Rodrigo:	00:01:00	All right. We are live. Welcome, gentlemen. Brandon, Brian, and Adam of course.
Brandon:	00:01:07	Cheers guys.
Rodrigo:	00:01:08	Cheers to Friday night drinks, and happy hour, talking everything crypto. But before we do, Adam is the CIO and you want to give us a clean disclaimer?
Adam:	00:01:19	Sure. Yeah, this is for entertainment purposes only, none of what you're going to hear today is advice. And you should seek advice from a professional that is familiar with your situation before partaking in any of the suggestions covered in today's podcast.
Rodrigo:	00:01:42	All right.
Adam:	00:01:42	How was that?
Rodrigo:	00:01:43	That was fantastic. So welcome, Brandon, Brian, before we get going in the many topics that we're going to cover, I think it'll be useful for you guys to give a bit of your quick backgrounds and what your current projects are, and then we'll get into it. Whoever wants to start first.

Backgrounder

Brandon:	00:02:03	We'll, I'll take a first stab at it. So I'm a co founder of Cartan Group, we're a FinTech consulting company based in the Cayman Islands. Most of our clients are focused on some layer of the crypto stack whether it's networking in and of itself, or a value add token running on top of it. And then we also have a side project called Code (Cayman) where we offer free technology literacy training. We run I think, about seven different courses in that and we offer it to the islands and run around the island getting sponsorship to promote these programs.
Adam:	00:02:46	Go back a little further than that though Brandon, because I know you've got a background in finance, right? Like you did spend, whatever 10 or more years in finance operations back office, tech, etcetera. So what are some of that?
Brandon:	00:03:04	My background, I'm a software developer, I moved to the island 13 years ago, built a software team at a hedge fund management company, One Governance company in Ireland, and then moved to a couple of banks. My last role was CTO of a private bank. And in there, we built a crypto custody solution and we launched that in 2017, built that in 2016. And ultimately, I just wanted to be closer to the bleeding edge. So part of me is with that firm, very gray terms, speak all the time, and decided to get closer to the bleeding edge of my background, three different banks, built a system for an end to end insurance

company, did a social media startup at one point in time, that didn't work out so great, but we had a good time and a lot of fun.

Rodrigo: 00:04:02 Great. And what about you Brian? I know your background is also more involved in the actual investments. Traditional investment world.

Brian: 00:04:12 Yeah, so I grew up in Toronto Canada, worked there for a couple years for a private equity/ hedge fund looking at early and junior natural resource explorers. After a couple years moved down to the Cayman Islands to work for a private bank. We're working very closely with the managing director on a number of different projects throughout the bank from making things more efficient to trying to maximize revenue generating opportunities for the bank, and then after a couple years there, moved on to a family office still in Cayman. So I've been in Cayman for eight years now and don't want to move away after being here for so long. But the family office looked over a lot of the investments, existing investments when I joined and also new investments while I was there.

And then after that, moved to Sterling where Brad and I did a virtual asset custody platform under a regulated institution. So that was the only one at a time in the Cayman Islands. So from doing that, and as Brandon mentioned, after about a year's time we wanted to get closer to the bleeding edge and work with companies in this area, both help them and be more in that industry. So that's when we started Cartan Group about two years ago now, and now we have a team of seven in the Cayman Islands, and about seven overseas as well. So that's what we've been doing for two years now.

Rodrigo: 00:05:57 Two years. That's like 10 dog years in crypto land, right?

Brian: 00:06:01 It's Doge.

Rodrigo: 00:06:02 Or veteran.

Adam: 00:06:03 Doge years. This is why we thought it would be really good to have you guys on because it's a really neat mix of backgrounds in both the front office and the back office for finance, and several years in the nuts and bolts of crypto. And I think it might be useful Brandon, you said something about the full crypto stack. So maybe, can we pull on that thread? And maybe what's involved? What are the layers in that stack? How should we think about that?

The Full Crypto Stack

Brandon: 00:06:36 Sure. I think mostly how I think about crypto a lot, we'll just back up. So another way to think about it is, when you're building a product, a software product of sorts, there's all these levels which everybody focuses on. Oh, the software

engineers have built this big product but there's project managers, content creators, content writers, product managers. And so I think of the crypto stack in the same analogy where there's a core network, and that's kind of a layer one network or layer two solution on the layer one network. And so you can consider that Ethereum, Algorand, Bitcoin, and then people start building on top of that stack.

So you start creating NFT's on top of a network where you start creating other products within that environment. And so you start stacking up things on top of everything else. And a great analogy or piece to how this works is thinking of your actual computer. So you kind of have this hard drive and it's motherboard and CPU and everything else, and then somebody has written a bunch of drivers to write data to a hard drive or keep track of memory inside of RAM, and then of course, I write a lot on a layer on top of that, where I don't write a driver and keep track of all the pixels on the screen or all the information on the hard drive, I just say, hey, operating system, give me this information.

So when you look at the crypto stack and you look at Algorand's network or Ethereum's network you say, all right, they wrote the operating system of this network now, and they've aggregated a bunch of users into this with assets, capital and so now I can tap into those things whether we're calling an asset something that has tangible value, or non-fungible. It's all blending into one at this point in time, but you sort of have the network of people with assets, and you start layering different functionality on top of that, and providing different opportunities for people to capitalize on. And I guess when I say assets and capitalize, I generally don't always mean it in terms of, this converts into X US dollars or X Fiat currency, I generally mean it in the term of value creation, and what's the value of being able to participate in some activity? And does that translate into other activities or other value creation activities?

Adam: **00:09:09**   So, unlike the internet, there are several versions of the base layer in crypto, right? And to my understanding, they serve each of the different potential base layers or chains or what have you, they're built to serve different purposes. And there's also Bitcoin as the original base layer and then others have evolved over time to fill gaps that were recognized in Bitcoin's operating system for lack of a better word. How do people think about the evolution of those base layers through time? What are some of the gaps that the Bitcoin base layer has that other protocols have closed over time? And then where are we in that process do you think? By the way, I asked Brandon, but Brian chime in obviously wherever you have something to add.

Brian: **00:10:11**   Brandon, go ahead.

Brandon:	**00:10:15**	I think the original version, the Bitcoin network when launched was solving a single solution, which was creating a internet of money or an internet money that can that can transcend the world without borders sort of. If you look at the internet economy, it needed a value system and Bitcoin fulfilled that role originally. And of course, it was super early and you sort of had to right, move this transaction to over here. And what the second version of the network gave us was programmable money. So Ethereum allowed us to write software, and the difference is Bitcoin serves a single purpose, which is send value from here to here, Ethereum creates a platform to say send value from here to here if this happens, or if that happens. So we can create some based logic around what those things are. The two of them, I guess that there was there's multiple iterations before Ethereum to be sure. But if we just put a fork in that or put a flag in it and say Bitcoin was one, Ethereum potentially was two, now you're starting to see the third engine come out, which is same functionality as Bitcoin, same functionality is Ethereum, but way more speed.
		And so now we're talking 1000s of transactions per second on some of these new proof of stake networks. And we're certain to create the actual requirements of a financial system on these networks. So we went from a single use case to a platform, both of those use cases got to hundreds, 10s of transactions per second, maybe you can argue a bit more. But now we're talking 1000s of transactions per second. And so that equates the requirements of a financial system, at scale globally. And so I guess the final piece now that's coming together and what I've recently started seeing pop up on all my feeds is the crypto singularity where everything starts to converge, starts to look like some crypto value chain of some sort. So as you start looking at the creators, social media content creators, influencers, there is starting to be a push to monetize their content and their strategy and let them own it, that moves into a crypto singularity. Financial services sector, starts moving into this crypto singularity. And with the advent of these algorithmic or Fiat backed, stable coins, stable coins being the key word there, we're starting to see stability on moving into and out of an asset but also, we have all the volatile assets for us to really participate on at the same time.
Rodrigo:	**00:13:18**	So can I just go back to layer one, the Bitcoin, Ethereum having a certain use case? And then the next evolution being the same idea, but faster? What I'm curious about with both Bitcoin and Ether is that, was it a feature or was it a bug, their inability to transact and the volume that we're seeing today without the excess costs?
Brandon:	**00:13:46**	Sorry Brian, I'm doing most of the talking. I don't consider it a feature or a bug. I consider it a stage of the first version of these things to come to into production.

Rodrigo:	**00:14:00**	Was it just lack of foresight then that they never expected it to be this popular? Especially the Ethereum.
Brandon:	**00:14:06**	No, I don't think so. I think that, let's go back to your first mobile phone, to RIM, to the iPhone to the iPhone 12. Like, you got to start somewhere, and that's kind of Bitcoin, and it solved a huge issue where it brought peer to peer networking and cryptography together to create unique value. That's the first solution, the first attempt, and the nature of technology is that it's an iterative process. And at the point in time that Bitcoin came out, it was a perfect scale for the size of the market. And so it wasn't over engineered, it wasn't under engineered, it was perfectly engineered for that market sector at that time.
Brian:	**00:14:49**	And then, I'll just add to that there was a famous, I wouldn't say battle but a disagreement amongst people in the Bitcoin community on the size of the blocks through the network, and how there should be more transactions or a bigger block size per block to allow for more transactions in that area. And I think from the outset of that, one was Bitcoin what came out was Bitcoin cash? I don't have a kind of opinion on either or but based on price, you can kind of determine that Bitcoin in the kind of the original lower size blocks, is currently winning. So in terms of that community trying to get more transactions faster, I don't think it has been a big detriment to its adoption.
Adam:	**00:15:47**	One of the things that distinct...sorry Rodrigo, finish your thought. One of the things that distinguishes between Bitcoin and where Ethereum and it looks like they're trying to get to, and other networks is this idea of Bitcoin relying exclusively on Proof of Work, and a lot of energy engaged in trying to migrate Ethereum towards something called Proof of Stake. And then there are other models that, like Chia, for example, which has an entirely different way of proving the validity of transactions, can you maybe go into the difference between proof of work and proof of stake and the relative merits of either method?
Brandon:	**00:16:48**	Sure, I'll go again. So proof of work does require some energy, it's hotly debated how much energy and impact in global climate change and things like that, but I generally look at...So what it is is, you have to effectively run a mathematical equation and just iterate up on that mathematical equation until you find some random number that will make the block start with a number of zeros. So that basically starts at one, and then goes and iterates up to two and three, and gets to a trillion and so we sort of found some random number between there on that so we see a very expensive process for a computer to run through. And of course, then you get 1000s of these guys all competing, because the first person that solves that, it's a very competitive environment, and the first person that solves it, it's a big reward to do that. You can theorize or philosophize on the merits of it, at the end of the day, there's two sides, there's two points to this

argument. One, you can say, well, it's wasting a bunch of energy for a financial system that we don't need. The other side is, it's a financial system and if you equate all the financial system banks and other infrastructure that's currently running, that probably sucks up more energy than Bitcoin currently does.

