. Locals have undoubtedly noticed the steady stream of men, mostly well-dressed, late into the night. Of course, nobody is scratching their heads wondering what goes on there.

"The alleged illicit massage business in the upscale neighborhood," Gabrielle Fonrouge writes for the *New York Post*, "is one of at least 629 others currently operating across the five boroughs—a network of illegal enterprises so vast, they outnumber Starbucks two-to-one citywide, according to data from Heyrick Research." You read that right. Brothels and illicit massage parlors outnumber Starbucks two-to-one in NYC. And they're all illegal. (Gasp!) Now, consider this is just one example of why central bank digital currencies (CBDCs)—at least in the way they're being proposed—will fail.

Train Wreck

Just to be clear, I'm not against CBDCs. They're an excellent innovation. Should we have CBDCs? Yes. Should we have one run exclusively by the Federal Reserve? *Absolutely not.* Here's just one example why: In June 2021, Tom Mutton, a director at the Bank of England, said during a conference that programmable money will become a key feature of any CBDC. Meaning, the CBDC would be programmed to do precisely what the issuer wants it to do. "There could be some socially beneficial outcomes from that," said Mutton, "preventing activity which is seen to be socially harmful in some way. But at the same time it could be a restriction on people's freedoms."

The problem becomes obvious when you think about central banks using this technology—in the name of social justice, climate change or what have you—"for your own good." Ian Grigg, for one, says it's a good thing bankers are floating these ideas so openly: "What happens when you put a train on top of a slippery slope before the people get on?" asks Grigg. "They see the train wreck to come and don't get on." Grigg is a well-known cryptographer and software developer. Some people think he's Satoshi Nakamoto. (We, on the other hand, have a different theory. We revealed who we think Satoshi Nakamoto is in Section II.)

Why does Grigg believe CBDCs are a train wreck in the waiting? The answer leads us back to why money was created in the first place. "Money," Grigg writes, "is sometimes characterized as solving the double coincidence of wants—econo-lingo for swapping your one cow for 1,000 eggs. That is, you sell your cow for money and buy an egg a day with the proceeds." The evolution of money is pretty straightforward. Money needed to be a good store of value so you could buy 1,000 eggs for 1,000 days. You didn't want your money to rot like an egg. We solved that problem in 100,000 different ways. But they all eventually failed, replaced by something else.

Now comes the latest mutation in money: programmable money enforced and protected by math. There are two main types

of programmable money set to take over the world. One is centralized—the CBDC. The others are decentralized—smart contract platforms like Ethereum, Solana, Cardano and more:

> The former aims to be closed and tightly controlled. The latter aims to be open and free

> The former solves zero problems of money, while creating new ones with the many pitfalls of central planning. The latter solves many of the problems plaguing paper money.

Infinite Coincidences of Wants

Programmable money solves a lot of problems. As NFTs are beginning to reveal, it also allows individuals to own "shares" of network effects. This holds incredible implications for the future of the internet. Alas, the one-trick ponies at the top are monomaniacally focused on only one of the potential applications of programmable money: control.

Sir Jon Cunliffe, a deputy governor at the Bank of England, said this:

> You could think of giving your children pocket money but programming the money so that it couldn't be used for sweets. There is a whole range of things that money could do, programmable money, which we cannot do with current technology.

On a small scale, this innovation is indeed interesting. What parent wouldn't want to make sure their kids aren't buying things that are bad for them? (And what teenager, no matter the restrictions, wouldn't find a way around it?) Ultimately, however, centralized programmable money means the caring majestics in seats of immense power get to stop you from making mistakes with your money.

In fact, they get to save you from any potential mistakes you might make, forever. For example, if you happen to be saving

("hoarding") too much, they can solve that problem with a few key clicks. If you bought too many beers last weekend? Well, don't worry. You won't be allowed to do that anymore. Plus, expect a counselor to knock on your door at any moment. (If this sounds like a dystopian fantasy, China's social credit score is set to hit such a zenith.)

This means:

> Caps on what you're allowed to sell

> Caps on what you're allowed to buy

> Arbitrary rules on how you can buy and sell

> Rules for every single financial decision you make.

Beyond the fact it strips every individual of their dignity and freedom: practically speaking, it quickly becomes a logistical nightmare—even with the most advanced tech.

Consider the Brothel

All of this leads, says Grigg, "to the infinitely multiple coincidence of wants—if you want to pay in CBDC, you'll need to find someone else on the train." Massage customers will find they can buy Starbucks, but not massages. Masseurs will not earn CBDC and won't buy Starbucks. Do you think the men will stop going to the "happy" massage parlors? Maybe some of them. But you see the problem.

With CBDCs, our money hasn't evolved. The CBDC not only solves zero problems of money, it doubles down on them. Moreover, in order for this system to work, the central planners must eradicate 100% of competition. Just like they do in prisons. And yet even in prison they find viable alternatives. Cigarettes. Prepaid phones. Cans of tuna. Whatever. "This is (one reason) why CBDCs are a train wreck in slow motion," says Grigg. "We are privileged to watch this crash as it develops."

Again, should we have CBDCs? Sure. Should we have one run by the Federal Reserve? *No.* We should have CBDCs run by lots of different competitors. Cryptonauts suggest the financial mess we're in boils down to a monopoly on money. I reckon they're mostly right. Choice solves many of the problems produced by monopolies. Freedom of choice in money allows the money that solves the most problems to rise to the top. Money is how we store, express and create value. Want to make the world work for the highest percentage of humanity? Free the money, free the world.

Quantum Genocide

CHRIS CAMPBELL

"Well, all information looks like noise until you break the code."
—Neal Stephenson, Snow Crash

Plot: An unhinged computer scientist uses advanced AI and quantum computers to unleash great evil into the world... and crack open Bitcoin wallets. Kai-Fu Lee calls it "quantum genocide." It's a sci-fi story in his latest book *2041: Ten Visions for Our Future.* The book is a mash-up of several sci-fi stories based on real-world predictions.

> NOTE: Kai-Fu was on Altucher's podcast to talk about the book and his personal technology predictions. You can listen to Parts 1 and 2 on iTunes.

Cracking Bitcoin

Technology, says Kai-Fu, doesn't choose sides. It's just an accelerant. "Technology is inherently neutral," he explains. "It's people who use it for purposes both good and evil. Disruptive technologies can become Prometheus' fire or Pandora's Box, depending on the human using the technology." Quantum computers won't just accelerate AI, he predicts. They'll accelerate every technological trend on Earth beyond our current comprehension. This presents us with unique opportunities and risks. Fortunately, we have a bit of time to figure those things out: "I believe [quantum

computing] has an 80% chance of working by 2041," said Kai-Fu. "And if that happens, it may have a greater impact on humanity than AI."

The story "Quantum Genocide" focuses on the negative use of quantum computing. It talks about breaking the encryption of Bitcoin wallets, "which is likely," Kai-Fu said, "to be one of the first major applications of quantum computing." It talks about the rise of autonomous weapons. Yes, *2041* is science fiction. But as Altucher said in the podcast, "Fiction is just truth wrapped in lies." Here's what you need to know about quantum computing... and whether or not it will have an impact on cryptocurrencies like Bitcoin.

What Is Quantum Computing?

"A quantum computer," Kai-Fu explains, "is a new computer architecture that uses quantum mechanics to perform certain kinds of computation much more efficiently than a classical computer can." Classical computers are based on bits. Bits are binary. They can only be 0 (off) or 1 (on). Every app, website and digital media is made up of billions of bits. Binary bits make computers easy to build and control, but they also limit their potential. Rather than bits, quantum computers use "quantum bits," or "qubits." They are made up of subatomic particles with unusual properties, giving them super-processing capabilities.

Things like...

Superposition: Each qubit can be in multiple states at any given time. This allows each qubit to process multiple outcomes simultaneously.

Entanglement: Two qubits can remain connected so that actions performed on one will affect the other *instantly*... even from great distances. "Thanks to entanglement," says Kai-Fu, "every qubit added to a quantum machine exponentially increases its computing power."

Though incredible, these unusual properties come with trade-offs. Quantum computers are highly sensitive to vibrations, electrical interference, temperature changes, magnetic waves and more. Any subtle change to the quantum computer can cause it to lose its coherence and break down. Quantum computing cheerleaders are confident we can find a way to make computers stable enough to maintain coherence.

Is Bitcoin Threatened?

Currently, even the fastest supercomputer would take 6,610½ years to crack a crypto private key. Buuut... cracking private keys is pretty straightforward. And with a fast enough computer, it could be done. In fact, the big brains already figured out how. "All one has to do," says Kai-Fu, "is implement the quantum algorithm in the seminal 1994 paper by MIT professor Peter Shorr. If this algorithm is run on a quantum computer with 4,000 qubits or more, it can break a class of cryptography algorithms under 'asymmetric cryptography.'"

"Asymmetric cryptography" algorithms are used for Bitcoin and many other financial transactions online. They're based on two keys: a public key and a private key. Your transactions are perfectly secure as long as nobody has your private key. For now, at least.

The Solution: Be Insanely Early

How do you make outsized gains from this mega-trend? It's simple. Be insanely early. Have it on your radar *now.* Although quantum computing is in our distant future, that doesn't mean a hype cycle (or several) won't emerge in the meantime. They will. That means there are plenty of ways to make money from this mega-trend.

Consider also: Quantum-resistant algorithms already exist. Peter Shorr proved that impregnable cryptography can be built on quantum computers. "The only way to infiltrate this cryptography," Kai-Fu adds, "is if the principles of quantum mechanics are

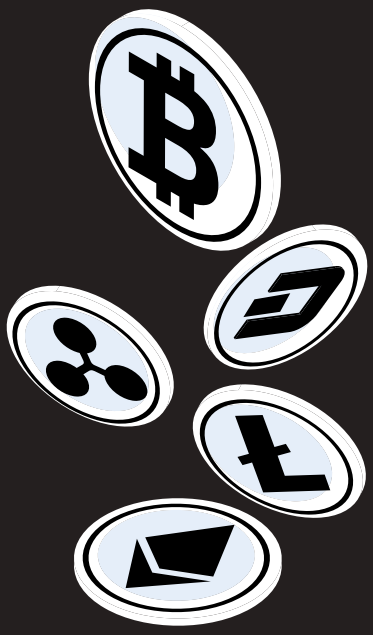
found to be incorrect." (This is possible. But quantum mechanics has long been hailed as the "most successful theory in physics." So we'll see.)

