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Financing Open Blockchain Ecosystems: Toward Compliance and Innovation in Initial Coin Offerings

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BLOCKCHAIN RESEARCH INSTITUTE

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COALITION OF AUTOMATED LEGAL APPLICATIONS

FINANCING OPEN BLOCKCHAIN ECOSYSTEMS

Toward Compliance and Innovation in Initial Coin Offerings

Fennie Wang, Primavera De Filippi, Alexis Collomb, and Klara Sok
Coalition of Automated Legal Applications

March 2018

A COALA + BLOCKCHAIN RESEARCH INSTITUTE BIG IDEA WHITEPAPER

Realizing the new promise of the digital economy

In 1994, Don Tapscott coined the phrase, "the digital economy," with his book of that title. It discussed how the Web and the Internet of information would bring important changes in business and society. Today the Internet of value creates profound new possibilities.

In 2017, Don and Alex Tapscott launched the Blockchain Research Institute to help realize the new promise of the digital economy. We research the strategic implications of blockchain technology and produce practical insights to contribute global blockchain knowledge and help our members navigate this revolution.

Our findings, conclusions, and recommendations are initially proprietary to our members and ultimately released to the public in support of our mission. To find out more, please visit www.blockchainresearchinstitute.org.

Blockchain Research Institute, 2018

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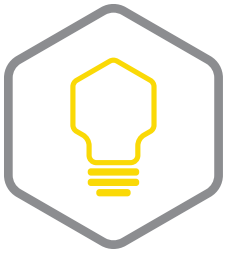

Foreword

In *Blockchain Revolution*, Alex Tapscott and I detail how distributed ledger technology will transform the core functions of the financial services industry: saving (depository), transferring (payments), lending and rating (credit, bonds), exchanging (arbitrage, foreign exchange), funding (venture capital), insuring (risk management), accounting (audit, compliance), and authenticating assets and ownership.

In particular, we wrote about how the process of raising equity capital—through private placements, initial public offerings (IPOs), secondary offerings, and private investments in public equities (PIPEs)—had not changed significantly since the 1930s.

We reviewed the limitations of traditional IPOs, including their time constraints, costs, and opacity. Then we previewed one of the blockchain-enabled alternatives, the blockchain-based IPO, also known as the initial coin offering (ICO).

While the ICO addresses the weaknesses of the IPO, it presents its own challenges, highlighted by some high-profile swindles that *Wired* magazine called "straight-up trolling." Among them was Prodeum, which appeared on a Thursday, raised barely any money, and disappeared by the following Monday, along with its website, its press release, and its social media accounts.[1]

Hacking is also a problem. The professional services firm Ernst & Young analyzed more than three hundred ICOs and determined that roughly ten percent ($400m) of the $3.7 billion raised had been siphoned off, with phishers nicking as much as $1.5 million a month.[2]

So ICOs represent a conundrum to securities law regulators. The Securities and Exchange Commission and its equivalents in other jurisdictions are gauging the level of regulatory oversight required to balance the viability of blockchain start-ups with the risk to investors, especially retail investors caught up in the hype.

This project digs into the regulatory implications of blockchain-based systems, some of which qualify as an ecosystem, such as Bitcoin and Ethereum, and some as a decentralized application (Dapp). Its all-star team of researchers—Fennie Wang, Primavera De Filippi, Alexis Collomb, and Klara Sok—deftly describes various legal solutions that could support ecosystems that are innovative and streamlined, yet fair for all stakeholders. It is among the most thoughtful and definitive studies to date, and the Blockchain Research Institute is delighted to publish it.

DON TAPSCOTT
Co-Founder and Executive Chairman
Blockchain Research Institute

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Idea in brief

The Securities and Exchange Commission's concerns as a public watchdog for consumer and investor protection are well founded.

- Most ICOs will not be true ecosystem tokens and will therefore be well suited as securities token offerings, using registration exemptions and trading through decentralized alternative trading systems.
- Open-source blockchain-based ecosystems may choose to rely on fundraising practices typical of start-ups and private enterprises for the pre-production phase. Once they have established some profit centers, they may choose the use of coin offerings to fund post-production phases.
- Token issuers might choose to devise creative corporate forms combining nonprofit structures, which would oversee access to shared open-source resources, with for-profit structures to develop specific business or decentralized applications.
- The Securities and Exchange Commission's concerns as a public watchdog for consumer and investor protection are well founded. We need regulations that encourage innovation, minimize speculation, and ultimately enable the creation of ecosystems that are more productive, more resilient, and more just in their allocation of power and resources.
- Markets will need some level of speculative trading in tokens to provide liquidity. Questions remain around how best to square the market necessity for some speculative activity, regulatory concerns around secondary markets, and the functional requirements of an ecosystem token.
- Collaboration in governance is critical. Members of the blockchain community—entrepreneurs, technologists, researchers, academics, lawyers, and others—should remain open to working with regulators in devising a regulatory framework for the emergent token economy.

