How Crypto Tokens Will Enable the Disruption of Businesses like Uber and Airbnb

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I have spent much of the past six months trying to understand the world of Bitcoin, Ethereum, alt-coins, crypto currencies, crypto commodities, and crypto *tokens*.

If history teaches us one lesson, it is those who adapt will survive, and those who fight tooth and nail for the status quo will flounder when the world invariably changes. If many smart people say that something "is the future", it is generally worthwhile to try to figure out why.

If you are brand new to all this, A Letter to Jamie Dimon, by Adam Ludwin, is a great primer blog post. There are countless other blogs, podcasts, and books, but Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond is an extremely well written book that I thoroughly enjoyed.

Broadly, crypto currencies (like Bitcoin) function as digital money, crypto commodities (like Ethereum) provision scarce digital resources (like distributed computing power), and crypto *tokens* (99% chance you've never heard of one) are more of a flexible combination of a currency and a commodity. Altogether, we call these crypto assets.

Within the world of crypto assets, most of the attention is paid to the biggest crypto currency, Bitcoin, and the biggest crypto commodity, Ethereum.

Often overlooked and in their nascency, crypto *tokens* could be the most exciting crypto asset.

Crypto tokens have potential far beyond being the "internet of money" –

they can reshape how businesses form and operate.

As a means to help individuals band together to create and capture value—crypto tokens could be the greatest innovation since the joint-stock corporation.

I will attempt to illustrate this potential below.

Disrupting the Two-Sided Marketplace of Web 2.0

Businesses that are two-sided marketplaces, built around network effects and transaction fees (Uber, Lyft, eBay, Airbnb), will be especially vulnerable to disruption from businesses built around crypto tokens.

The traditional way to build a two-sided marketplace business:

- Use equity financing from founders and accredited investors to create a marketplace.
- Use more equity financing from institutions to grow two sides of a marketplace as fast as possible.
- Reward early employees with equity and early marketplace participants with low, zero, or even negative transaction fees (cash rewards).
- Increase transaction fees as the marketplace increases in scale and monopoly power
- Grow value from the appreciation of the equity because of its right to the future cash flows from these transaction fees.
- Founders, employees, and investors capture value by selling appreciated equity.

Using crypto tokens, these businesses will be built a different way:

- Use ICO (initial coin offering) financing from anyone, around the world, to create a no-transaction fee marketplace, with a specialized token as both the means of exchange and reward for investing.
- Use this same token to reward early marketplace participants, as well

as founders and early employees.
- Grow value from increasing the value of the token, which happens through matching as many willing buyers and sellers as possible, not through transaction fees.
- Founders, employees, investors, and users of the marketplace capture value by selling tokens for US dollars, other digital tokens, or fiat currency

In the crypto token version of this business, marketplace value is captured by ALL those who create value for the marketplace, including marketplace "users", and that value is captured WITHOUT transaction fees.

These are revolutionary concepts for how individuals can create and capture value together.

If you lean left, there is lots to love here: "Power to the people! All those who create value capture value! No middle man taking a fee!"

If you lean right, there is lots to love as well: "Competition and creative destruction driving transaction fees as low as possible! Individuals making private decisions to buy, hold, or sell tokens and directly transact with each other! Financial markets and liquidity available to anyone and everyone at all times! "

Hypothetical Example: Token-based Ride Sharing Service

To illustrate how this would work in practice, let's create a fake ride sharing company called Lyber, which uses LyberTokens as their means of exchange.

Lyber works exactly like Lyft/Uber (matching riders with drivers for an agreed price), with some differences:

1) There are 1,000 total LyberTokens that are issued, and there will never be any additional tokens created.

100 of these tokens are owned by the people who work at Lyber, 100 tokens are reserved for rider/driver incentives, and then 800 of the tokens were sold to the public in an ICO at $10/token. Altogether, there are 1,000 LyberTokens that can be bought and sold freely on the open market. At the launch of the service, LyberTokens trade for $10/token.

Key point: The number of tokens is fixed. The creation of these tokens is governed by digital contracts maintained on Ethereum, and the token's ledger of exchange is maintained on a decentralized blockchain.