Furthermore, it's often said that one year in crypto is equivalent to one decade in traditional markets. I've mentioned before that this is both true and false. The smartest people in the world are working day and night in this space—24/7, 365 days a year. So it's no surprise that several cryptocurrency projects are already working on viable quantum-resistant solutions. And there are several projects—in crypto and in traditional markets—worthy of your attention in the quantum computing realm. The hype cycle for quantum computing is nigh. And in our newsletter, we'll show you how to be insanely early for it.

> Tip: Quantum computing has a massive hype cycle to come. Cryptos that focus on quantum resistance today have a great chance of skyrocketing when the hype cycle eventually comes.

TRADFI

WHERE DE-FI MEETS TRADITIONAL FINANCE



Crypto Failed... Long Live Crypto!

ZACH SCHEIDT

"It's gold for nerds."
—Stephen Colbert

For years now, the allure of cryptocurrencies—and Bitcoin in particular—has been tied to the idea of decentralized finance.

"Bitcoin can't be governed or regulated!"
"Cryptocurrency transactions are anonymous and can't be tracked!"
"These new currencies will give everyone access to financial services!"

And for a time, these features were a big part of what *attracted* buyers to Bitcoin. We've all heard stories of Bitcoin's use as a secretive currency for illicit transactions and hidden wealth. Even *legitimate* uses for these currencies—like sending money to relatives in another country—were still beneficiaries of the anonymous features of blockchain transactions.

But as cryptocurrencies became more popular, blockchain technology became a threat to established financial markets. Some of Wall Street's banks saw Bitcoin as a threat to their dominance over traditional financial markets. And government central banks like the Federal Reserve are now becoming more aware of how cryptocurrencies like Bitcoin can undermine their authority to regulate a country's currency.

Bottom line, the more *successful* Bitcoin and other cryptocurrencies have become at creating a decentralized system for transactions, the more dangerous this technology has become to the established financial system. And because of this danger, there's been a major shift in the way cryptocurrencies are treated over the past few years. I'm sure you've heard the old phrase: "*If you can't beat 'em, JOIN 'em!*" And that's exactly the game that large institutions and even governments are playing in the cryptocurrency space.

For a while, financial institutions mocked Bitcoin and other cryptocurrencies, calling them "fake money" or worse. Even today, there are plenty of noteworthy executives who have gone on the record with statements like "Bitcoin is worthless" or that cryptocurrencies are only being used for illicit transactions. And in the past, governments have tried to ban or criminalize cryptocurrency transactions in an attempt to squash the new disruptive technology. But now those tactics have changed!

Around the world, financial firms are starting to warm to the idea of cryptocurrencies. Some are even adopting blockchain technology to help manage and secure financial accounts! At first it was just a few smaller firms hoping to make a name for themselves by being "first movers" with new technology. But today, even the most prestigious firms on Wall Street are starting to support cryptocurrency transactions.

Meanwhile, an *entire country (El Salvador)* has announced the acceptance of cryptocurrencies as legal tender. And the U.S. government—along with the Federal Reserve—is laying groundwork to regulate and tax cryptocurrency transactions and profits.

So here's the question... Now that Bitcoin and other cryptocurrencies are more widely accepted in the financial markets and on a path toward being regulated (and taxed) by governments... is that a good thing or a bad thing? Of course it's not an easy question to answer.

There are benefits with this regulation. Moving forward, these cryptocurrencies will be easier to use, fraud will be less of a problem and blockchain technology will have some very beneficial uses for all of society. But it's hard to ignore the fact that this transition is ultimately the *failure* of the original concept behind Bitcoin. Instead of being an untraceable, untaxable, completely anonymous "currency," Bitcoin is on the path toward becoming a regulated, tracked and taxed currency much like other fiat currencies around the world.

There's still the *huge benefit* of being a finite resource. No government can simply print more Bitcoin to monetize its debt. But it's becoming clear that Bitcoin is failing in its original concept of being an "under the radar" form of payment. Ironically, this failure has also led to Bitcoin's greatest success! (And, by extension, a great success for other cryptocurrencies as well.) Because as cryptocurrencies become widely accepted in more traditional areas of finance, these currencies have become *much more valuable*.

Both the failure and success are two sides of the same coin. Failure as a rogue decentralized currency means success in traditional markets. And that success is leading to tremendous opportunity for investors who understand this dynamic. In the next few chapters, we'll cover some of the ways cryptocurrency's debut in the world of *traditional finance* has created new ways to build your wealth.

Your Crypto Retirement Plan

ZACH SCHEIDT

"Bitcoin is a remarkable cryptographic achievement, and the ability to create something that is not duplicable in the digital world has enormous value."
—Eric Schmidt, CEO of Google

If you're a firm believer in the value of cryptocurrencies... their future role in the financial world... and the potential for huge gains over time... you'll want to make the most of this once-in-a-generation opportunity! That means investing a portion of your savings in Bitcoin, Ethereum and other currencies you expect to appreciate. But there's one big problem that investors have been running into.

Until cryptocurrencies are classified as "securities" and regulated by the Securities and Exchange Commission, they can't be traded in most retirement accounts. That's unfortunate, because so many people have the majority of their investment funds tied up in an individual retirement account (IRA), a Roth IRA, a company-sponsored 401(k) retirement plan or some other tax-efficient account. Of course there may be workarounds available to some of the most wealthy investors. These affluent savers can often use an independent "custodian" for their retirement funds and that custodian may allow a wider range of investments.

But for the normal middle-class investor, cryptocurrencies cannot easily be held in a retirement account. And even wealthy investors have to pay exorbitant fees to work with these independent custodians. Fortunately, there are a couple workarounds that can allow you to tap into crypto's wealth-building opportunities through your retirement account. And as cryptocurrency markets continue to evolve, some *exciting NEW* wealth-building catalysts will evolve.

Current "Workarounds" for Your Retirement Account

While you can't directly buy crypto currencies with your retirement account, there are a number of financial companies that have been lobbying for permission to launch cryptocurrency exchange-traded funds—or ETFs. ETFs are funds that typically invest in a basket of stocks, bonds or other investment securities. Each ETF has a fund manager in charge of allocating funds from investors, facilitating deposits and withdrawals and creating accurate records for tax reporting.

Once these ETFs are eventually approved (and it's only a matter of time until these funds become available), they will be perfect options for retirement accounts. That's because publicly traded ETFs behave a lot like stocks and will be very easy for 401(k) and IRA custodians to track. Keep in mind the ETF industry is very competitive, which is great news for consumers. As investment companies scramble to offer the "best" crypto ETF and attract customers to their fund, fees and overhead expenses will be low. This will leave more of your retirement capital *growing* instead of just padding the profits of these Wall Street firms.

While you're waiting for these new cryptocurrency ETFs to be approved, there are a few other options to consider for your retirement account. The **Amplify Transformational Data Sharing ETF (BLOK)** is an ETF that invests in a basket of stocks tied to blockchain technology. According to Amplify (the financial firm managing this ETF), the companies included in BLOK are:

- Actively engaged in blockchain research and development
- Profiting from the demand for blockchain applications
- Partnering with or investing in companies that profit from the blockchain
- Acting as members of a blockchain consortium. (Source)

So while this ETF doesn't *directly* correlate to higher or lower Bitcoin prices, Ethereum prices or other cryptocurrency fluctuations, it *does give investors exposure* in a roundabout way. If you believe that cryptocurrencies and the broader blockchain technologies will generate profits for the companies that BLOK invests in, the ETF can make a great long-term holding to help grow your wealth. Best of all, BLOK can be held in a traditional retirement fund, giving you access to this dynamic area of the market even with your tax-deferred or tax-exempt investment capital.

Get Ready for the NEXT Wave of Crypto Demand

Demand for safe and easy ways to invest in cryptocurrencies is picking up. And now that entire countries are looking to allow cryptocurrencies as legal tender, it's only a matter of time until financial regulators step in and "securitize" cryptocurrencies. This process will open the door for ETFs to be able to invest directly into specific currencies.

More importantly, this will give even more perceived *legitimacy* to cryptocurrencies in the eyes of financial planners and wealth managers. It's hard to overstate the importance of this transition. Because once cryptocurrencies become available for taxable accounts like IRAs and 401(k) accounts, it will ignite a new wave of demand for cryptocurrencies. At the same time, traditional wealth managers have collectively kept their head in the sand when it comes to the importance of these new currencies.

But once Bitcoin, Ethereum and other currencies are deemed "securities" and regulated by the SEC, these financial planners and "professional" investors won't be able to ignore the space

anymore. Cryptocurrencies are on their way toward being a fully functional "asset class" just like precious metals, equities, bonds, real estate and the like. Think about how demand for cryptocurrencies will change...

When the traditional Wall Street establishment fully embraces these currencies, the resulting bull market could be unlike anything we've seen up to this point. So investors who buy these currencies *before* the securitization process begins are likely to mint huge profits. We could even see a new wave of multimillionaires made as this revolutionary technology makes its debut on the traditional financial markets.

Buy Bitcoin on Sale

ZACH SCHEIDT

Did you know it's possible to invest in Bitcoin while paying a *discount* to the actual price of the cryptocurrency? It's not a joke or a gimmick. And your investment isn't in some shady or questionable scheme that requires you to borrow funds or take extra risk. In fact the investment I'm about to show you is a *regulated way* to profit from a rise in Bitcoin prices while potentially getting a *big head start* if you buy at a steep discount. While Bitcoin enthusiasts have traditionally fallen into the "anti-regulation" camp, there are some *benefits* to the regulated investment that I'm about to show you.

Not only do you have the potential to get as much as a 21% discount with this Bitcoin investment, you can also make this purchase within the safety of a traditional brokerage account. Depending on how your account is set up, you may even be able to invest through your IRA, 401(k) or other retirement account! The unique "financial packaging" of this investment opportunity gives you the protection of government regulation along with a potential discount (sometimes as much as 21%) to make this a great play if you believe Bitcoin prices will rise. Let's start by looking at the company that created this unique investment.

Grayscale Brings Digital Currencies to the Masses

Many investors have locked in tremendous profits as the price for Bitcoin has surged. But at the same time, many other investors have been left behind because of the difficulty (or *perceived difficulty*) of buying and selling this cryptocurrency. If you're reading this book, you probably already have a good idea of exactly how to invest in Bitcoin (and other cryptocurrencies). Maybe you're even one of those investors that has already used Bitcoin to accumulate wealth.