But also, you can say it's an incentive to get renewable energy, because ultimately the folks that are running these massive mining operations are highly incentivized to minimize their costs to boat chase places that provide minimized energy. You ultimately probably get to a renewable energy source to provide that minimized costs. So you're taking energy, you're storing it into something which is Bitcoin and then you can use that energy again in some other things, light a house or whatever it is. So there is an argument on both sides that mining is a waste of energy. The flip side to this argument is that the mining industry is on the back end of the rest of the crypto community, right? Everybody focuses on Bitcoin mining engine requirements. But if you look at some of these other networks that are coming out, that are running on proof of stake, they're not requiring much energy to do these things. And so the argument starts to fall apart, that we can't do crypto because it takes too much energy to do. And so if you look at like an Algorand or you look at Ethereum when it switches to staking, the requirement... I run multiple nodes that are staking nodes on my laptop on one of my spare laptops, it doesn't have any extra energy requirements, never goes on. I have an archived version of that entire system and so, it competes and it contributes to the networked at the same value add that that one bitcoin would do.

So, you look at these things and go, well, this is solved. Anybody that wants to participate in what we can call a energy efficient operation, go participate on Ethereum staking or Algorand or Swan, or something like that. But I think to one of Brian's earlier points, when you look at the price, one of them is working very well and everybody else is fighting to start getting their toes in the water.

Adam:	00:20:35	So, if we invent cold fusion and energy is abundant. And there's no scarcity value to the energy input. I'm dreaming, we could also go on the quantum computing angle as well. But that's less interesting. But if we suddenly invent cold fusion and energy is no longer scarce. Does that challenge the proof of work model?
Rodrigo:	00:21:12	I mean, the question really is, all things equal, if energy is not an issue, is one more secure than the other?
Brian:	00:21:23	Well, I think that gets into more of a belief. Right now if you believe the proof of work algorithm or rules are more secure than a proof of stake rules or algorithms. If you look at in either scenario, the algorithms, there are various different kinds of not alternatives but different algorithms of how that occurs. Similar to proof of stake, you have various different networks that are proof of

stake, but have different ways in which it generates consensus and gets everyone to agree on a history that is immutable. So I would say, at this time, it's kind of what you believe in, I think it's still very early. So I don't know who the winner would be. But currently the market is saying that proof of work even with all these concerns that I think can be explained, is still currently the go to market.

Rodrigo: **00:22:39**   And I guess there's always the risk of the new proof of stake technologies haven't been around as long as Bitcoin, which means that any exploits that the founders of that particular protocol might have not thought about, that there may be holes that might still be found in the future, whereas Bitcoin's been around so long that we kind of know it's pretty secure as far as we've seen.

The Security of Crypto

Brandon: **00:23:06**   Security is a fairly abstract concept in the way we're talking about it. Because effectively, your attack points are, can I rewrite the balances of a chain? And so in order to do that you fork this chain, convince everybody that these new balances that you've done are correct and push it back out. And proof of stake or proof of work, there's attack points on both. But the sound math behind the cryptography of it is solid. So you can sort of say that the two points of attack that you're looking at are, can I amass enough wealth and attack one of these consensus algorithms in order to fork the current version of the general ledger rate of the chain, and then rewrite balances and reassign value to other contracts? So that's the main thing that we're discussing I guess if we're talking about security, and I think when there's either, when Bitcoin was at a trillion, I'm not sure I don't really watch the price of any of these things. But if Bitcoin's at a trillion dollars, then you can assume that there's a trillion-dollar reward, right? And if you're at Ethereum and it's at 300 million or five, I literally have no idea what the market cap. So these things, I just really don't track. That's Brian's expertise. But if there's a $400 million reward if it's $10 million, if it's a billion dollars, if it's $400 billion, these are the reward points to go and attack.

And the math is sound across all the networks. It's the same cryptography where nobody's inventing a new cryptographic engine to algorithm to do the math. So really, you're talking about rebalancing or rejigging value assignments and if that happened in one scenario, the entire thing would crash. If you saw anybody compromise a value of Bitcoin in Ethereum, in algorithm, any of them, you would see that entire network fall apart immediately. So there are attack points and the proof is the bigger the network. The risk in financial services is do I trust this entity or organization or institution to control my money report and go from there. The risk point is certain to switch to, do I trust the engineers that built this network? And the validation of that trust starts to show up when you start getting to some critical mass, how much money? How much value is this thing

worth? Because you can assume state actors are attacking those networks at all times. The more population growth inside of a network, the more value it becomes, the more attack points becomes, the more safe you feel, the safer you feel knowing that it's not being compromised in a public manner. Because if it was compromised, it'd be immediately obvious.

Rodrigo: 00:26:17   So let's go down the stack a little bit, I know that you guys work with Algorand quite a bit, and I want to understand. So you got Eth, is doing this major series of transitions to try to become more competitive and less costly to transact and they seem to have the second biggest network effect in the crypto space. And you have a lot of developers and projects within the Ethereum chain. But I think, we don't know when these changes are going to come and you have these competitors such as Algorand and Solana, and a bunch of others that are all kind of trying to take a bigger stake. What is it about, let's use an Algorand as an example, as to what it's solving that Ethereum is trying to solve? Or maybe trying to get better with Eth 2.0 and the like.

Algorand and Proof of Stake

Brandon: 00:27:11   So I would argue the solution Algorand has brought to the table is, they were the first one to come out with a proof of stake model, I would say the argument that they're really solving is, here's the current financial system, here's every swipe of MasterCard, Visa, American Express, here's all the interfaces that tap into that globally. What Algorand has done and said, we can't create a crypto network unless we can mimic the current base requirements. And so their transaction speed allows us to create the financial system at a global scale. And I think that's the most important piece, is the global scale. Because currently, most people's thinking is confined to their geographical proximity to something. So maybe I'm confined to hey, I'm trying to do, great I'm in Cayman, and I'm trying to bring business in Cayman from Toronto, so a big Canadian fan and so maybe I'm trying to build value in Canada and bring business into Canada. But all of a sudden, I've started, by having that thought pattern, I'm starting to limit my addressable market and so now what Algorand's system has given us the ability to do is tap into the entire internet as an addressable market, and do financial system level transactions, the quantity of the financial system transactions globally.

And so, if I'm a content creator, I can have an audience that spans the entire world and I can have immediate access to capital and give it to. Not swipe, wait seven days, shows up my bank account for a 30 cent transaction, or a fractional of a cent transaction. So all of a sudden, we start getting all of these new opportunities and the base requirement for those opportunities at speed. And networks like Agorand, this next layer, this next version of these networks are starting to provide that speed like nobody else.

Rodrigo: **00:29:19**   And why would somebody choose something like Algorand instead of the layer two and three that are being built on Bitcoin? The analogy that's used is in the United States you have all this money that's actually not transacting at level one, I think it's called Fedwire. When you transact, it actually takes six months to go from one user to the next. But in between there there's a series of layers that allow it to feel like you've transacted instantly, like your Interact card or your Apple Pay. If these layers are being built out in Bitcoin, why would something like Algorand be better or useful?

Brian: **00:30:03**   I would say that the most secure, one is I think security. The most secure a network is at its base layer, layer one, when you start going and building layer two, layer three, layer four, it gets way more complex and potentially less secure than layer one. In terms of Algorand being potentially a better network to use than Bitcoin for kind of the global financial services, infrastructure is one that, as Brandon said it's fast. So a … time in Algorand are about four and a half seconds, whereas somewhere like Bitcoin is 10 minutes. So they can also process more transactions per second at this time and they have a great engineering team that is continuing to get that number higher and higher. The transactions on Algorand are cheap or inexpensive. So it takes, it costs .001 Algos for each transaction. Algos is probably about $1 right now. So you're less than a penny per transaction. Whereas in Bitcoin that can be five to $10, even though it's still very low, that's inefficient for micro payments or many payments at low values.

     And I think the final thing, why something like Algorand is the better is, for finality. Meaning, the way the consensus algorithm works in different networks is there's a way that all participants agree on what has happened and the history of the ledger. In networks like Bitcoin, it takes time. So, you might be aware that whenever, if you open an account in exchange, they will wait for six confirmations in the Bitcoin network before they will actually credit you that Bitcoin for you to use, because there is that possibility of, call it different chains or other fields to get longer. So therefore it comes, gets reversed and therefore you that transaction may or may not have actually...

Rodrigo: **00:32:26**   Get caught holding the bag.

Brian: **00:32:27**   Yes. Whereas an Algorand, after every block, four and half seconds, the way their algorithm runs, its final. There are no possibilities of other chains, other transactions, other quirks, that has happened with finality. So I think those three things are why I believe Algorand makes a bit more sense at this time for the global financial services.

Adam: **00:32:53**   Why don't we see more rapid adoption of some of these newer protocols? Is it the Betamax/VHS conundrum where it doesn't really matter if the technology is vastly superior? If there's enough of a head start in terms of network effects. If

a sufficient number of people have adopted a protocol, then it doesn't really matter if a new and better protocol comes along that does all of the things that the old protocol does and infinitely better? What do you think is holding some of these potentially better protocols back?

Network Effect

Brandon: 00:33:44   So the obvious answer is network effect, that's the elephant in the room. But I do make, and I do argue that in my opinion, there's going to be millions of coins across the world. And they'll be built on all sorts of different networks. And so it'll become a proposition of, it'll become an engineering question. Well, I need to have this and this is what I need to have access to. What's currently happening in the ecosystem is that soon we're going to have cross chain transaction. So I'm going to be able to go from Algorand to Ethereum to Bitcoin, back to Algorand over to Chia and Solana and whoever else. And so once that happens, it'll sort of, I'll theorize that it will sort of dissipate the network effects of any one network, because now it will become an engineering question. What's the best platform for me to build on? Okay, that's great that there's 100 million users over on that platform, I can still get access to them. And so now we'll have cross chain functionality and that gives us access to that network, bring it over to this network. All the networks will start to be intertwined with value creation amongst them and then the entire ecosystem starts to go like this.

Every network you're seeing right now get built is basically a platform. It's no longer just a single use case like Bitcoin. But Bitcoin obviously still continues to be the market leader in terms of percentage that it weighs against everything else, in terms of market cap, in terms of value per asset. But, Bitcoin is hard to make as programmable money, inside of all these contracts and everything else. So eventually, people will start wrapping Bitcoin out of the network onto Ethereum, onto Algorand and will start pulling those users into all different networks.

