On Crypto Valuation

The ICO 2.0 Framework

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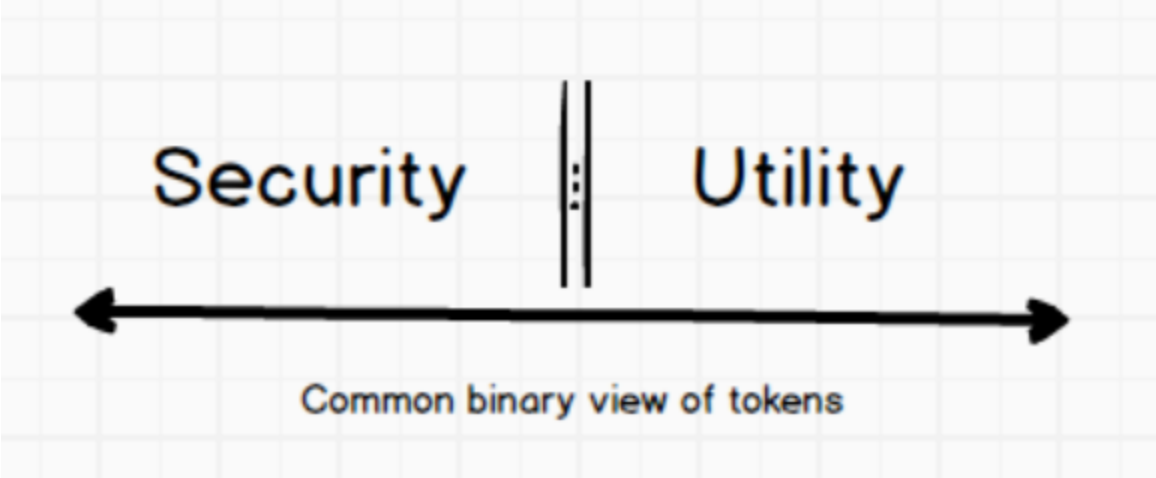
The cryptocurrency space is filled with parallels to traditional capital raising. ICO is like IPO, coin market cap is like company market cap. So much of the vocabulary is directly borrowed from the traditional capital raising and evaluation practices that people immediately draw direct conclusions from these parallel semantics. However, upon detailed examination, many of these parallels are false and misleading. Tokens are not Security or Utility; this is a gross oversimplification. Token projects have a market cap, but this is not anything like a traditional company market cap. Let's explore why...

TLDR; Many of the non-technical discussions around cryptocurrencies, tokens and valuations are flawed by false assumptions drawn from parallel semantics. The current focus on determining whether a token is a utility or a security is a false dichotomy based on old thinking and language. In this paper, I present thoughts on how cryptocurrencies and tokens should be considered from a type and value standpoint. The token is the purpose and the community is the value.

The Many Dimensions of Token Types



Most of the debate about token types today focuses on Securities and Utilities. However, tokens have more than a simple binary construct. Most commonly the nature of the token is ascertained in order to decide under which legal framework the token trades. In this simplistic approach, securities laws apply to Securities Tokens and standard commercial code applies to Utility tokens. And while it is easy to create a token that is a security, tokens that are not

specifically designed as securities are strange and wonderful beasts that are not easily categorized in today's ontology of financial instruments.

The transactions leading to the purchase of tokens are clearly commercial exchanges that are subject to applicable transaction laws and regulations, such as anti-money laundering provisions; however, many tokens today may be considered *ultra-vires* with respect to current securities and consumer legislation in most countries.

In the United States, the Howey Test is being used to evaluate tokens with respect to the binary Security vs. Utility view. The most useful formulation here is the framework by Peter van Valkenburgh. However, there are many issues with this approach that remain unsatisfactory and problematic with each evaluation factor of this test. Let's look at them:

Rule 1: It is an investment of money. This is not the case in many token sales. First, is ETH, BTC or other cryptocurrency actually money? The US Treasury calls it a decentralized virtual currency - whatever that is legally, but they don't call it money. The IRS treats it as property and the Commodity Futures Trading Commission calls it a commodity. And is it an investment? I propose to think of it as a sale. The reason for a purchase remains with the buyer and is not specifically tied to an investment objective.