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Introduction

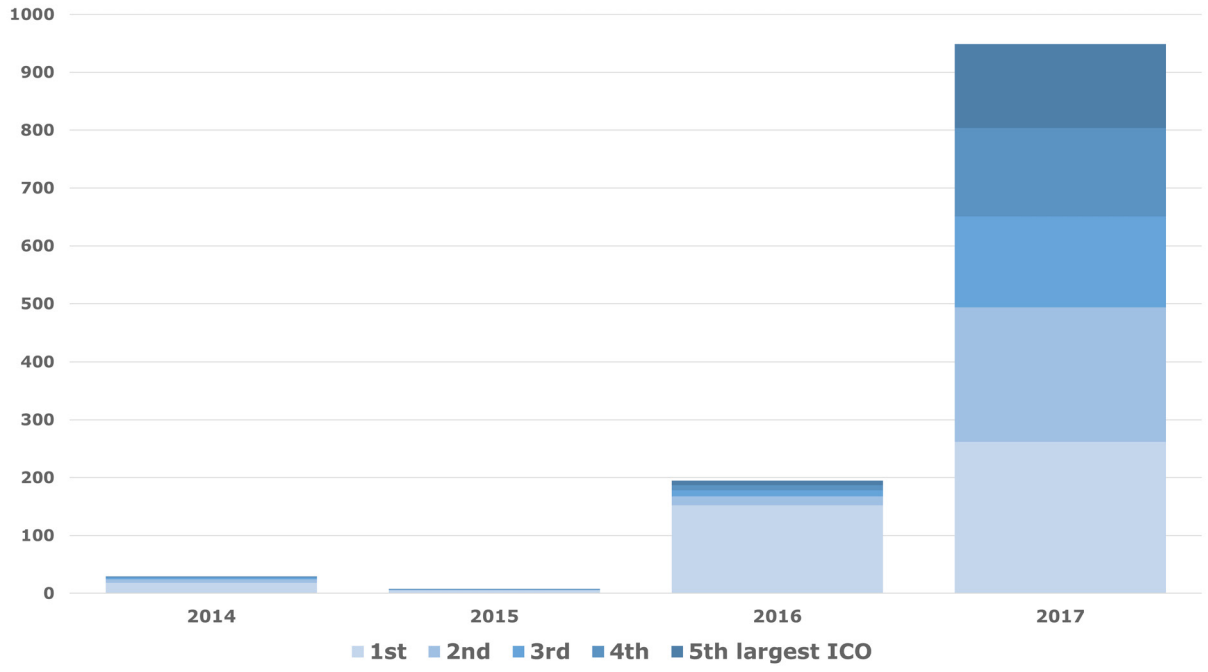
Initial coin offerings have raised more than $3.6 billion thus far, surpassing the amount of VC funding in the blockchain ecosystem.

Blockchain technologies could significantly affect how we interact and communicate on the web. With Web 2.0, the second generation of the Internet, we saw the rise of social media and user-generated content. Web 2.0 begat such Internet giants as Amazon, Google, Facebook, Uber, and Airbnb—leading to an increasingly privatized Internet, controlled by a few large, monopolistic operators.

Today, Web 3.0—the third generation of the Internet—portends a more decentralized Internet, more akin to a public good. Anticipated as early as 2006, in a term popularized by John Markoff of *The New York Times*, Web 3.0 promises an intelligent semantic web that is open and distributed.[3] For many veterans in the space, it will be a return to the original promise of the Internet as a public utility and network open to all.

In the past three years, blockchain technology has begun to impact traditional fundraising practices such as venture capital (VC) investments and crowdfunding. New mechanisms for raising funds have emerged through the public sale of cryptocurrencies and blockchain-based tokens. These practices—sometimes called *initial coin offerings* (ICOs) or *token generation events* (TGEs)—have raised more than $3.6 billion, surpassing the amount of VC funding in the blockchain ecosystem.[4] See Figure 1 for a comparison of the top five ICOs year over year.[5]

Figure 1: Amount (in $millions) raised by the top five ICOs



Data source: CoinDesk ICO tracker and Business Insider.

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While these token sales represent a new opportunity for projects or initiatives to raise the necessary capital to bootstrap themselves, they often operate in a regulatory gray area, especially with respect to securities law regulations. While the issuance of many blockchain-based tokens is likely to fall within the scope of securities laws, many grassroots projects or start-ups will have difficulty bearing the regulatory burden of these laws—with regard to the disclosure requirements, the asymmetries of information surrounding these investment tools, and the current lack of accountability or redress for retail investors. At the same time, access to traditional venture capital remains difficult for projects and entrepreneurs outside of major financial and technology capitals like Silicon Valley.