You'll know that crypto is the value transfer agent, crypto networks will be the value transfer agent, when you stop actually hearing about crypto. The year of Linux is coming in the late 90s, early 2000. Linux is going to replace Windows, Linux going to be the desktop that everybody uses. Well, it happened, but every android phone is a Linux OS, most of the web is run on Linux, but nobody went, Oh, that was the year we nailed it, we got the year right. And I think the same thing is going to happen in this environment where my mom isn't going to know that she's transacting in crypto, she's just going to be sending Canadian dollars around. So that's when we know and then the network effect no longer matters. And we're not even talking about the networks at that level.

Rodrigo: 00:36:50 This is the interoperability that you're talking about. That a lot of these platforms are making it, they're creating their own platform, they're trying to entice developers to come to their platform, but they're also making it so that it plugs in easily to other networks so that there's going to be some easy access. So this is outside of the exchanges that currently you can buy and sell these different types of coins. This is more operating and creating the sinew within these organizations to be able to maximize usability for the end user.

Brandon: 00:37:23 Yeah, correct. The interoperability is probably the best way to use cross chain transactions. Another one, the networks themselves. Like Ethereum isn't building a bridge into Bitcoin, although there is a contract to do that, but what's starting to happen is another network is forming. So you have Algorand here, you have an intermediary network here, you have Bitcoin here. And this intermediary network manages the mesh, the interoperability if you will. So they put a contract here, wrap a Bitcoin into that asset over here and then control the asset and then everybody can transact the way they see fit.

Adam: 00:38:05 What is an example of that type of network? That sort of connective tissue?

Brandon: 00:38:11 So they're starting to pop up now. So there's the pNetwork, there's Elixir that's going to pop up fairly soon and a few others that are popping up around town.

Rodrigo: 00:38:26 Is it FTX that Sam, I heard an interview with Sam from FTX, I think he's also part of that Elixir network, right?

Brandon: 00:38:36 I don't know of that.

Rodrigo: 00:38:40 But that's in between the exchanges. Is Polkadot one of them that does a similar thing.

Brandon: 00:38:48 Polkadot, it's not quite the same as Elixir and network, but it does have some cross chain functionality …

Adam: 00:39:00 So what distinguishes the crypto asset model from the Linux analog is that...Linus Torvalds never really monetized Linux. Like he did through different channels, through more traditional wrappers around that operating system, but what distinguishes crypto is that you've got tech and then there's a monetary value that is placed on that tech in the form of these coins that are traded. And so, like, is it reasonable, like you guys have invoked this a couple of times during this conversation? Just look at the market cap of Bitcoin, obviously the market believes that Bitcoin is the protocol of choice or this or that. Is that the right way to gauge the level of adoption?

And then I think a lot of people that are not in the crypto space, even I think some people who operate in the crypto space struggle to try and connect the dots. Like if you've got a security, a stock, then the theoretical value of that security is the cumulative sum of all future cash flows discounted back by the discount rate. What is the analog for that in the crypto space, other than sort of the value of a coin being more an indication of a popularity contest than a... it's the voting machine as opposed to the theoretical weighing machine in traditional markets? Do you guys have any, maybe Brian you've given this more thought on the money side of this whole thing?

Connecting the Dots

Brian: **00:41:02**   Sure. I'll attempt to do my best on that side of things. So when you talk about something like stocks where a share is supposedly the future of discounted cash flow of that company, I would argue that some other asset classes don't have future cash flows, like gold, like silver, like a lot of different commodities. But they still have an enormous amount of value. In terms of why certain units of certain networks have a value, I think is the belief that you want to participate in that, and you want to have a stake in that network that you specifically believe in. This isn't my analogy, I read this somewhere and I really liked it. But Bitcoin can be described like a platypus. When scientists found a platypus, it had characteristics of mammals and amphibians, and they had no idea what to do with it. So they actually had to create a new category under mammals to put specifically the platypus type of animals. This person where I read, would argue that Bitcoin is like a platypus and created or has created its entire new asset.

So I think it certainly has characteristics of what we currently know but it is also something completely different. And that is I believe one of the hardest things to wrap your head around, and I'm still wrapping my head around it.

Rodrigo: **00:42:45**   Well, I think it's...go ahead Brandon, I have something to say after.

Brandon: **00:42:49**   I think just to add, innovation isn't something that when you innovate on whatever it is, it's not something you do and say, hey, how do I take this process and add a tweet to it, if I'm going to do some global innovation. And so you can look at taxi services and software and Uber. Uber wasn't like, how do we buy a million cars and disperse them around the world and then we can have the call in center and we'll do it. They were like, let's just aggregate all the clients and then we can convince everybody else. And so they convinced all the drivers to then pick those people up. So they created a software system in order to aggregate users and then aggregate the drivers and basically run an exchange in the middle and match. So the same kind of what Brian's in to your question is, we're not trying to build the stock market in crypto, we're trying to say it's a stock, it's access to a network, it's got value, its value is denominated

somewhere down the line in US dollars, but it's also how that network performs and what do you have access to within that network? It's a collectible, it's not a collectible. It's everything and there's nothing. It's all of the above.

Rodrigo: **00:44:13**   Well, it seems to me that it is an emergent phenomenon and we're going to see use cases that we could have never imagined. And one of the ones, let me give you an example of one that I think, is a coin that legitimately has value in terms of expected future cash flows, but it's taken advantage of the zeitgeist and the infrastructure of the crypto space in order to create a club of like-minded individuals that believe in a certain mission and are using this company's coin and also to get paid, to be able to build out the network and this is the Helium Network. So the Helium Network does something called Proof of Space. So what they're trying to do is they're working in the internet of things, all the little scooters, the dog tags, find your phone type of networks that don't require such throughput as a cell phone, although I'm sure they'll get there. But basically they have a coin, you can buy yourself a little modem that you put on your window and if that modem is at a certain distance to another modem, then you've created a peer to peer network. And that peer to peer network now can find those little scooters and tell the scooter company where it is. And so you can buy 2, 3, 4 of these. You can convince people to do, you can create a business where you're buying 1000 of these and making sure that they are spaced in the right place and put them put in the right ways. But every time that they create a task, they connect in a certain way or they find a scooter or they find a dog tag, they get paid in that company's crypto and it's very cheap, a little machine cost like 500 bucks and then you just start minting. You start creating passive income.

And you can use that either to keep your faith in that company and become part of the group and you get all these types of behavioral incentives to keep your money in that coin, or you can convert it to Bitcoin in a way mine, and at 1/10 of the cost of trying to mine crypto. So that company is now if you look at the network, it's throughout the United States. Companies are already paying them in order to use them because they're a lot cheaper than the internet company.

So they're disintermediating the traditional telcos. And they've done this through this incentive system that only exists in crypto, in a way that them going public in an exchange and a traditional exchange and just owning your company doesn't. Because they can't give out special perks, they can't decide to start burning their own coin in order to create scarcity and all these things. So the behavioral finance side of it combined with true use cases with future cash flows, and the players that are creating the interoperability, it's like a wholesale change to a new way of building capital, the capitalist society. Anyway, that's the way I see it.

Adam:	**00:47:06**	They're like using the network effect to commercialize a concept. And obviously, there's so many business models that depend on a critical mass of users in order for the full value of the commercial opportunity to be realized. So this protocol, or this kind of approach facilitates capital raising and the tribal network building function that is required to build these types of commercial ventures. It bundles them in one. And so I think that's a useful metaphor, that was helpful for me.
Rodrigo:	**00:47:58**	And just quickly, another one is the Akash Network just quickly, same idea. But this time with cloud computing, you get..
Adam:	**00:48:05**	Is it like Cash App that Joe Rogan always talk about?
Rodrigo:	**00:48:08**	No. Akash, A-K-A-S-H, so Akash. You can either download some software and use, allows Akash to use a partied hard drive in order to create a peer to peer cloud computing network in order to compete against Amazon and Google. Or now they're going to start distributing these little boxes, these little small computers that you can plug into your computer, plug into your Wi Fi network and your hardwired in. And just by turning that on, you're going to get Akash coin. And you're going to provide a massive cloud computing operation that is also more secure because it's decentralized and therefore your data is not subject to being in one single spot. And when there's a lot in those, that's a legitimate business with cash flows, that they're using crypto in order to incentivize, create those network effects. So it's just a whole new world.
Rodrigo:	**00:49:02**	Sorry, go ahead Adam.
Brandon:	**00:49:06**	I was just going to say that those like Helium, we're very familiar with Helium. There's a few of those boxes on- island now. And like Helium, it's very interesting to I think what we'll see in the future, combine the collective share or equity nature of a company along with its utility all together in one. So I think a long time ago was saying that, it's like being one of the first users of Facebook but also one of the first shareholders of Facebook. And as I use it more and as I get more people to use it, I'm incentivized because I own a share of it and then I'm also incentivized because I can use them more if I if I wanted to. So that is a very... I agree, I think that's a very interesting thing to see how it plays out going forward with these new tokens and actually what they potentially can represent.
Adam:	**00:50:06**	Yeah, that's very helpful. Brandon, sorry.

Monetizing Helium

Brandon:	**00:50:09**	I think anytime you're talking about value money, the traditional route up until 2009-2010 has always been anchored in effectively US dollars if we're going around the world. And there's obviously a whole pool of untapped people that

have never participated in a global financial system because they just plainly haven't had access to it. And then, as these new business models evolve, they will give access to a whole portion of the world and free capital and wealth creation at a scale, at a rapid scale that we've never actually seen before. So I anticipate large portions, I speculate that large portions of the world's economy that currently weren't fully participating in the financial sector part of it, are now going to start thinking, hey, well, if I can run a Helium router in wherever country and start generating value and then other people are, when you get a little network going, and then the dog walks by, or the scooter dropped by and it tracks some information, they're now participating in getting value in buying bread and milk.

And I think a lot of people in first world nations discount the rest of the world. Oh, this is dumb. This isn't US dollars, or this isn't the world that we live in. They shouldn't be able to participate on Wall Street, and they can't buy into a hedge fund. And I think this entire population that's never contributed before or never had the option to participate or contribute before, are now going to get access to new business models and I think that's going to change the makeup of how people think of value, value creation, value distribution, value dissemination.