Meanwhile, investors who have capital in more traditional brokerage accounts have found it much more difficult to invest in Bitcoin, Ethereum or other cryptocurrencies. A *traditional finance* company called Grayscale is bridging the gap between the DEFI and the established financial community. Grayscale offers a well-known "closed-end fund" designed to track the price of Bitcoin. **Grayscale Bitcoin Trust (GBTC)** is listed on U.S. stock exchanges and is easy to buy and sell in a traditional brokerage account.

The closed-end fund structure creates a few nuances that make GBTC a bit different from a direct investment in Bitcoin. When you buy shares of GBTC, you're buying fractional ownership in a "trust"—much like buying shares of stock gives you fractional ownership of a company. This trust owns actual Bitcoin that is held in cold storage. So indirectly, buying GBTC gives you ownership of a specified amount of Bitcoin. Since GBTC trades on the market like any other stock, the day-to-day price of GBTC fluctuates based on the buy and sell orders—not necessarily on the day-to-day value of Bitcoin.

Grayscale can calculate the *real-time value* of GBTC, which is known as the "net asset value" (NAV) of the fund. To calculate the NAV you simply take the price of Bitcoin, multiply it by the total units of Bitcoin held by the trust and then divide that number by the number of shares the trust has outstanding. In other words, NAV represents one share's portion of the Bitcoin held by GBTC.

You would think GBTC would trade in lock-step with the NAV. But due to market dynamics, supply and demand pressures and investor expectation of where Bitcoin prices *might trade* in the future, the price of GBTC doesn't always match the value of the Bitcoin held. In fact, sometimes the stock market value of GBTC is *very different* than the true NAV of the fund. And that difference can give investors a distinct advantage.

In April 2021, GBTC traded for just 21% of the true NAV of Bitcoin held by the trust. And over time, there have been *many occasions* where GBTC trades below its NAV for extended periods of time. These periods give investors an opportunity to buy GBTC—which is truly buying ownership in Bitcoin—at a wide discount to the actual Bitcoin held by the fund. This way, if Bitcoin prices continue to rise—and if the fund starts to move back toward parity with the value of Bitcoin held—you'll be able to lock in a return that is *materially larger* than Bitcoin's advance!

There are multiple free resources online that track GBTC and its discount (or premium) to its actual NAV. A strategy of buying GBTC when it trades at a steep *discount* to NAV and selling the fund whenever it trades at a *premium* to NAV would give you much better returns than buying and holding Bitcoin during the same period.

Don't Miss out on Ethereum!

In addition to GBTC, Grayscale also has a closed-end fund for Ethereum. **Grayscale Ethereum Trust (ETHE)** also trades on U.S. stock exchanges and can be bought with just about any brokerage account. The fund has the same structure as GBTC. A trust owns actual units of Ethereum and shareholders own units of the trust. And just like GBTC, there have been extended periods when ETHE trades at a discount to the trust's NAV.

So far, the lowest discount to NAV has been about 13%. So historically, ETHE has been much more in sync with the actual market price of Ethereum. Still, buying ETHE at a 13% discount to Ethereum gives you a head start and can help to accelerate your

returns if Ethereum values continue to climb. Just keep a close eye on the trust's discount or premium to NAV. Whenever GBTC or ETHE trade at a *premium* to NAV, you're likely better off selling and simply purchasing *actual* Bitcoin or Ethereum.

Mining For Digital Gold

ZACH SCHEIDT

As cryptocurrencies become more widely accepted in the *traditional financial* world, crypto mining is becoming big business! While every cryptocurrency is a bit different, the basic process of "mining" is an important part of what makes the blockchain technology work. There are hundreds of great resources out there that explain the subtleties of how the "mining" process takes place, what it takes to "mine" a single Bitcoin and how the technology has continued to evolve.

In this section, we're focused much more on how to use this process to *build your wealth* instead of giving you a deep education in blockchain technology—the backbone of how cryptocurrencies work. The business of mining Bitcoin and other cryptocurrencies can be extremely lucrative. And thanks to the stock market—one of the most iconic parts of the *traditional finance* ecosystem—individual investors like you and I can participate! In the next chapter we'll cover three separate cryptocurrency mining companies that you can invest in. But first, we'll cover the basics of how this industry works.

"Solving Problems" to Create New Coins

The Bitcoin blockchain is built on a network of computer servers all working together to keep the network operating. These computer servers work day and night, performing calculations of

sorts to solve very complicated digital "puzzles." (Remember, this is a non-technical explanation to help lay out the business process for crypto mining companies.) Each time one of these "puzzles" is solved, a new coin is created and rewarded to the computer that unlocked this new currency.

Thanks to the Bitcoin rewards, companies have a financial incentive to keep computer servers working hard in the blockchain network. And these servers actually *enable* the blockchain to continue to work effectively. So there's a beneficial relationship between the miners and the Bitcoin network. Miners keep the network up and running so Bitcoin transactions can be processed and properly accounted for. And in turn, these miners are rewarded with new units of Bitcoin or other cryptocurrencies. The higher the price for these cryptocurrencies, the more incentive there is for mining companies to add more computer servers and more functionality to the overall blockchain network.

Trading Computers (and Electricity) Into Profits

At its very heart, the cryptocurrency mining business follows a very simple equation:

>>Computer Hardware + Electricity = Crypto Revenue<<

Entire companies have been built on this business model. Each company has to make a large capital investment in computer servers with the most powerful processors that can solve these complicated "puzzles" as quickly and efficiently as possible. Naturally, as more businesses set up shop... and as profitable miners roll their profits into *more computer servers* to generate even more tokens... demand for this high-powered computer equipment increases.

Over the last few years, demand for various types of computer chips has soared. And a big part of the demand for g*raphics processing units*—or GPUs—comes from the cryptocurrency mining industry. High demand and limited manufacturing of these chips has led to a shortage of equipment available for miners. Short-

ages naturally lead to higher prices. And today one of the major factors affecting the profitability of these miners is the cost of computer equipment. The other major factor is electricity.

It takes a lot of electricity to not just run the computer processes necessary to keep blockchain networks operating but also to keep the computer servers *cool* so they don't melt down. All of that power consumption is putting a strain on certain parts of the global electricity grid. And that strain has created challenges for cryptocurrency miners. Today, crypto miners have to be very strategic when setting up their mining operations. It can be difficult to source all of the necessary computer equipment. And once the equipment is manufactured or purchased, it must then be set up in a location where electricity is widely available and also affordable. Cryptocurrency mining companies who get this right and start successfully creating new currency units have one final decision to make: *to sell or not to sell…*

Crypto Inventory Options

Traditional mining companies that produce commodities like gold, silver, copper and other natural resources face choices for what to do with production. A gold miner may choose to sell gold immediately as it is produced. This means all ounces will typically be sold at the "spot price," or the current market price for gold. A competitor may instead choose to *hold onto inventory*. By storing gold that has been produced, the gold miner can lock in bigger profits if gold prices rise and the ounces are sold for more revenue.

Still other gold miners may make selling agreements *ahead of time*, agreeing to sell all or part of the mine's production at a specified price. This can help to reduce risk because a miner knows exactly how much the company will receive for its inventory and can then match the agreed-upon selling price against the costs of actually *producing* that gold. Each approach has its own benefits and its own drawbacks. And these pros and cons also vary depending on what type of commodity is being produced. For

instance, the cost to store tons of copper may be higher than the costs for holding gold inventory.

Crypto miners have similar decisions when it comes to coins that are generated by their computer servers. These miners can choose to sell the currency right away or keep large holdings in hopes that cryptocurrency prices will rise over time. If you decide to invest in a cryptocurrency miner, you'll want to keep an eye on what the company does with its inventory and its decisions on when to sell. Keep in mind, a company's cash flow, profits and balance sheet will all be affected by this decision of whether to sell or keep its Bitcoin or other cryptocurrencies. If your company decides to *keep its cryptocurrency inventory*, you'll notice the company's cash flow will be light. After all, this miner won't receive much revenue if it's not selling most of the cryptocurrency tokens it produces.

However, if these currencies *rise in value* while the mining company holds them, the total assets of the company will increase in value. So while this miner may not report a traditional accounting profit, the value of the stock should still be very high if crypto prices are rising quickly. These are all things to watch closely when making specific buy and sell decisions on crypto mining stocks. Next, we'll look at three mining companies that you should keep on your radar!

3 Crypto Miners to Watch

ZACH SCHEIDT

As cryptocurrencies become more widely used around the world, and as values for various tokens rise, mining companies should grow their profits alongside. Thanks to *traditional finance* investors can freely buy and sell shares of these mining companies on the stock market. That way individual investors can participate in the profits alongside the founders, innovators and institutional investors.

If you're optimistic about long-term profit growth for this industry, you may want to buy and hold shares of the three stocks we're about to cover. And if you're more of a short-term trader, these three stocks can be a great proxy to buy when you expect Bitcoin and other crypto prices to be *rising*, and to sell (or even *sell short*) these shares during times when you expect crypto prices to fall. It's just another way traditional finance is becoming more integrated with the "DEFI" origins of the cryptocurrency revolution.

Crypto Miner #1: Riot Blockchain

Our first crypto mining stock is **Riot Blockchain (RIOT)**. The company focuses primarily on Bitcoin mining through its U.S. facilities in Texas and New York. RIOT has been investing heavily to grow its capacity to mine more currency. As of the time of this

writing, RIOT currently has a fleet of more than 25,000 "miners" (or computer servers) with thousands more on order.

By focusing on Bitcoin, the company has taken more of a "conservative" route as far as mining operations go. Bitcoin at least has the *perception* of being the largest and most stable cryptocurrency currently in use. So focusing on Bitcoin instead of some of the more speculative "altcoins" gives the company a bit more credibility in the traditional finance world. Investors don't have to worry as much about a large holding in some altcoin becoming worthless and driving the share price of RIOT sharply lower.

With that said, RIOT may be giving up the potential for *windfall profits* that could come from mining more speculative altcoins. If RIOT were to build a large inventory of a particular coin that increased 1,000-fold, it could potentially give investors a much bigger profit. RIOT has chosen to build a large inventory of Bitcoin instead of selling its coins as they are being produced. At the time of this writing, RIOT reported inventory of 3,534 BTC—all of which have been mined by the company's servers.