While token sales represent a new opportunity for projects or initiatives to raise the necessary capital to bootstrap themselves, they often operate in a regulatory gray area, especially with respect to securities law regulations.

We start by distinguishing between blockchain-based systems that qualify as an *ecosystem* (e.g., Bitcoin, Ethereum) and those that qualify as a *decentralized application* (Dapp) running on top of an ecosystem. We argue that the two approaches require the implementation of different token models and, consequently, different mechanisms to comply with relevant legal requirements.

There is a structural difference between the issuance of an *ecosystem token*, which represents a fundamental and necessary component of the ecosystem with which it is associated, and the issuance of an *app coin* (short for application coin) that may have some functionality similar to loyalty points or be used in lieu of cash payment to use services. The difficulty with such app coins is that, in many cases, they rely on a thin economic rationale, often merely serving as a disguise to fund the development of a blockchain-based application designed around a private profit center—acting, in effect, as a security token by other means.

In this paper, we argue that only an ecosystem token can be a true *utility token*. We overview different practices adopted by various projects involved in a token sale, and investigate the regulatory approaches taken by existing regulatory authorities. We focus, in particular, on the Securities and Exchange Commission (SEC) and how its thinking has evolved in the past year. We give specific attention to the interpretation of the *Howey* test for a finding of securities, and its potential application to the sale of blockchain-based tokens as a fundraising tool.

In the absence of regulatory clarity, blockchain-based projects and initiatives now have to navigate murky waters.

In the absence of regulatory clarity, blockchain-based projects and initiatives have to navigate murky waters. Some projects engage in a series of complicated techno-legal solutions in order to adapt their business practices and technological design to conform to the intent of existing regulations. These solutions try to take advantage of regulatory exemptions in various jurisdictions, with specific requirements that—if met—would allow securities issuers to reduce their regulatory obligations. Others continue to take the view that true utility tokens should be exempt altogether from securities laws, although it is becoming increasingly difficult to conduct such sales to the public.

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In light of that, we analyze and evaluate the viability of existing solutions designed to comply with these different regulatory frameworks. The most common of these practices include the creation of nonprofit foundations acting as the umbrella organization that issues the tokens (e.g., the Swiss foundation model introduced by Ethereum), or the elaboration of specific contractual arrangements, such as the *simple agreement for future tokens* (SAFT) model, introduced by Filecoin. Yet, most of these solutions require extensive overhead while still bearing significant regulatory risks and uncertainty, and are often limited to specific exemptions under securities laws that do not enable token issuers to benefit from the full opportunities of a token sale.

We then suggest a series of creative solutions or best practices that could be implemented to launch successful token sales in compliance with existing regulatory frameworks, both in the United States and Europe. We stress the risk of existing marketing practices that create excessive expectations of profits. We also delineate ways to leverage the power of smart contracts to codify a number of technologically driven fail-safe mechanisms (or technical guarantees) so as to reduce the opportunities for speculation over the tokens' price. These include, for instance:

We delineate ways to leverage the power of smart contracts to codify a number of technologically driven fail-safe mechanisms so as to reduce the opportunities for speculation over the tokens' price.

- The issuance of non-transferable tokens to preclude the creation of a secondary market
- The use of vesting schedules for token issuers and investors to avoid "pumps and dumps"
- The introduction of a ceiling cap to prevent the price of tokens from rising over a specific threshold.

Finally, recognizing the inherent tension in using ecosystem tokens as financing instruments, we explore the use of more traditional financing arrangements (e.g., convertible notes) at the preproduction phase, for example, through the establishment of a for-profit entity that is arms-length with a nonprofit open-source software foundation. Under this model, ICO funding would no longer constitute a replacement for a seed round, but is used to leverage the power of blockchain technology and public funding at later-stage rounds with a faster timeline than traditional IPOs.

Inherent tension of privately funding a public good

This section explores the use of blockchain-based tokens as a potential financing mechanism for the decentralized web, and analyzes the inherent tension in privately funding a public good. We refer here to *private funding* as funding coming from various private sources rather than from government, nongovernmental organizations (NGOs), or public institutions, which are more

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Private funding is more decentralized, coming from various private sources rather than from government, NGOs, or public institutions—all more centralized sources. Private funders, however, often have a mindset of extracting and monopolizing private network value.

centralized funding sources. Private funding is more decentralized; however, it is currently caught up in the mental models of Web 2.0, where entities extract and monopolize private network value.

