

Blockchain Implications for the Monetization of Identity Governed by Individuals

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Abstract

Blockchain technology has been discussed and analyzed throughout numerous practitioner and scholarly applications, but the majority of said analysis has tended to focus on the financial services space. From a blockchain and broader cryptoasset space this seems to make logical sense, but overlooks other potential applications. Specifically, as intellectual assets and intangible property assume greater importance in virtually aspect of the economy, the potential for blockchain and cryptoassets does appear to be increasing. Written in a tone and manner of interest to both practitioner and academic audience, this analysis examines how the Brave browser attempts to rebalance the proverbial scale between who controls the valuable information that continues to dominate the business landscape. In addition this research presents a potential framework for how organizations and individuals can monetize what potentially may be the most value resource going forward – digital information - and do so in a manner that is both equitable as well as leveraging the emerging technology of blockchain.

Keywords: Blockchain, Monetization, Cryptoassets, Browser, Digitization

1. Introduction

Blockchain has dominated the technology conversation, and specifically the financial services technology conversation, since bitcoin burst onto scene in 2016. Following the dramatic fall in price, and subsequent stagnation of price action at large, there does seem to be a bearish sentiment present in the cryptocurrency area of the blockchain ecosystem. This sentiment, however, seems to be masking a broader and more fundamental shift in the blockchain ecosystem. As the technology continues to mature, be adopted by institutions across different industry verticals, and become increasingly integrated into business

operations there are several emerging developments that seem worthy of additional analysis. While it is too early to accurately predict where these applications and developments will ultimately end up, it seems logical to analyze what may be one of the most intriguing developments in the space. It is clear that personal information and data related to the habits and interests of consumers are tremendously valuable pieces of information. Entire businesses, including the entire social media and search industries, are built on the value that can be derived and extracted by organizations; some of the largest and most profitable organizations in the world depend on this data. Conversely the consumer, the producers of the data subsequently leveraged by organizations, are not only uncompensated but frequently exposed via hacks and other data leaking incidents. A consideration and business model that seems to be of emerging importance is whether or not blockchain platforms and models can rebalance this equation. An intriguing possibility and option to be sure, but prior to discussing these advanced developments and potential applications, it seems logical to revisit the core functionality of blockchain itself.

2. Blockchain Functionality

No matter the specific use case or application being analyzed in the context of developing blockchain iterations there are a few core characteristics driving value and analysis in the ecosystem (McNally, 2019). Numerous definitions and analyses of said core characteristics have been published and are available for review, and these definitions should not be viewed as either authoritative or definitive. Instead these definitions should form the basis for continued and comprehensive conversations and debate.

1. **Decentralized and distributed.** Combining the attributes of both decentralized data storage and a distributed methodology of transmitting the information represents unique attributes of blockchain, no matter the iteration which can be either permissionless or permissioned. Such a combination enables the network to not only process data without the need for a centralized authority but to remain operational even if significant members of the network fail or are taken offline.
2. **Consensus.** Building on the decentralized nature of blockchain, the only way in which data can be processed, at commercial scale, is to utilize some sort of agreed upon methodology to do so. The specific consensus methodology will vary from network to network, but there is always some group based agreement that must be achieved to add information to the blockchain platform.
3. **Encryption.** Arguably the characteristic and trait of blockchain that is most publicly known and recognized for, encryption lies at the center of blockchain technology. It is true that there is some debate around whether a label of immutable or tamper-resistant is most accurate, the underlying reality is that encryption and data security form a core value proposition of blockchain iterations and applications. Without strong and scalable encryption, regardless of whether or not it is immutable, encryption is at the center of the platform; the distributed and decentralized promise of blockchain would be very difficult to implement without trust in the underlying encryption.

4. Real time communication. The final aspect of blockchain platforms that creates and delivers value to the organizations utilizing blockchain is the real time nature of how data is communicated between network members. Near real-time transmission of data between said members enables records to be updated, and since this information has both been encrypted and approved by at least some members of the network, this enables all members with access to said information to do so on an ongoing basis.