To put that number into perspective, 3,534 BTC would be worth:

- $141 million when BTC trades at $40,000
- $177 million when BTC trades at $50,000
- $212 million when BTC trades at $60,000
- $265 million when BTC trades at $75,000
- $353 million when BTC trades at $100,000.

If you decide to invest in RIOT, be sure to check the company's monthly press releases. These reports clearly explain how much Bitcoin the company currently owns, the number of new coins mined during the month and the number of computer servers continually working to mine new coins.

Crypto Miner #2: Marathon Digital Holdings

Our next cryptocurrency mining stock is **Marathon Digital Holdings (MARA)**. The company is headquartered in sunny Las Vegas, Nevada, with data centers in Montana , Texas and South Dakota. MARA has a particular focus on efficiency–both with its use of electricity as well as through the company's financial structure.

Its server farms are strategically placed in locations that give MARA access to reliable and low-cost electricity. This helps the company keep expenses under control while maintaining a cutting-edge network that generates new Bitcoin quickly and efficiently. Marathon expects that 70% of its mining operations will be carbon neutral by the end of the first-quarter 2022. And by the end of 2022, the company's goal is to be 100% carbon neutral.

This initiative is certainly positive for the environment. And it also helps keep MARA in good standing with regulators who are increasingly vigilant about the environmental effect that cryptocurrencies have because of their power consumption. Much like RIOT, Marathon has elected to hold a large portion of the Bitcoin it produces. At last count the company held more than 7,000 BTC. And that number has continued to rise steadily every month. To estimate the value of these holdings, you can roughly double the previous table presented for RIOT.

Marathon recently opened a $100 million line of credit with Silvergate Bank. This line of credit is secured by the company's Bitcoin holdings and helps to give MARA more financial flexibility. By tapping into this line of credit, MARA can continue to hold more of the Bitcoin produced by the company. And this means MARA's value will grow more quickly as Bitcoin prices rise. The line of credit also creates opportunity for potential mergers or acquisitions if smaller mining operations go up for sale.

Of course more debt can lead to more risk. But if MARA continues to generate Bitcoin at a healthy rate and the price of Bitcoin remains stable (or advances), this stock offers investors a great way to profit from the "blue chip" coin of cryptocurrencies.

Crypto Miner #3: Hut 8 Mining

Our third crypto mining stock is **Hut 8 Mining Corp. (HUT)**. This Canadian mining company operates in Alberta with a competitive edge from its access to cheap clean energy. HUT is known for the unique physical structures built to house its computer servers. Each unit is a small "hut"-looking building with solar panels covering nearly every inch of the installation. If you visit either of the company's server farms, you'll see rows of these "huts" spread out in giant fields.

This arrangement takes advantage of the cold Alberta temperatures to naturally keep these servers cool. By cooling the computer equipment *naturally*, HUT can reduce the amount of power necessary to keep the servers up and running. At the same time, HUT has negotiated with energy firms in the province to guarantee access to power from natural gas, wind and other renewable sources.

Add it all up and HUT's energy strategy gives the company a natural advantage over competitors. Keeping electricity costs low may seem like an "old school" approach to managing a digital business but cryptocurrency's extensive use of energy resources has become an important issue for regulators and for mining profits. HUT's strategic decisions for energy consumption have allowed the company to stay ahead of its competition on this important issue.

HUT's Bitcoin mining operations have been reliable, leading to an average production rate of 16–18 Bitcoin units per day. As HUT adds more computer hardware to its fleet, this rate should increase. Similar to RIOT and MARA, Hut 8 Mining has opted to keep the majority of new coins mined in its own custody. In fact, HUT owns more self-mined Bitcoin than any other publicly traded company in the world.

At last count, the company held more than 4,450 Bitcoin and that number is increasing every day. And while HUT has prioritized Bitcoin production as its primary focus, HUT is also diversifying into Ethereum as well. This makes HUT a great min-

ing stock to trade as a play on Bitcoin prices. And also a great long-term stock to invest in based on HUT's excellent business advantages.

Buy Bitcoin on Someone Else's Dime

ZACH SCHEIDT

One of the hallmarks of the *traditional finance* world is the ability to invest using *other people's money*. Futures contracts in particular allow you to put up a certain portion of the money necessary to buy a position, with the rest of the money provided by the exchange. It's important to note that **you'll still be liable for the full amount of any loss you incur**. And at the same time, you'll also be the beneficiary of the *full amount* of profit from your position. But instead of putting all of the money up for a single trade, futures contracts let you keep some of your capital in reserve.

This can be helpful if your capital is tied up in another investment but you still want to take advantage of an expected rise in the price of Bitcoin. The DEFI market is full of schemes and platforms that let you buy crypto on margin (or with primarily borrowed funds). But most of these non-regulated platforms carry a tremendous amount of risk. With non-regulated platforms you are certainly going to lose money if your trade doesn't move in your favor. And presumably since you're a good person with morals, you'll pay the amount that you owe if the trade works against you.

However, some of these shady platforms don't have the same level of moral fortitude. And there could be times when your position actually works *in your favor*—but the exchange doesn't make good on the amount you are owed. That's why *traditional finance* platforms may be a much better way to leverage your Bitcoin exposure and build your wealth with more confidence that you will be paid when your position rises in value.

Using the CME Group to Place Your Bitcoin Bets

The CME Group is a regulated and well-respected financial exchange that has been in business for decades. CME actually stands for the Chicago Mercantile Exchange, referring back to the company's roots in the commodity trading pits in the Chicago's Financial District. Today, the CME offers many different financial contracts. And the company uses its deep financial balance sheet—along with refined financial technology—to manage its own risk and the risk of clients that use its platform.

CME facilitates trading in *futures contracts,* which can be great financial tools for traders expecting a rise or a fall for a particular asset. One asset now covered by the CME is Bitcoin... which means you can buy or sell Bitcoin futures contracts knowing that CME Group is standing in to guarantee that your trade will be honored. Active traders love futures contracts for a few different reasons. First, these contracts allow you to easily place a bet on *either side* of the market. So it's just as easy to place a trade expecting Bitcoin to trade *down* as it is to bet on an *increase* in the price of Bitcoin.

You can simply buy or sell a contract depending on whether you expect the currency to trade *up* or *down*. Some investors even use futures contracts to hedge long-term positions. Imagine you held a position in Bitcoin that you didn't want to sell—but you were worried about a short-term pullback. You could sell a futures contract that would *profit* from a pullback. And that profit could offset all or part of the loss from the pullback in your long-term

position. A second reason traders love this financial tool is because of the leverage futures contracts can allow.

(The term "leverage" simply means you get more return for your investment, often because you only have to put up a portion of the total value that the contract represents. In other words, you're using *someone else's money* to pay for part of the trade!)

Let's take a look at two different futures contracts currently offered by the CME Group.

Understanding Bitcoin and Micro Bitcoin Futures

A Bitcoin futures contract is technically an agreement between traders to "settle up" (at a specific point in the future) on a set amount of Bitcoin.

Traders will buy and sell these contracts at a market price that closely tracks the spot price of Bitcoin. Then when the contracts "settle" on a certain date, the buyer will receive a payment if the price of Bitcoin is above the original futures purchase price, or the seller will receive a payment if the Bitcoin price is below the original futures purchase price.

Most contracts are closed out *before* the actual settlement. If you *buy* a futures contract, you can close your position by selling it at the current market. And the opposite is true for traders who sell a futures contract.

On the CME, there are two types of futures contracts that are actively traded.

The standard Bitcoin contract represents five actual bitcoins. So if Bitcoin were trading at $60,000, one contract would represent $300,000 worth of Bitcoin.

As of this writing, these contracts have an initial margin of 50%. In other words, you only need to put up 50% of the contract's value to take a position. So buying a new contract when Bitcoin is trading near $60,000 would require $150,000 of your capital.

You'd still be responsible for *all the gains and/or all the losses* from this contract. But the CME Group only requires you to put up $150,000 to be held in the event you need it for potential losses.

Even better, the CME Group has a lower *maintenance margin* of 33%. For a Bitcoin contract priced at $60,000, the value of your account would have to stay above $100,000. So if Bitcoin dropped by 10% (leading to a $30,000 decline in your position), you wouldn't have to put up more capital to keep your position in play.

This arrangement allows you to keep a position in place—with less of your capital tied up—even while Bitcoin's volatility drives the value of your trade back and forth.

Once you close your futures trade, your account will be credited or debited with the total gain or loss from your trade.

If you don't have $150,000 to place on a single Bitcoin trade, don't worry! CME has a "micro contract" designed for individual traders with smaller account sizes.

The micro Bitcoin futures contract represents 1/10th of a single Bitcoin. So if Bitcoin is trading at $60,000, each contract represents $6,000 of exposure to Bitcoin.

Once again, the exchange requires traders to put up 50% margin. So at this price, you would need $3,000 in your account for each contract you bought or sold. The same 33% "maintenance" margin rate also applies. So you would be able to keep your contract even if Bitcoin temporarily moved against your position by 10-15%.

Keep an Eye out for Contract Changes

The CME Group consistently updates margin requirements for each futures product. And these rates are based on the volatility of each underlying asset.

Since Bitcoin has a history of wide price swings. the CME has an unusually high margin rate of 50% for Bitcoin futures con-

tracts. By comparison, futures contracts on the S&P 500 can be bought with an initial margin rate as low as 5%.

As Bitcoin becomes more widely accepted in the *traditional finance* world, the leading cryptocurrency's volatility is likely to level out.

In turn, the CME will almost certainly reduce the margin requirements for Bitcoin futures contracts. This lower requirement will allow you to buy or sell more Bitcoin exposure while using less of your own capital to cover the trade.

You can trade futures contracts through most traditional brokerage accounts. Just keep in mind that you will need to apply for trading permission before you buy or sell your these contracts in your account.

Your brokerage firm may require *additional margin* on top of what the CME Group requires. So make sure you understand the contract specifics before you begin trading futures contracts.

Auxiliary Bitcoin Outfitters

ZACH SCHEIDT

It's been said that the *real winners* of the California Gold Rush era were not the speculators who found gold. Instead, businesses that sprang up to *support* speculators wound up booking unimaginable profits.

Think about the country stores that sold every pick, shovel and covered wagon to the eager miners. Also, the ranchers who raised and sold beef cattle to the surge of new travelers coming out west.

In so many cases, businesses that *support* new movements are the ones that truly reap the benefits. And the cryptocurrency revolution is no different.