Equity is a classical instrument used to fund private enterprises, with the value of shares based on the expectation of revenues and profit in the private enterprise. As such, equity is an appropriate tool to fund private profit centers, such as the centralized online platforms from the Web 2.0 world, or even the various Dapps emerging in the Web 3.0 landscape.

However, when we move into the realm of new decentralized blockchain-based protocols or platforms that operate as a foundational layer of Web 3.0, equity alone might be an inadequate tool for funding these emergent ecosystems, which share many of the characteristics of a "public good." So what is the right funding instrument for these platforms?

The advent of the *token sale* or ICO was an attempt to resolve the tension inherent in the private funding of public goods. An ICO consists of the practice of offering blockchain-based tokens for sale to the public, and using the collected funds to support the development of a blockchain-based platform or Dapp—which, once deployed, will become publicly available to all token holders. Fundamentally, the idea is that if we are building a public good, then we should let the public who will benefit from this good fund it.

Ecosystem tokens

The model is particularly well suited for open platforms or ecosystems that fundamentally require the existence of an *ecosystem token*—that is, a token native to a decentralized network or protocol, whose function is to coordinate and incentivize otherwise adverse and self-interested parties to contribute and grow the resources of a public commons. An ecosystem token essentially solves the problem of the *tragedy of the commons* that characterizes many common-pool resources.[6] The tragedy of the commons emerges from two conditions:

An ecosystem token solves the problem of the tragedy of the commons that characterizes many common-pool resources.

- Participants individually benefit from the use of common-pool resources
- The externalities of overuse or under-contribution are shared among all members of the community.

Hence, utility-maximizing actors are likely to act in a way that may lead to overexploitation or under-allocation of resources.[7] Ecosystem tokens, as a resource allocation and staking mechanism, could at least partially contribute to resolving these issues.[8]

Those who seek access of a common-pool resource must have a buy-in or stake in the commons to gain access to them. Accordingly, ecosystem tokens are often required for accessing network resources, used as a means to pay transaction fees between network

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nodes, or as other internal accounting and payment mechanisms. Participants who contribute to the ecosystem may also be rewarded in ecosystem tokens, for example, by running validator nodes or otherwise building network infrastructure or applications.

The value of a true ecosystem token captures value across multiple profit centers in the network and all possible future profit centers.

Decentralized blockchain-based protocols, at their core, need an economic incentive for validator nodes to confirm on-chain transactions and maintain network security that is tied to network value, rather than the profit value of specific applications that utilize a particular blockchain. The value of a true ecosystem token captures value across multiple profit centers in the network and all possible future profit centers, without necessarily taking on specific enterprise risk in any particular profit center.

This kind of economic incentive *does* require secondary market trading, in order to decentralize its allocation and provide liquidity to validator nodes, allowing them to realize the value of their contributions to the network. Furthermore, using cryptocurrencies like ether and bitcoin would be inadequate as an incentive model. These cryptocurrencies have price movements that are entirely exogenous to, and independent of, the network value; a node validator wishing to earn ether or bitcoin would simply mine those blockchains instead. It would also be overly capital-intensive for new protocols to use ether and bitcoin as the reward mechanism.

Network utilization, including building the ecosystem and providing services and products that meet end-user demand, increases demand for access to the network and, consequently, the demand for ecosystem tokens. If all else is equal, then this increased demand results in an increase in the value of the tokens. Therefore, ecosystem tokens align individual incentives with those of the public commons. Individuals must, in effect, obtain tokens to access the network and participate (both individually and collectively) to build the value of the ecosystem—for instance, by contributing to the core network architecture and infrastructure, or by building Dapps that enhance the utility value of the ecosystem.

The long-term value of an ecosystem token fundamentally requires a number of stakeholders to build out the ecosystem with the open-source tools that the initial founders created, and contribute their own resources, creativity, and imagination. That is a key point that traditional VC investors fail to appreciate and Web 2.0 business models fail to capture.

In classical finance parlance, Ethereum has leverage.

Let's consider the Ethereum ecosystem. The Ethereum Foundation raised (only) $18 million in one of the first ICOs ever, completed through the sale of its own native cryptocurrency, ether, in September 2014. In the three subsequent years, independent projects around the world have raised more than $3.6 billion, all building on the Ethereum network and enriching the ecosystem. In classical finance parlance, this is called *leverage*.

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Decentralized application (Dapp) tokens

A Dapp token is fundamentally different from an ecosystem token. Even where the Dapp token has a utility function—it coordinates operations within a particular blockchain-based application—its economic function is fundamentally limited: Dapps do not build public, shared infrastructure as true network ecosystems do.