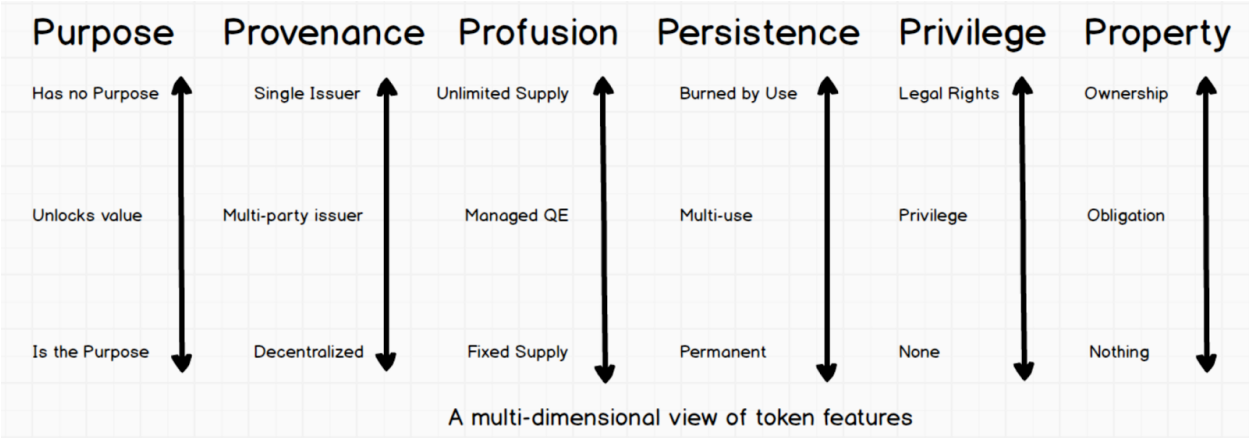
Rule 2: There is an expectation of profits from the investment. For most crypto tokens that have a primary purpose other than tradability on exchanges, this is a difficult proposition. Suppose I decide that beer is going to go up in value over the next few months and so I buy lots of beer - is that an investment with an expectation of profits? Clearly a "beer fund" based on this premise to acquire beer today and sell at higher market prices in the future is an investment, but if I just buy the beer what is it? Tokens are like beer, they motivate us to transact.

Rule 3: The investment of money is in a common enterprise. The legal interpretation of "common enterprise" varies by court, although most commonly it is the idea of a horizontal pool of money into a common project. However, crypto tokens are units of value in a community that makes use of them. There may be project like aspects to this community, but it is usually decentralized. This means that there is no structure, leadership or even hard and fast commitment to a plan. Therefore, we must consider the question of community vs. "common enterprise".

Rule 4: Profit comes from the efforts of a third party. When crypto is used in a community, the holders and the value generators are the same. The transactors in the currency will drive the transaction value and velocity leading to higher economic value of the currency overall relative to other currencies. In this case, there is no third party.

A crypto token is a new asset class and will require new legislation to address the issues that it creates. The main caveat is that restrictive regulation stifles innovation. As a matter of personal choice, I believe in creating self-regulatory incentives and minimizing legislated regulation of this new class to what is required to ensure token holder protections.

With this in mind, taking consideration of the aspects of tokens, there are a number of characteristics that can be defined as dimensions, i.e. they are not binary values and there are several of them. The most important that I have identified are the **Dimensions of Tokens in 6 Ps:**



A multi-dimensional view of token features

Purpose - The purpose of the token is a primary dimension that describes the externality and existence of the purpose of the token. The token may have no purpose or function other than to represent an externality, such as an equity stake, it may unlock some type of value or make a system work, or it may be the purpose when it is a currency. Generally, the more purposeful the token the more active the role of the holder in the economy in which it circulates. While all cases represent stakeholdership, an equity holder is relatively passive, perhaps voting once per year at an annual general meeting, but maybe not even that in the case of non-voting shares, while a holder of a pure cryptocurrency is an active trader in the economy of the token.

Provenance - The provenance of the token concerns the centralization of the issuer. This is a very important factor. Will there be successive rounds of issuance from one central party or is the token issued in a decentralized manner. This dimension runs from single entity that may issue at will (World of Warcraft Gold) through a multi-entity issuance structure (a round robin committee of issuers) to a totally decentralized issuance with a mathematically proven parameters (Bitcoin).

Profusion - The profusion is tightly linked to provenance and concerns the issuance parameters. This ranges from one issuance for a fixed amount of tokens through a multi-round issuance up to a potentially continuous and unlimited issuance.

Persistence - The nature of the token in terms of persistence is one important aspect. Some tokens may be "burned" in order to retrieve their value, for example a token that represents temporal access to a system or service.[1] This dimension runs from tokens that are permanent

[1] Of course, any token can be destroyed by sending it to a "burning address". A burning address is one whose private key does not exist or can not be retrieved.

(BTC) and may be transferred any number of times to tokens that are used only once (Amazon Gift Codes). It is easy to imagine tokens that might have multiple uses before being burned.

Privilege - Privileges and rights granted to the holder of the token are another dimension. A token can have no privilege other than ownership or it may grant privileges, such as a vote, an access, or a share in some future value. This dimension runs from none, through to simple privileges that may be withdrawn by the provider at any time up to actual legal rights.