In this chapter, we'll take a look at a few of the stocks helping to keep Bitcoin miners, cryptocurrency spenders and blockchain investors in business. And just like the Gold Rush outfitters, you might find your biggest profits come from these plays instead of direct investments in specific cryptocurrencies.

Powering the Blockchain With Solar Energy

Blockchain technology has picked up some powerful enemies thanks to surging demand for electricity.

Many believe the Chinese government's crackdown on Bitcoin transactions was based on the People's Bank of China's need to control the country's currency. But at least *part of the decision* to

ban cryptocurrencies has been fueled by the country's electricity crisis.

Since blockchain technology requires so much power to keep the computer networks operational, the cryptocurrency revolution has led to surging global demand for power.

Bitcoin advocates are lobbying for more *renewable power* (or at the very least, clean or carbon-neutral power) to help reduce the environmental tax that cryptocurrency operations are placing on our world.

That's why cryptocurrency mining companies spend time on conference calls with investors explaining how their power is generated and what plans the company has to improve its access to reliable clean energy.

This is great news for the solar energy industry. In particular, makers of solar panels and the polysilicon cells that are the building blocks of solar power installations have a bright future.

Investing in stocks tied to the solar power industry makes a lot of sense if you expect cryptocurrency use to expand.

A great place to start is with the **Invesco Solar Energy ETF (TAN)**. This fund includes many of the best solar energy stocks. And the beauty of TAN is that you can get a diversified basket of these stocks with one single purchase.

One individual stock to consider is **SunPower Corp. (SPWR)**. This company serves a wide variety of customers including residential, commercial and industrial players. In addition to solar cells that *generate* power, SPWR also has storage and delivery solutions for using excess electricity generated during times of peak sunlight.

Keep in mind that while not every solar company sells *directly* to the cryptocurrency market, the entire ecosystem is connected. Cryptocurrency demand for solar energy has a wide-reaching effect on the entire market.

As strong demand pushes prices for solar power equipment higher, companies across the entire industry will enjoy higher profits, helping to drive stock prices higher.

Picks and Shovels for Digital Mining

During the California Gold Rush, outfitters made big profits selling picks and shovels to miners. And as operations became more industrialized, those "shovels" eventually became giant earth-moving equipment!

A similar transition is taking place with the computer equipment used to mine Bitcoin and other cryptocurrencies.

Computer chips are the ultimate digital tools used to access cryptocurrency gold. And these chips are becoming more powerful and more efficient at solving the complex algorithms to access new coins.

Technology companies manufacturing specialized chips made specifically for crypto mining have become an extremely important part of the cryptocurrency ecosystem.

Two of these companies in particular give investors a great way to tap into profits from selling "picks and shovels" to digital gold miners.

The first computer chip stock you should consider is **Advanced Micro Devices (AMD)**.

AMD's merger with rival Xilinx puts the company in a perfect spot to distribute some of the fastest and most efficient computer chips for cryptocurrency mining. Xilinx has been recognized as the largest global manufacturer of *field-programmable gate arrays* (or FPGAs). These specialized chips are more efficient than the traditional graphics processing unit (GPU)-type chips previously used for mining.

With an emphasis on managing power consumption and getting the most computing power for each unit of electricity, the new FPGA chips are already in high demand.

So thanks to its merger, AMD is set to profit from worldwide growth for cryptocurrencies and the computing power necessary to keep these currencies in play.

A second "picks and shovels" stock to consider is **Canaan Inc. (CAN)**. This Chinese computer hardware company designs and manufactures high-performance computing hardware.

The high-end computer platforms are being used extensively for artificial intelligence research and development.

Chinese companies have to be careful about how they market their technology because of the country's crackdown on cryptocurrency mining and transactions. But around the world, cryptocurrency miners are buying complex machines from CAN because of the superior computing power these specialized machines are capable of.

Investing in CAN is a bit more speculative than buying stock in AMD. After all, CAN is a much smaller company operating in a country that looks much less favorably on cryptocurrency technology.

The socialist Chinese government is also beginning to throw up roadblocks for successful corporations. So investors should be cautious of potential government restrictions for CAN.

But CAN's products are widely respected by the cryptocurrency mining industry, and demand for the company's products has been increasing as Bitcoin and other currencies become more widely used.

Both CAN and AMD have potential to give investors very large gains as mining operations accelerate profits for these "pick and shovel" cryptocurrency plays.

Get Paid to Write a Bitcoin Insurance Policy

ZACH SCHEIDT

One of the great things about *traditional finance* is the way the industry has evolved to create tools for investors. Some of those tools give investors a chance to add leverage (more firepower) to their positions. We talked about one of these tools in the "Buy Bitcoin on Someone Else's Dime" chapter. Other tools help investors to *manage their risk* so that an unexpected pullback doesn't result in big losses. Traditional finance has made it possible to bet on assets moving higher or lower or even to profit from assets staying flat. And on Wall Street, there are two sides to *every trade* that takes place.

In this chapter, we're going to talk about a "second side" to a popular trade that traditional finance has made possible. It's a trade that lets you write an "insurance policy" of sorts for Bitcoin investors. And when you write this policy, you'll be paid a regular "premium" much like an insurance company would.

How a "Put Option" Insures Investors

One of the financial tools available to Wall Street investors is the options market. Options contracts are often misunderstood and many investors are afraid to use them. They've heard horror stories about traders who lost way too much money with these

securities. Like any powerful tool, option contracts can be used for good, but in the wrong hands they can also cause damage.

After reading this chapter today, you'll understand one of the ways that professional traders use option contracts to help generate reliable income—much the way an insurance company collects reliable premiums month after month. Just like the name implies, an option contract is a standardized agreement (or contract) between traders. The agreement gives the owner—or buyer—of the contract the right (*or the option*) to buy or sell shares of stock.

Each contract has a specific agreed-upon price that the stock can be bought or sold at, and each contract is active for a limited amount of time. And each contract represents 100 shares of stock. The type of option contract we're going to talk about today is a "put contract." This contract gives the owner the right to ***sell*** *shares of stock* at a certain price.

Imagine your neighbor owns 100 shares of a Bitcoin mining stock and thinks it might sell off sometime in the next three months. Let's say the stock is currently trading near $55. Your neighbor could buy a put option contract giving him the right to *sell his 100 shares of stock* at a price of $50. Depending on the market dynamics, he might be able to buy this contract for $2.00 per share. This contract would act much like an insurance policy. Because even if the stock crashed, your neighbor could still sell his shares at $50.

Meanwhile, if the stock *didn't crash,* he could continue to hold his shares. And he'd only be out the $2.00 per share he paid for the contract. Now that you understand how put contracts can help stock traders *insure* their positions, let's take a look at the *other side* of the transaction.

Becoming a Bitcoin Insurance Agent

For every option contract bought, there has to be a *seller* of that contract. In the option markets, the seller is also known as the "writer." This is because you don't have to *own* a put contract to

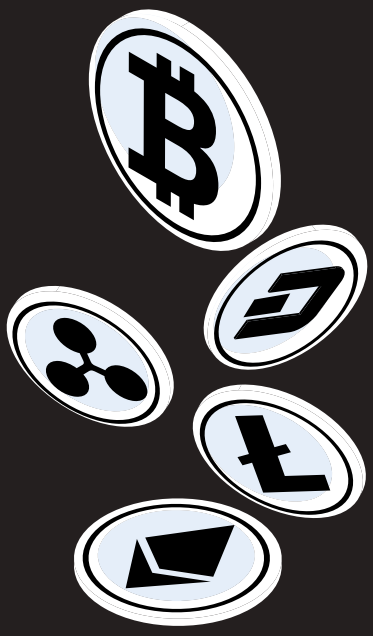
sell it to another trader. Since these are literal contracts (or agreements) between traders, you simply "write" the contract between you and the other trader.

This may sound complicated but it's actually very easy. Simply use the "sell to open" button in your brokerage platform and you'll be able to create a new contract that you sell. You don't have to worry about *who you sell to* because the options exchange will guarantee the agreement and make sure everyone holds up their end of the bargain. Using the example of your neighbor, *you could be the trader* selling the $50 put contract on a Bitcoin mining stock for $2.00 per share.

When you sell this put contract, your neighbor has the right to sell shares of that stock to you at $50. And you now have the *obligation to buy that stock* at $50 if your neighbor chooses to exercise his right. Keep in mind, you were paid $2.00 to take on this obligation. And the obligation only lasts for a specified length of time—until the option contract expires. It's very possible you may be required to buy shares of stock. That's why you should *only* sell put contracts for shares of stocks you would like to buy. And only sell them with an agreement price (known as the "strike price") that you would be comfortable paying for the stock.

If you're willing to buy shares at a discount price and you would be happy to commit to that purchase even before the stock pulls back, selling a put contract is a great income strategy! It lets you collect a payment for selling your contract. And you can repeat this transaction over and over each time the put contract expires. Of course you should always keep enough money in your account to cover the purchase—just in case you're required to buy the shares. Selling these contracts on the Bitcoin-related stocks we've discussed can be a great way to get extra money from the way *traditional finance* is participating in the Bitcoin market.

ADDENDUM: THE LOST INTERVIEWS



The Lost Interviews

The good news was I survived. The bad news? I lost everything. Six months of work down the drain. You may've heard this one, so long story short: In 2017, while living in Guatemala, a boulder landed in my bed (while I was in it) and destroyed everything, including my hard drive. Stored on this hard drive was a series of interviews I did with leading thinkers in crypto.

They included:

> An old-school cypherpunk who spoke about the brave new world in crypto and the potential for prediction markets, anonymous currencies, crowdfunded whistleblowing (and even assassination markets)... and much more

> An established Bitcoin entrepreneur who believes Bitcoin will become as big as email and there's nothing anyone can do about it. *"It isn't a question of time, either. No amount of time can put the Bitcoin genie back in the bottle. This change is forever"*

> A popular cryptocurrency advocate on the future of decentralized autonomous organizations (DAOs), smart contracts and the rise of "ownerless business models"

> A cryptocurrency developer on his journey through the dark web... and what it revealed to him about the future of cryptocurrencies. He said: *"The one cryptocurrency that should be in everyone's portfolio should be ETH, at least for the near term"*

> Dmitry Buterin, father of Ethereum's founder, Vitalik Buterin, on what *he* thinks about the cryptocurrency space and where

it's headed. He said: *"It's our opportunity to come up with new and much better ways to organize our society—for more peace and prosperity"*

> And many more.