Coupling together these core characteristics of blockchain technology and various iterations of permissioned blockchains that have been implemented by financial services organizations and other technology companies the benefits of blockchain for financial services are clear. Between the value that have been created in the marketplace connected to bitcoin and other cryptocurrencies, and the continued push for crypto-products it would seem logical to conclude that the majority of use cases remain in financial services. That said, and even though there have been significant advances in terms of commercial viability for financial services, there are numerous other areas of commercial application and development worth of analysis.

2.1 Use Case Beyond Financial Services

Financial services may have represented the first area in which blockchain and cryptoassets were introduced and adopted, but there are a plethora of use cases beyond financial services that seem equally as well suited to blockchain integration and adoption. Utilization of blockchain, albeit usually via a permissioned model that may either be labeled as private or consortium in nature, seems well suited for any industry that has a confluence of the following factors (Tarzey, 2019). A large amount of information being shared between counterparties, a large number of counterparties, and the need for these counterparties to confirm and verify the information traded between members all represent instances where a blockchain can be of service. Based on the real time nature of how encrypted and confirmed data can be shared between members, the opportunities for efficiency gains and lower occurrence of errors can be quantified and reported on a consistent basis. These are tangible benefits that can be generated for all parties involved, but these benefits are not simply limited to organizations dealing with the transmission of logistics or other transportation of physical goods.

Perhaps one of the more interesting applications that have emerged as greater awareness and commercial viability of blockchain iterations have continued to permeate the marketplace is the usage of blockchain to help secure and validate the transfer of intellectual property. Applying and enforcing for the protection of various intellectual property rights can be complicated under the most consistent conditions but become ever more complicated when trying to contend with international organizations and actors (Suzuki, Taylor, & Marchant, 2018). Adding another layer of potential complication and friction into the business landscape is the fact that, in addition to enforcing intellectual property rights, a core component of this enforcement has to do with financial compensation. Due to the very intangible and amorphous nature of intellectual property and intangible assets, it may be difficult to consistently and accurately assess the financial implications, but nevertheless the value of

said intellectual property is significant.

2.1.1 The Value of IP

Analyzing the value and business use case for intangible assets and intellectual property is a relatively straight forward process when viewed through both a macroeconomic and microeconomic perspective. In fact, the trade dispute and war underway between the U.S. and China that launched and continued from 2018 through the writing of this research is – regardless of headlines linked to soybean or other good that may drive headlines – dominated and being led by technology. Intellectual property and intangible assets are worth tens, if not hundreds of billions, of dollars, and continue to account for ever increased percentages of the value of S&P 500 organizations (Anson, Noble, & Samala, 2014). Expanding the conversation and analysis around intangible assets and properties to the corporate sector, the value and cash flows generated from data and information have laid the foundation for dozens of organizations and the entire social media sector of the economy at large.

The intangible asset sector is large and multi-faceted, but for the purposes of this research the analysis will focus on the value derived from customer data, browsing patterns, and the general online identity of both individuals and institutions. This data, browsing, and searching patterns are gathered, analyzed, and examined to extrapolate patterns, target advertising, and generate revenues for all organizations involved. Even though the value of customer data is readily apparent from any perspective in the marketplace, under the current structure of the market there is no benefit of this information conveyed or returned to the customers themselves. Compounding this somewhat obvious issue are the hacks, breaches, and other leaks that occur on a routine basis at organizations charged with effective stewardship of customer information. In fact, the recurring nature – and associated damage to consumers – linked to these hacks and breaches have led to legislative and regulatory action.

Passage of data regulations that include but are not limited to the GDPR out of the EU as well as various legislations both in the United States and other countries can be seen as a direct result of two forces that dominated the marketplace. First, the ever increasing amount of information and data produced by both individuals and institutions is increasingly seen as an asset and tool to be leveraged to improve business operations and results. Put simply, the more information that management professionals have to work with the better the results of the organization will likely be (Schweih, 2002). Second, as the value of this data becomes readily apparent and evident to good and bad actors alike it presents a ripe target for hacks, breaches, and for unethical actors to obtain. Protecting this information, from both a business and consumer privacy perspective, is a goal of this regulation. No matter what the specific regulation, however, it is unlikely that any one piece of legislation will accomplish the intended goal on a standalone basis. In spite of this, the emphasis from a regulatory perspective on intellectual property is indicative of how importance this IP can be for organizations, as well as opening the door for increased blockchain implementation and adoption to potentially address current issues in the space.

