

Value Coevals: *The Discovery of Value In Utility Assets*

By Daniel Mark Harrison

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1. Introduction

1.1 Goldseek For Nerds

In January 2009, as the stock markets were in the midst of clawing their way chaotically and blindly towards an uncertain bottom, while people all over America and Europe were being tossed out of their offices without a paycheck and forced to abandon their homes after a single month's missed mortgage payment, the instigators of these heinous events were getting bailed out with money the same individuals losing all they had worked for had paid in taxes over decades of compliant labor.

The beneficiaries of the government funds included the biggest financial institutions in the world—the same ones that had brought about this economic Armageddon in the first place. Citigroup, Bank of America, Barclays, Lloyds Bank, Royal Bank of Scotland, to name only the most famous of them, were getting more than a trillion dollars of cash from their sovereign governments to tide them over the rough patch while their chief executives were in many cases still getting multi-million dollar salaries, or would be again after a token annual pay hiatus purely for PR purposes.

What is more, in order to facilitate these grandiose sums, central monetary institutions were printing money in previously unprecedented quantities, flooding their own economies with huge potential inflationary pressure.

For the anonymous programmer who had spent two years formulating the conceptual rules of and writing lines of ground-breaking new code for the world's first digital currency, the timing could not have been more opportune to test his product out on the market. Thus, one cold winter day early that year Satoshi Nakamoto—a pseudo name for the anonymous programmer known affectionately among geeks simply as “Satoshi”—put up the first of many paginations of open source code for his new currency bitcoin with a simple one-line observation: “Chancellor on brink of second bailout for banks.”

Satoshi's comment might have been short, and might not have been particularly poetic (“I'm better with code than words,” he once admitted) but accompanied as it was with a whole string of code for what looked like the first ever serious attempt to design a unit of financially usable value outside of the existing mainstream monetary product base, and coming as it did right in the eye of the most reprehensible lack of action on the part of major governments to provide for their individual people and small businesses versus their most powerful and prestigious international institutions, the message rang out louder than if Satoshi had climbed to the top of Big Ben, London's centuries-old clock tower, and had locked his arms around the rope and swung the gong against the bell with the force of his whole body weight. Indeed, the message that Satoshi was sending that day to the whole market along with his source code for bitcoin's currency was clear as the bright spring morning that lit up London's four century old spiral towers as their steeples reflected and then disappeared in the yellow-white sunlit glare of the River Thames.

That message went something like this: *If there's a multi-trillion dollar bailout for the plutocracy going on right now, then here is a multi-trillion dollar bailout for the people.*

Bitcoin was everyone's bailout, and it was a multi-purpose bailout, too. It was a financial bailout, a political bailout, a bailout from the culture of institutionalization in general in which the vast majority of all generations since the industrial revolution had before now been

compelled to enlist as part of the convention of professional and personal improvement, but who now found themselves poorer off in return for their participation.

If you thought that it was only the rich who got perks in life, then you were wrong. Bitcoin was your bailout, was what Satoshi seemed to be saying. You just had to come and get it. In time, when an increasing number of market participants realized that this was the case, while others rose up in a call-to-arms to embrace its economic merits, it would collectively be worth billions of dollars. Bitcoin will in all likelihood probably be worth trillions of dollars given more time to disseminate throughout the financial system.

But on that day at the beginning of 2009, it was cheaper than a single share of any of the bankrupt institutions that the governments of superpowers across the west were bailing out. It was free.

Bitcoin is not free any more, but it's still the people's bailout from the regimen of the political and economic paradigm of the post-industrial revolution era. It is also a tip of the cap towards the oncoming force and consequent values of the technological revolution that shepherds us more emphatically every day into the world we are inevitably headed. It's a bailout from the economy of the past, and a pass into the economy of the future.

1.2 A Brief History of the Post-Industrial Economy

It is no a coincidence that Bitcoin was born right in the eye of the storm of the subprime crisis. When economic chaos strikes, it's not uncommon for new monetary trends to emerge. That is, after all, how the gold standard came into being.

During 1873–1879, hundreds of businesses folded, banks shuttered their doors penniless, and ten states declared bankruptcy, in a half-decade long period permeated by several violent economic shocks that was known, until the 1930s, colloquially as the Great Depression. While the crisis of 1873–1879 was in a way the first international monetary crisis, it actually generated a net growth of money supply of 2.6% per year in the United States of somewhere in region of \$40 million annually. How that happened amid such apparent cyclical turbulence has a lot to do with the economy we now find ourselves becoming a part of.

Before the late 1800s, the monetary conditions of sovereign economies were more or less unconnected from one another (or even, in many cases, conversely connected, with one country's loss being very much the source of another's windfalls). But with American industrialization fuelling the growth of Western Europe, market-based economics had begun to take hold. And so, when on May 8, the Vienna stock exchange collapsed, and was closed for a 3 day long period, it started in motion a series of panics and busts all over the western world, ultimately culminating in a lethargic deflation that threatened to stifle growth altogether.

What happened was that the prices of goods fell even as the money supply grew in value. Meanwhile, wages rose over 20%, but unemployment rose steadily. Economic historians are often puzzled by this conflicting set of events. Was it a depression, given that unemployment was on the rise for over half a decade? If so, then what kind of recession results in increased wages?

Murray Rothbard, an American libertarian economist, gives the most revealing explanation for events during the years leading up to the implementation of the gold standard. In his 2002

book *A History of Money And Banking In The United States*, Rothbard claimed that there was no economic depression in the 1873–1879 period, just a realignment of economic forces, ones that ultimately generated huge productivity in the form of massive infrastructural growth such as real estate development constructions and the introduction of the railroads. This infrastructural productivity in turn promoted an increase in both net national output and net capita output, he explains:

[Economists] have overlooked the fact that in the natural course of events, when government and banking system do not increase the money supply very rapidly, free-market capitalism will result in an increase of production and economic growth so great as to swamp the increase of money supply. Prices will fall, and the consequences will be not depression or stagnation, but prosperity (since costs are falling, too) economic growth, and the spread of the increased living standard to all the consumers.

Rothbard hit on a point that beforehand, went largely overlooked: specifically, that production could be more aggressive in terms of growth than the supply of money. In recent history, we have tended to think of periods of a lack of liquidity as a bad thing and an overflow of it as good. But the period of 2008–2013 showed us a somewhat different version of events. During this period, for most people it felt as if liquidity had come to a complete breaking point, and for a short while, that was the case.

But very quickly, from around the mid-point of 2010 onwards, it became clear that major corporations were sitting on piles of cash. In August 2010, the Federal Reserve reported that U.S. companies had stored away \$1.84 trillion of cash and liquid securities. By March 2013, nearly a full three years later, they were still hoarding a stunning \$1.45 trillion on their balance sheets. Clearly, there was lots of liquidity in the financial system, but given that these companies were in a mode of caution, very little of it was being fed back into the system in the form of employment or investment: in fact, the unemployment rate for graduates was 5% lower than it had been more than 10 years ago.

Naturally, during this time the activities of technology entrepreneurs were pretty much the last thing on the minds of government officials, who had a macro-economic meltdown to focus on correcting. And because the largest companies weren't hiring, they didn't get much of a glimpse into the seismic innovative developments that were happening in people's basements around the country, and more widely, the world. But surely enough, even while economic conditions remained superficially bad, at the same time, an innovative environment of sorts was bubbling up. Cities not regularly associated with innovative development but which had been hit hard by the subprime crisis began to shine: in 2012, Chicago tech firms raised just under half a billion dollars as a new start-up got founded every 24 hours. The amount raised by those companies doubled to more than \$1 billion in 2013.

Many of those companies, such as CoinMap.org and 7Bucktees, were focused on providing services to bitcoin, which was steadily rising in value. In Seattle, CoinLab, a bitcoin mining technology, got half a million dollars in venture funding in 2012. Innovative deals were getting funded; it seemed, just not in the traditional exchanges and markets.

This brings us to a potentially powerful observation when considered in context of Rothbard's statement about productivity growth outmatching the money supply, for it seems that this is exactly what was going on here during the period of the recent economic recovery. Only the underlying currency being swamped by productivity wasn't the dollar, but rather it

was bitcoin. This explains why despite a dearth of liquidity in the wider system, and despite the gruesome employment growth in that period, there was in fact a surge in the value of bitcoin, which jumped in price more than any other asset in history in a comparable time period. This poses a serious question about the role of sovereign currencies in terms of stimulating growth in and recuperating gains derived from innovations associated with venture currency innovations. In fact, there is reasonable evidence that the dollar has a lesser impact on value production in venture currencies than does bitcoin.

If you compare the universe of 400 or so currencies to the value of bitcoin on a daily basis, and then make the same comparisons of these currencies to the dollar, it becomes clear that the currencies far outperform the dollar in growth terms than they do comparatively in bitcoin.

While much of this is undoubtedly due to the fact that many of these currencies, by virtue of their construct, will tend to be classified according to bitcoin's headline value and trade in a way that is somehow pegged to the bitcoin, it is notable that in periods when bitcoin underperforms the dollar in terms of percentage gains (i.e. it falls in value), competing venture currencies still outperform the dollar on an increasing basis even if bitcoin has remained substantially unchanged for long periods preceding the move downwards. This suggests the dollar is not the benchmark unit against which innovative productivity is revolving or acting, but rather that some other, more central force of economic gravity is guiding the pattern of disruption, since the venture currencies are rather referencing the time-averaged stabilization of the bitcoin price as opposed to the immediate movement of its headline value.

In a sense then it's possible to see that perhaps one of the conditions for innovative productivity—the type that transforms cultures via an onslaught of radical technologies (such as railroads and new financial systems, for example)—is in fact that it is increasing at a faster rate than the growth of the monetary economy.

It's possible to see more clearly how the lack of government and big corporation interference might have provided the ideal harvesting ground for alternative currencies by looking a little closer at the events in the period that followed the 1873–1879 economic anomaly. When the gold standard came into being in 1879, for a decade afterwards, prices continued to fall and wages soared yet higher, over 23%. But it also had another, more comforting effect on society: there was an abrupt halt to the tide of unemployment that climbed throughout the 1873–1879 period. In fact, the labor market began to grow fairly aggressively. Still, aside from 1873, which was several years before the gold standard was put in place, the years 1884, 1893 and 1907 all represent years of banking crises and economic panics that nearly destabilised the system on a number of occasions during those years and in their immediate aftermaths.