Good news. Recently, with the help of some magic tech wizards, I uncovered these interviews. And just in time for this book's release. So here are—a blast from the past—the lost interviews.

Can't Kill Bitcoin

Interview with Beautyon, early bitcoiner and founder of Bitcoin voucher company Azteco

Chris Campbell: We've heard a lot of talk about Bitcoin being officially dead. You obviously disagree. What's your response?

Beautyon: This is FUD (fear, uncertainty and doubt) or "scaremongering." Japan has just formally legalized Bitcoin, and Hong Kong has explicitly said they will not regulate, with their "hands off" approach. Other countries will follow, and they will absorb all the Bitcoin businesses, which will serve everyone globally.

Bitcoin is a sea change in the way people think about money and how they account for it. Before Bitcoin, the word "fiat" was used only by the readers of Lewrockwell.com. Now everyone, even people who do not like Bitcoin, call the dollar "fiat." A powerful transformation is taking place, and it will not be stopped. The USA is not the entire world, and Bitcoin is global. If everywhere other than the USA adopts Bitcoin, then it will be one of the greatest software successes of all time. There is nothing to stop the rest of the world adopting Bitcoin; the GSM standard was everywhere except the USA and eventually they had to capitulate and adopt it.

Bitcoin will succeed. There is nothing any government can do to stop it, just like they can't stop file sharing over BitTorrent and Internet Relay Chat. It isn't a question of time either. No amount of time can put the Bitcoin genie back in the bottle. This change is forever. The only way out for anyone whose business is

challenged by Bitcoin is for them to totally embrace and integrate it. The Japanese have understood this.

The courts in the USA (one in Brooklyn and another in Miami) are also forcing people to wake up out of their collective hysteria. Two separate courts in different jurisdictions have now ruled that Bitcoin is not money. This means the "politicos" have no law to resort to to stop it. Texas has tabled a law to protect Bitcoin as a right. Slowly but surely, everyone is moving to the correct side of Bitcoin.

CC: Could you dig deeper into how and why you believe Bitcoin won't be stopped? Many Americans believe the government can and will simply pass a federal law and... poof... make Bitcoin go away.

Beautyon: In the age of the internet, it's impossible to stop good ideas from spreading, and the world of 2017 is not like 1957, '67 or '77. Many parts of what used to be called the "Third World" now rival the USA in infrastructure. America doesn't have the option of Luddism and ignorance; someone will eat its lunch.

Bitcoin cannot be stopped. This is not a belief, but a fact, based on the evidence of how it works and previous peer-to-peer software that has lasted for decades. You only need to look at two examples to come to this conclusion.

First, over Internet Relay Chat, software was traded for many years uninterrupted and undetected. Then, after several iterations of how to arrange a peer-to-peer network (Napster, Gnutella, BitTorrent) BitTorrent emerged as a way to share files that cannot be stopped. One-third of all internet traffic is taken up with BitTorrent, and billions of files have been swapped without any consequence. There is no way to stop BitTorrent, and in some cases, its use is impossible to detect.

Bitcoin is the same in its effect, and is more safe in many ways. Rather than having to expose your IP address for a significant amount of time, a Bitcoin transaction takes a fraction of a second and is indistinguishable from other internet traffic. It can be

accessed in a number of different ways, through different clients, and these transactions cannot be stopped in advance of being made without shutting the entire internet off. Bitcoin, like file sharing, will not be stopped, and unlike with file sharing, there is no company that can change its distribution model to adapt to the new reality.

Bitcoin is good money, and all the state can produce is bad money. The only meaningful way Bitcoin can be stopped is if the state creates its own Bitcoin network with identical features. We know that this is unlikely to happen, because the state is obsessed with controlling people and not helping them. Several governments are working on Bitcoin competitors and all of them will fail, because they are suboptimal, anti-market offerings that Bitcoin beats every time, because it is a pure free-market tool.

Passing a law did not stop file sharing, and threatening massive fines and jail time did not stop it. No law can stop people from engaging in the market; drug prohibition has been a dismal failure and is being repealed across the USA.

Any attempt to ban Bitcoin will similarly fail, only this time it will be much worse, because everyone needs money, in numbers that greatly exceed the number of people who want to smoke marijuana. Money is half of all transactions. Americans, once they wake up to Bitcoin, will flock to it. It will become "the money of the internet." The American government can no more make Bitcoin go away than it can make marijuana smoking go away.

CC: But what if Congress finds good reason to shut it down? After all, banks have a lot to lose with Bitcoin... and deep pockets.

Beautyon: This is ridiculous. Congress finding a reason to "shut down Bitcoin" will not result in them finding a way to do it. Also, Congress has no power over anyone in any other country other than America. Internet poker is illegal in the USA, but it is thriving globally.

And of course, people in America play internet poker illegally every day. With Bitcoin, they will be able to play internet poker

and be paid in Bitcoin. Who is the loser in this? The American government, which does not collect taxes and fees from internet poker sites, draining what is probably a lot of money from the USA to the EU and other jurisdictions.

Banks have too much to lose? So did the telephone companies with Skype. So do the taxi companies with Uber. Just because some established group has something to lose, it doesn't necessarily follow that they will be able to stop an innovation.

Bitcoin is a very difficult topic to understand. And in the same way that some people refuse to use e-books or even email, there will be people who refuse to use Bitcoin, just as when the telephone was commercialized, there were people who refused to have them in their houses.

CC: What are some, if any, of your predictions about Bitcoin and cryptocurrency in general? Also, what are the implications of mainstream adoption?

Beautyon: Bitcoin will become as big as email. It will be on every cellphone, phablet, tablet, laptop and desktop on Earth. It will be used for every conceivable purchase and for some presently inconceivable purposes. When mobile phones had to be carried in briefcases, no one imagined that literally everyone, including children, would have one.

The same will be true of Bitcoin.

The logic goes like this: "Everyone needs to use money, everyone is on the internet. Everyone needs to spend money on the internet, Bitcoin is the money of the internet, everyone needs Bitcoin."

The implications of Bitcoin and mass adoption are harder to flesh out, but we can say for certain that Bitcoin means the final death of government fiat money. It means the death of banks as we know them today. It means the end of inflation (an increase in the supply of money). It means the end of Big Government. It means an era of unprecedented prosperity as savings once again become the source of investment.

Then there are the impossible-to-predict consequences of not only the economic effects of Bitcoin, but the fact that a programmable money substitute is a global tool. One service that offers a glimpse into this is Purse, which opens up e-commerce to everyone on Earth, because Bitcoin is a guaranteed payment that can be made conditional through multisig transactions. The other programming functions coming to Bitcoin, like paying in the future, will by themselves cause new services to emerge that no one can imagine.

People who are computer and economic illiterates can't understand even the most basic premises of Bitcoin—but they don't have to. They don't understand how GSM in their phones works or the A5 algorithm that scrambles and unscrambles their voices and have no problem using a cellphone.

It will be the same with Bitcoin. Bitcoin will just "be" and that's it. You will just use it, be paid with it and in it and you will accept it, just as you accept email, cellphones, internet chat apps and all the other fantastically complicated things that are taken for granted.

When you pay with a credit card online, you never think about what the green lock means and how many steps and technologies are used to keep your information safe. You don't think about how credit cards work, how UPS routes packages or anything else. You blithely go about your business buying what you want to buy.

Bitcoin will be another layer that everyone accepts, and they will accept it because everyone else is using it and in order to participate in society, you will need to use Bitcoin, just as it is when you receive a phone call; if you want to receive phone calls, you must accept that you need a phone and a number or an app.

You don't question how it works under the hood. You just use it.

CC: Thanks, Beautyon.

The Crypto Arms Race

A sit-down with Bitcoiner Jamie Redman

Chris Campbell: You've been in this space for a while now. How did you first hear about Bitcoin? And what was your initial reaction?

Jamie Redman: I discovered Bitcoin in 2011 hearing about it throughout social media in mainly libertarian circles. I've always been into technology, and at the time I was learning a lot about the early cypherpunks and the philosophy of agorism.

I didn't invest in Bitcoin as a currency until 2012, as my first year of discovery was filled with some doubt. Bitcoin is unlike anything we've seen before and goes against the grain at times with some anarchists, gold bugs and those who study Austrian economics.

But I researched more and spent a lot of time studying Bitcoin as a network and as a sound currency. Soon enough it struck me how beautiful and genius Bitcoin was and could become. Particularly in regard to counter-economics and removing the state from our money system. Something clicked but lots of study time helped a great deal. I recommend people research things thoroughly before they support it, and I would say that to those investing in Bitcoin today. After many restless nights, I convinced my wife to throw some of our savings down on a bunch of coins.

CC: So you've been in the cryptocurrency space since 2011. What has surprised you about the cryptosphere's rapid evolution and what has left you disappointed?

JR: Bitcoin is always exciting even to this day. Of course when I first discovered the technology and had that "aha" moment it was exhilarating. However, I debated a lot of people in my earlier years with Bitcoin, and even while trying to make sense of it all myself.

I have a good grasp at understanding the technology now and naysayers typically don't phase me these days. I've been surprised by Bitcoin's growth and the size of the community. There are a lot of people supporting and using the decentralized currency more than ever before and lots of them are using it in counter-economic ways. For instance, some people living in stricter countries are sending funds abroad to escape the tyranny of governments and poor central planning.

Citizens of these countries are trying to avoid hyperinflation and are moving wealth in and out of the network to shelter themselves from the economic storm.

I am currently disappointed with the scaling debate and the infighting at the moment. I think if the community came together and compromised, the network and currency could be doing a hell of a lot better. For the reasons above I hope we can scale Bitcoin soon because people need a censorship-resistant tool that can help keep people from economic hardships. Both scaling and optimization are key to Bitcoin's future success.

CC: How do you personally think cryptocurrencies will change the way governments/financial systems work? How drastic will the impact be?

JR: A lot of the stuff above is what I hope, and that logic rests in my own subjective valuations. However, I cannot predict what will happen with this grand cryptocurrency experiment, and I can't tell you how it will all play out with government. Both cryptocurrency proponents and the current bureaucracy are moving fast studying this technology. Currently, we are leading the race, but that doesn't mean the nation-states can't catch up.

They are already building up blockchain surveillance and trying to counter Bitcoin's every move. They could be successful at squashing Bitcoin because governments have a lot of power. However, on the other hand, Bitcoin could squash them and completely disrupt their whole system of centralized planning and manipulating the world's wealth.