3. Blockchain and IP

As blockchain becomes increasingly integrated across different industry verticals it is increasingly evident that there are some benefits that can be directly applied and connected between blockchain platforms and intangible assets (Chichester, 2017). The real time transmission of information between different network members, as well as the encrypted nature of how this data is communicated between members addresses some of the opacity and complexity associated with the current model. At a high level the encryption and group based consensus model provides the security, transparency, and real nature necessary in an economy increasingly associated with and built on the transmission of digital information between different members. Bridging the gap between concept and market reality, there are already several organizations that have launched products and services to leverage blockchain applications in this space.

The focus of this research may very well be focusing on the importance and value associated with the business value and applications necessary, but the applications for blockchain based platforms to deliver efficiency to the intangible asset market has broad based appeal. Taking a relatively simple example of royalties or payments for other intellectual property such as patents, trademarks, copyrights, or other licensing arrangements some of the benefits become readily apparent. In the case of royalty payments, the time and process between when the IP is used, and the creator or owner receives compensation can be months, can take months if not years to actually occur. These royalty issues and payment flows may be most commonly associated with for-profit enterprises, but also have applications for higher education and content production outlets (Lawlor, 2018). Placed in the context of both how quickly business realities can change and the need for payments to occur in a realistic time frame the current structure is unsustainable. Especially when framed in the context of how valuable, and how frequently used, intellectual property and other intangible assets are used in the course of business operations, a blockchain augmented framework appears to offer a potential solution.

Establishing the idea of a blockchain based payment network for royalties or other intellectual property compensation, while representing a new way of transmitting value between parties, is not as abstract a concept as it might initially appear. Digitization and the faster transmission of information have become increasingly integrated and mainstream across different industry verticals; there is no reason why intellectual property and IP should operate differently. In terms of how this could be operationalized and scaled to be commercially viable, the following factors should be integrated within the structure.

1. A permissioned network organized by a consortium of users, IP holders, and creators seems to make the most sense. Simply put, the usage of intellectual property normally involves quite a few parties at various stages of the process, all of which can vary depending on the type of IP and scope of usage involved. Developing an industry specific platform and partnering with major organizations and artists – many of which are likely collaborating already – can be viewed as the logical next step in this process.

2. Payment structures and flows do need to be constructed and integrated both between the network members as well as external financial partners. At this point it is also worth

considering whether or not the proposed blockchain solution would utilize a coin or token native to the network or as a payment vehicle or use it in more of a utility sort of role.

a. Drawing this distinction is important, as true utility tokens; tokens or coins whose only worth is tied to the underlying network will most likely, at least in the United States based on currently available guidance, be valued or classified as securities by regulators.

3. Controls and processes by which new members will be added to the network, how members can be removed if necessary, and how these additions, removals, and changes to network membership are managed. This may not seem like a core component of the conversation, but without objective rules and guidelines to add and remove network members it will be difficult to maintain the trust and integrity associated with this payment network.

Additional considerations that should be a part of the any blockchain based payment network to facilitate compensation linked to intangible assets or intellectual property is how exactly this information is going to be stored and shared between different members. By its nature a permissioned network usually implies a higher level of trust and confidence between members, but that should not imply that data will be universally shared. Developing and implementing a process by which some data is made publicly available to all members whereas other classes of data are restricted is logical step that also makes sense from a business perspective. Finally, there should be a methodology determined to report and disclose the underlying information and process used to determine payouts to various members. In addition to transparency, such disclosures – which can be made in the aggregate to avoid inadvertent leaking of confidential information – also assist with the evaluation of market processes versus other market alternatives.

3.1 Consumer Facing Applications

In addition to the benefits and attributes that blockchain can deliver to organizations operating with and dependent on intellectual property and other intangible assets, there is also a definitive use for consumer applications. Circling back to the earlier conversation around the value that is generated and realized by organizations linked to consumer data and information, the following reality is becoming clear. Consumers, be they individual or institutional in nature, provide the proverbial raw materials necessary for the organizations that generate so much wealth to do so. A question that is continuously asked more and more, in business and legislative settings alike, is whether or not there a way that the producers of these digital raw materials are able to be compensated for the value they assist in creating.