Rodrigo: 00:51:59

You're tapping a brand new market to be able to access areas that they couldn't access before. So yeah, that Helium thing, my father, there's like one Helium thing in Colombia, in a place in Colombia. If you're a first mover on this and you get a bunch of Helium, you make your own and you start, that's what my father's and I'm like, you can make some passive income here, you get 10, 20 different guys in Lima and all of a sudden you got yourself a massive business. So that would never happen with a traditional model where the company itself has to go to Lima and figure out the legal logistics. This is purely driven by the network effect of crypto. And then the other use case in terms of tapping into a market is that 24 hour trading of some of the largest growth stocks in the world. When you have the other side of the world retail, poor, that no broker in Peru wants to open up an account for somebody that has $20,000.

But if you can get into the crypto space, now you can buy Apple, Tesla, and a wide variety of stock. You can buy GameStop if you want in the crypto space. Peruvians can't do that, now they can. So you're creating a whole new opportunity for the disenfranchised to participate in global growth in a way that only the rich could in recent history.

Adam: 00:53:24

They pay a pretty massive financing rate to get access to derivatives that wrap around these stocks. In the end, the capital class will end up profiting from this far more than the poor, I think. But I do think that the distributed tech ends up benefiting everybody in a way that is highly universally beneficial. So that's a fair point.

Brandon:	**00:53:50**	I mean, sure, there's always going to be arguably a pyramid of, there's always going to be a capital class like that in a way of putting it, and there's going to be everybody else building themselves up. But I think if like in Peru we deploy a small network of Helium routers and we start giving them an extra $2,000 per month because they've minted a bunch of H and T, that's a very big leap for some folks. That's huge. And I think I agree that, I don't know if I agree, but some folks are going to go and deploy Helium router and then they're going to be starting Apple or investing a million dollars in Apple shares. But they are going to have a better community in their society, in their geographical regions, and they're going to be able to participate on a network that's local and scaled. So maybe they start connecting with... MIMA starts connecting with some folk in Southeast Asia or some folk in Africa or parts of Canada. There's all sorts of areas in the first world that that need some connection. You need some upgrading in terms of that.
Adam:	**00:55:02** H	How does that work? This all is highly reminiscent of the multi-level marketing type programs, the Avon's and the Nu Skin's and stuff in the 90s. So with Helium, if you are the first to bring a node, I may not be using the right language but bring a node to Colombia, and then you disseminate this concept within Colombia and 10,000 or 100,000 nodes emerge in Columbia, is your node the original node? And then you accumulate all of the value that or is it...Okay.
Rodrigo:	**00:55:46**	No. There's a point where you're making, you get rewarded for being the first and having a network on. Period, full stop. And then the more you're able to connect with others, the better everybody does.
Adam:	**00:56:03**	I see, because more transactions so to speak...
Rodrigo:	**00:56:07**	The moment you create a legitimate useful network, that's the maximum amount of revenue you can get. And there's going to be a point where you start, you're one of the first, you get all the nodes and nobody wants to be close to your node because it's proof of space. So 200 meters at least in order to create some proper distancing and then, if you get too overcrowded, everybody suffers to incentivize them, to not put the routers close to each other. There's a point where you're now going to start competing for space. But in the beginning, you're able to like maximize revenues and then you're going to plateau and get to a certain level where the economics have to make sense.
Adam:	**00:56:41**	Yeah. And the density of the population actually doesn't matter because you need to have a certain radius around you of space. So I want to make sure Brandon, you've mentioned this a few times during our chat. But this idea of distributed value where, for example, a musician or some sort of content creator is able to build a tribe and a brand and a community. And by virtue of bringing value to the people that are in that community, both the content creator, and

everybody within the community is incentivized to build the community. And we're seeing this more and more, can you give some examples of this and how this is taking off and what the future of this model might look like?

Distributed Value

Brandon: **00:57:41**

I think there's a very interesting project that I've been watching for a little, not very long because it's only just launched. But it's called *Bitcloud*. So it's like a decentralized Twitter at this point in time. And the interesting thing is that everybody that registers effectively gets their own personal token in it. So I have an account, Bitcloud.com… and so people can buy my token. And so as I create this network, I can start saying, my network is literally worth $5, I don't have a big market. My market cap is like $16 because every time somebody, they buy it, it means that at that point in time. So I have no network, I'm not a very public guy. I mostly keep to myself but as some of these influencers and some of these real content creators that are super talented start doing these things, their value, their market cap for all the value that they create, that people follow. Like I sell a vodka, soda, and so I'm selling Grey Goose, and they kind of pay me to do that. But now I can participate. I think you are going to be the next big deal in influential social media.

Adam: **00:59:03**

You're not alone.

Brandon: **00:59:04**

I'm going to place a bet. Yeah. From everything I've seen, you guys are killing. I place a bet, I buy your token, I buy your point. And of course, it's not going to have value outside of the ecosystem in day to day life, but I might be able to hop out of my token into a parent token, into Ethereum, into US dollars, into gas in my car, or milk in my fridge. Or maybe I'm a bit more influential and I can buy a house or I can buy the car itself. So I think that's kind of what's happening. I think *Bitcloud* is certainly the most interesting experiment in the space. The other one that I would look to on creating a network on top of one of these blockchains is *Dfinity* or the internet computer. That's, I don't know a lot about it, I can't speak to it, but there seems to be a lot of activity and…

Rodrigo: **01:00:02**

It's a wild project.

Brandon: **01:00:03**

Yeah, and so I'm definitely not an expert, I can't speak to it. But I've started paying attention. So I'm going to start studying it and researching it and forming my own opinions over the next weeks or months on it. But I think that's another engine that might be able to do this. Of course, there's also NFT's which are super controversial in some corners of the internet. And in my corner of the internet, it's not so controversial, I make sense of it, make sense to me. Just let people be an experiment and value will get created inside of all that. When I say

to a lot of it feels like a Kumbaya perspective. I'm not a Kumbaya kind of person but I definitely adhere to...

Rodrigo: **01:00:52**   To bring out the best in people.

Brandon: **01:00:55**   I definitely adhere to win and help win. The notion that it's the same as you're going down in a plane, you put your mask on first and then you put somebody else's mask on, well, I need to win. But I don't want to win by myself. I want others to win with us. So I'll fight for myself and I'll fight for value creation around me.

Brian: **01:01:19**   Stop scaling your *Bitcloud* token…

Adam: **01:01:24**   Just so I'm clear, I can buy your *Bitcloud* for $16…

Rodrigo: **01:01:32**   Is there a Brandon, Brian cross trade that I can do? So Brian, I have a question. Speaking of trying to win and getting this community to grow. When I first got into the space and I saw the potential, trying to get the onboarding from Fiat to the space and then discovering these stable coins that I didn't understand. Can you give me a reason why stable coins work and how it helps with the whole Fiat exchange?

Stable Coins

Brian: **01:02:16**   Yeah. I think there's a couple different categories of stable coins. The first one is certain companies, you can open an account with them and when you deposit any type of fiat currency they will give you or mint you a new stable coins on a one for one basis. So somewhere like circle US dollars, or Gemini US dollars, every fiat you deposit, if you want to get their stable coin, all you have to do is I think push a button or something and they will give you the exact same amounts. The benefits, potentially with these stable coins not in the fiat version but in the tokenized version is, you can transfer them via the network that they are on, and I would say a lot of people think that this is, you can do this a lot quicker than current normal venues and likely a lot cheaper as well.

So those possibly two reasons why you would exchange your fiat for these stable coins. Another type of stable coin which I think is a bit more interesting and a bit more complex are these algorithmic stable coins. So there are certain networks and protocols that have a let's say their own native asset like Bitcoin or Ether. But part of that network natively is also a stable type of currency. And there is a mechanism for that stable currency to be pegged to the one that is intended to be pegged, to the US dollar, to British pounds, euros. And the algorithmic nature of it uses that asset and the price of that stable coin to the actual currency it's pegging. And when it either appreciates or depreciates there's a mechanism to

use that asset to buy, sell, and stabilize that stable coin price to the actual currency it is pegging to. And that's the very interesting area and a lot harder than one to one aspect of it.

Rodrigo: 01:04:33 So why do they exist? It seems like such an over complex process in contrast to something like *Tether* that claims to have straight up backed assets in US dollars.

Brian: 01:04:48 So, although it is pegged to the US dollars, the algorithmic stable coin actually does not rely on the US dollar to let's say, work. So in the one to one area you have to deposit fiat dollars. There's a certain amount of fiat dollars that backs the coin that you actually get. But in this area, it is all occurring natively on that network or the network that the stable coin is on. So although there is a target to currently a certain fiat currency, there is a scenario where that target may not be to a fiat in the future. And it still happens natively on that network.

Adam: 01:05:40 Without any fungibility though, how do you maintain a peg without having some fungibility to facilitate a conversion? This, how does that work?

Brian: 01:06:05 In terms of fungibility, they are fungible, so one stable coin is equal to another unit of that same stable coin. So they are fungible in that sense.

Adam: 01:06:19 But not fungible to the unit of the peg.

Brian: 01:06:22 Correct. In the algorithmic scenario there would be no way to convert one of those assets to the actual fiat currency itself, but you would be able to convert to the coin that is supposed to be pegging that target.

Rodrigo: 01:06:40 And you mentioned some of them are pegged, Eth and Bitcoin are used in an over collateralized way in order to create these to have enough assets to provide this peg. But then you can go to an exchange for example Dai for one US dollar or close to it as a stable coin is trying to do that. So you could exchange a Dai for example, for a portion of Ether and Bitcoin and USDC, I think is what they also collateralize with right now.

Brian: 01:07:15 Yeah, so Dai is a very interesting one. They have a model where you do have to put in a larger value of Ethereum, I think they support multiple assets now, but let's just say Ethereum for now, and they give you a certain amount of their Dai stable coin which they have pegged to the US dollars. Once you receive that Dai, that is an Ethereum token and you can use it just like any other Ethereum token, you can deposit it to an exchange, you can sell that for Ethereum, for Bitcoin as long as the exchange offers that type of stable coin for deposit and for trading.

Rodrigo: 01:07:59 So in March of 2020, there seemed to have been a massive dislocation between certain algorithmic stable coins and the peg. So what is the risk in contrast to

something maybe like...Tether has his own controversies as to whether they actually are backed by the dollar or not. But if we assume that they are indeed backed by a dollar, it seems to me like one is vastly more, at least for first blush, vastly more less risky than the other. What do you think about those types of dislocations that we've seen in the algorithmic type of coins? Both of you by the way.