In many cases, it is hard to justify giving a Dapp its own unique utility or app coin distinct from ecosystem tokens.

Profit centers focused on a particular product or vertical have long used equity as the main financing mechanism. Dapps have revenue and profit models, and users of Dapp services can pay with such existing options as fiat, cryptocurrencies, stable coins, or even the ecosystem token of the underlying network or ecosystem upon which the Dapp is built. In many cases, it is hard to justify giving a Dapp its own unique utility or app coin distinct from ecosystem tokens.

Even where the Dapp utilizes an access or membership token (e.g., to access content), there is no economic reason for such a token to need secondary market liquidity, whereas an ecosystem token requires it as part of its economic design. In practice, the utility value of a Dapp token often seems forced, as a mechanism to avoid securities laws in public fundraising of what is essentially equity for a private profit center.

In the ICO landscape, the analysis currently focuses on the "nature" or "function" of these blockchain-based tokens—in particular, whether a certain token is categorized as a utility token, a tokenized security, or a cryptocurrency like bitcoin. A tokenized security would clearly be categorized as a security, subject to all applicable laws and regulations. However, there is a nuanced distinction within the utility token category. While utility tokens may cut across both ecosystem and Dapp tokens, these tokens are essential for the operation of a decentralized ecosystem and blockchain-based network, whereas they are not indispensable for the running of Dapps.

Because of the fundamental difference between ecosystem tokens and app coins, we believe that legal analysis should start from there, not from whether a token has a utility function. Taking the analysis to its logical conclusion, the reasons for a Dapp utility token are often very thin, if only to take advantage of the ICO hype, which regulators around the world are currently scrutinizing.

Because of the fundamental difference between ecosystem tokens and app coins, we believe that legal analysis should start from there, not from whether a token has a utility function.

There is no economic or design reason why Dapps should not or could not be funded by traditional equity, which makes the utility case harder to justify. As SEC Chairman Jay Clayton said, "Certain market professionals have attempted to highlight utility characteristics of their proposed initial coin offerings in an effort to claim that their proposed tokens or coins are not securities. Many of these assertions appear to elevate form over substance."[9]

What is worrisome is that, as a result of the regulatory crackdown due to many irresponsible and opportunistic ICOs, the original rationale for tokens as the essential funding mechanism of open-source ecosystems may get lost.

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In the following sections, we examine the evolution of ICO practices, and the ensuing SEC guidance and enforcement action in the ICO space. We then provide a series of recommendations and insights into how compliant financing of open ecosystem projects might evolve, both to enhance the long-term viability of such projects and provide new value propositions to investors.

The first instantiation of a blockchain-based system was Bitcoin, a peer-to-peer electronic cash system elaborated by a pseudonymous entity, Satoshi Nakamoto, in 2008.

An evolving landscape of practices and regulatory approaches

Historical analysis

Bitcoin and Satoshi Nakamoto

The first instantiation of a blockchain-based system was Bitcoin, a peer-to-peer electronic cash system elaborated by a pseudonymous entity, Satoshi Nakamoto, in 2008, with its first transaction on 3 January 2009.[10] By design, Bitcoin is an open ecosystem, which we can regard as a quasi-public good in an economic sense.[11] As opposed to a centralized digital platform, Bitcoin does not have any private profit center and uses its native cryptocurrency, *bitcoin*, as a means of decreasing the risk of under-contribution and overexploitation.

This self-regulation derives from the mix of *transaction fees*, which users must pay in bitcoins, and *mining rewards*, whereby new bitcoins are issued to those who contribute computer power to maintain and secure the network.[12] Bitcoins thus acquire value because they are necessary to execute a transaction. Bitcoins can also be traded on secondary markets or exchanges where they can be bought or sold against fiat currency.

As Bitcoin started to gain traction, people like Vitalik Buterin realized that they could use the underlying blockchain technology for other types of applications beyond simple financial transactions.

Ethereum and Vitalik Buterin

As Bitcoin started to gain traction, people like Vitalik Buterin realized that they could use the underlying blockchain technology for other types of applications beyond simple financial transactions. Buterin, a cryptocurrency researcher and programmer who had co-founded *Bitcoin Magazine*, first conceived of an open-source, decentralized, and blockchain-based computing platform in late 2013.[13] Whereas Bitcoin implements a very basic scripting language for transactions that is purposefully not Turing-complete, Buterin's ambition was to create a platform with a Turing-complete programming language that enabled the execution of smart contracts for the creation of user-generated Dapps and their attendant app coins.[14]

He named this platform Ethereum.[15] The development of this new blockchain-based network was funded via an online crowdsale of ether (its native cryptocurrency) between July and August 2014.[16]

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As with bitcoin, ether can be regarded as an ecosystem token: people use the token to pay for the transaction fees (i.e., "gas") necessary to use the Ethereum infrastructure; and users can acquire ether by contributing resources to the network—that is, through mining. Similarly to Bitcoin, the Ethereum ecosystem does not run any profit center. Yet, its governance differs slightly from Bitcoin's, since Buterin maintains an active leadership role in the project, and the community can lean on the well-identified nonprofit Ethereum Foundation for the development and maintenance of the code.