This where is blockchain could possibly be of service, although the resulting application might be implemented in a manner slightly different from previous iterations that have existed in the marketplace (Dickson, 2018). At the core of the idea should be the idea and possibility that, as part of the supply chain and value production process, the producers of data and information should be compensated for the value they help create. The central theme of this concept and theory revolves around the real time tracking and traceability of information stored on a blockchain platform, which presupposes the implementation and rollout of a blockchain based platform for consumers to use. The Brave browser, utilizing the

Basic Attention Token (BAT) seems to represent the most accurate market representation of how this could be implemented in the marketplace, but that does not mean it is the only viable option available.

Drilling down to the components and factors necessary to roll out an enterprise ready platform that can reward both the issuing organization and consumers involved, there are several considerations that need to be factored into the plan. First, it seems logical that the type of blockchain to be utilized in this scenario should be a permissioned model that by its nature engenders a higher level of trust between network members. If this compensation model is going to work as advertised there does have to be some kind of financial compensation and benefits to all involved parties. Focusing on the Brave browser for the purposes of this research, there are a few core components that seem important to take into account in terms of this specific service as well as how these attributes can be expanded upon moving forward.

1. The matching of user browser history and advertising will still occur, i.e. users can still choose to see ads if need be, but that is where it is differentiated from other browser options. Revenue splitting can be arranged in any manner, but in the case of Brave the revenue from these ads is broken down as 70% to the content (ad) producer, 15% to the user who viewed the ad, and 15% to Brave itself.
2. Building on the voluntary and crowd-sourced nature of blockchain applications, Brave also has a feature where users can fund a Brave wallet with Basic Attention Tokens (BAT). These tokens, if funded and utilized by users of the browsers, can then be allocated on a periodic basis based on how long or how often a certain user visits or the amount of time spent on a certain site.
3. Users that choose to earn BAT through browsing or other time connected viewing habits can then either exchange these tokens for premium content, manually allocate these tokens toward other websites, or (eventually) redeem said tokens for the fiat equivalent.

While Brave certainly has received quite a bit of attention since its launch due to the innovative nature of its model the business model has received a fair amount of pushback. Most of this pushback and criticism has centered around the fact that – in essence – Brave is blocking ads from other advertisers and then reshowing those same ads and taking a split of the revenue in the process. Brave did raise \$35 million in token sales via an ICO in 2017 but it does remain to be seen what how the business model will evolve and change over time in response to the increasing regulatory and legislative scrutiny brought to bear on the situation. This organization may represent the first substantive business initiative launched to attempt to leverage blockchain and crypto-tokens in the manner, but it is unlikely to be the last; it seems readily apparent that a focus on privacy and potentially rewarding users based on browsing and viewing habits is something that will remain of importance moving forward. Despite the success of the Brave ICO the continued tax and reporting uncertainty does seem to be having a chilling effect on the broader ecosystem at large. Such uncertainty, in addition to presenting a headwind toward greater adoption, also indicates and illustrates the need for increase global standards connected to blockchain and various blockchain applications from a variety of

perspectives (Mehboob, 2019). Those facts, in mind, a proposed model of allowing individuals to monetize data and browsing history could be constructed as follows.

4. A Framework for Browsing Monetization

It is too early to definitively state when and how the intersection of blockchain and cryptoassets will intersect with the broader information economy, but the fact that this conversation is occurring does seem indicative of future trends. As both consumers and governments continue to focus on, and pay attention, the implications of how personal data is used and leveraged it would be logical to expect organizations to rise to meet this demand and expectation. While there does not seem to be a definitive answer as of yet regarding how to operationalize the concept and idea of accurately reimbursing users for the use of browsing or other information, there are core factors that seem reasonable to include at this time. Not presented as an authoritative checklist nor as the definitive characteristics that should; rather this should be viewed as a framework to be modified, edited, and tweaked as necessary. That said, core characteristics and traits that seem appropriate to include in any such a model would include the following. Brave may be the first organization to attempt such an undertaking, but that does not mean it will be the last.