The decentralized blockchain and binding digital contracts are what make LyberTokens different from Chuck E Cheese tokens. Even though they are created from thin air, they have immutable rules attached to them, so as a means of exchange, they generate much more confidence than Chuck E Cheese tokens which have no externally auditable, governing rules.

2) Rides are bought with LyberTokens, and drivers are paid in LyberTokens.

The price of a ride is pegged to the price of an LyberToken in US dollars. So, if a ride costs $10, and a LyberToken costs $10, then a ride costs 1 LyberToken.

Key points: A user of Lyber can still price a ride in US dollars, and they do need to think of prices in terms of LyberToken. The US dollar can still be the dominant pricing mechanism, and a user does not need to know how much one LyberToken is worth to use Lyber.

3) The more rides that occur, the more demand for each LyberToken because there is a fixed number of LyberTokens.

The price per LyberToken will naturally appreciate with the demand.

For example, if at the start, a ride was $10, all 1,000 LyberTokens were available for purchase, and there were 1,000 people taking a ride at a given time who needed LyberTokens to pay for their rides. There were $10,000 of total ride value and 1,000 LyberTokens available to be purchased, so each LyberToken would maintain its price of $10/token.

However, if there were 100,000 people taking a ride at a given time, so there was $1,000,000 of rides that had to be paid for with only 1,000 LyberTokens, then each LyberToken would have to be worth $1,000, so each ride would cost .01 LyberToken.

Key points: i) If the price of the token rises, it does not mean the underlying cost of the service rises. ii) If you have a set number of tokens, the more transaction value between buyers and sellers in a network, the more the value of the token will appreciate. Value is captured from matching buyers and sellers through the appreciation of the token, NOT through transaction fees. The idea that tokens can just "appreciate", without affecting the cost of the service is extremely hard to absorb – it took me awhile.

4) If riders do not have LyberTokens, they can still pay with fiat currency, like a US dollar.

To facilitate this, Lyber charges riders 3% more than the US dollar ride price.

So, if the price of a ride was $10, and an LyberToken cost $10/token, the rider can choose to pay $10.30 instead of using 1 LyberToken to pay for her ride. Lyber would then take that $10.30 and purchase 1 LyberToken on the open market, which would then be paid to the driver.

The driver would then have the option to keep the 1 LyberToken (either to use themselves as a rider or sell it at a later date) or to be paid in US dollars, for a 3% fee. If they choose to be paid in US dollars, the company simply takes that 1 LyberToken, sells it on the open market for US dollars, and pays the driver.

Key point: Neither the rider nor the driver needs to deal with tokens if they don't want to, and the transaction cost is still far cheaper (3%) than what Lyft/Uber charges (20%). The company can essentially "force" a *token economy on the business, so long as there is enough liquidity on the buy and sell side (which there should be if enough people are using the service because the marketplace is two-sided).*

5) There is a ~0% transaction fee for each ride.

If the ride costs 1 LyberToken, then the rider pays 1 LyberToken, and the driver receives .999 LyberTokens. The tiny transaction fees cover the cost of mining, which maintains the decentralized blockchain and gives riders and drivers security that tokens and transactions are not being faked.

Key point: Whether you are rider/driver number 10 or 10 billion, you are getting a better deal than you're currently getting with Lyft/Uber because you pay no transaction fees. There is no reason to ever use a service like Lyft/Uber that has transaction fees if a token-based service works just as well.

6) Lyber rewards drivers and riders who invite friends to use Lyber with LyberTokens.

The earlier you were involved in the marketplace, the more valuable your potential LyberToken appreciation, and the more incentive you have to join early and help build the marketplace.

Key point: The everyday person who provides value in the marketplace now has the opportunity to participate in its upside. The should lead to stronger marketplaces that grow more quickly and spread the value capture across more participants. For example, instead of receiving a measly coupon for inviting your friends to also drive for Uber, you could actually make serious money by earning tokens in Lyber that appreciate over time.