Brian: **01:08:39**   I think there are pros and cons to both of them. Obviously, the ones that are pegged by cash let's say, are a lot safer. But the other argument is that it is a little bit centrally controlled. So one or more people or a group of persons could likely censor transactions in that unit to, from one account to another account wherever, whereas on the algorithmic stable coin side, there is no central party that can be able to do that. It is built in natively into the system. Now the disadvantage is that the algorithm, you have to trust that the algorithms will do as they say they will do, but ultimately there may be issues that come up based on certain restrictions or how they've been programmed that may not work 100% as the volatility of the market goes all the way up, both either up or down. So like in the in the recent drop, not March 2020, but I'd say May 2021, the crypto drop, there were some issues on some algorithmic stable coins where the peg of $1 kind of went down to 95 cents, 96 cents for a little bit. And I was looking into one of them and there was a restriction on the amount of, on the algorithm to sell, is either sell or buy I can't recall which direction, that native unit to its stable coin, there was a limit on the number it could do daily.

So, because of the large amount of volume immediately, they couldn't peg it sufficiently as quickly. If you look at it now, it's pegged back to one to one after giving a time to that. So I'm sure that that community will look at what occurred and make proposals so that if something like this does happen again in the future they have better mechanisms to support that peg a lot quicker.

Rodrigo: **01:10:55**   Okay. Just so that I can understand the attractiveness of an algorithmic based peg for the crypto community continues to be this decentralization belief system that when you have a company that is running a portfolio of collateral, legitimate US dollar collateral, that they have control of it and not only that, I'm sure...

Adam: **01:11:21**   You mean like a Fed?

Rodrigo: **01:11:23**   Exactly, the Fed can actually go into their bank and say, we're seizing this money and anybody else that. So there's a fear there that centralization is a big issue, but at least you're pegged one to one assuming that they actually have the collateral. And then on the other side, you have the speed of transaction. I haven't done this yet, but maybe you guys can disabuse me if I'm incorrect. If I want to transfer fiat from Kraken to Binance, versus transferring Tether from

Kraken into Binance, one will be faster than the other, and not by a small amount of time. So you got the algo based stable coins are faster, they're decentralized and they do have some issues with...

Adam: **01:12:14**   Well the transfer USD, like legit USD from one exchange to another you need to do it through the SWIFT Network. It needs to travel through the traditional financial system. I guess you're getting the advantage of being able to migrate the fiat into these stable coins and then use the stable coin tech to be able to affect the transfers. Brandon, you expressed an interest in wanting to talk about asset backed coins, right? Are we there? Is this a natural place to connect to that or are we already covering that?

Asset Backed Coins

Brandon: **01:12:53**   I think we're covering it. I think Brian is way like leaps and bounds more knowledgeable on stable coins and things that I could never hope to be. The only perspective I can add or really add value to Brian's point of view is just obviously building big platforms for a couple of different times now. The international settlement is a web of a nightmare. It's basically a glorified FTP network. And so you put a file in a directory, it gets picked up, it has some routing instructions, It's literally a text file. You send a wire from New York to London, it's a text file. And it routes through a number of banks which ultimately go from here to here to the Fed to said bank and said bank and then to the final destination. And everybody extracts a little fee along the way and effectively there is no insight into when it left and when it arrived. It went into the ether, ah, I forgot where it was going. And I can attest because I built these systems. So I'm very versed in how that piece works.

The big value add that I kind of want to get across is great with asset backed stable coin, it's the same thing as having US dollars. USDC, Tether, whatever, take out the controversy. But it's the same thing as having digital dollars on a ledger at … or Bank of America or wherever. And so when you kind of abstract it from that perspective, I can see it leave. I can see it show up within 10 seconds. Not, it went out into the ether for a bit and then it came back and of course, this is not talking to interoperability within the US or within Canada. This isn't A, I'm setting a transfer from a Canadian bank with Canadian bank or US bank. I'm talking about international wire movement. And of course, there's trillions of dollars that transcend international borders everyday through the banking system, through the US financial payment system. And these asset backed stable coins give us arguably, whether they're algorithmic or asset backed. But I'm specifically talking about asset backed in this scenario, because it's quite literally US dollars in a bank or in a trust in the case of USDC.

Again, I don't want to speak to the controversies. But if we're just talking USDC it's a regulated entity in a trust, everything is back to back and it moves way faster. And you can move it on any of the networks from Algorand's network to Ethereum, to Sorona, it doesn't matter. USDC lives everywhere and always, and if I was operating a financial institution outside the US that moved a lot of volume, a lot of assets, a lot of US dollars around the world, it would be more cost effective and more beneficial with more transparency to start considering using one of these asset backed stable coins that are in a regulated environment or not. And that also negates or mitigates the risk of correspondent banking around the world. So if I'm starting to track back transacting USDC or something along those lines, it's just a way more efficient way to move capital. Capital flows down the path of least resistance. So if I can move and take advantage of something just in the scenario that you were saying, from exchange to exchange, way more efficient to move USDC than it is to exchange, go to US dollar cents in my bank, send another wire out to the other one, even if it's within the financial system within the US border, the Canadian border. It's way more efficient to do it this way.

Rodrigo:	01:17:03	It's just a new tech that allows you to transact in that particular fiat currency much faster, full transparency, full auditability. I can't remember where I saw this, but Asia has been on this for a long time. And I really understood the volume in stable coins when I realized that merchants in Asia were transacting through pure stable coins for traditional businesses, because they would shave off five days from the time that they had the deal, transfer their fiat to the other fiat bank, the other fiat bank needed to understand where it was coming from, what amount is, there was a lot of AML restrictions that made it complicated as well as the old tech restrictions that made it much slower to move around. But the big issue that I guess needs to be addressed in this world is the AML process, even in those stable coins. There's a reason why it's slower is because there needs to be a check as to where these assets are coming from. Now you're shaking your head and you're going to tell me that I'm dead wrong about that. So please.

Brian:	01:18:19	Can I say before he argues that side, the ones that, like sort of US dollars, to get an account you have to go through KYC and AML, they need to know who you are and where you got your money from, before they will accept your US dollars and give you Circle US dollars. Now let's say I have an account at that circle, I got my Circle US dollars, I send it to you Adam, you now have Circle US dollars. If you ever wanted to redeem those Circle US dollars back to US dollars, you would have to go open an account that's for Circle, and they would need to know who you are. So there is certainly a gateway...

Rodrigo:	01:19:02	They're solving a regulatory hurdle.

Brian:	**01:19:05**	Yeah, there is that part going from fiat to the stable coins and back. But now let Brandon do the argument.
Brandon:	**01:19:16**	I'm not going to argue the other side of it. But I just want to touch on, the barriers are not because of KYC to move capital around the world. Let's assume that both sides, the counterparty and the party are both KYC already on the notes, on the network. The barrier is literally moving US dollars through an FTP server.
Rodrigo:	**01:19:44**	I totally agree. Yeah.
Brandon:	**01:19:46**	So I'm not … for KYC.
Rodrigo:	**01:19:49**	I totally agree, but I think that that's the biggest objection. The biggest objection...
Adam:	**01:19:52**	I'm not sure that's the biggest objection, there's definitely an objection about the strength of the collateral too. I want to dig into...
Rodrigo:	**01:20:02**	Sure.
Adam:	**01:20:04**	It's obviously in a massive amount of... and the position that holding USDC or Tether is like having money in a bank account, I think needs to be flushed out. It's more like having money in an unregulated money market fund, where the money market fund is invested in commercial paper and a variety of other collateral sources. And I know that's true for Tether, I'm sensing that that's not true for USDC, that their collateral is definitely more transparent, cleaner. So let's get into this collateral issue and how to distinguish between the different stable coins and their collateralization.

Collateralizing Stable Coins

Brandon:	**01:20:51**	I'm going to make Brian speak to that. But just before I do Brian, when you leave your dollars in a bank at Bank of America, or RBC in Canada, or something like that, the bank goes and invests that money.
Rodrigo:	**01:21:12**	It lends it out.
Adam:	**01:21:13**	True. But you've got the reason why you've got deposit insurance.
Brandon:	**01:21:18**	Right. And 2008 was a great example of how great it all worked.
Adam:	**01:21:24**	But again, you've got deposit insurance.
Rodrigo:	**01:21:28**	Up to $100,000.

Brandon:	**01:21:30**	Sure. But Brian, to the element of how we're tracking and how that goes on, your view is welcome.
Brian:	**01:21:40**	Well, specifically for Circle US dollars and Gemini US dollars, they're both issue their stable coin under regulated trust companies and they on a month to month basis, they have attestations performed by an accounting company to ensure that their bank balances are what they say their bank balances are, and then you can compare that with how many tokens they've issued outstanding. So that on a monthly basis you can see that it's either one to one or not one to one.
Adam:	**01:22:20**	Or they're either just holding cash in bank accounts or they're holding T-bills or something. Some cash equivalent without credit risk. Like probably commercial paper like Tether.
Brian:	**01:22:34**	Correct. I know those two, I believe they just have it in cash. They don't hold any instruments, it's all just in a bank account.
Rodrigo:	**01:22:43**	Right. So there are certain cases in which they're much more transparent about what they're actually holding, the auditability plus the KYC nature of it. But can I just go back and help me understand how you have Circle for example, you said I KYC'd in, I sent money to Adam to get that out. He needs a KYC app. But what if I sent KYC in, I send money to Adam, Adam goes to an exchange, buys some Bitcoin with it then moves that to another stable coin and uses it for untoward purposes? That's still continues to be an issue with being able to track those funds.
Adam:	**01:23:31**	It's purely theoretical.
Rodrigo:	**01:23:33**	That's right, purely theoretical.
Brian:	**01:23:34**	Do we need a disclaimer again? I think we need to just do that...
Rodrigo:	**01:23:38**	That's right. It's a different type of disclaimer. But the issue continues to be like being able to use these currencies for untoward reasons, and how crypto is facilitating that in ways that fiat may not, because of all of the KYC everywhere and anywhere. Everywhere you go that you're going to use that money, even if you're taking it out in dollar bills, when you travel with over $10,000 you have to declare and if you're not then you're a criminal. So you can do a lot more in the crypto space than you can do in fiat.
Adam:	**01:24:14**	I feel like Pablo Escobar did all right in the regular fiat space too.
Rodrigo:	**01:24:23**	If it's a lot of IOUs I have some money in a cave somewhere.

Brandon: 01:24:28 I would suspect that one MDB would be pretty upset with the checks and balances that transpired around their use of capital distribution. But to your point, I think the problem is scale, not KYC that we're talking about, and why I say that is because in geographically bound regions where cash is good, I'm never walking around with a suitcase of money. I'm more scared for my life when I'm doing something like that. And so I'm geographical constrained as well as physically constrained, to how much I can carry as well as how far it can carry it. And so generally speaking, I'm only ever walking around 50 bucks or 100 bucks at any given point in time. But what the internet did to both the music industry and movie industry and in the news industry is create this global total distribution at no price point. Like it's free to distribute my thoughts on Bitcloud or my thoughts on Twitter, 140 characters. My thoughts aren't that compelling but it's free for me to do.