CC: What are some altcoins you're keeping an eye on/are most excited about?

JR: I do watch altcoins and study them. I used to have a small collection but have since sold them all for Bitcoin in 2016. The only two altcoins I think have potential next to Bitcoin at the moment are maybe Monero and Ethereum.

CC: Awesome. So what are the biggest dangers to Bitcoin/cryptocurrency success? How does the cryptosphere make sure we don't succumb to these dangers?

JR: My humble opinion of the biggest dangers for cryptocurrencies is fighting amongst ourselves as a community and governments. We need to figure out a way to scale and optimize Bitcoin's potential without politics and egos. Not sure how we can remove the human element but maybe a DAO type of a governance system. Current governance systems in some cryptocurrencies are not in the least bit interesting to me, such as masternodes and the ridiculous Ethereum DAO that failed miserably. I think there is a far superior method coming that will eclipse the ideas that are still very tethered to the current system and centralized ideologies.

The other danger is from the nation-states, and they wield a powerful weapon called never-ending fiat. The governments of the world will do anything at all costs to make sure Bitcoin does not succeed with its original intentions. Governments will either try to annihilate Bitcoin entirely or they will pervert its ability to disrupt them.

CC: What will be, in your opinion, the single greatest shift in our social structures as a result of the rise of cryptocurrencies?

Moreover, what can our readers do to put themselves in the best possible position to capitalize on this shift?

JR: If everything goes well with cryptocurrencies, then it will lead to multiple shifts. I don't view the world having massive earthquake-like shifts changing the paradigm but rather continuous tremors every single day.

Bitcoin and many other technologies like the internet, BitTorrent, Tor and others have enabled us to share information and wealth discretely and fast. The best way readers can capitalize on the future is to study, and never stop.

The Cashless Society

Pavol Luptak is the founder of Nethemba, an IT security consulting company based in Slovakia. He's helped build two cryptospaces in Europe: one in Slovakia called Progressbar and another in Prague called Parallel Polis. "I am especially euphoric about Parallel Polis," he said. "It has been a huge international success. It's a global freedom think tank promoting ideas of digital freedom. It is probably the only space in the Czech Republic where hundreds of people attend crypto events regularly."
Without further ado, here's our interview:

Chris Campbell: Some of your predictions have included a total crackdown on personal privacy. Such as...

* A cashless society with likely negative interest rates
* Prohibition of anonymous transactions
* Mandatory back doors into all commercial tech
* Criminalization of crypto users
* And more and more draconian crackdowns on privacy...

Despite all of this, you seem fairly optimistic about the future of cryptocurrencies.

PAVOL LUPTAK: I don't know if governments will ban cryptocurrencies (especially the truly anonymous ones) in the future or not. For truly anonymous cryptocurrencies (anonymous digital cash), which depend on a black market demand, this is irrelevant. People who prefer anonymity will just start to use them as soon as we transfer to a Orwellian cashless society with no fiat cash.

The thing I especially like about cryptocurrencies is their future does not depend on the opinions of democratic masses or politicians. The potential for intervention is highly limited.

CC: One of your slogans for Nethemba is "The future is bright. The future is decentralized." How does a decentralized society manifest itself in the physical world while centralized incumbents fight tooth and nail to remain in power? What does this transition look like?

PL: The government has full control over the physical world. I doubt this will change soon. But thanks to decentralization and anonymity they will lose control over the virtual world. Most ordinary people will switch to this system not because they love freedom or privacy, but because everything there will be significantly cheaper. No taxes, no expenses related to government regulations—prices in the crypto world may be 30–50% lower than in the case of the government-regulated e-shops.

We'll gain a huge portion of freedom in the virtual world. And it's quite likely we'll lose our liberties in the physical world at the same time. Governments will lose their ability to tax businesses in the global virtual world. They'll need to cover this loss. I think that property taxes will be significantly increased in the future. And of course, there will be sacrificed victims, exemplary executions of people involved in the cryptoanarchy (Ross Ulbricht's case is unfortunately just beginning).

CC: You've made predictions about crowdfunded whistleblowing, incentivizing government leaks, anonymous prediction markets, anti-government insurance and even assassination markets. Clearly, this is serious stuff. Can you talk a little bit about the implications of this?

PL: I am not a big fan of assassination markets. But it's an unstoppable technological evolution (especially anonymity plus anonymous cryptocurrencies) that makes this possible... Politicians and of course all people who have many enemies will start to become afraid. The anonymous financial contribution to their

death will be just a one-click operation. And of course, there will be frauds—people will be motivated to simulate their own death to gain the bounty. So there will be updated versions of assassination markets where reward will be paid depending how many years the given person is "really" dead or not.

It will also be possible to create a strong economic incentive for politicians to change legislation, approve any new law or modify the existing one and "win the bet." Paid in anonymous digital cash with no traces at all. Practically impossible to prove it.

Crowdfunded whistleblowing will be a significant threat to secret agencies or other government organizations. It could make a huge economic incentive for internal employees of these agencies to leak any sensitive information the crowd wishes. And, of course, to receive the completely anonymous digital cash for that. And again with no traces, no accountability.

Anti-government insurance is also a big thing. I wrote an article about this, but I'll summarize just some interesting points:

1. For the government, it will be almost impossible to prove that anyone is insured against any law. Neither can they reveal the given people receive their insurance money because no cash or traditional bank transfers are involved.

2. Government officials have limited resources to penalize all entrepreneurs; They will always choose only some "victims"—therefore the more paid insurance the anonymous insurance companies will have, the lower insurance rates will be.

3. Less stupid and immoral laws mean a less feasible business case of anonymous insurance companies.

4. Both anonymization technology and state dictatorship are always improved over time. Therefore the existence of anonymous cryptocurrencies is the only question of time.

5. The war of governments with anonymous insurance companies can be partially won by abolishing all stupid regulations and restrictions most people consider to be unethical.

6. The anonymous insurance against wrong laws can create an incentive for many decent non-technical people to use bitcoins or other cryptocurrencies to protect their property.

7. The government can increase fines to kill all businesses that break any law and strictly enforce it. In the given situation, the best solution will be to move the business to a different country, or stay and pay high insurance fee.

8. The government can hire four times more employees, do strict checks of legislation, issue three times more penalties to entrepreneurs at the same time, therefore forcing anonymous insurance companies to be bankrupt.

This scenario is for sure possible. But it is necessary to realize the anonymous insurance does not need to be applied to the any particular legislation only, but to any stupid/unethical law. The state simply does not have enough sources to check if all people or companies follow each law people/companies may be insured for. The situation for the state is asymmetrical with an apparent advantage for anonymous insurance companies.

CC: OK. Pivoting a bit, what cryptocurrencies or potential applications are you most interested in?

PL: Truly anonymous ones, specifically Monero, Zcash, Zcoin and ShadowCash.

CC: Where do you see the biggest shifts happening first as a result of crypto? How can our readers position themselves to take advantage of these shifts?

PL: The first human problem the cryptocurrencies will solve in the near future is preserving and protecting their wealth against government money inflation or hyperinflation. This scenario is already happening in China, India and Venezuela. We should expect increased demand for cryptocurrencies, notably Bitcoin.

Some technical restrictions of Bitcoins (e.g. small blocks) can slow down a rapid growth of its massive use. I think there will be

some opportunities for altcoins, especially anonymous ones that are suitable candidates for replacing the traditional cash.

I am also a big fan of smart contracts. Although I am a bit skeptical about Ethereum and its forks, I am enthusiastic about the concept of smart contracts and their future use. That will be the next step. When most people become familiar with cryptocurrencies, then there will be a time for anonymous prediction markets, anti-government insurance, assassination markets or crowdfunded whistleblowing.

I am more than sure our crypto future will be exciting.

CC: Sounds like it. Thanks, Pavol!

Vitalik Buterin's Dad

Interview with Dmitry Buterin

Chris Campbell: Why blockchain technology and cryptocurrencies? Why now? What are the implications of these things going mainstream?

Dmitry Buterin: It's the next natural step in disintermediation. Direct connection without having to trust a third party (those have proven time and again to be unreliable).

It's our opportunity to come up with a new and much better way to organize our society—for more peace and prosperity. Direct democracy, banking for the unbanked, accountable charities, you in control of your identity, of your money—the possibilities are mind-blowing.

CC: What are your wildest predictions for the crypto space? Five years out, what is the most amazing thing? Ten years?

DB: We will stop talking about blockchain—and it will be the hidden underlying foundational technology of world-changing applications. Like 10 years ago people were talking about Ajax as the new cool web technology to build a much better user experience on the web. Nobody talks about that anymore—but every modern web app is built on that (and more).

CC: What's one thing our readers should do today to position themselves in the best possible spot to take the MOST advantage of this new technological renaissance?

DB: If you are a crypto virgin, play with it! Open a wallet and buy a couple of different coins. Send them to friends, buy something, get familiar with the process.

Invest some money into crypto (only the money that you can afford to lose!). There is a probability it will all go poof—but there is a much higher probability that you will make 10X or more in the next few years.

Learn more! Knowledge of underlying fundamentals will be very useful—and not only for a technical career (though in modern world, pretty much every career is a technical career).

The Beauty of Bitcoin

Arthur Falls is the director of communications at DFINITY and the host of the Third Web podcast

Chris Campbell: Obligatory question: How did you get into cryptocurrency and why have you chosen to devote so much time to this space?

Arthur Falls: I first heard about Bitcoin in 2011 and had planned to build a mining rig but like so many people decided to direct my attention toward more sensible pursuits. In 2013 a few factors came together to reignite my interest.

Firstly, the Let's Talk Bitcoin podcast gave me access to a number of amazing guests through the capable journalistic lens of Adam B. Levine, who recently founded the Tokenly blockchain consultancy.

Secondly, due to a labor glut in the city I was living in at the time, Melbourne, I experienced an extended period of unemployment resulting in plenty of couch time with a laptop. The Silk Road was exploding in popularity back then and I was amazed at how technology could enable such brazen and audacious civil disobedience.

The Onion Router (Tor), which enables truly anonymous browsing of the internet, and access to the Silk Road before it was shut down, was originally developed by the U.S. Navy Research Laboratory and further advanced by DARPA. The code has been public and funded by the Electronic Frontier Foundation since 2004. It's worth dwelling on the bizarre reality that for TOR to work, it needed to be populated with noise traffic. It's not un-

reasonable to presume the technology was deliberately released to the public so that services like the Silk Road would emerge, allowing the masking of U.S. intelligence communications.