The economist George Selgin has pointed out that these shocks were the direct result of the massive increase in excess demand for monetary surplus in an environment that was inadequately tight as a result of banking regulation. In other words, it appears that both the introduction of the gold standard and as a result a drive towards increased regulation, while stabilising unemployment and simultaneously maintaining growth in the economy, did as a result cause periods of intense speculative panic.

When we think of how the price trajectory of bitcoin has fared since its inception in 2009, it's possible to see that in some ways, the more pervasive it becomes, the more it stabilises in value while at the same time, the more vulnerable it seems to exogenous shocks.

In one respect then it looks very much like bitcoin is acting almost exactly the same way in terms of being a piece of supporting infrastructure for a whole new branch of venture capital initiatives today as gold did for the development of railroad and real estate project developments during the late 1880s. Except there's a key difference: the President of the historical period, Ulysses S. Grant, was a libertarian thinker. It was second nature to him and his party to embrace a pegged dollar economy in such a radically evolving time if only to ride out the pursuant growth period and decisively steer the course of the whole economy upwards. The same cannot be said for the approach of governments since, however. During the period of 1933–1971, the dollar was not a FIAT currency: it was technically backed by a quantifiable amount of gold. However, the gold standard was abandoned partially by Franklin D. Roosevelt on June 5, 1933.

By then, the innovation and disruption brought about in the economy via the industrial revolution had long set in and fizzled out, and Roosevelt wisely feared that the domestic economy's growth prospects of the day might be hampered by such an onerous weight around the neck of what was something at best hyper fragile. He chose to partly unpeg the precious metal from the dollar, fixing it at \$35 per ounce.

In 1971, on August 5, nearly a century after the strange debacles of the industrial revolution had caused surging unemployment and rising productivity side-by-side in the days of President Grant, the task fell to President Richard Nixon to abolish the gold standard altogether. It was still just thirty-five bucks an ounce.

Immediately afterwards, unemployment rose, to around 8%, but so did inflation, driving down the value of the dollar and creating hellish social conditions as a result. Meanwhile, the price of gold, now available to buy in the midst of a fear-stricken market economy, skyrocketed to \$850 per ounce.

This financial deadlock that the U.S. found itself stuck in was in many ways the reverse crisis of the half-decade of the 1870s: wages kept getting higher and higher, and in turn the money supply was getting sucked up as prices exploded. Productivity all but fizzled out. You could forget about innovation altogether—people were practically living on the streets. Fast-forward in time to 1980. Ronald Reagan's brand of hard-hitting deregulation took the wind out of the sails of the gold price, which came back down to earth, while stock markets surged and wages increased.

Employment sprung up from the midst of the economy like water from a high-pressure tap that's turned on right to full. From 1982 to 1987, the United States added 18.7 million jobs, the highest ever in a comparable time period. Unemployment, which fell to just over 5%, was the lowest it had been in 15 years.

As a result of all this, the stock market during the 1980s tripled in value, after a decade of barely moving a tick.

The United States is the world's leading laboratory of economic social experimentation. It has given rise to two separate scientifically generated economic mega-cycles within a century and a half: first, the industrial revolution, and more recently, the technological revolution. Every time it does so, it harnesses power and bleeds a little of it away at the same time as it experiments with just the perfect policy mix to foster innovation and growth. Because every world's economy is in some way powerfully tied to the progress or decline of the United States, the impacts of its legislative and economic changes are felt in every country around the world.

Over the years, it's fair to say that economic conditions have steadily gotten more stable, while exogenous shocks created by speculators have become less threatening. You don't feel it every time a hedge fund collapses, whereas you most certainly would have if one of the country's biggest sea merchants were washed ashore with all its homeward-bound loot back in 1814.

But that has come at a steep cost, one that has in effect been ongoing since the introduction of the gold standard in 1879. The cost of stability has been increased regulation. That is to say: more rules. And more supervision to enforce the increased number of rules. With the gradually rising tide of rule-based economics came a kind of hyper-centralization of power at the expense of the sort of free market capitalism that once spurred an economy into an unprecedented state of innovation.

An institutionalization of cultural values set in firmly during the 1950's-1980's, even as the technological revolution began to sprout up in its midst, calling out for a shift back towards pre-Roosevelt era economics.

The sweeping progress of regulation and centralized governance was a hard nut to crack once it was put in place, however. So much so that it ended up cracking all the other nuts once it got a little fire in its belly.

Thus, instead of passively guiding economic policy in accordance with the principle market actors, as central bankers were originally supposed to, during the era of President Clinton administration Federal Reserve Chairman Alan Greenspan effectively began to speculate on the likely outcomes of various policy implementations that he took in accordance with the executive office.

Essentially, Greenspan bet big on the direction of market behavior, no differently to the way a day trader sizes up a series of stock positions. Figuring that low interest rates prolonged over decades would not lead to irresponsible borrowing but rather, to a sort of self-regulation that would in turn guide more prosperity and responsible lending, he would tweak U.S. borrowing rates very slightly depending upon the financial quarter, always trimming them back when they crept a certain amount higher than their one-year average increase. Since policymakers had become investment bankers all of a sudden, corporations began to treat them as such, pitching them lucrative lobbying and special interest contracts like red-hot IPO deals.

This strange private-public hybrid, all held in place by a series of laws and rules which permitted huge personal self-enrichment while holding government office at the expense of objective policymaking, was ultimately sold to the public as the best possible means of ensuring ongoing economic stability.

Which was a little boring, but most people went along with it. Then, the economy blew up in 2008. People were turfed out of their homes onto the streets by burly private security contractors, while those who had worked for the past 40 years and diligently plied their savings into their stock portfolios every month found their retirements in jeopardy, or at the very least, delayed indefinitely.

Instead of breaking tradition with hyper-centralized policymaking, however, the newly-elected President Barack Obama did the opposite: he latched onto the side of the broken banks, automakers, insurers and health care providers. He firmly bolted the fate of himself and his government to America's corporations, buying them up and regulating them to the maximum.

This suited the modern Democrat political agenda, which longed for something of the taste of the Clinton days again.

Americans got promised change, but in fact they got much more of the same: increased centralization and the restoration and rebuilding of economic regulatory order. (Like I say, centralization is a hard nut to crack. It's made of something much more resilient than gold, that's for sure.)

But the economic crack had created an opening, a chasm in a system wherein there was something much more powerful building up. The United States was now connected up with two huge, socialist outposts: China and Russia. Much like North Americans, Chinese and Russian citizens were weary of the expanding centralized order dominating their daily lives. They were more interested in making personal connections and impacts upon the world in which they lived.

Instead of allowing for free-market economics to take its course and to push productivity into overdrive around the money supply, however, as Ulysses S. Grant had done in 1873, Obama rigidly held the free-market animal in his grip even as it roared and clapped its jaws around his hands and wrists in an attempt to break free. Attempts to snoop on Americans' every-day phone calls in the name of security and a zealous desire to prosecute would-be do-gooders around the world such as Julian Assange and CIA whistleblower Edward Snowden only fuelled the anger of an increasingly disaffected public which had found fellow sympathizers all over the world, in communist tyrannies. As with most new alliances, the personal bonds created between minds strengthened the resolve of those who lay outside mainstream economic participation.

The fact was, in some ways the White House should have seen this coming, given that the Democrats put technology's network evolution in play a decade ago. Technology had long gone from being an obscure science to being something that now embodied an innate and unique set of creative possibilities and functions, and those effects were widespread and varied enough to catch on when given the impetus and means to do so. Thus, in the midst of this last desperate attempt to micro-supervise the populace while macro-centralizing the financial system, the animus at the center of a new global libertarian order gnawed hard until it ripped the chain off its neck and ran into the codified underworld to initiate its own monetary order.

Governments today do not function as slimmed-down policy guidance councils, the way they did at the turn of the century. That's why bitcoin sprouted a venture capital movement all on its own, despite government help, as opposed to with its backing.

The monetary agenda of governments today, big and small, all over the world, is total control. This micromanagement of the global fiscal and social policy agenda is the single approach that more than any other, threatens to erode the superior status of the sovereign superpower more than anything else.

1.3 Byzantine General's Problem

Given that the Wikileaks was receiving millions of pageviews a day by the end of 2010, and that Satoshi's currency was still worth just 10 cents per bitcoin, one would have assumed that he would be highly agreeable to seeing the news that Wikileaks was openly accepting donations in bitcoin after receiving a flood of inquiries to that affect.

But Satoshi Nakamoto, the anonymous programmer—or, some now speculated, consortium of programmers working together under a single assumed identity—was if anything, disappointed by all the attention. Most of all, Satoshi seems to have feared that the association of bitcoin with an operation such as that of Wikileaks would jeopardize the future survival of the currency which was just then beginning to gain something of a cult adoption online.

“It would have been nice to get this attention in any other context (rather than being associated with WikiLeaks). WikiLeaks has kicked the hornet's nest, and the swarm is headed towards us,” fretted Satoshi, as the attention began to reach the outer edges of the mainstream media sites.

In an uncharacteristically demonstration of something bordering on hysteria, Satoshi even appealed to the founders of the covert news organization to stop the giving his innovation all the free advertising: “No, don't bring it on.” He wrote: “The project needs to grow gradually so the software can be strengthened along the way. I make this appeal to WikiLeaks not to try to use Bitcoin. Bitcoin is a small beta community in its infancy. You would not stand to get more than pocket change, and the heat you would bring would likely destroy us at this stage.” Satoshi was learning the first lesson of free-market economics: it doesn't matter whether a commodity is “ready” or not for adoption: if its purpose fills a potential role, then more often than not, it will gravitate to the point of center of the fulfillment of that goal. Immediately. This is why central banks, regulators and segregated types of market actors have gradually been introduced to the global financial system over the past century: for the most part because otherwise, stocks would climb irrationally high (indeed, they already do despite the involvement of mediating parties), sovereign currencies would zigzag against one another in value (as do those of venture currencies aside sovereign ones, although not against one another, as we shall see later) and commercial financing with stable interest rates would be all but impossible to come by.