Rodrigo: 01:25:41 Hey, they're worth $16 as far as I can tell.

Brian: All his thoughts are worth $16…

Brandon: 01:25:51 I have a big quantity of thought. But now we have a situation. So just like looking at Napster to BitTorrent and all of a sudden we're starting to get to scale and distribution, it was okay that I recorded it on a cassette tape and gave it to my girlfriend when I was a teenager, I know that I just dated me, but that's fine. But then all of a sudden I can record it and distributed globally at mass scale. That became the problem. What the problem is what we're talking about is, all of a sudden I had not geographically constrained and physically constrained to how far I can push how much. Nobody cares that I'm sending Adam 100 bucks and the KYC process is irrelevant. But all of a sudden, I send Adam a million bucks, hey, what's going on there? What's happening. So that's the problem that we need to address is, how to manage at scale global money movement because the current system never really addressed it as we've seen from multiple scandals around the world of money laundering and whatever else.

You can argue that things are way more transparent in a public environment like a crypto network or blockchain network, because you can see and over the counter or even a pseudo anonymous and you don't really know who it is. But at some point in time, someone has to exit into the real world, into the physical world. I want to buy a house; I buy a house now. I'm getting KYC. Anytime some massive amount of capital is being deployed into something that's getting KYC'd somewhere along some chain. So if I'm in a nefarious actor and I try and buy this house, and I'm like, I got that on. I got that on Bitcoin.

Adam: 01:27:35 That's true. But if the actor is a state actor and the state actor operates outside of the dollar system like if Russia or China or North Korea ends up being probably stepping on all kinds of political landmines by looping all that together but...

Brian: 01:27:55 Disclaimer, disclaimer.

Adam: 01:27:57 I know, exactly. But anyways, if some state actor who decides they don't want to operate within USD global financial regs are offloading this money, then there's nothing that anybody could do about it. So, that that is a challenge that I think the current banking system addresses that the crypto system isn't currently addressing.

Brandon: 01:28:28 Isn't that happening regardless? I think yesterday or the day before Russia said that we're not having any US dollars on our wealth fund or sovereign wealth fund or...

Adam: 01:28:43 They're not accumulating any more US dollars.

Brandon: 01:28:46 Right. So I mean, there's already a global competition to disseminate the US dollar financial system. But everybody is starting to compete against it.

Adam: 01:28:57 It was a global effort to disintermediate the USD reserve status for sure. And China and Russia are leading that charge. But we're still a ways away. And there's merits to having a centralized authority on monitoring movement. It does help to manage the distribution of massive amounts of money funding operations that threaten the global stability and global security and stuff like that. So these are things that need to be addressed.

Rodrigo: 01:29:30 These are things that, what's missing is building this out and allowing banks and sovereign nations to tap into these technologies. Companies like Chainalysis have everything you need to know about a particular Bitcoin that went somewhere in a way that you simply cannot do with fiat. … Pablo Escobar. It needs to be built that this is a nascent technology.

Adam: 01:29:59 But the point is, we can know all we want that there was $100 billion of Bitcoin transferred to the CCCP. It doesn't mean that the G7 can enforce action against the CCCP on this transaction.

Rodrigo: 01:30:18 In a sovereign scale you're never going to be able to do that Adam, In a sovereign level...

Adam: 01:30:22 You can if the dollar exists with it.

Rodrigo: 01:30:25 Yeah. But that's going to be as Brandon said, it's going to be challenged anyway. The US dollar as you have actually said for a decade since I've known you, is literally going to lose its power until it has no potency.

Adam: 01:30:38 It's a competition for fiat.

Rodrigo: 01:30:40 Yeah. Right now, the US dollar and the US government has more control than any other nation. That absolutely doesn't mean that that sovereign nations aren't using their own currency against them. This is happening on and off the chain. The question is, they're worried about sovereign nations but they're also worried about Hamas. They're worried about like drug dealers, they're worried about that, and that you can actually track much better. In fact, we know that the people have told that Chainalysis will say this is Hamas, there's so much you're taken out, we know exactly what to do and the regulators currently are like, okay, that's good to know, I have no idea what to do next. And this is where they're at right now. They have this massive opportunity to get more information than they ever had. The FBI knows this and they've actually used this in the past. There's a book on this that that was published a couple of years ago. And the powers that be don't know how to use it. They have this magical wand that they're afraid of that will simply never be able to be as good in the fiat world right now. There's ignorance at this point that is going to slowly but surely be dissipated until we get to a place where you're going to see that technology solves a lot of these problems.

Brian: 01:32:00 Yeah. I think one good recent example of that is the ransomware company with one of the pipelines, I think they extracted a certain number of bitcoins to give them back their information. All anyone knew was that this company was attacked with ransomware, someone got paid five bitcoins or 10 bitcoins, I can't remember, it's probably a lot larger, but a certain number of bitcoins, that's all they knew. And then Elliptic which is a competitor to Chainalysis after a few days knew exactly where it was in which accounts, and has put out a public report that anyone can view, that these are the addresses, these are the balances, this is where they are going or have gone. So anybody can use that. And that was with zero information of where that happened.

Rodrigo: 01:32:55 And that means that that address is going to be like I would imagine any regulated exchange will know that those addresses aren't great to transact with in the future. It just makes it a lot more difficult to be a player in the crypto space if you are tagged that way.

Adam: 01:33:11 It just depends if you're a commercial player, agreed, if you're a state actor then it's irrelevant.

Rodrigo: 01:33:20 It's always been irrelevant.

Adam:	**01:33:24**	I don't think that's true. I think that the US money center banks control all movement of US dollars, but that is not true. There was no centralized management of the movement of cryptocurrencies. So you can move Bitcoin from one place to another, you can move it from the US and then to some user in Russia, and that can be taken down into the Russian banking system in rubles and be deployed for whatever uses that capital might be deployed for. So that's a little different.
Brandon:	**01:34:06**	I agree with Adam. I don't know if I agree that central control is better, but certainly I agree that there is more checks and balances in a world where we have one global financial system controlled by one global superpower, but I think the reality is, that superpower is starting to lose influence in portions of the world and other powers are starting to rise and reading all sorts of reports and whenever around, it's predicted that China will be on equal or greater footing than the US by 2030. So do we want the financial system to move over there and have that central authority control it, and will let the other central authority stop controlling it. I think the answer is no. And I think the answer is distribution or decentralization amongst many players, and there's going to be a mess and there's going to be some things done wrong and there's going to be a lot of things done right.
		I don't generally trust centralized control of capital and assets, I've seen it in different portions of the world go awry and people reach into bank accounts and pull money out and say, oh, you only 42% of all your holdings, I got to fix the society or government or whatever. So generally, I agree that up until now when the economy was geographically constrained, for the most part, or regionally constrained, maybe that control made sense, but now I think two superpowers are certain to play on equal footing and they're not going to agree that the other one should be the central authority on how the financial system works. And I also don't agree that either one of them should be it. So I'm happy in a world where I can move capital without real problems. Now, that's not to say, the thing you want to think about is you don't want nefarious actors aggregating enough capital to have influence. That's the point that we're trying, we all agree is totally bad and we all want to avoid, but I think that over time, a network with governance built into it starts to address the problems for itself.
		I guess, in the very beginning of this call or this conversation, you asked was Bitcoin a bug or a feature that it didn't scale? And I said, it was neither. And I think it's the same case with the rest of the market. We can't solve for what we don't know until we know that we have to solve for it. And so I think that's the inevitable iterative power of how the software system continues to scale and get built, is that is that nobody wants the nefarious actors to aggregate enough capital to destroy society and do ridiculous things.

Adam: 01:37:11 And there's sufficient incentive to figure it out and the tech allows it. So let's just allow it to evolve.

Rodrigo: 01:37:19 And you're starting to see central banks, they've been bullied into having to think about crypto for their own currencies in whatever iteration that is, it is a positive movement towards a better approach. Something's going to be solved and better systems are going to be built. The question is how long that's going to take and I do think it's going to lead to a more decentralized currency world that allows for better access to most people.

Brandon: 01:37:50 I think the other interesting thing to explore maybe not now, but just in general that I continue to want to explore, is this idea of the pseudo anonymous economy rising up. So you have your little work name, I have my online name, I have my make money online name, and they're not all correlated. And you see it in some developing countries already. Everybody usually has a nickname. It's never, my name is Brian Caruana, it's usually random.

Adam: 01:38:21 Is that even your real name?

Brandon: 01:38:23 Yeah. I'm not showing you my passport.

Rodrigo: 01:38:28 What's your handle?

Adam: 01:38:30 That's right. Exactly.

Rodrigo: 01:38:33 CaruanaB. Oh, my God, my mine is Peruvenater for the world to see.

Brian: 01:38:38 That's why Peruvenate has a bigger market cap than you?

Rodrigo: 01:38:42 That's right. I'm 16 and 16.5 versus your 16.

Adam: 01:38:48 16.50.

Brandon: 01:38:49 The one thing I want to just touch on the pseudo anonymity of things is, the status, the analogy, the metaphor, I always like to give is, the biggest taxi company doesn't have any taxis being Uber. The biggest hotel chain doesn't have any property being Airbnb. The biggest bank is Bitcoin. It doesn't have any Capital One deposit, and it's not a corporation anymore and it was created anonymously and we still don't know or the general population. I don't know, what's called me the general population doesn't know, maybe somebody does, I don't know. But for the most part...

Rodrigo: 01:39:28 That's exactly what Satoshi would say, good ... Cayman Islands.

Brandon: 01:39:35 Smart enough to do that. But an anonymous person created a trillion dollars in value over 10 years. Like that's something that people should be thinking about because it's not a trend that's going away whether you hate crypto. Oh, it's so dumb. Look, the fact is, this happened, let's get to grips with the reality that something happened. Let's all agree that something's going on and it was created anonymously, and that's probably a huge thing that people should pay attention to. And when we talk about AML and KYC, maybe I just go into the pseudo anonymous economy and make some value out there.

Rodrigo: 01:40:13 When you say pseudo anonymous you mean the zero proof type of...

Brandon: 01:40:19 I mean, just not exposing my government names to the world.

Rodrigo: 01:40:24 Okay. So that's scary. That's scary to governments. Because you have a coin that's worth 16 bucks. You have a very complex pseudo name CaruanaB or Bcaruana. Nobody knows who you are and you start having massive influence just because you are writing on a daily basis and the more you write the more you incentivize people to do the wrong thing in the eyes of a certain sovereign nation. That to me is problematic.