Arguably the first and more important point to consider in this conversation is what the value proposition of such a browser would be, or in other words what are the incentives to help consumers to voluntarily switch to this alternative browsing platform. Taken from a simplistic perspective the strongest agreement would seem to echo the case constructed by Brave; compensate users in some capacity for providing browsing and search information to content producers. That said, it does not seem readily apparent to mandate or even encourage users to utilize a network native coin or token to partake in the functions of the product. While this certainly can be done, has been done with Brave, and will undoubtedly play a role in the conversation moving forward, emphasizing this aspect of the platform may dissuade some users from partaking. Instead the following factors could be highlighted as the core of the value proposition linking together the possibility of customer controlled data, compensation individuals for providing these raw inputs, and maintain privacy.

1. Users are compensated for viewing ads. Instituting an ad-blocking protocol, as well as removing the ability of tracking cookies to function on the browser, clearly are core attributes of any user oriented monetization proposal. To make it user friendly, ads could either be previewed – such as in a small popup widow that appears - of users can periodically be presented with ads that are pending. In either case it would take action steps on the side of users in order to activate and subsequently view the ads, putting the use in the position to allocate time and activity as the individual saw more appropriate. Removing the tracking and cookie software add-ins also help enhance and improve the privacy experience of users, a core consideration in the current marketplace.
2. Revenue sharing would have to be determined up front. This is perhaps the one consideration that Brave has continuously faced some criticism for; the compensation schemes and allocations continue to change and evolve as the market changes. Now it is clear that business models should evolve and change, but the process by which these changes occur

should be transparent for all parties involved. In order for vendors to participate in the network there needs to be an understanding as to how the revenue split is constructed and implemented up front and how it is changed over time.

a. Additionally, content providers (advertisers) must be able to trust that the ads delivered to the browser are shown in their entirety and are not replaced or modified with native browser content. In other words, the browser itself must act as a neutral third party arbiter and all parties must be able to trust and verify that this is actually occurring.

b. Such a need for verification and traceability as it connects to the neutrality of the network presents a quantifiable application for blockchain technology. Launching a permissioned network and allowing different members to have different levels of access can help institute and verify the status of different members.

3. The crypto token or coin conversation is also something that needs to be determined and examined at the planning stage of the conversation. In the case of the Brave browser, for example, users have traditionally purchased and then use network native tokens to pay for native content, compensate content providers, and store these tokens in a network wallet. Presenting this option will assuredly appeal to some potential users but as of this research – and reflecting the continued uncertainty connected to both the taxation and reporting implications of cryptocurrency - enabling customers to conduct transactions with fiat currency seems to be a straight forward additional option.

4. Compensation of users, in addition to being constructed and implemented in a straight forward manner, must also be in compliance with existing financial regulations. Stated differently, if users are indeed generating compensation by viewing ads and are doing so throughout the entire year, this income information will have to be reported to the appropriate tax authorities. The enforcement mechanisms underpinning tax collection are increasing a high profile topic in various jurisdictions, with the Internal Revenue Service in the United States taking a prominent stance and role in closing tax loopholes from previous years.

a. The seriousness with which tax collection agencies are treating this issue is evident via the over 10,000 letters sent out by the Service to taxpayers that, based on information held at the Service, owe or may potentially owe income taxes related to cryptocurrencies. As the value of the collective cryptoasset market continues to increase it seems evident that collection and enforcement protocols will also continue to increase.

5. Data must not be stored. Last but not least and linking back to the core value proposition of such a network or structure, the voluntary nature and compensation for users, the browsing history – and privacy – must be maintained. The lack of data storage may seem anathema to users and organizations accustomed to organizations harvesting and storing information, but this current situation need not represent the default situation across the board. In addition to the elimination of cookies and tracking software, a browser hoping to make inroads in this space must also help ensure privacy by also pledging to not store and/or sell customer data. Data may be, simply from an operational perspective, stored on a server or decentralized

structure, but this data should not be sold or otherwise mined for data; doing so undermines the privacy consideration of the platform.

Every network platform will be constructed differently and will contain an array of different factors, but the above listed items can be considered as a framework or outline to spur further discussion and analysis on the subject. The confluence of privacy considerations, increasing integration of blockchain technology across industry verticals, and the scrutiny under which technology organizations operate seem to present a viable business opportunity for a privacy driven, data-based firm. Valuing and reporting the value and reporting perspective of intangible assets and intellectual property, however complicated or multi-faceted it might seem to be, is increasingly of importance from a financial and operational perspective (Aston, 2002). Taking a step back from the operational details, however, and examining the rise of such an organization in the context of the broader economy also reveals several key trends and considerations that my result from continued develop in this space.