Simply put, a market economy is rational only towards the objective of fulfilling its immediate requirements, not towards attending to its overall, long-term necessities. If people can realize a 100% return today right away at the potential expense of the company, as opposed to a 1000% return in five years to the benefit of its employees and customers, they will much more often pick the first option. Speculation and spending always prefers close-range action. That, after all, is how the subprime crisis got going.

But donations on a mass-scale to Wikileaks didn't collapse bitcoin's functionality or its value as Satoshi feared, nor did bitcoin get its plug pulled out from the wall by regulators, who were on the contrary, powerless to stop it and more than a little surprised by its ascending influence.

Instead, over the following 3 months, bitcoin posted its largest-ever quarterly gain. By the end of February 2011, one bitcoin had reached price parity with the U.S. dollar. By June the same year, even after the currency experienced another potentially destabilizing event in the form of a flash-crash on the (back then, only) public exchange server at Mt. Gox, where it was bought and sold, bitcoin was going for \$17.50.

The massive increase in value despite the technological flaws inherent in the product and its surrounding architecture served as the first indication that financially, the currency was a viable long-term harbor and converter of economic value. Simply, its easily-transferable, low-cost characteristics clearly made it preferable to a sovereign-issued alternative for payment, at least by a growing niche of adopters for a certain specific sort of payment. It is hard to overstate the significance of this. That the currency might be appealing from a purely speculative standpoint is nothing new: after all, there are always gamblers in the global capital markets willing to take a risk on something untested on the basis that they might make an outsize return even if the potential downside is that they might also lose the entirety of their investment.

But the Wikileaks payments, which amounted to several million dollars, showed that a large number of bitcoin's holders were using the currency for payment. The requests to Wikileaks to accept bitcoin as payment meant that a wide number of people actually chose to hold bitcoin in a serious quantity before they chose to hold their own sovereign currencies or even before they chose to hold stock of publicly-traded companies, both of which were far more reliable an investment and much easier to obtain at the time than was bitcoin. Something was shifting in the economic geology of the global market place.

The resilience of the currency's price in the aftermath of the Mt. Gox flash crash indicated that rather than be the cause of over-buying or over-selling, the exchange's servers were merely experiencing growing pains as a result of the increased volumes that had been accumulating steadily on both sides of the fence.

This early confidence that bitcoin's owners accorded it seems to have attracted another group of buyers who were interested in using it for the same purposes—in other words, for making fast, easy, cheap payments for goods online.

All the evidence indicates that the gains in the period of December 2010—mid-2011 were very likely then the result of this early adoption of the currency as a payment mechanism, rather than as a tool of speculative value, which was a later event.

Satoshi should have been popping the champagne cork open. For instead of instantly getting mauled in a thirst for sudden liquidity the minute it rose substantially in value, new units of the currency were being steadily generated into the market of owners who were snapping them up and sending them about the internet. Many stocks cannot experience more than five-fold gains over a period of one year before collapsing in value. The same is true of numerous other assets.

Bitcoin had risen nearly 200 times in value, had experienced a temporary blip in accessibility (in the Mt. Gox flash crash), and still showed signs of accumulating price stability even as it rose further all within less than 9 months. If you ask a market professional specializing in any other asset class to give you a comparable example without a price correction following more or less immediately they would be completely stumped.

Then there was the fact that despite having been embroiled in the Wikileaks scandal, it nevertheless had regulatory authorities completely so stumped and bewildered what to do or how to legally blunt its use that instead no one did anything. Rather than become the short-term arbiters of the currency's fate, as market economics would commonly dictate in such a cross-section of events, it was instead a phenomenal achievement and a crucial early feather in the cap for bitcoin's chances of long-term survival.

In addition to the fact that it defied what are common economic realities, the growth of bitcoin in its first years was a sign that the currency was indeed serving a type of purpose that its sovereign cousin was at the time neglecting or simply unable to. Instead of flooding towards purchases of HD TVs and iMacs, it seemed to be serving pockets of innovation and disruption, funding projects and initiatives either directly or indirectly that challenged the existing status quo of a particular industry convention, especially in the case where providing solutions to media and political governance practice had for a long time begun to stagnate (such as in the case of providing the bulk of donations to Wikileaks for its radical whistleblowing news service, which was simultaneously being given the cold shoulder by mainstream publications such as The New York Times and The Guardian after having initially entered into content syndication agreements with both).

Indeed—servicing innovation was the centrifugal spark that was lighting the innovative fire underneath the coals of the currency's rapidly heating up price ascension against the dollar. For soon, a number of other copycat venture currencies such as Litecoin and Peercoin would come into being, all containing slight modifications and variations of the original bitcoin source code that were designed with specific purposes and alternate adopters in mind. The innovative breakthrough as far as bitcoin as a peer-to-peer currency is concerned is in its solution to something known as the Byzantine Generals Problem. While Satoshi and other programmers have gone into great detail about the variations of this problem and its methods of being solved, suffice it to say that it is a problem, which has to do with the question of how to prevent counterfeit bitcoin. Counterfeit money is and inevitable and primary problem associated with establishing a currency, of course, especially with one such as bitcoin, which has no physical uniqueness to determine visually whether it is real or not.

The solution that Satoshi came up with to the Byzantine Generals Problem was, in a nutshell, to organize the network so that multiple numbers of “miners”—those who minted the digital currency units with computer hardware in order to sell them for profit—would have to validate every single miners' newly-produced unit of currency. What is more, this validation process was fixed in computer code, so there was no possibility of miners conspiring to counterfeit units in an under-the-table collective bargaining agreement. Because bitcoin is all part of one great code, it is impossible for a single bitcoin to be counterfeit and accepted by a fellow miner, mathematically speaking.

In other words, the computer did the mathematics to create new currency units; while other miners had to do the processing to make sure that the mathematics was in accordance with the mathematics they had done themselves when minting the currency.

It was nothing short of genius, and it was for this realization foremost among any other that bitcoin—and its copy-cat venture currency counterparts—were rewarded early on with having a sustainable and genuine component of value. For if it was harder to counterfeit a bitcoin than it was to counterfeit a dollar, and if bitcoin was inherently deflationary versus a dollar market which had just been expanded several-fold as a result of government intervention in financial markets in recent years, then it stood to bear that one bitcoin was indeed worth more than one dollar. In fact, it was common sense.

By design, bitcoin's environment is the antithesis of the modern monetary system that governments have painstakingly set out to build over past two decades in the era of highly identifiable electronic market transactions as an attempt to crack down on money laundering schemes. And yet at the same time it harnesses the most disruptive aspects of the global banking system in order to achieve this distinction while embracing a holistic transparency that is highly appealing. It is this combination that in part made bitcoin so pervasive so fast. For a start, bitcoin is a peer-to-peer payment mechanism, meaning there is no middleman involved in broking the transfer between parties, and as such there are no transaction cost associated with moving it about. That in itself is disruptive to banking.

Then there is the fact that bitcoin itself doesn't really exist at all: the only proof of it being held in a digital wallet where it resides as property of its owner is when it is moved about. A long, complex series of numbers, the results of irreversible and unalterable equations produced at the point when every block of 25 bitcoins is produced, or "mined", by powerful computer hardware, represent the components of these various transactions between peers. These computer codes together form something called the blockchain, and every bitcoin's unique code must match up to its particular place in the equation there in order to determine its authenticity. Bitcoin miners, who run the computer hardware to generate new bitcoins for profit, are responsible for validating every code that is transacted. That of course means that bitcoin is completely dependent on its miners for the currency to have any peer-to-peer value at all, since if everyone stopped mining bitcoin tomorrow, no one would be there to validate the codes when a user sends a payment.

For the moment, the miners are content to mine new bitcoins and perform this service for free. But mining as an activity gets exponentially harder the more bitcoins are mined, and there are only ever 21 million of the coins that will be produced, supposedly by around 2040. What happens when the bitcoins all get mined, then? How will these authenticators get paid then? Simple: by that time, posited Satoshi, the miners will begin charging transaction fees for the process of validating peer-to-peer payments. It's a truly free-market system in that sense, leaving the market itself to regulate its own activities and decide upon the appropriate price points as it evolves.

Ironically, that was exactly Fed Chairman Alan Greenspan's same approach with leaving interest rates so low throughout the 1990s. He figured that market economies worked in their own best interests the majority of the time and as such were best left alone. The potential consequences of this type of free-market self-governance for bitcoin we will look at later in the book.

For now, imagine the block chain as one giant mathematical equation constantly being solved by millions of computer hard drives all over the world, which in turn produces more bitcoins, and think of all the individual peer-to-peer transactions as little chunks of the sum of that

long equation in what appear to be individual SWIFT codes. And that is pretty much what a bitcoin is: essentially, it's a SWIFT code that most previously delivered it into the account where it resides without being the monetary unit itself.

1.4 Redefining Intrinsic Value

For those who had tired of the order of an establishment that had become morally, intellectually, politically, and now monetarily, obsolete, the broader socio-economic potential of bitcoin's innovative spring was nothing short of the great leap forward that their ancestors had once made in the 1800's. It's important to engage the political perspective that combined to create the reality of this new money in order to grasp the core consequences of its utility. Despite his reticence about users sending the currency to Wikileaks as a form of donation towards Assange's rising legal costs spent fighting the U.S. government on appeal of a classically bogus rape charge, many of the insights and messages that Satoshi shared with bitcoin's community boil to the top with an unmistakable hyper-libertarian, anti-establishment zealotry. They also display the ideas of someone—of some group—that was very aware of the global context of economic development, not just the technical implications of cryptographic encoding as far as financial systems were concerned.

His observations about the central properties of currency hit a root nerve that few in the financial world are daring enough to acknowledge: *I think the traditional qualifications for money were written with the assumption that there are so many competing objects in the world that are scarce, an object with the automatic bootstrap of intrinsic value will surely win out over those without intrinsic value. But if there were nothing in the world with intrinsic value that could be used as money, only scarce but no intrinsic value, I think people would still take up something.*

Indeed, people tend to adopt currencies where there is some sort of inherent end-user value there, depending on the community in which they are serving. This is, after all, why the U.S. dollar itself is so powerful: almost everyone in the world wants to come to America, given the opportunity to do so (even though they may not admit it). That fact alone gives the dollar so much global value.