Property - This dimension represents the ownership aspect of the token. Does holding the token symbolize ownership of another good or asset? It is important to keep in mind the Privilege dimension with this one and to understand which privileges are inherent in the token and which privileges may be derived from the property behind the token. This dimension ranges from no property (Bitcoin), through simple claims (debt ownership), up to outright equity ownership (company shares). Tokens that are tied to property must be issued in corresponding pools to match the underlying property.

Putting these 6Ps together gives us an idea of the many possibilities of what a token may look like. If we plot a typical equity instrument, or company share, on these dimensions we find that most of the values are at the top of the scales presented above. If we plot a cryptocurrency, such as Bitcoin or Ether, we find that most of the values are at the bottom of the scales. Many so called “Utility” or “Hybrid” tokens have one or more of these scales that are towards the higher end, while the majority are at the lower end. Despite some hard and fast rules, such as equating a token to equity in company, that when applied immediately qualify a token as a security, the vast majority of tokens will be difficult to classify and should most likely be legislated and regulated as a new class of asset.

If the token contains equity and rights, leaning more towards the upper scales of a security, it can feasibly be evaluated using well established methods for securities valuation. If it does not and it is more aligned as a cryptocurrency, it is another device entirely. The rest of this paper deals with the valuation of such tokens.

The Valuation of Ecosystems

With the 6Ps of token dimensions, we can begin to try to get a handle on the valuation of the token as an element of a system. In this sense it is important to deconstruct the parallel semantics presently used in the token lexicon. A token sale or offering is often called an ICO or Initial Coin Offering, which immediately draws parallels with IPO, a stock market Initial Public Offering. There are some logical similarities and parallels in the manner in which these sales are carried out, but they are fundamentally very different. First, it is important to understand that an IPO is a sale of an equity stake. If the whole enterprise being represented were an apple, the equity instrument is essentially a slice of an apple.

The second parallel term Market Capitalization (Market Cap) is used to represent the total value of the enterprise, i.e. the size of the whole apple. For an equity, this is the market value of the enterprise as listed on the stock market. In cryptocurrency terms, this is the value of all outstanding tokens issued to date. They are indeed very similar in concept, but in function they are totally different.

This is because “equity of a company” is to “crypto currency in an ecosystem” as the apple is to the apple tree.

The Community Effect

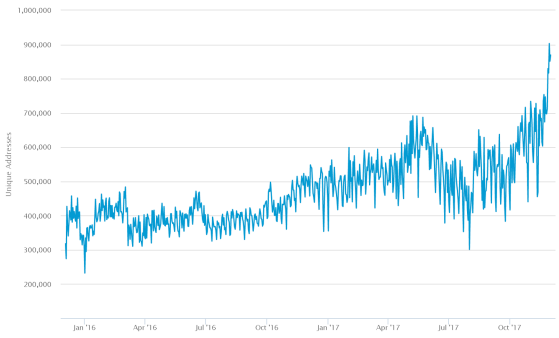
Tokens should serve a purpose for a community of stakeholders. This means that the community sees value in the token’s dimensional characteristics to solve a transactional problem within their community. In this way, the token begins to be used within the community. And in this way the token becomes value.

Token economies are not single enterprises, they are peer to peer networked ecosystems. If the ecosystem is well designed and the stakeholders interests are well aligned, then the token economy is more akin to an apple tree than an apple. As stakeholders transact, they create

pockets of value. This is equivalent to the tree producing new apples.

This is because Metcalfe's Law is relevant to cryptocurrencies[2], which are effectively networked currency. Metcalfe's law, first formulated for Ethernet networks, states that the value of a telecommunications network is proportional to the square of the number of connected users of the system (n^2). In a Peer-to-Peer community, this is directly related to the fact that the number of unique connections in a network of a number of nodes (n) can be expressed mathematically as the triangular number $n(n-1)/2$, which is proportional to n^2 asymptotically (that is, an element of $\Theta(n^2)$).

And this is where cryptocurrency valuations deviate from the expectations of equity valuation models. Under the caveat of understanding the nature of the token with the 6P model presented above, any token that satisfies a mostly currency nature on the dimensions presented and is used in an economic model where the transactions of value make a circular economy of aligned interests, it is likely that we will see value created on an exponential scale.



Number of Bitcoin addresses last 2 years = n
(source: blockchain.com)

Price of Bitcoin last 2 years = n^2
(source: blockchain.com)

While crypto papers often refer to the Quantitative Theory of Money, there is abundant confusion caused by the parallel equity market terminology. Some of which may be deliberate judging by the dubious nature of many ICOs on the market at the time of this writing.