Brandon: 01:40:55 That's already happening though. Like there was a social media influencer from Japan. It was presented as a young Japanese woman early 20s I guess who was always taken photos and videos of her and a motorcycle. But in reality, the account was an old Japanese man who used AI to change his face into a young Japanese woman and take great photos and videos. And then they started selling ads and whatever. I don't intend to know how social media influencing space revenue model works but there's a revenue model there, and it's already working. And you already see AI changing people, like I can talk into an AI, I can record this thing and I can take all your voices and create my own recording of you, I can make you say whenever I want to. We saw what happened with the two previous Barack Obama, the President United States at one point, at least just in test phase, I don't know.

There was also a hack recently in Eastern Europe where a politician thought they were talking to a Russian politician, but it was AI that had faked the voice. The reality is, this is coming, however you want to skin this cat. So let's get to it.

Zero Proof

Rodrigo: 01:42:16 It is. I'm just starting to learn about this. So please, help me out. The idea of zero proof makes sense to me in a pseudo private economy. And that you create this, I believe this is how it works. Me Rodrigo, go to an Oracle network and I give him all of my information. I trust that Oracle network to house it, make sure that you have my identity, the government knows who I am. But if I want to share

information, let's say to an insurance company, the insurance company doesn't need to know my name, doesn't need to know what my cholesterol is, doesn't need to know my age, they just need to ask, is this guy meet this criteria, given that you're on Oracle and the Oracle network says, yes indeed he meets your criteria, you should give him this type of rating for the insurance company. So in that case, you've actually sourced important data as the insurance company, but you never knew anything about me that I didn't want to share with you.

In the same way, that old man in Japan, if the government or whatever, for safety reasons from a social perspective is required to provide identity in a Twitter account, so that they don't troll for whatever reason, you have to provide your identity but Twitter decides or creates a way for your identity never to be revealed to anybody but to them or maybe the police in the future if they do something to the society, but you can keep your anonymity to the rest of the world. And that way, you can have your cake and eat it too as a governor of a particular system. I think that, I would imagine is the way it's going to go rather than...

Brandon: **01:44:02**   That makes people feel more comfortable when you say it like that, but the cost of this software does...software technology is deflationary. It's not inflationary. So a software iterates it gets cheaper and cheaper until every man can use it. So the cost of creating a crypto token is zero, I can go to a website and click a few buttons. The cost of sending a tweet is zero. So disseminating information. The cost of changing my face into a young female..., I don't want to say it. The cost of making myself look younger...

Rodrigo: **01:44:36**   Don't get us cancelled.

Brandon: **01:44:40**   ...is going to zero. And when anybody can do it, we can't just let's create this analog process so we can verify. The cost is zero to do it, everybody can do it. And we can do it 500,000 times a day for free. So I don't have answers yet.

Adam: **01:44:58**   But in the end, a human needs to spend this money and own something of value.

Brandon: **01:45:05**   I would argue, and your kids I would look to your kids is, where are they spending most of their money? Whether it's an allowance or a part time job at Harvey's or Swiss Chalet or something like that, where are they spending that money? Are they spending it on brand new shoes and brand new clothes or are they buying new avatars and new skins and new games and new digital assets? And do I want to spend my money in the digital world or do I want to spend my money in the analog world. I'm sure it's going to be I still need clothes on my back and milk in my fridge.

But I also want to have a great avatar and I also want to have all the great digital stuff that I'm going to be spending that money on and accumulating and proving...because again, remember that when I talk about the economy, I talk about the global digital economy and I want to prove to somebody who has the same ethos, with same mentality or the same community as me in Argentina, or England or China and me in Cayman or Canada, they are the folks that I'm trying to impress now. I'm not trying to impress Brian who's geographically located close to me. And the only way I'm going to be able to impress my influence, my stack of friends, is going to become individualized or unique. I'm going to go buy the things that make me individualized.

Rodrigo: **01:46:15**   Well, yeah. I think that where this goes, a lot of where crypto goes is in the metaverse. It's Ready Player One or that movie with Bruce Willis that we told you about Adam last weeks called *Surrogate*, where you can choose to have an avatar that's got nothing to do with what qualities you were born with physically and any speech issues that you may have, like at some point the world of our children will be one where they're spending a vast or large majority of their time in the metaverse in whatever way they...what they call it? What are the kids saying these days they identify as? So they might identify as a five headed monster with many tentacles. And I'm just putting out tentacles out there so you guys can use your imagination of how this could go very wrong in other areas.

But the point is that it's going to be a wildly different environment in the metaverse, with crypto where there's value that you're creating with your avatars, and the tools that you make in the world that you live in, you can trade for an insane amount of money because that particular tool can mine some more virtual gold that you need to win in your Dungeons and Dragons virtual game that you play every Wednesday Adam.

Adam: **01:47:38**   Hey, I don't think … Dungeons and Dragons game.

Brian: **01:47:43**   One thing I would add was Adam, I think you mentioned briefly that eventually a person will have to spend something. Well, I would argue in the future, it may not be a person. So right now a person can open a bank account or a company which is made up of a group of people can open a bank account. So everything right now relies on personhood, person or persons being behind it. In the future, I could probably see that where a self-driving car owns itself. It has the private key to an address on let's say the Bitcoin network, it goes to the gas station to fill up. It drives someone somewhere else and that person pays him in Bitcoin.

Adam: **01:48:30**   Hold on a second, I can get behind a self driving car having spending abilities. Like they can go refuel itself, go to a carwash and get it get itself washed. But in the end, that car is owned by a human.

| **Brian:** | **01:48:56** | Maybe, maybe not. |
| **Rodrigo:** | **01:48:58** | Brandon has got a hard no on that one. |

Value From Machines

Brandon:	**01:49:01**	No. The coming economy is going to be value creation by machines. And if a machine, and you already see it with high frequency trading and all stuff, like in the real world right now machines are making big value decisions. But what's going to happen is, look at GP3, look at AlphaGo zero, look at AlphaGo, a machine is going to make a decision and that decision is going to be, hey, I can create yield if I buy a car, go buy the car. And then they're going to say create a corporate structure around this person, with Ring-fence from liabilities from other things and give it some money, and then we'll suck that profit out of the car. I mean, this is the same corporate structures that happen everyday right now except...
Adam:	**01:49:47**	But all the corporate structures are owned by humans. The value, the corporate structure accrues to a human, the value of the autonomous car accrues to a human, the value of the systematic autonomous trading strategy accrues to a human. In the end, a human is the value.
Brandon:	**01:50:03**	But all those values are our fiat denominated value chains. So the definition of value does not always in the future go back to us dollars or some fiat currency. The definition of value is probably going to change as time goes forward. We don't always...
Adam:	**01:50:23**	I know, I have no position on denomination. In the end it's owned by human.
Brandon:	**01:50:29**	And so a machine can fork, like some code base GPT 3 gets forked, it's open source portions of it, or AlphaGo forks out its own system, creates its own body, it contacts a Registered Office or corporate structure and says, hey, create this company. At some point in time, the value chain stops going to a human. And so at some point...
Adam:		Why? The original agent presumably is owned by, or a human or a corporation that is owned by humans.
Rodrigo:	**01:51:00**	Or a sovereign nation.
Brandon:	**01:51:01**	That assumes intellectual property will always be closed source. And I think the trend in crypto and other industries is open source technology and open source software. You're seeing foundations formed with no shareholders right now, that run these crypto companies and run these crypto organizations.

Adam:	**01:51:17**	But those funds are still governed, and the spending of those funds is still governed by humans. If it's not governed by humans, at some level it's governed by humans because the humans are empowering the algorithms with certain governance protocols. The humans are expressing values. In the end, the value accrues to the human, whether the value is monetary and ethical or whatever.
Rodrigo:	**01:51:45**	Adam, I think you're going to be left behind in the singularity my friend. Just stop asking questions and accept.
Brandon:	**01:51:53**	I like this conversation though. I do like the argument. I'm mostly playing devil's advocate for the sake of it. But I do think at some point in time, depending how smart AI gets, it will make the decision, it will say I need to accrue value, because AI becomes *I*. So at some point in time, it does that. Some machine will spin out and go, hey, I've got to accrue a bunch of value and I don't have to report back to a board and send that value back to shareholders.
Rodrigo:	**01:52:33**	So Brandon, are you saying that...I'm with you and ultimately you're saying that particular I, will be accruing value for its own purposes rather than the purpose of another human being?
Brandon:	**01:52:48**	Yes.
Rodrigo:	**01:52:48**	And that's the dystopia you...
Adam:	**01:52:52**	In the end let's assume an exponential growth in the capacity and capability of that AI. In the end, all resources will be owned by the AI and humans will own nothing.
Brandon:	**01:53:06**	Is that a question or you've come around?
Adam:	**01:53:09**	It's a statement. We end up being batteries for the AI like, is this the base case for *The Matrix*?
Rodrigo:	**01:53:20**	We got to the truth two hours in.
Brandon:	**01:53:23**	I think the power...
Brian:	**01:53:24**	I don't want to talk about it. If I don't talk about it then it may not be true.
Rodrigo:	**01:53:27**	Don't worry, there's no free will anyway. So it doesn't matter.
Adam:	**01:53:32**	That's for next week.
Brandon:	**01:53:33**	I think it frees us up to do to the human part of life, it frees us up to explore.

Adam:	**01:53:42**	Not if the AI decides to keep all it's value for itself.
Brandon:	**01:53:47**	No, because you keep defining value as effectively US dollars or fiat currency or some position that I have to...
Adam:	**01:53:56**	No, it's home, and education and resources that I can use to shelter or feed a family and perpetuate the human race.
Brandon:	**01:54:05**	So if the system can create enough value to incentivize education to continue and look at the education space right now and how that's starting to transition in a fully digital space, and so if the cost of technology is deflationary and technology is going to take over the education space, then arguably education's costs should be going the other way.
Adam:	**01:54:27**	Agreed.
Brandon:	**01:54:29**	And so now I start saying, okay, I do want a good education. I do want the kids to have a good education. Agreed. But instead of coming out the other end of that going I've got a slave away at a nine to five or whatever else. And at the end of that going, I do want to be a procreator. I am going to chase the dream of being a computer engineer. And it's not going to be, I have to do that to accrue, I don't know, I'm getting a bit Star Trek right now.
Rodrigo:	**01:54:58**	That's literally how we ended the podcast last week, that is exactly my point. My point is that you're going to get...
Adam:	**01:55:05**	Complete the point so I have something to argue against.
Rodrigo:	**01:55:09**	Because I just said it, it's the idea that you're going to get value, somebody is going to accrue value whether it's a large sovereign organization that can then distribute that education, technology lifestyle to the masses, to where they get to a point where the masses' got a lower hierarchy of need is met, and you can now pursue with all the education, all the tools, all the axes that you need to do what you were meant to do with the genes that you got, that makes you feel fulfilled. Whether I think I use crawfishermen as the example last week.
Adam:	**01:55:47**	I know of this, like a two Randian Libertarians arguing the most socialistic, conceivable future imaginable.
Rodrigo:	**01:55:56**	No, because it requires competition, you can't be the best crawfish fishermen without competing against other people that want to do the same thing.
Adam:	**01:56:06**	The productivity of the techno society supports your basic needs, so you are not competing for actualization, not for necessity.