By coming up with bitcoin, Satoshi was able to recognize two things about the evolving global marketplace that would inherently give a new unit of easily transferrable currency value regardless of its ultimate properties just so long as it was mobile and secure. His first insight was to recognise that everyone in the world wants money for more or less the same end-purpose today: to pay the rent, to buy a car, to feed their kids, and so forth. Prior to the opening up of the world's largest emerging markets, this was not necessarily assumed to be the case. Many farmers merely wanted a more abundant crop-season: they could not imagine wanting the sorts of material items such as an iPhone that their grandchildren in Shanghai today covet.

Secondly, he recognised that while this newly-widened base of middle class consumers continued to blossom, their means of establishing the sort of wealth that could ultimately purchase them these sorts of goods were likely to at some level require a form of innovation, or at least, initiative. And innovation, at its core, is scarce without having any sort of intrinsic value.

It is often remarked upon how much choice millennial consumers have over ones of previous generations. Part of the consequence of this increased choice is that the concept of job

stability and a permanent physical community are rapidly disappearing. As a result, consumers' worlds are becoming inherently more self-sufficient, at least on the level that requires them to make more complex decisions earlier on about their choices. No longer is it so common for example for a child anywhere in the world to rely on the basis of what one's parents do to influence seriously their own career decisions. This is only recent: less than fifty years ago over 75% of middle-class Americans followed in one of their parents' footsteps professionally.

Thus, in a world where increasing numbers of people are interacting with one another collectively while making ever-more individual choices and decisions for themselves, there is an enormous variation of decision-making going on in order to achieve what are essentially the same end-goals.

In such an environment, a currency is merely a means-to-an-end, as opposed to the means itself. This conceptual recognition of the changing function of monetary service was a crucial insight of Satoshi's that before he came along, went either unnoticed or denied as being outlandish by mainstream economists.

It's also clear that Satoshi understood a great deal about liquidity constraints and the dangers they posed on an environment of intense innovation. In one comment he refers to the actions of the Hunt brothers, two silver traders who got caught out in 1980 when they attempted to buy so much silver that short-sellers spotted an opportunity to make money when they realized that the brothers were buying much of the commodity on margin and could not possibly reduce the extent of their holding fast enough if the price collapsed, given the exorbitant amount that they held.

Given these sorts of considerations, and the deeply contemptuous suspicions that he held for government authorities, Satoshi seems to have gone deliberately out of his way to have designed a currency unit that was at once low-key (he discouraged immediate promotion of the currency, at least at first), well-secured, and below-the-radar of most peer-to-peer networks. This was all engineered to comply with an overriding political standpoint, as he explains in one of his final messages to the public: *Yes, (we will not find a solution to political problems in cryptography), but we can win a major battle in the arms race and gain a new territory of freedom for several years. Governments are good at cutting off the heads of a centrally controlled network like Napster, but pure P2P networks like Gnutella and Tor seem to be holding their own.*

All of a sudden, and virtually overnight, swarms of people accustomed to the stagnant 5% returns of a stock market found themselves rich beyond their wildest dreams, the direct beneficiaries of Satoshi's community bail out thrown to the feeding frenzy of the global capital markets.

When in the last quarter of 2013 bitcoin went to \$1000, reddit, an online forum popular with bitcoin fans, featured prominently one by a self-acclaimed bitcoin millionaire. "with today's rise in bitcoin I'm officially a millionaire," wrote the author, forgetting to punctuate his sentence in the excitement of the moment.

"I'm gonna cash out over the next 30 days. I'll keep 50 % in bitcoin gold and silver for long-term and the remaining 50 % for a house and vanguard. Thank you bitcoin! You changed my life."

How was this new currency changing so many lives, however? Until now, no one has yet attempted to answer this question.

2.0 Knowledge & Capital

2.1 The Next Generation Knowledge Capital Multiplier

One of the most satisfying things that I hear said about the Monkey Initial Coin Offering (ICO) experience is how educational it's been to those who have partaken in it. After all, inasmuch as it is potentially an extremely profitable business opportunity, Blockchain represents much more than mere windfall profits. Mostly, since it is so new still, it's a chance to learn, first hand and up-close, just how an entire industry evolves. Not just that, but it's also the chance to meaningfully take part in the evolution of that industry at the same time as you are learning. That Monkey is doing both these things makes me feel it's all worth it, especially on the days when hell and high water are coming close to the shoreline.

If participating in Monkey's wild ICO ride has been educational for those who have come to it with merely the expectation of flipping a token, imagine what it has been like for the one who wrote a white paper in June in the hope that someone might take pay a passing interest in the value configuration models offered within. Hosting Monkey has been a massively educational experience personally and professionally for me. It has brought me into contact with a wider range of extremely smart people of all ages, backgrounds and skill-sets than I have encountered since perhaps the days when I lived in New York City, during my second Master's degree.

I think it is quite often assumed that because I love knowledge and prioritise it very often over capital, that I don't have an interest in making money. Of course, this is not the case. I love making money. I am, after all, an entrepreneur. That's what is in our DNA – the drive to make a serious, game-changing amount of money. But as someone who loves making money, and who happens to be pretty skilled at doing it these days, it must be said, I have come over the years to learn an important truth with respect to the art of creating millions of dollars of capital wealth. That truth is as follows: while money is always available to be made and is pretty much the same whenever you make it, the process whereby knowledge is accumulated and applied has vastly different outcome.

When it comes to engaging knowledge in commercial combat, timing is like else but dramatic in orientation; you'll capture an entire theatre of ADHD teenagers if you get it right, but only a handful of weary housewives coming home from school car pools if you don't. Of all the lessons I have learned, this is perhaps the most fundamental one of all. For depending on the time you acquire and apply practically a given piece of knowledge, the outcome of your circumstances is likely to vary hugely. If you knew how to develop a website in 1995, that was a very different story to knowing the same thing in 2005.

Capital accumulation in and of itself however is not time-sensitive, and therefore requires less importance than society places upon it. Having money in 1999 vs. 2005 merely meant that you were most likely investing in internet stocks as opposed to west coast housing projects, both of which would meet dire ends within a couple of years anyway. What I mean is, there was no socially-significant differential variable in having money in either decade (nor, indeed, is there in the present one, either) – in all cases, having it just means your chances of making more of it or of losing more of it are increased.

In other words, capital accumulation is a means by which the means is the end in and of itself. With knowledge, the means becomes the driving force behind propelling real opportunity into effect. By doing so, you can engineer the most advantageous, and even unrealistic-sounding outcomes.

Building websites in 1995 made Marc Andreessen, then a scruffy San Francisco 20-something, the owner of multi-million dollar giant Netscape, which kicked off the dot com boom (a cultural revolution in and of itself); Jerry Yang, who possessed the same knowledge, created a sizeable empire in establishing Yahoo! on a near-identical basis; Jeff Bezos and the guys at Amazon fared pretty well, too.

Fast-forward to 2001, and you will find the game was more competitive already. Google's co-founders emerged in the aftermath of the dot com crash, and look how much more knowledge they were required to bring to the table to get a seat at it. Instead of just a website with some cool-sounding buzzwords representing revenue potential, by then it was necessary to have something of substantial scientific substance to bring online, in their case a massively complex and uniquely-tailored search engine algorithm the likes of which it took two combined PhD theses to develop.

My point is that if you love making a large amount of money, then forget about the capital you have right now, or need tomorrow to start your next initiative. That's completely besides the point. It's a Red Herring. It doesn't matter what you have now, or don't have now. All that matters is that the timing of the knowledge – and by association, the application of the skill-sets – that you possess is being correctly and efficiently applied to a given task. If this is the case, you will create millions of dollars of wealth out of thin air.

This was the case with Monkey. With an initial investment of \$2,000, which purchased me a headline Platinum Listing status on ICO promotions website CoinSchedule.com, I was able to utilise a wealth of theory on Blockchain value configurations I had spent weeks – months – labouring over in private and a combination of aggressive charm and proactive intelligence to launch Monkey into the multi-million – and soon-to-be, multi-billion – empire it has fast become in what was actually just a couple weeks.

I have never needed to worry about funding the project as frankly, it was completely self-financing by the second week of operations. By its fourth week up-and-running, the project was throwing off so much cash that we were able to purchase Monkey.com for a 6-figure sum and were busy building our own digital asset exchange into the back of it. In this way, Monkey is testament to how knowledge today of how a Value Coeval works can multiply your means of making money in a fraction of the time it takes ordinarily or without possession of such knowledge.

Quite simply, I applied my own theory to a project, and it worked just as expected. If you want to make money, it's worth paying attention to what a Value Coeval is, because it's the kind of time-sensitive knowledge proposition the proposition that has that multiplier effect built into it. Understanding a Value Coeval is *that* fundamental a source of Blockchain's capital-essence that it *demand*s comprehension, by entrepreneurs everywhere, at least at the most fundamental of levels.

Because that is what we who are engaging in Blockchain economics are on – a roundabout of equivalent value configurations, where costs are equivalent, knowledge application is constant, and returns are exponential. It’s what will make Monkey and a number of other similar companies household names over the next decade. This is nothing less than the era of coeval value.

2.2 The Value Coeval

The Blockchain maybe the first instance in which cooperation – as opposed to competition – is truly engaged as a value configurative process. One of the core tenants of value is that it is configured according to a competitive paradigm.

This has been the general consensus of the business community since Michael Porter published *Competitive Advantage* in 1985, in which he sought to define the core form of value creation down to its first principles in his modelling of the Value Chain: “Competitive advantage grows fundamentally out of value a firm is able to create for its buyers that exceeds the firm’s cost of creating it,” Porter wrote.