Foreseen Benefits and Risks

In Lyber, this new version of Lyft/Uber, there are significant benefits to all participants and better alignment than in a typical equity/transaction fee model:

- Founders, employees, investors, and customers are all incentivized by the same thing – create and maintain a product that matches as many willing riders and drivers as possible.
- Riders and drivers no longer have to pay transaction fees.
- The earliest rider and driver participants can benefit from helping grow the network.
- Riders and drivers can further participate in the "upside" of the business by earning and holding tokens.
- Tokens are always liquid and value can be captured more easily.

There are also potential downsides that need to be resolved, most of them around incentivizing the people building and maintaining Lyber:

- The equity model strongly incentivizes employees and investors to think and act long-term – the payday comes at the end (and only at the end). In the token model, without proper governance, the payday could come at any time, reducing the motivation of the team.
- Because tokens will tend to appreciate in a deflationary system like this, there will be strong temptations for all participants to always be jumping to a new thing where they can get low price tokens. It will be like the current startup ecosystem, but on crack, because of the early liquidity.
- Not all value from the tokens will come from actual usage in the system. Because they are tradeable on the open market, they are susceptible to rampant speculation. This will shift some of the value capture away from the everyday user of the service to professional speculators. Right now the everyday user captures absolutely no value in the network they help build, so it is hard to imagine this still not being an improvement.
- Getting token economics correct will be extremely difficult. If there is no token "inflation", then the price of a token can appreciate too much, and there will be a temptation to horde.
- Businesses and employees still have real expenses that need to be paid in real currency – the will have to figure out how to pay these

expenses by selling off tokens in some systemic fashion or otherwise

- Crypto-enabled businesses would be inherently less flexible than traditional equity businesses – it is much harder to pivot or recapitalize the business because the success of crypto is based on trust and rules. Equity investors with protections can be patient, token investors with no protections will not be so forgiving.
- If people start using Lyber less, and LyberToken liquidity decreases, then the price will plummet. Again, similar to the price of a startup company's stock, but on crack.

Absorbing Crypto Token "Paradoxes"

In digesting all this, there were two things I had to wrap my head around that were difficult, as my mind is so rooted in the traditional equity-based system.

1) If you own all the equity, you own all the rights to future cash flows. However, if you own all the tokens, you essentially own nothing because tokens owned by only one person have no value. But paradoxically, that does not mean that one token is worthless. Any token is just a means of exchange which is inherently worth something if there is enough liquidity.

All means of exchange have a sliding scale of fragility, and tokens are just a further extension.

The US dollar is less fragile than the Russian ruble because the US has a stronger economy and more stable government. If the Russian government decided they were issuing a new currency and you owned all the rubles, then your rubles would be worthless, and there is a non-zero chance that the Russian government could decide to do that.

However, that does not mean that the ruble is worthless today. It just means it is relatively more fragile than the US dollar. Given that there has not been one currency for all of human time (not even gold!), all currencies are bullshit on some level, and while cryptotokens are indeed more bullshit than US dollars, that does not make them worthless. So long as there is liquidity for a token that is connected to some genuine human value (like being able to get a ride someplace), the token has legitimate (albeit less stable) value.

2) Tokens are not valued like equity and do not come with rights to transaction fees, but that does not mean they cannot legitimately appreciate in price. Tokens appreciate in value as the size of the "economy" they are used in grows, which again, sounds like bullshit but is true. I basically had to diagram this out to finally get it through my head that a token can be pegged to a dollar price, and still legitimately appreciate.

When Will Crypto Token-Enabled Businesses Hit the Mainstream?

As excited as I am about these new concepts, I would bet that crypto token-enabled marketplaces will not take off until our next recession.

People will need an extra incentive to try out a new service, and the financial benefit of no-transaction fees plus the token rewards from being an early participant will become a lot more appealing when times get tough, just like Uber and Airbnb sprouted out of the last recession.

There also needs to be significant infrastructure work done in the meantime, and we'll have to see a bunch of crypto businesses flame out on our way to figuring out some of the governance issues.

But when the shift to the crypto-enabled marketplace business comes, the companies based on the equity/transaction fee model are in big trouble. Just like you wouldn't expect some rich guy who refused to grant his employees stock options and took huge margins off his customers to last long against modern venture-backed companies, I think the same venture-backed companies will be in the fight of their lives to survive this next wave of disruption.