In the past few years, Ethereum has evolved into one of the leading blockchain ecosystems, attracting a large crowd of developers, entrepreneurs, start-ups, established corporates, and various academic and research interests, all eager to explore, and potentially to leverage, its platform for building Dapps.

The DAO

One of the flagship initiatives of this new wave of innovation was the DAO, a distributed investment fund that collected all of its funds via a token sale launched in May 2016. Raising more than $150 million from about 11,000 investors in a few weeks, the DAO set a record at the time as the largest crowdfunding campaign in history.

One of the key features of the DAO was that it had no conventional management structure (i.e., it had no official management body or board of directors) and no formal organizational form. The DAO had no legal entity; it subsisted merely as a decentralized organization built on the Ethereum blockchain.

While the DAO never actually started operation, it is nonetheless relevant to analyze the function or utility of its tokens, called TheDAO.[17] The DAO was intended to become a significant player in the Ethereum ecosystem, enabling token holders to develop the ecosystem further by investing into various commercial and noncommercial endeavors that would contribute to the utility, and therefore the value, of the Ethereum network. Moreover, as an attempt at creating a decentralized organization, the DAO could itself be regarded to some extent as an open ecosystem: using TheDAO tokens, anyone could engage with or contribute to the DAO.

TheDAO (with a capital T and no space) was the name of the token issued for engaging with or contributing to the distributed investment fund called the DAO, launched on the Ethereum network.

Even though the German company Slock.it developed the DAO's code, Slock.it was but one of many other contenders to receive funds from the DAO.[18] The DAO was intended to be fully autonomous, an independent endeavor that would take on a life of its own. It would be administered—collectively—by the investors themselves, transacting directly with the DAO open-source smart contract code. Therefore, after its launch, it would be the token holders—rather than Slock.it—who controlled the operations of the DAO.

Yet, unlike bitcoin or ether, the utility of TheDAO token was not fundamental to the ecosystem. Much like a security, it was a transferable token endowing every holder a share of any future profits that the DAO would make from its investments. Moreover,

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token holders were entitled to participate in the governance of the DAO, whereas *curators* were responsible for whitelisting eligible projects, and a quorum of token holders would determine the allocation of the DAO's funds.[19]

In other words, just as shareholders can participate in the governance of a company by voting at annual shareholder meetings, TheDAO token holders could directly influence the DAO's final allocation decisions through their votes. The DAO was an investment fund whose investors did not delegate the task of selecting projects to an investment manager; rather, they determined the investment selection process themselves, according to their share of the total capital invested.[20] In a sense, the DAO operated similarly to an open-ended fund investing in securities, whereby shareholders can decide upon the fund's investments according to their share of total capital invested in the fund.

TheDAO tokens did have a particular utility: anyone willing to submit a project to the DAO had to spend TheDAO tokens. Yet, they could have achieved the same functionality by spending ether, had the DAO's original design included this option. The only incremental usage value of TheDAO token over ether was that it enabled its holders to vote in the DAO's investment submission and selection process.

Just as shareholders can participate in the governance of a company by voting at annual shareholder meetings, TheDAO token holders could directly influence the DAO's final allocation decisions through their votes.

Even though the DAO's management process differed from a standard corporate management process, the voting rights that TheDAO tokens conferred to their holders were somewhat similar to those of standard shareholders and the private interests they represent. It appears that TheDAO token existed not to support the operations of the DAO's ecosystem, but to ensure that token holders could secure a return on investment proportional to their individual contributions.

The unexpected success of the DAO's crowdsale inspired a large number of blockchain-based projects and initiatives to launch their own token sales, some of which surpassed their founder's expectations. Filecoin ($257 million), Tezos ($232 million), IOTA ($434,000), and EOS ($185 million) are a few initiatives that used the ICO model instead of a VC scheme (Figure 2, next page).[21]

Munchee

While those projects were directed toward the creation of an ecosystem, an increasing number of private companies are experimenting with these new fundraising mechanisms to raise funds for the development of blockchain-based applications or Dapps that do not operate as open ecosystems, but as private profit centers.

An emblematic example of this latter trend is Munchee, a San Francisco-based company that created a mobile app for users to review restaurants and comment on their food experiences. To improve its app, Munchee launched a token sale (with MUN tokens) in the fourth quarter of 2017, with a target to raise $15 million.