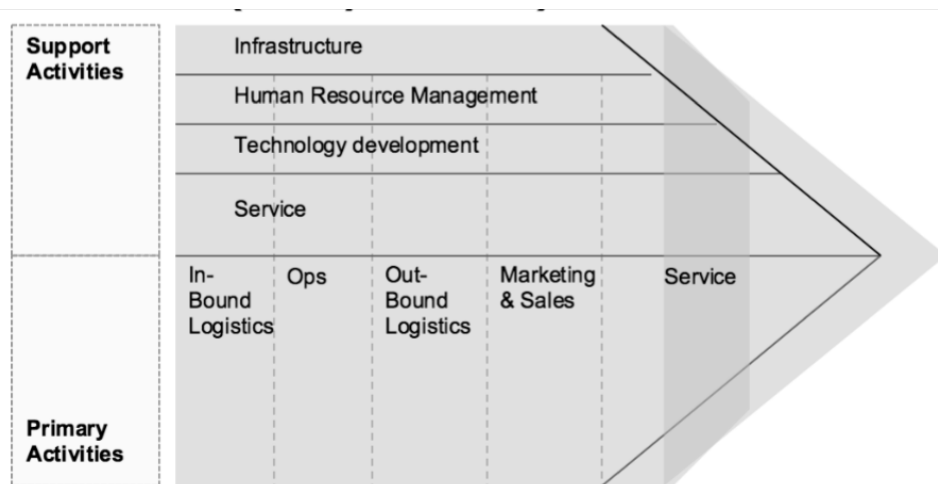


Fig 1: Michael Porter's Value Chain

In 1999, two Norwegian academics, Oeystein Fjellstad and Charles Stabell modelled two alternate forms of value configuration, with the modelling of a Value Shop and a Value Network.

In the case of these two paradigms, what was striking – though somewhat overlooked at the time – was that the processes of knowledge-sharing and network-overlapping in reality indicated a less competitive framework for management creation of value.

For example, in the case of a Value Shop, a consulting firm built into the fabric of an accountancy firm (Arthur Anderson) or a hardware developer (IBM Consulting) was a natural value-overlap which did not correspond to a traditionally vertically-integrated management process (since there was no industry vertical being annexed here):

Infrastructure
Human Resource Management
Technology development
Procurement

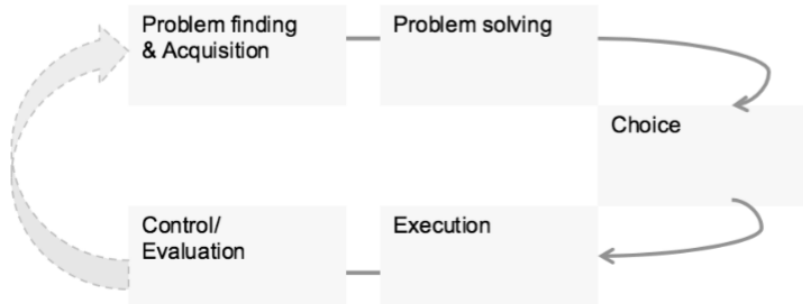


Fig 2: Stabell & Fjelstad's Value Shop

In the case of a Value Network, one or more networks could easily overlap to bring many more users into contact with one another, as has been the case recently with the evolution of social networks (where a new network will accept users to log in to their network via a larger incumbent, such as is the case with Medium, a social blogging network, and its acceptance of Twitter and/or Facebook sign-ins):

Firm Infrastructure		
Human Resources		
Tech Development		
	<ul style="list-style-type: none"> • Design new services • Program service routines 	<ul style="list-style-type: none"> • Reconfigure branch office infrastructure • Expand communications network • Set standards
Procurement		

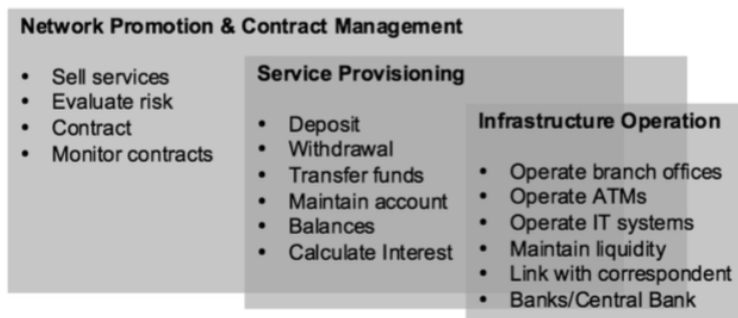


Fig 3: Stabell & Fjelstad's Value Network

3.0The Blockchain Economy

3.1 The Emergence of The Cooperative Advantage

The divergence from markets of competitive to markets of cooperative customer acquisition is undeniable. What has been less clear up until now is how value is created via a legal, paradigmatic cooperative advantage.

The Blockchain, by integrating all three Value Configurations, may be the first example of a real revolution in how markets evolve from competitive to cooperative status.

While the Blockchain is clearly a Value Network by design, via utilizing a knowledge-intensive process (i.e. solving an equation with supercomputers) to create a unit of tradeable value (a Bitcoin, Ethereum, Ripple etc.), it is similarly a Value Shop and a Value Chain at the same point in time. We might call this new Value paradigm a Value Coeval, in that it concurrently and progressively interconnects all three value configurations to produce a rather unrecognizable form of value.

3.2 The Bitcoin Blockchain As A Value Coeval

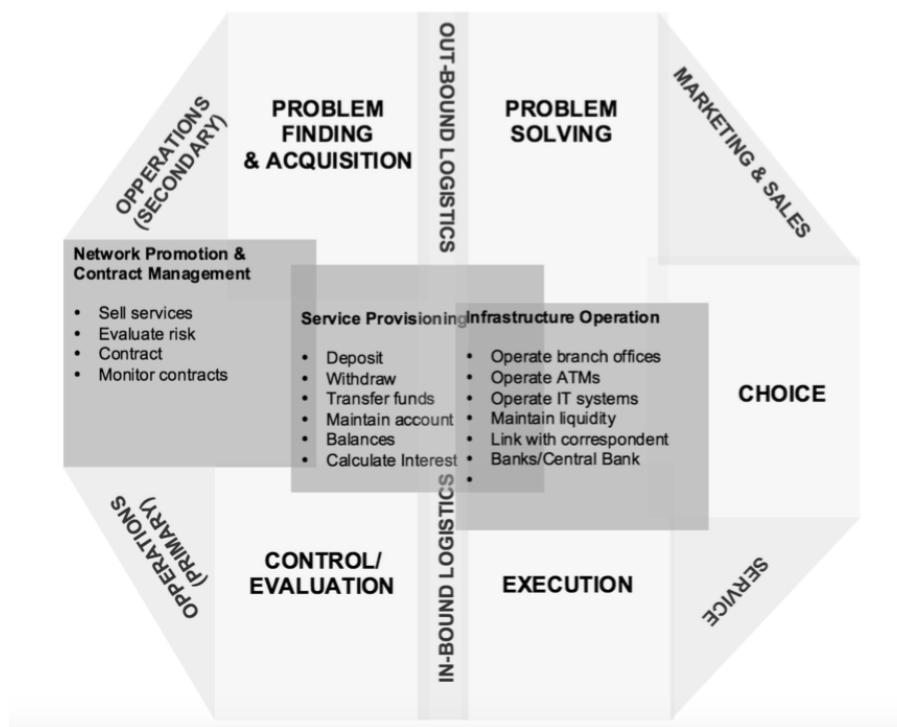


Fig 4: Bitcoin's Blockchain (Harrison)

Bitcoin's Blockchain can be viewed as a "closed" Value Coeval, in that the process whereby it creates and delivers value to its end-users is both tight-knit and simplistic from a inbound-outbound logistical delivery process: a unit of value is created on the network via the correct calculation of an equation, after which it is delivered to a "miner" of units. A bitcoin in other words, can be said to possess a core form of "Network Value".

3.3 The Ethereum Blockchain As A Value Coeval

In the case of Ethereum, and by association other token-based units of digital value storage, the value creation process is more complex. Specifically, the value configurations herein are expounded, with the network still functioning as the core engineer of value, but with the "chain" (inbound/outbound logistics) aspects of the value configuration being distinctly enhanced to integrate alternate forms of value:

An ERC-20 compliant token is a token that runs off Ethereum's network protocol, and which is modelled on Bitcoin's network protocol and run off a separate Blockchain of its own. An

ERC-20 token possesses both Network Value and potential Securitized Value via means of its employment of “smart contracts” that allow escrow-style facilities to be optimized and engaged.

Ethereum was developed as a result of Bitcoin’s blockchain; ERC-20 tokens (launched as “ICOs”) are run off Ethereum’s network. There are now nearly 800 virtual coins and tokens available, all tradeable with one another in value chain style dynamics. The evolutionary trajectory since Michael Porter’s modelling of the value chain is clear: value has gone from being supply-chain based, to knowledge and network-based, to what it is evolving into as a

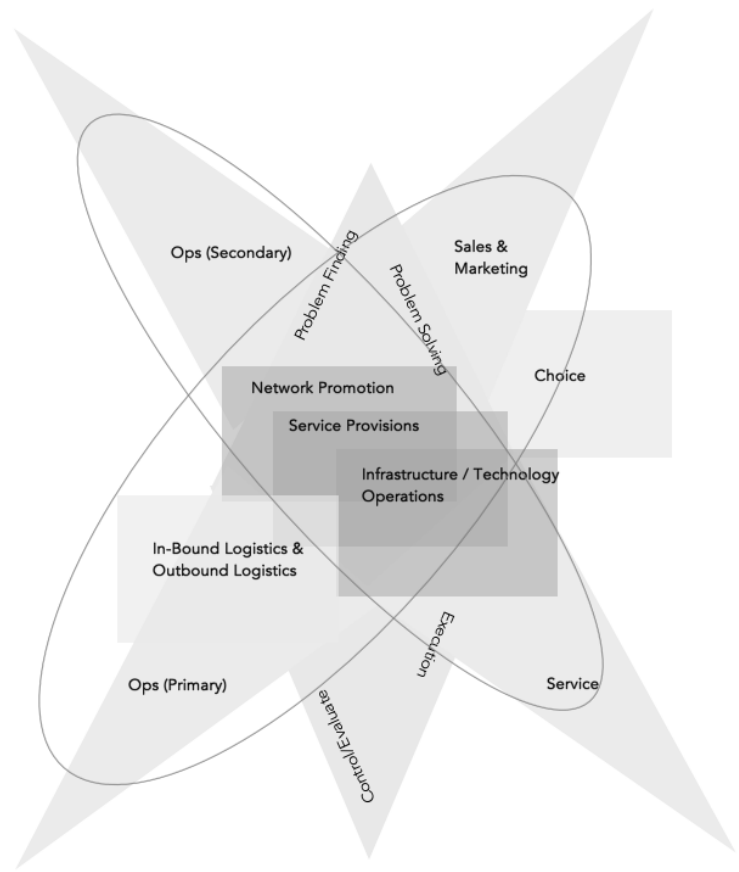


Fig 5: Ethereum’s Blockchain (Harrison)

result of Blockchain-enabled networks: supply-chain, knowledge-intensive and network-based simultaneously, or coeval.