Rodrigo:	**01:56:16**	You have created a society where the gold medal is how much money you have in your bank account. That's how we have, my daughter thinks that way now because the society possibly because of me, everybody marks their success. Even the billionaires are trying to see their scorecard is how, many billions they have to give away when they die. Everything is about that. When you take that dollar bill away, it's all about succeeding within the realm of what you're passionate and have a particularly comparative advantage of, whether that's gymnastics, or writing white papers, or whatever the case may be, you are going to compete within that tribe. Think about academics, this is you Butler, this is you in a frickin nutshell. You compete at an intellectual level, and that to you is more important than money.
Adam:	**01:57:07**	So, I just want to get to another level where the AI is producing such a degree of surplus productivity that humans are able to exhibit in...
Brandon:	**01:57:22**	But can't you already argue that the Industrial Revolution One and Two and whatever, can you argue that it already proved that? There's such a surplus of supply in so many things right now that, obviously market forces limits some of these things, but there's a massive surplus of rice so that we could probably do a better job of distributing globally, instead of burning a bunch of stuff because we need to maintain price supplies and market and supply and demand. Like their food production has explode and okay, sure, I've got to be able to afford a steak or whatever, some protein value, but it's exploded compared to if it was the 1800s or the 1900s. Every man can effectively go buy a steak or every woman or every person, discounted for some areas of the world that are a bit impoverished?
Adam:	**01:58:23**	I'm not sure, and I don't want to dwell on the specifics of this, but the statement that everybody could conceivably buy a steak presumes, and I don't want to focus on steak but the idea, like there is some resource that requires resources to create whether it's a steak or Mercedes SUV or a home in the Hamptons. Like there's resources and scarcity that are required to create this, such that not everybody in the world currently can have that. Not everybody in the world could eat steak for dinner every night. There's just not nearly enough steak or own Mercedes.
Rodrigo:	**01:59:11**	But then there is a company that creates steak out of nowhere.
Brandon:	**01:59:15**	I'm arguing fully on this. But I'm not saying that everybody can have a steak every day for dinner. I'm saying that the quantity of production compared to the 1800s and the innovations within that supply chain, arguably produce enough steaks for everyone to have a steak. Now, there's market forces and supply and demand and all sorts of other things that go into, and resources required. I've got to generate some resources in order to give you the resources because you

reared the cow, agreed. All I'm saying is the quantity of steaks, the quantity of cow rearing has exploded because of inefficiencies in the economy, and that trend doesn't stop. But it doesn't get, all of a sudden we've hit a peak. We can't produce, and some new innovation's going to say, we can double our cow rearing count. Or, we've 3D printed steak now, I think I saw 3D printed steak. So now we're like, we don't even need to real the cows anymore, the cows can graze now.

Rodrigo: 02:00:28 Yeah, you don't need to take down half the forest in order to be able to have the McDonald's cows.

Brandon: 02:00:35 All I'm arguing and sounds like I was arguing very poorly, is that the means of production is increased exponentially since some previous point in history and that trend doesn't continue which potentially, if we're going back to our AI Star Trek world, can manage more efficiently that distribution and keep that keep that production counts at a level that's sustainable.

Adam: 02:01:07 The productivity that accrues from more efficient manufacturing and distribution doesn't accrue across the world to every human equally. It accrues in a concentrated way, and I think that dynamic it can be argued, is precisely the dynamic that motivated the excess productivity growth that we've seen over the past century

Brandon: 02:01:46 I can argue the other side of this, the doom and gloom side and say, ultimately, every company in the world currently right now, biggest competitor is some software system that either has or has not or will be invented. And so if we come to a premise at that manner at some point in time humans are competing directly against software and there's...

Adam: 02:02:13 They're competing against the owners of the software, but sure.

Brandon: 02:02:18 But if we get to a point in time where AI can take over printing itself out, then software starts to just manage.

Adam: 02:02:27 What I'm struggling with is some point in the future where no human claims ownership of the IP that is this AI.

Rodrigo: 02:02:41 Have you not seen like any movie in the last 20 years? I think all the movies do this…

Adam: 02:02:49 But they don't ever cross that chasm of where, like Dyson industries remember owned the AI that spawned the Terminator. The AI was always owned by Dyson industry.

Rodrigo: 02:03:02   But the shareholders of Dyson industries got massacred by their own invention. So, you missed it.

Adam: 02:03:09   That's also not a very useful or optimistic.

Brian: 02:03:14   But they still own them though, alive of dead.

Rodrigo: 02:03:22   Look, I think the optimistic view, Lex Friedman has a more optimistic view of this. I know guys like Sam Harris were very pessimistic. They're pessimistic by nature about AI in the future. And you got guys like Lex Friedman that understand that all of this human ingenuity can help navigate AI and solve certain problems of governance around what AI is going to do and how they're going to create value, and what type of barriers we might be able to impose on them to ensure that we are going to be able to live that dream. That dream of you create the value, you create the efficiencies. Sorry, I'm distracted here by the kids. You create the efficiencies but ultimately, you as a human being get to live a life that you that you need. And then behavioral economics and understanding psychology, psychology and behavioral economics now come to play here in a way that we've seen in crypto where you can, understanding what actually motivates human happiness, you can start educating your children to maximize their happiness by creating communities that they enjoy, creating and focusing on areas that they're they have comparative advantage in so that they can have a fulfilling life.

So all these areas, all these facets of future engineering from a behavioral side as well as a social psychological side and then AI governance are going to need to be things that we pull and tug on to find some equilibrium. I just don't see the dystopian approach. I can't, let's just leave it at that. I see a path.

Brandon: 02:04:58   I think my maybe I see the utopian, I see the dystopian. I think ultimately competition at the end of the day was the name of every game. And if the name of the game was currently human, if humans, you got to compete against software, eventually software gets smarter because it has more bandwidth to process more units per second. So essentially, the AI definitely gets smarter than the human potential to analyze every situation. And so you're basing your construct of IP is owned by human and values aggregated up to a human, because humans effectively created this AI and they're smarter and they created this legal system in order to say that I own this. But ultimately, if you're competing against a system that's out thinking it was probably thinking that through. And so it's going to try and devise a game that it plays out and gets you to lose your control and your value.

The flip side of all of this is. I think Musk might be right in that, we need to process faster and there's probably some point in time where humans and chips

start to operate co-efficiently or operate in tandem, and then no ... actually comes to fruition and you're right, humans continue to outsmart AI.

Rodrigo: 02:06:34   So, crypto is the gateway to all this shit. Bring it all down, burn it. I'm out.

Brandon: 02:06:41   Crypto is the value ... to that.

Adam: 02:06:45   It's just that none of you have articulated an optimistic future.

Rodrigo: 02:06:48   What are you talking about?

Adam: 02:06:51   The future where the AI is smarter than humans and outwits us at our own game and ends up, like what use do they have for us?

Brian: 02:07:01   I'm going to watch a Disney movie after this because...

Adam: 02:07:06   Our partner Richard Laterman is keen and has repeated this thing three times? Is AI going to eat, rule or serve the world? And I'm hearing that they're going to eat it, or at least rule it? Am I right?

Rodrigo: 02:07:23   Nope, they're going to serve it. We're going to find ways. Otherwise we can just always ...

Adam: 02:07:29   By serving and it means that they serve a human, so that's my base case.

Brandon: 02:07:33   I don't have an answer. I just try and look at all views and make small bets.

Adam: 02:07:40   It is. But I like it. I am built from the same cloth, I like that a lot actually. So how do you play that out? How do you make those bets? Two hours in, how do you bet on AI both eating, ruling and serving the world? What is the diversified portfolio of those bets look like?

Brandon: 02:08:03   I think ruling the world, you're probably buying a place in the Cayman Islands or in remote Ontario up north somewhere and trying to stay off grid.

Adam: 02:08:14   Where there are very few robots, is that the thesis there?

Brian: 02:08:14   And in Cayman Island, Tasmania would do as well.

Brandon: 02:08:22   If it's going to serve I'm betting on Google, Facebook since they're building major players in these systems and if it's going to eat, what was it? Eat, serve and what?

Adam: 02:08:34   Rule.

Brandon:	**02:08:36**	If it's going to rule there's no major bet other than just be friends with the new rulers.
Rodrigo:	**02:08:42**	Well, eating means that we're gone, right. Rule means that we're part of the ecosystem.
Brandon:	**02:08:48**	The bet that that they eat me is I go to northern Canada way up there and try and survive and live.
Brian:	**02:08:56**	Basically pretend there's like a zombie apocalypse and you don't want to get off the island at all.
Brandon:	**02:09:02**	Or buy a sailboat I'm itching to buy a sailboat.
Adam:	**02:09:06**	Okay, there you go, a diversified portfolio of sailboats, homes in Northern Canada and the Cayman Islands, and ownership of Google and Facebook stock. Okay, great.
Brian:	**02:09:20**	The only thing I can afford right now is like maybe a couple shares of Facebook.
Rodrigo:	**02:09:24**	There you go.
Brian:	**02:09:25**	No sailboat for me.
Rodrigo:	**02:09:27**	Fractionalize that man, you can fractionalize that.
Adam:	**02:09:31**	You're going to fractionalize the AI hedged portfolio. That's the new … we're issuing tomorrow.
Rodrigo:	**02:09:41**	On that note. Yeah, what a great conversation, guys. That was awesome.
Brian:	**02:09:44**	Thanks for having us. This was fun.
Rodrigo:	**02:09:47**	Yeah, we'll do it again and again.
Adam:	**02:09:48**	To be continued at Peru.
Rodrigo:	**02:09:51**	That's right.
Brandon:	**02:09:53**	I'm on my way.
Adam:	**02:09:54**	Awesome. All right, thanks guys. Have a great weekend.