However, a cryptocurrency token is not at all parallel in form or value to a stock of a single company; rather we should be talking about crypto GDP, the velocity of the token and the value created by the ecosystem that it enables. Only then can we begin to understand the logarithmic valuations that we see in cryptocurrencies that are directly driven by the upward progression of *n* creating a value that is on par with n^2.

Cryptocurrency has superpowers compared with traditional fiat currency: there is no manipulative central bank, which inevitably will make human mistakes; there is no banking system introducing frictions and costs between actors who wish to transact outside of face-to-face cash

[2] http://www.sciencedirect.com/science/article/pii/S1567422317300480

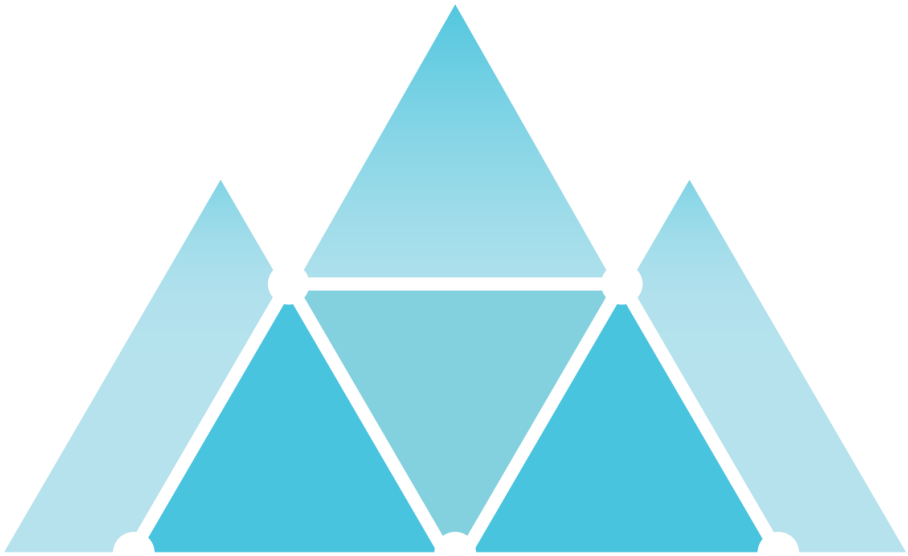
transactions; indeed, currency can be transferred from peer to peer in a matter of seconds or minutes with nearly frictionless effort.

Despite being logically feasible since the 1990's[3], Bitcoin is the first such currency to have a successful implementation due to the invention of blockchain which replaces the "Bank". Ethereum introduces a comprehensive stored procedure style logic layer, called Smart Contracts, that while interesting are not the silver bullet that many imagine them to be. But these technologies are just the beginning. I don't believe that we'll see a "great currency" that replaces all of the others, rather I see decentralization of currencies themselves as the future of currency. This will make inter-chain protocols important and will require research in the area of decentralized cross-chain value exchange. This design assumption is at the foundation of my patent-pending Peerchain™ technology. When a cryptocurrency is designed for a specific community it can become the most efficient means of value transfer within that community, meaning the number of transactions and their velocity will increase without friction within the community. In this regard the Quantitative Theory of Money explains in relative simplicity why and how cryptocurrency appreciates in value relative to other currencies.

When looking at token projects, please use this logic, but first do your due diligence, for which the T3CG framework may be of use to you. Make sure that there is a token economy and make sure that you understand it and are prepared to become an active participant in it.

In this light, I am personally very excited about my project, Peer Mountain, and the PMT token that we will deploy. This token represents the value derived from the creation of trustworthiness in transactional relationships, especially those with regulated institutions. For me this is the most fundamental of apple trees from which the fruit of commerce can grow. As the number of trusting participants in the PMT ecosystem grows its value will grow exponentially and that is why I am looking forward to HODLing on Peer Mountain.

[3] https://cryptome.org/jya/nsamint.htm



PEER MOUNTAIN

About the Author

Jed Grant, MBA, is the founder and CEO of KYC3, one of the original regtech companies in Luxembourg, and the founder of Peer Mountain, a decentralized P2P ecosystem of trust. He is also a founder and partner of Sandstone, a boutique business intelligence consultancy, an adjunct professor at the University of Luxembourg where he lectures on KYC & AML/CFT compliance. His non-profit activities include being a founding member of The Institute for Global Financial Integrity, a founding member of Infrachain and a board member of the American Chamber of Commerce in Luxembourg. Prior to these activities Jed held senior positions in technology, finance and security related organizations including Artemis, the International Civil Servants Credit Union (AMFIE), Computacenter, and NATO.