Due to the inherent knowledge/network functionality of the Blockchain, this coeval value appears, rather than being competitively positioned by design, to be one that thrives off cooperative management process. At the same time, competitive positioning of the technology’s value attributes is alive and kicking, with units of digital value all trading against one another on multiple exchanges across the world.

In this way, the Blockchain appears to be the first example of a cooperative value configuration working in markets of perfect competition.

4.0 Utility/Value

4.1 Defining What A Cryptocurrency Is

Probably the most overlooked question in the field of digital assets today is: What is a token?

First of all, a utility token is distinct from a share, nor is it currency exactly. It is not money. It is rather a form of assigned *value*. This form of value when digitally-assigned without promises is known as a cryptocurrency.

There is a big difference between money and value. It is possible to have negative money and positive value, as anyone with margin on securities or mortgages on property will be able to tell you.

The reason someone might hold these two apparently contradictory stances is clear: the holder believes that the value held will over time appreciate at a significantly accelerated rate against the negative cash position assumed on the other side of their personal balance sheet. Historically, this is a smart position to assume. As examples from the stock markets have shown, over the long term, value trumps money by an outstanding rate of increase.

A cryptocurrency, in its purest form, is not a security either, nor any other form of asset which has been made readily available to a commercial investing public. It makes no promise, bears no dividends, and has no intrinsic value property associated with it other than the utilizable value property of the underlying network.

A cryptocurrency is a blank canvas when it comes to value – you can paint on its face whatever picture you wish. A security, by contrast, has a very fixed definition of value: specifically, it is a claim on the assets or earnings of an incorporated entity.

A token has no such ability to restrict value, but neither does it contain these restrictions in terms of value, either.

4.2 Blank Sheet Value

The fact that there is no intrinsic value to a token is among the token's strongest and weakest characteristics.

On the one hand, there is no basis for sensible or rational valuation analysis. On the other hand however, because of the inherently unfixed properties of its unitized value, there is a whole range of value attributes that can be built into it, and virtually no limit as to the extent of depth or breadth of value that can be applied, either.

This latter aspect to the token – that it is essentially a blank sheet – is what has drawn a large majority of Millennial-generation individuals into the digital asset scene. Simply, for over 20 years, inflation has been growing at a substantially higher rate than has wage growth in most of the world. At the same time, the number of jobs available to the average skilled worker has been falling.

Combined with the effect of a much higher rise in education relative to the previous population-heavy generation, the Baby Boomer's; the Millennial generation is one that is smarter, worse off financially and less in demand corporately than any generation in history. The effect of this has been that upon leaving University, most people today cannot afford to

rent a condominium without some form of parental financial assistance, let alone purchase their own, while they remain underpaid relative to their cost of living, or simply unemployed, for long periods of time.

Naturally, a generation that harbours more intellectual ability and arguably, a much higher ratio of creative and scientific talent than any that has come before, is not likely to willingly accept such a status quo before seeking solutions elsewhere. Thus, as increasing numbers of digital assets followed the launch of Bitcoin in 2011, and digital forms of financing became more possible via the introduction of crowdfunding, it was predominantly this population that began to ascribe its own form of innovative, growth-oriented value to concepts that are entirely foreign to all other generations that precede them.

4.3 Unique Characteristics of Cryptocurrencies

The reason that the concepts of value inherent in the token are foreign to almost everyone except this core group of underpaid, overeducated talent is because the circumstances in which this group finds itself are entirely unique. For despite more education, more creative ability and access to much more efficient and intelligent scientific resources than any other population in history, most find themselves in financial difficulty and lacking in demand of commercial opportunity or employment on a regular basis. The token is the population's response to such circumstances: it is the blank canvas upon which creative, technological and educated classes – whatever their financial or local social status may be – drew themselves towards in finding a new form of value.

Naturally, the token, being the response to this generation's social circumstances, is one which addresses the immediate requirements that such circumstances might entail. Specifically: It generates significant returns over comparatively very short periods of time via harnessing the combined properties of all value configurations, and by being essentially a network device that continues to harness those properties perpetually. This fact enables large numbers of Millennial participants to join without endangering the chances of others' success. This is unlike a housing or share market which due to the limitation of its rules and structural constraints, quickly overheats.

Trading operates 24-hours a day, and does not favor one geography or region. While today this is a relatively obvious concept, it is only so for Millennial generation participants – trading is considered work by most other generations, and as such, not for the evening. This antiquated definition of work began disappearing as companies stopped providing the same level of commitment and loyalty to the individuals they employed. Value and functionality are flexible and easily built into a token, with multiple technological adaptations made possible. Partly due to this, the token is a unit that can be passed freely over borders in digital format, an essential characteristic for a generation that is largely interconnected by focus group, interest and/or physical.

5.0 The Age of Factory Banking

5.1 The Three Big Financial Revolutions

Since 1450, we have experienced 3 economic revolutions: the commercial revolution of 1450-1750, the industrial revolution of 1750-1950, and now, the technological revolution, which will phase into a biological revolution in about 30 years, briefly, before transitioning into an intelligence revolution:

1450	1694	1844	1933	1986	1999	2012	2050: 2100 Bio Revolution
Merchant Banking	Central Banking	Commercial Banking	Investment Banking	Global Banking	E-Bank	Factory Banking	2100+ Intelligence Revolution
<i>1450-1750: Commercial Revolution</i>		<i>1750-1950: Industrial Revolution</i>		<i>1950-2050: Tech Revolution</i>			

Fig 6: Timeline of science-led global revolutions corresponding and rise of related financial evolutions

For this to happen, processes must be highly connected, they must be automated, secure, and must be adaptive to extreme velocities. Only the Blockchain configuration has the potential to manage such a commercial transition – simply, any other method of financing growth that we have tried up until now would crumble in an environment wherein 2 more major paradigmatically-serious economic revolutions will come about in less than a century from today.

Each revolution has its own form of banking, characterizing its method of making sweeping changes. Factory Banking is so labelled because of the unique way in which the value issuance and cashier technology – the Blockchain – is also a factory of value.

Before this point, manufacturing has always happened separately to sales and marketing (one comes before the other). In Factory Banking, the Blockchain makes the process simultaneous through instant automation – at the same time as the mining process is happening, a value configuration of the Blockchain is ascribing automatic market demand to the resultant product.

5.2 Tokenisation of Blockchain Market

Since the development and launch of Ethereum and ERC-20 compliant tokens, over \$600m have been raised from Initial Coin Offerings (ICOs). Investors have noticed broad-based returns of 5-10x capital invested.

However, contrary to contemporary perception among new entrants to the digital asset market, this trend in successful, widely-crowdfunded ICOs is not confined to Ethereum's network protocol. There were ICOs before Ethereum even existed, that took place on the Omni protocol, the Counterparty protocol. The NXT asset exchange has been very active; up until 2014 Peershares also featured successful ICOs (NuShares and B&C exchange).

In fact, when considered in the context of recent history and of the overarching development timeline of the Blockchain more generally, the events of 2017 really amount to a second wave of ICO popularity that came to a halt temporarily during an aberration in the digital currency market from 2014-2016 after Bitcoin's market value dropped about % or so.

Up until 2014, NXT was spearheading the ICO market, with hosted issuances totalling more than \$150m worth of tokens on what amounted to around \$80m worth of NXT digital currency. To put things in perspective, this was at a time when Bitcoin was just \$500.

As a consequence of these and other factors (such as the natural exponential evolution of token utility among online users), post-2017 ICO popularity is not necessarily immediately ascribable to Ethereum's protocol novelty, despite the ETH price increases being at least superficially ascribable to a certain renewed enthusiasm for digital assets.

Rather, I would seek to explain this latest wave of popularity in the token market as a more fundamental search effort for sustainable platform evolution and best-execution capability of the underlying technology being engaged in the process of the listing and wider utility and reliability of the functionality of the token as its own sui-generis asset class.

Despite the strength in the token market, offerings remain thin on management experience, business strategy and detailed execution timelines. In many cases, big-picture proclamations (e.g. we want to be the world's first decentralised bank remains the status quo sales pitch. Specifically, although smart contracts enable the payment of dividends, this feature is redundant as it essentially just transplants a pure capital market process on the Blockchain, leaving a capital asset without any valuation mechanism, which is pointless.)

At the present moment there is an opportunity to offer tokens on the market over the forthcoming years that are not only benefitted by the rampant growth of the digital asset market as a whole, but furthermore by the current performance of the assets underlying cash flow positive supported ICO issuances, despite the sector's failure on the whole.

Before looking at how such a solution might be configured however, let's pause to consider the principle concerns with the ICO landscape that have been observable in increasing frequency recently.

5.3 ICOs – The Dao & The Dutch Auction

Initial Coin Offerings, or ICOs, are the new fad of the digital asset space. However much securities regulators might caution the token's potentially securitised status, if applied correctly, a clear chasm of difference lies between a security and a token which is traded on the Blockchain. I have pointed out before now a number of differences with respect to a security and a token. To recap:

- A security represents a fixed form of value only: asset value, income value, or some sort of derivative thereof whereas a token can represent any sort of value-utility construct
- Whereas a security is a capital markets instrument, its utility being only ever the value inherent in it, a token may have other forms of utility
- The token presents an infinity paradox that a security does not; whereas a security is value-utility, a token, being in effect utility-value, distinguishes itself apart from a security by binding the securitised nature of financial product offerings on the Blockchain in an apparently never-ending circle wherein the final product is neither value nor utility. Clearly, if a token was a security this paradox would not exist; it would simply be value-utility

There has been some evidence lately in the form of official legal challenges to the notion that tokens are securities, both in case studies of publicised legal opinion by law firms representing ICO participants and also in the form of legal professionals writing on this subject in the main stream press.