Bitcoin itself has an inverted origin story. It went live in 2009 but the technology can be traced back to a 1985 paper by David Chaum: "Security Without Identification: Transaction Systems to Make Big Brother Obsolete" and a 1993 paper by Cynthia Dwork and Moni Naor: "Pricing via Processing or Combatting Junk Mail." In fact, by 1990 all of the technology needed to develop a Bitcoin-like system existed and a shadowy anarchist/libertarian-minded group of mathematicians called the cypherpunks were working to do just that. It just took a long time to materialize, and the relatively untold story of their tremendous labor, and despair at apparent failure, is both heartbreaking and inspiring.

For me reading the Bitcoin white paper for about the fifth or sixth time, I had a gnostic moment. I've never appreciated a work of genius before. Classical music to me is just a bunch of violins, poetry that doesn't rhyme is just bad prose but Bitcoin was and is a work of mechanical beauty and elegance that puts a lump in my throat and stirs me to the core.

In order to salvage what felt like a wasted effort, I began the Beyond Bitcoin podcast in early 2014. This year there was a huge amount of work being done to apply the breakthrough of Bitcoin to problems other than an unbacked unit of value. This appealed to me. While I find Bitcoin beautiful, deep down I didn't and don't expect it to succeed, although reasoning out success or failure for Bitcoin is very complicated.

CC: Looking into the future, what are you most excited in general about in the cryptospace? What change to the world do you look forward to the most that crypto will bring?

AF: The high-water mark for broadly applying the Bitcoin breakthrough is Ethereum. That was the subject of my second podcast, The Ether Review, which I began in 2015. In 2016 I

joined ConsenSys, an Ethereum-oriented venture production studio and consultancy.

These days I still produce The Ether Review and a second podcast, State Change, while also working in lead generation and business development for ConsenSys.

CC: Do you have any predictions? Five years out? Ten years out? Fifty years out?

AF: I don't look to the future. It's very, very bleak economically. With each passing day those with capital to invest accrue more wealth through interest while those without do capital labor to pay them. Progress in mechanical automation only exacerbates the problem. Far from offering a way out, technological advancement is accelerating our rush to the precipice. This disequilibrium will eventually drive our economy to collapse, resulting in catastrophic poverty and the loss of millions of lives in the West alone. As a career laborer, this is very upsetting to me. My hope is that somehow the development of new systems for social organization and financial inclusion will help us do better next time. But then, most of my professional life was lived in the dark years post financial crisis, I'm bound to be pessimistic.

Predictions: Five years: greater than 15% of the global population has a blockchain-based self-sovereign identity. Broad adoption of blockchain-based supply chain traceability solutions. That's as far as I can go, I'm afraid.

Some clear trends are emerging in blockchain and related technologies. These are driven primarily by technologists deconstructing existing systems and reassembling them to better fit practical applications. This also involves building infrastructure to enable regular people and internet-enabled devices to sign transactions. Limitations of existing technology are also driving change in development trajectory.

In the eight years since blockchain in the way we know it today emerged, little or no progress has been made in user experience. Customers in developed nations have access to more user-friendly

payment interfaces at either a superior price point or a price that is commensurate with the superior usability they offer. In developing nations connectivity limitations and a lack of education continue prevent market penetration.

Part of an answer to these problems can be found in the Estonian E-ID, the Swedish Bank-ID, a range of EU-wide initiatives and self-sovereign identity platforms like uPort and Blockstack. Currently most existing public key-based identity systems do not support the elliptic curves required to sign blockchain transactions. These can easily be updated, however, meaning that penetration of all the systems mentioned can be thought of as blockchain infrastructure reach.

Over the next five years we can expect to see all of Europe, Scandinavia the Asia-Pacific Region and the USA to be able access and interact with blockchains through a federated private and/or public identity. The elliptic curve infrastructure will also become standard in internet of things devices, giving all IoT devices blockchain access. Regarding payments, the technical limitation and community ails of Bitcoin now render on-blockchain transactions unsuitable for anything but high-value transactions.

At this point it is implausible to expect Bitcoin to evolve into a broadly adopted medium of exchange. There is also no reason to expect meta-layer protocols that expand Bitcoin's feature set will be deployed without a highly disruptive fork of the network. This has been reflected in the market interest in alternative cryptocurrencies and the appropriation of development originally destined for Bitcoin by other platforms like Litecoin.

Without protocol upgrades Bitcoin will fade from significance over the next three years. If a protocol upgrade comes in the form of a disruptive hard fork, market confusion and infighting will destroy the credibility of the platform. Barring a miracle, Bitcoin is no longer destined to be a meaningful part of blockchain's future.

The word "blockchain" itself is due for a re-examination and that will take place in the form of new ways of structuring the way we store data. "Full nodes" will no longer hold transaction data. Rather, transactions will be stored in replicated, content-addressed data stores like IPFS and nodes will be able to fetch transaction data using the hash contained in the block header—the evidentiary hash chain—as a pointer. This will permanently solve storage problems as the responsibility for storing and serving transaction data will fall entirely on the interested parties. Another side effect will be easier cross-chain transactions, as all transaction data across chains will be equally available.

As blockchain-compatible identity proliferates and protocols mature into robust, efficient and highly configurable systems we will see broader deployment. Especially through the efforts of industry groups like the Enterprise Ethereum Alliance.

Hollis Hedrich

Hollis Hedrich is founder of Blockchain Global Advisors, specializing with extensive experience in corporate financial management, blockchain technology and crypto-asset investment planning

Chris Campbell: Thanks for joining us, Hollis. First, tell us a little bit about yourself.

Hollis Hedrich: My inspiration is Robert F. Kennedy, who said "Let us dedicate ourselves to what the Greeks wrote so many years ago: to tame the savageness of man, and make gentle the life of this world." My background is in financial management and investments. I have three degrees and almost 30 years of experience.

I'm using that experience to help individuals understand and transact in cryptocurrencies. My background is working with high-net-worth individuals who today have little to no experience with cryptocurrency and generally do not now hold them as part of their investment portfolio. My age (54) is well suited to speak with them.

CC: Great. So that brings us to your company, Blockchain Global Advisors. Tell us a little bit about your work.

HH: BGA is the logical next step in how I work with my clients and their advisers as a seasoned financial adviser.

Imagine a world with lower costs, higher speeds, fewer errors and less risk.

While Blockchain Global Advisors is not a philanthropic entity, our vision is that blockchain technology is the next significant platform to improve the common good. Based on the lessons

learned with the internet, we are committed to make BGA education/coaching/services available to everyone.

From the perspective of a coach, we help them understand the benefits of cryptocurrency and then assist them in acquiring and securing a position.

The main benefits include:

- Increased portfolio diversification
- Transparent and incorruptible systems
- Limited inflation risk
- Large capital appreciation potential
- No counterparty risk
- Confiscation resistant when properly held
- Portable and easily moved between jurisdictions.

Of course, it's not just wealthy people who have a need for this technology. We also assist blockchain-focused startups with capital acquisition via a network of influential, monied sources, mostly out of Silicon Valley. Going forward, we will deploy additional services including consulting focused on the design and implementation of smart contracts.

CC: Where are most of your clients coming from these days? Who is showing the most interest?

HH: Interest is growing rapidly in all areas due to a confluence of factors. Worldviews are changing in regard to the need for alternatives to the current system based on fiat currency and centralized control mechanisms. Open access via the internet to alternative lines of thinking is also driving demand. As the world financial system continues to struggle with debt saturation and inefficiencies, the need for alternatives will continue to grow and to drive adoption. It makes sense that the little guy is the driving factor currently because he/she is the entity that is struggling most with the current paradigm.

For business to really get involved we will need to see a bit more development in the entire sector, with smart contracting technology being central to this. We just need to get a bit further down the line with systems development. It is like the internet in 1994. High-net-worth people generally are not motivated yet to seek out information and as such they need to be contacted first via active solicitation. The reason motivation in that group is low is because they still believe that the system is working due to elevated stock and bond prices.

CC: What are your boldest predictions for blockchain tech and cryptocurrencies in five years? Ten years?

HH: I am not really in the business of making "bold" predictions since most are simply designed to make headlines and attract pageviews but I will say this. This world desperately needs fundamental change, and for the first time in history, that change is possible. The core problem is corruption. The entire world political and economic structure has devolved into a system based on fraud, and as such it is unsustainable.

Blockchain technology is providing the solution. The entire way we do things is being re-designed into a system that will make the widescale fraud and corruption impossible. Man, of his own volition, is not going to change. This has been demonstrated over thousands of years of history. Blockchain tech is going to alter the playing field, essentially forcing change. It is removing the incentive for individuals to act in a manner that is detrimental to society as a whole.

It is providing a new way based on freedom and individual human rights. Some of the fundamental changes that I see on the horizon are the elimination of fiat currency and direct governance. Fiat currency will fall just under the weight of its own inefficiency and corruption (as it always has in the past) and it will be replaced by crypto, with the world never to return to the old way.

Aligned with that will with be the transition to direct governance. As governments worldwide lose influence due to the prob-

lems with fiat, their ability to provide services and solutions to everyday problems will diminish and ultimately be extinguished. As that happens, people will naturally look for solutions, which again we have for the first time in history. People will no longer look to elected officials but instead to smart contracting to provide the mechanism to address the things that need to be addressed. Of course, all of those smart contracts will need cryptocurrency to function and higher demand equals higher prices.

CC: What can our readers do now to take most advantage of this rise of blockchain tech?

HH: If they want to protect their assets, they need to diversify a portion into cryptocurrency... a reasonable portion, the exact amount of which would depend on their overall level of wealth. Cryptocurrency offers incredible opportunity but it is also very risky.

Security is critical and most people are not able to adequately address this without assistance. For people who are looking for economic opportunity from a perspective of earning, blockchain tech is one of the greatest opportunities ever. Entirely new ways of doing things are coming online as we speak... again, think the internet in 1994. For people who need to re-tool their earning capacity, becoming expert in writing and auditing smart contracts is a fantastic opportunity. Especially for people who can see the value now and educate themselves prior to the explosion of interest that we expect to occur in the near future.

For people who are a little more motivated to actually design the future, then creating smart contracts that re-imagine and re-invigorate current systems provides unlimited opportunity to improve the human experience and make money concurrently.

CC: Thanks, Hollis!