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The MUN tokens enabled holders to buy goods and services on the app, such as advertisements, food purchases, and restaurant loyalty points, and to receive payments for their reviews based on their membership status, tiered according to their token holdings. Munchee referred to its token as a method of exchange inside of the Munchee ecosystem.[22]

The Munchee application operated as a private profit center: whatever users achieved with the MUN token, they could have easily done with ether, fiat, or even a centralized token system.

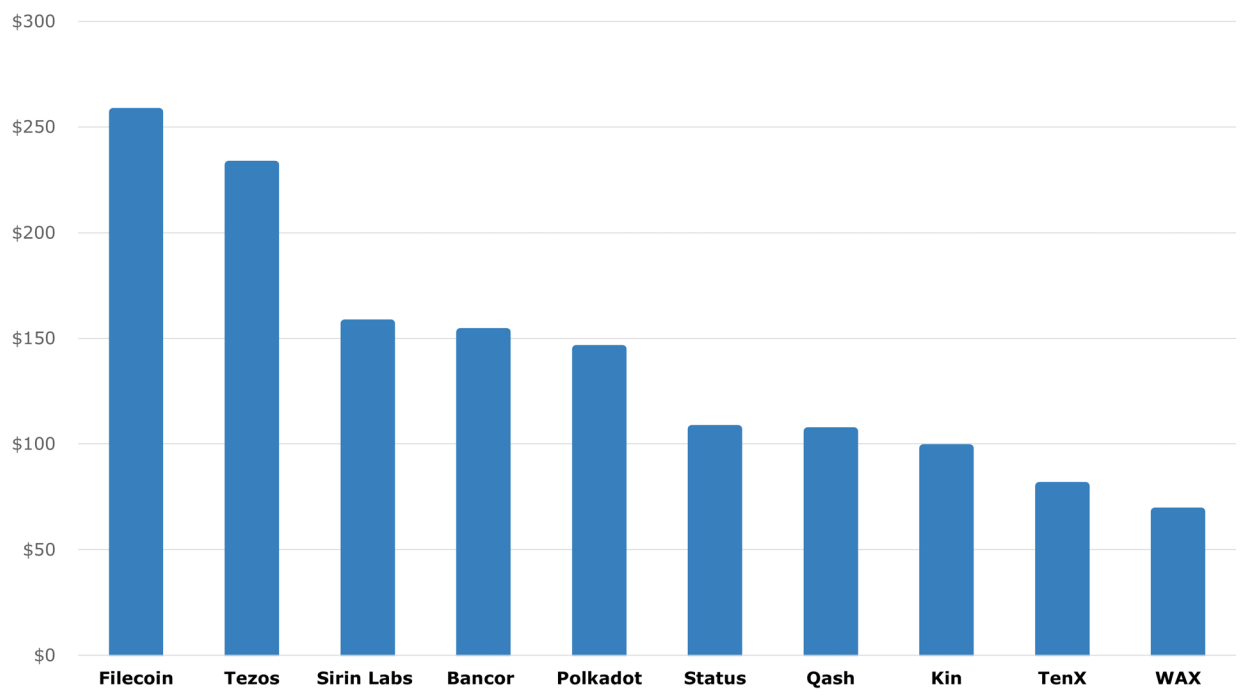
However, the MUN token was not, in fact, an ecosystem token. The Munchee application operated as a private profit center: whatever users achieved with the MUN token, they could have easily done with ether, fiat, or even a centralized token system.

These four initiatives—Bitcoin, Ethereum, the DAO, and Munchee—illustrate the spectrum of possibilities, from a purely ecosystem token (e.g., bitcoin and ether), to a security token used in an open ecosystem (TheDAO), to a fully private token or app coin (Munchee's MUN).

Evolving SEC standards

In this section, we provide a legal analysis of ICO tokens and look at the evolution of the SEC's approach, from its initial report on the DAO in July 2017 to its latest press release and enforcement action against Munchee in December 2017.

Figure 2: Top 10 ICOs (in $millions) of 2017



Source: Oscar Williams-Grut, "The 11 Biggest ICO Fundraises of 2017," Business Insider, 1 Jan. 2018.

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Report on the DAO

On 25 July 2017, the SEC issued an investigatory report, along with a press release cautioning the industry that the use of blockchain technology does not exempt token issuers or exchanges from the need to respect existing laws and regulations designed to protect investors and market integrity.[23] Specifically, the report stated that the sale of digital assets (or tokens) by decentralized blockchain-based organizations, such as the DAO, could very well qualify as a securities offering and thus be subject to the registration and disclosure requirements of federal securities laws.