Still, it is clear that the Securities & Exchange Commission is on the hunt for unregistered issuers of what might be deemed potential securities: Prostar, a celebrity/social media entertainment token issued by two tech developers in the United States, was voluntarily folded by the founders after the SEC warned that they may qualify as potential violators of

financial services law. The case of Prostar was surprising for a couple of reasons; first, far from being an instrument of value-utility, the token in question appeared to have quite strong utility-oriented characteristics, being as it was a type of celebrity voting device and not in and of itself having much inherent value inbuilt in the model; second, the entrepreneurs, barely past adolescence, had only raised \$50,000 in their ICO. What stuck about Prostar was centrally, it's employment of a mechanism known as the Decentralised Autonomous Organisation (DAO).

The employment of DAO structures has been a hot topic for regulatory authorities who regard them as a potentially criminal violation of securities issuance law. A DAO is essentially a form of special purpose vehicle (SPV) that is established in a non-legally-structured format to avoid the process of management having any responsibility associated with cashflows raised for a specific project.

That is not the same thing as saying that management wants no control over the cashflows however, and herein is the problem with DAO structures – management wants full ownership rights over cashflows passed through DAO structures, but none of the hassle associated with the legal responsibility of managing it. Needless to say, this is a highly unsatisfactory position for both investors and government authorities alike: millions of dollars of people's cash sat under the direct control of a few individuals who, if anything goes wrong, simply wash their hands of the problem and claim that the structure which they are employing is decentralised, and therefore, no one in particular's responsibility at all.

When considered thus, it is clear by looking at the Prostar case that the SEC's attempt was less concerned about the amount of money raised and more bound up instead with the process of ensuring some form of precedent was set whereby the founders of a structure employing DAO-structures took some form of ownership over its set-up. The point was not to go after a case where big money was at stake, in other words, but something of precisely the opposite: to create ownership precedent of some form in a case where the money raised was so inconsiderable that fighting the Commission would seem like nothing other than sheer folly.

DAO structures are most certainly at the heart of legal disputes over the regulated/non-regulated status of ICOs, at least for now. But it is my contention that this need not be the case at all, nor that it is in anyway an essential or even beneficial structure for ICOs to adopt.

To be certain, the days of Crypto being an unregulated section of the financial services landscape will not last forever. Ultimately, there will surely be some form of regulatory oversight. This is arguably much-needed, for despite the liberties enjoyed by those working check-and-balance-free, it is those liberties that are giving rise to so much social aggravation in the industry, whereby one party attempts to ruin another's reputation based on nothing more than heresy and subjective opinion, or where a group of traders decide to attack the product or market of a competitor without exercising restraint over the extent of their actions. Still, until that day, digital assets remain in legal limbo, somewhere between cash, a security and an everyday consumer product (the regulation as it will be applied will probably be done so with these coordinates in mind, once it comes around).

DAO structures are not just an inefficient method of raising capital, they are legally an unnecessary extra risk. DAO structures require that a certain sum of money is raised for a project from the general public in the form of cash or cash-like assets such as Bitcoin, and that as it is raised it is placed in a specific wallet. A management team then administers the cash raised like any other management team raising capital by issuing equity, except, because

the cash is raised via the DAO structure, none of the rules of accountability apply to such management executives. Clearly, this is neither a tenable or desirable case.

Since Monkey Capital – the precursor to Monkey – began its own ICO process in July 2017, I have assiduously avoided the employment of a DAO structure. In fact, in the original White Paper, I suggested an alternate structure to the DAO, that being a Value Coeval, so named after the namesake value configuration of the Blockchain I developed in 2014 as part of an early study of digital asset valuation. Contrary to the DAO, the Value Coeval was designed not to bypass securities law, but to legally circumvent it by ascribing responsibility of ownership of the capital raised to a specific party. Thus, the Value Coeval had a third party which administered payments and receipts from the project to both management and investor alike. A Russian copycat fund management set-up later employed this exact model and successfully managed to find a US legal firm to give them the all-clear on the structure's non-security status. Actually, all I did was to employ a share-denominated Limited Partnership in place of the project's "decentralised" structure, and in doing so I had in effect created a structure more decentralised and legally-viable than any other to date.

Thus, the employment of a potentially illegal form of fiduciary evasion is not prerequisite when it comes to raising capital for an ICO. However, neither is it necessary to raise capital in the way in which it is currently done either. Here, I am of course talking about the method of capital raising known popularly as the "Dutch Auction" method, where a project is made open for funding for a specific time period during which investors make contributions in coins and tokens and receive back (usually via smart contract) some form of alternate tokenised capital-utility.

Since the very start of my involvement with the ICO process, I have stood firmly in opposition to the Dutch Auction method of capital raising. That is because it is wholly-insufficient for project financing. For a start, no sort of valuation is predetermined about the project in advance when this kind of capital raising method is employed. This fact alone should be enough to deter even the more risk-prone of investors from contributing to such schemes, for if the managers of a project don't understand how much their project is worth, how will they ever know the appropriate amount of capital (or as the case may be, capital-utility-value) to return the initial contributors participating in the Dutch Auction? They cannot and thus all projections, plans and warranties made by the management must therefore be considered to be from the outset either false or negligent claims. Second, the Dutch Auction is open to considerable risk of theft. Time and again, Dutch Auction capital raises have shown themselves to involve some sort of successful or partially-successful attempt by hackers to access a wallet containing large sums of crypto in the form of would-be investor contributions. Third, Dutch Auction raises are impractical from a capital markets listing standpoint. Specifically, either the project is listed at cash value following the raise, or any initial rise in the value of the tokens purchased at the ICO is likely to be followed by sharp sell-offs. There is no attempt whatsoever by those holding Dutch Auction raises to utilise the capital for business growth projections; rather, the emphasis seems to be on pilfering the coffers of the wallet at the ICO by the DAO-enabled unaccountable management team.

If all this begins to sound like pretty hair-raising stuff, that is because it is. Dutch Auction capital raises are a redundant way to go about value creation. Yet they are central to the employment of the DAO. This co-dependence of the DAO on the Dutch Auction method of raising capital (or on similar variants of it as proposed by Vitalik Buterin, which ultimately amount to the same end result) means that as long as ICOs are pushed in the direction of decentralised management structures or in the direction of glorified crowdfunding campaigns,

the two are more or less inseparable unless either you register the token for sale as a security and employ the securities exemption act that Monkey Capital did during its ICO, or you develop a more sophisticated SPV-enabled centralised actively-managed value proposition to deliberately circumvent in a legal way the SEC securities regulations.

However, what if Dutch Auctions were not employed in ICOs at all? What if, instead of raising capital via a crowdfunded pre-project raise, a capital raise was conducted on market. It is my strong contention that this was the greatest discovery that Monkey made during the Summer 2017 ICO process, and the one for which throughout the month of August, its competitors tried their hardest to make it pay most dearly for.

5.4 ICOs Make Misleading & Unlikely Statements

The Blockchain market, encompassing all digital assets, is expected to grow by over 60% per year over the forthcoming 5 years, to a 2021 estimate of \$2.3 billion (MarketsAndMarkets). Of this growth, a sizeable portion may be attributed to ICOs. Consider that there is around \$110 billion in current market value, and there is approximately a 53x growth multiple on projected value. This is probably inflated by around 75% or so. However, much of this inflation – maybe up to 90% of it – is probably equally a reflection not of market overpricing but inappropriately-directed market resources. For this reason, the contents of this paper are extremely important: how they are handled amounts to whether there will be another 2014-2017-style slump in the Blockchain development market, or whether continuous growth will be allowed to occur. If things stay as they are now, the former will happen. If we develop appropriate market-based solutions to the ICO process however, the next five years could see value increases in underlying Blockchain solutions up to the \$10 billion level, which would justify market prices of tokens today.

During 2017, there has been reported an unusually exponential growth curve in the ICO market that is most likely false to a large extent. According to data provided by Smith+Crowne, contributions to ICOs rose by almost 200% during the second quarter of 2017, to just under \$120 million. Meanwhile however, the total number of ICO projects funded dropped by around 25%, to just 17 fully-funded token offerings.

This data is misleading to say the least. A literal reading of the numbers would result in the conclusion that in Q217 there were 17 projects that received an average funding amount of \$7 million each, with the remainder receiving negligible amounts of capital. In the first quarter of the year the number of ICOs funded was approximately 23, with committed funds totalling \$40 million, giving an average of \$1.74 million per funded ICO.

Thus, while the amount of total funding for ICOs rose just 2 times over the next quarter, the average raise shot up 4 times in size. The problem with this is that as we have observed, the number of ICOs funded dropped commensurately by a quarter. It is simply illogical to think that a market would see spikes of such magnitude in funding, both on a total funding and an average funding basis with a commensurate drop in individual projects funded. Cleah

Smith+Crowne suggest the largest projects are receiving the lion's share of proceeds, but the data doesn't suggest this at all. In fact, it shows a more – not less – distributed average, with the average rising twice as fast as the total amount raised across fewer ICOs.

5.5 Observations of The Trend

Everex, a microlending platform headed up by Jean-Baptiste Decorzent, was introduced to the author by a Silicon Valley-based programmer who had personally participated in the ICO

in July 2017 and who had also purchased COEVAL and MNY and wanted to introduce two of the founders of his favourite ICOs.

It was a genuinely kind gesture, except the value proposition that the introducing party seemed to present – that the two firms could establish an operating synergy together – seemed to be secondary among Decorzent’s priorities.

“It has been and is still an epic time for us. In July 24th at 11am UTC+1, we launched our main Token Sale campaign and raised over \$26.5 million. We also got an investment from an the Holley Group into Everex for half a million, plus further options to a few millions more from major banks,” wrote Decorzent gushingly in his introductory e-mail.

“First, Thank you for your interest, indeed Everex has successfully raised significant amount of money to move to the next levels,” he stated in the e-mail. “However, I have always advocated that Everex needed the right balance of crypto contributors (crowdfund) and equity investors (smart money). To my humble opinion, business angels and VCs would be a tremendous advantage/asset for Everex’ mid and long-terms approach.”