5. Implications

Have privacy maintained are difficult to accurately forecast. Reasons for this difficulty or cloudiness as it connects to forecasting include some of the following. Entire business models, and by extension the financial results of many of the largest and most profitable organizations in the world, will be impacted by such a model. Regulators, logically, will most likely scrutinize a market solution pledging to both enhance consumer privacy while still monetizing the value of this data, albeit in an indirect and purportedly more equitable manner. Last but not least the very competitive forces giving life to this entire conversation may ultimately lead to the acquisition of some privacy based providers by incumbent players. While this might sound incongruous the phrase “death moat” is increasingly referenced in the technology space; as startup firms or new entrants in a space achieve some levels of success and scale they are increasingly likely to be acquired and subsumed by incumbent institutions.

The acquisition model previously implemented by leading technology organizations, however, appears to be coming under increased regulatory scrutiny and examination, and this can lead to the development of an entirely new business structure and model. Taking a step back and looking at the broader implications of browsers and other organizations that return the control and financial rewards associated with personal data to the individual reveals several other implications worthy of additional consideration. The decentralizing and distributing of personal data and information will, in theory, reduce the risk of hacks, breaches, and other data leaks that occur so commonly with a centralized storage facility of consumer data. As a second order effect of these decentralizing of information, however, also increases the risk and responsibility of the individual, i.e. if breaches do in fact occur there will not be as many centralized options available to provide redress and/or compensation for the victims of cyber-incidents. Building on this change is also the relatively straight forward implication and effect that the profitability of existing organizations will be impacted. Aside from the usual pressures and tactics, including acquisition of smaller players, the end effect will be that existing organizations dependent on mining consumer data will have to modify and tweak existing business models.

Another additional implication is that by reducing the amount of consumer and customer data held at a relatively small handful of organizations is that governmental institutions and groups will have less sway of the collection and utilization of this data. Not directly tied to business operations, clearly, but a fact that needs to be acknowledged; since all parties involved know that – under the current model – a small handful of organizations hold large amounts of information, it makes it simpler for governmental entities to bring pressure to bear on these corporations. In late 2019 this connection and potential was highlighted as mainland China placed tremendous economic pressure on organizations to either passively stand aside in the face of Hong Kong protests, or actively condemn said protests. On top of the size of the market, which is an economic force in its own right, the trove of information that the government would like access to also became a topic of conversation.

It is too early to forecast the totality of implications related to the decentralization of consumer data, but it does seem clear that several of them will be directly connected to business while others will be more loosely connected to societal and economic forces. Perhaps the most obvious connection will be the reality that, for both individuals and institutions, compensation will be available based on the activity of the users. Additionally, while the focus of this research has focused on web browsing and search applications, there are other organizations that operate closely dependent on the information produced by organizations. Netflix, Amazon, Twitter, Uber, and AirBnb are just a handful of the technology titans in the American economy whose business success is largely dependent on harvesting, mining, and monetizing user data. As of this research it remains uncertain as to what the ultimate impact will be on these and other organizations, but it would be reasonable to assume some effects will be felt.

6. Future Directions

The monetization of information and data is not a particularly new or innovative topic or business trend; as long as data has been available there have been organizations seeking to leverage and profit from it. Given the increasing focus paid to data privacy, however, it does seem that the marketplace at large is ready for a potential alternative that loosens the grip over data currently held by a relatively small number of organizations. Much work remains to determine just how specifically such a concept would be implemented at commercial scale, but the initial steps and considerations already exist. At the core of the idea itself, and no matter what option or organization ultimately takes the lead in this space, is the possibility of reimbursing individuals and institutions to partake in the economic wealth that the deluge of data in the marketplace is able to produce. Regardless of whether or not this topic is approached from a practitioner or academic manner, it remains an open conversation with the potential for robust and comprehensive analysis. Technology integration will remain a driving force in the economic landscape for the foreseeable future, and developing a business model to assist in compensating and empowering the creators of the data makes business, and logical, sense. Organizations and individuals willing to be proactive and creative in developing said business models have the potential to redefine traditional business conversations, drive innovation forward, and spur the next phase of economic development.

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