There are two things that seem bizarre about the claim of raising in excess of \$26.5 million here. First, the singling out of Holley Group’s \$500,000 participation presumably means that this was the largest single contribution, while references to “further options to a few millions more” certainly doesn’t sound like capital raised, but rather, ongoing discussion as to capital being raised.

Second, for someone fresh off the back end of raising such a large sum of money, Decorzent’s introduction seems unusually solicitous here. This would make sense were the company to have not got anywhere near \$26.5 million at its ICO but nearer the \$500,000-mark; after all, the latter doesn’t last long when you’re beefing up operations.

It’s probably a fair bet that Everex’s Asian microlending platform ICO obtained about \$1 million or so of real funding, in other words. Considered in the light of the Q117 average of \$1.7 million per ICO (and this is likely inflated somewhat too), this \$26.5 million makes much more sense than it does among the Q217 \$7 million average bracket.

The point is not to single out Everex as the guilty party here, but rather to charge the market as a whole of being guilty of fabricating the same fiction with respect to their raise amounts. The answer as to why firms may choose to take this course of what amounts essentially to lying to the market is simple (and even defensible given that they have investors already committed): the tokens are likely to fare much better in on-exchange trading post-ICO if the perception of the public is that the raise was a high one.

Further compounding the potentially higher-than-likely Everex numbers, consider Digital Developer’s Fund (DDF), in which Monkey sunk 1000 Ethereum and to which the author personally contributed a further 250 or so Ethereum on July 24, around the same date. This ICO ultimately announced a closing raise of just 6000 Ethereum, what was at the time around \$1.2 million in USD terms. Even this number is almost certainly overinflated by around 25% or so (that money simply being allocated to insiders on the ICO).

5.6 Lack of Auction Funding vs. Market Demand In ICOs

The suggestion of larger-than-\$2 million capital raise events at ICO stage seems to be more fiction than fact, and certainly, the elusive \$100 million ICO doesn’t exist at all. Logically,

this makes sense: companies raising capital according to very precise discounted valuation criteria on the public equity market with equally good performance prospects cannot raise a fraction of this sum of money very often; it is highly unlikely that ICO candidates can therefore do so in such a high quantity.

I strongly believe the Securities & Exchange Commission (SEC) has not become involved in regulating or interfering with ICOs simply because of the fact that they are aware of how little money is actually being raised by the supposed 8-figure or 9-figure ICO candidates.

With so little of the public wallet purchasing such issuances, they don't present any real regulatory risk – it's that simple. The only time we have seen the SEC take an active anti-ICO stance seems to have been not because of any specific sum raised – the ICO in question, Prostars, raised only \$50,000 – but rather because the Commission sought to target the method of capital raising known as the Decentralised Autonomous Organisation (DAO) which we discussed in the previous Paper.

If the DAO is clearly in the sightlines of the regulatory bodies, and there isn't really much money to be had raising cash via Dutch Auction most of the time anyway, why hold an ICO? The answer is simple: because the tokens themselves when traded on any number of Crypto exchanges ended up garnering real value, which can be sold by founders for Bitcoin or Ethereum and then the proceeds used in a completely legitimate fashion to fund personal lifestyle and/or private businesses as the seller of the tokens sees fit.

That is the real objective of most “in-the-know” ICO participants – not to raise huge sums of cash materially from investors, but rather, to get to market as fast as possible.

Hence, as a result, commensurately with the increased raise amounts you have seen the time period in which the ICO is open fall dramatically to in some cases, just a period of minutes. This is yet another mathematical improbability: the chances that the time a fund raising event is open would negatively correlate with its total raise amount is close to zero.

ICOs are still in abundant supply – in fact, so much so that at the time of writing, TokenMarket had listed a total of 48 ICOs scheduled so far for the forthcoming financial quarter (Q417). In this sense, clearly the news of “mega-ICO” events has had an effect on the ambitions of would-be entrepreneurs who wish to raise capital via a Blockchain-enabled solution.

The issue, as we have discussed in the course of this paper, is that such ICOs are either destined to fall far short of their founders' anticipated hopes or they will only succeed at generating the founders any real investible return once they are brought to market.

In the case of COEVAL, and subsequently MNY, Monkey Capital front-ran this process – at first almost by accident, and then subsequently in the case of the latter as a deliberate response to the market conditions of the former – by selling the tokens over Waves Decentralised Exchange (DEX) at lower-than-average (per ICO) market value.

The effect was to create an enormous rise in the value of COE, and, before market manipulators sought to destroy the value of both, at first in MNY, too.

The knock-on effect of this effect was to create a surge in trading volumes, whereby at the end of July COE and MNY combined represented in excess of 85% of all Waves DEX \$2

million + average daily trading volumes even as the prices of both were in decline as a result of the market manipulation forced on them by those wishing to undermine the market-based ICO process.

Why would someone deliberately attempt to destroy an ICO which had created in excess of 15,000% of value for initial purchasers? Simple: if everyone was to go about doing the same thing, market expectations would not be on the part of the founders for multi-million dollars sums but rather, on the part of the investors for multi-thousand percentage point returns. This represents a highly undesirable position from the perspective of the venture capital firms that are playing the “ICO game” off against an unknowing market alongside a few “insider” whale investors.

The reason that the Monkey Capital (non)-ICO event generated such enormous controversy for a non-event wherein the majority of people made far more money than the ones who lost saw dissipate afterwards as a result of the market manipulation was simply that it undermined the entire market-based model on which all the large Dutch Auction-DAO model ICOs are effectively premised. The point here is not undermine the Dutch Auction / DAO-based ICO approach. I have already succeeded in doing that earlier. The point is to make it clear that when it comes to raising capital on the Blockchain, because of the inherent design of the technology’s protocol, market-based capital raises are the only way in which decentralized structures work efficiently in any way whatsoever.

5.7 Demand-Activation Dichotomies on Blockchain Networks

As I pointed out earlier, Factory Banking tends not to be a good source of generating cashflow if you approach it from the old-fashioned perspective of ploughing money into advertisements and hoping for the best.

This is because the supply-demand function is fundamentally different on a Blockchain. That there are so few who know this today – or worse still, believe it to be true in the first place – is testament to how easy it is for companies to get away with lying to their ICO contributors about how little money they are really raising via the crowd.

A Blockchain’s *modus operandus* revolves around the principle of altering the supply-demand equation so that it is not a question of supply quantity meeting demand uptake, but rather, of how demand is engaged in order to maximise supply take-up. In other words, supply-demand equations look more like demand-supply equations, where demand is already present by virtue of a user engaging with the network to begin with. In such a scenario, the key consideration is not where or how to locate the demand for a product or service, but rather, of how to enable its latent commercial properties.

To be sure, this aspect of the Blockchain holds tremendous appeal to many would-be business owners. The problem is that the erstwhile entrepreneur equally misunderstands the practical application of it. Think back to near the very start of this paper, wherein we discussed the early Bitcoin adoption. In that scenario, Bitcoin’s own creator was unable to stem the tide of users who were sending Bitcoin to Wikileaks in order to quickly (and perhaps anonymously) support the site’s mission to expose Big Government misconduct. This is a classic case of demand-orientation being more powerful as a result of the technological capability of the network than supply capability. Usually, it’s the other way round: in supply chains, if the seller doesn’t want to deliver you a product, you simply cannot source it.

In Blockchain economies, that is not the case: in the event that there is no supply available over-the-counter or on exchange for a particular digital currency, a user can simply plug in a mining rig, mine the coin, and use it right away (at least for now that is the case with most mineable Crypto). This demand-orientation has become so pronounced it has led to the deployment of smart contracts all over the world on the Ethereum network, in what is nothing short of an attempt to synthetically recreate the manufacturing process of digital coin mining in a fraction of the time.

Because of the novel proposition that via the utility of manufacturing a unit of value alone, someone can immediately potentially generate substantial financial value, the process has led to an influx of improperly considered, ultimately useless, low-quality Utility/Value propositions where the community employing the offered service is more or less unengaged in the act of work they are meant to be performing with respect to their value production goals. In turn, very little value is actually created and thus genuine utility soon falls into decline.

A good recent example of a redundant utility proposition on the Blockchain is social blogging network SteemIt, which encourages users to post short articles that are topical on Blockchain in return for a fee. Equally, those same users are pay to be able to “upvote” or “downvote” articles they do or do not like, and they are rewarded by the “crowd” if their articles achieve a certain number of “upvotes”. Partly due to the lacking liquidity on the SteemIt network (there are not that many high-quality writers who enjoy being tied to such amateur-centric writer platforms) but mainly because the users are posting for the most part, useless headline content or content that resembles spam or at the best, deep conspiracy, the platform is, after hitting an initial novelty bump, now falling into deep decline.

SteemIt will eventually die out, and so will many other similar low-quality Blockchain networks, where making money, rather than performing the underlying service proposed as part of the Utility/Value proposition, is the driving motivation for action.

Given most people’s central requirement seems to be that they generate additional cashflow then, but that they don’t want to do much for it, it is useful to step back here and ask ourselves: is there a way in which we can create a type of synthetic utility? If there is, then there would be far less need for redundant Utility/Value proposals where the utility concerned adds nothing but extra utility without the production of value attached to it.

When we consider the essence of how a digital currency is brought into being, via core mining activity, and view a smart contract as a synthetic mining application as opposed to as means of sending, retrieving and storing data, we discover that Factory Banking in truest sense is nothing less than value mining.

Value mining is in turn a form of synthetic utility. This utility lies in contrast to the analytic utility we encounter in everyday life. That is to say, the utility that we derive from a manufactured unit of digital value pertains in some sense to itself even while we are using it as a mechanism of payment. Blockchain reverses the constants that we take for granted in everyday life; there is utility without value on Blockchain, but there is no value without utility. And yet that utility is in and of itself *reflexive* in every sense: a payment utility is a method of purchase activation but is also the value that is enabled in the transaction. What happens then when we make that unit of utility which we ascribe some hypothetical value to the object of purchase in itself? The answer to that question is what all us Blockchain evangelists the world over are trying to figure out. That’s the crux of coeval value.