While the report was meant to provide general guidance on the legal consideration of ICO practices, the SEC focused most of its legal analysis on the DAO.

While the report was meant to provide general guidance on the legal consideration of ICO practices, the SEC focused most of its legal analysis on the DAO. Although it determines whether a particular token qualifies as a security on a case-by-case basis, the SEC focused on the DAO to illustrate the application of securities laws to the issuance of blockchain-based tokens in the context of "virtual organizations" more generally.

Specifically, to determine whether TheDAO token qualified as a security, the SEC applied the *Howey* test, a test from a US Supreme Court case (*SEC v W.J. Howey Co.*, 328 US 293) used to determine whether an investment contract implicates US securities laws. As the Court in *Howey* determined, an investment contract requires (1) an investment of money (2) in a common enterprise (3) with a reasonable expectation of profits (4) to be derived from the entrepreneurial or managerial efforts of others. All elements must be met for a security to be found, thereby implicating securities laws and regulations.

In the case of the DAO, the SEC found that the Slock.it team took on sufficient managerial efforts such as writing the white paper, designing the protocol, writing much of the code, maintaining public forums and the website, and advertising the expertise of the Slock.it team and the DAO curators. The SEC noted that

> *Investors in The DAO reasonably expected Slock.it and its co-founders, and The DAO's Curators, to provide significant managerial efforts after The DAO's launch ... Slock.it and its co-founders did, in fact, actively oversee The DAO. They monitored The DAO closely and addressed issues as they arose, proposing a moratorium on all proposals until vulnerabilities in The DAO's code had been addressed and a security expert to monitor potential attacks on The DAO had been appointed. When the Attacker exploited a weakness in the code and removed investor funds, Slock.it and its co-founders stepped in to help resolve the situation.*[24]

Furthermore, according to the SEC, the DAO token holders' voting rights were limited and therefore not sufficient to displace the overarching reliance on the Slock.it management team: "Even if an investor's efforts help to make an enterprise profitable, those efforts do not necessarily equate with a promoter's significant managerial efforts or control over the enterprise."[25]

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The necessity of public participation in growing the long-term value of an ecosystem token is why many lawyers thought the SEC analysis of the *Howey* test in the DAO report was weak on the final element, requiring the expectation of profits derived primarily *from the managerial efforts of others.*

Building an ecosystem is no passive investment, but requires community participation. However, the difficulty is that building an ecosystem takes time and requires significant effort from the initial promoters. Hence, the initial founders of a project must first build some of the ecosystem for others to come and participate. In the case of the DAO, a variety of people, including the *Slock.it* team, contributed to building up the value of that ecosystem (thereby also increasing the value of the token associated with that ecosystem). Yet, following the SEC report, it appears that, if an identifiable team is marketing a potential investment to the public and the public is entrusting confidence in that team to galvanize the community, then the team's efforts will necessarily fall within the "managerial efforts" of the *Howey* test.

Enforcement action against Munchee

A few months later, on 11 December 2017, SEC Chairman Jay Clayton issued a statement on ICOs just as the SEC was taking action against Munchee for its ICO. Chairman Clayton attempted to strike a balanced message. On one hand, he said that the SEC saw ICOs as effective fundraising mechanisms and encouraged Main Street investors to be open to them. On the other hand, he warned that most ICOs (to date) would squarely qualify as securities but had not followed the necessary registration and disclosure requirements designed to protect Main Street investors. In his statement, Chairman Clayton noted that:

> *I believe that initial coin offerings—whether they represent offerings of securities or not—can be effective ways for entrepreneurs and others to raise funding, including for innovative projects. ... We at the SEC are committed to promoting capital formation. The technology on which cryptocurrencies and ICOs are based may prove to be disruptive, transformative and efficiency enhancing. I am confident that developments in fintech will help facilitate capital formation and provide promising investment opportunities for institutional and Main Street investors alike. I encourage Main Street investors to be open to these opportunities, but to ask good questions, demand clear answers and apply good common sense when doing so.*[26]

Following the SEC report, it appears that, if an identifiable team is marketing a potential investment to the public and the public is entrusting confidence in that team to galvanize the community, then the team's efforts will necessarily fall within the "managerial efforts" of the Howey *test.*

However, as both the *Munchee* enforcement order and Chairman Clayton's statement noted, simply calling a token a utility token is not sufficient to escape securities laws. Securities law analysis will take into account how the token is actually marketed, to whom the tokens are targeted, and whether purchasers of the token have a reasonable expectation of profits as a result of efforts and statements of the project promoters. As Chairman Clayton explained,

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> *[C]ertain market professionals have attempted to highlight utility characteristics of their proposed [ICOs] in an effort to claim that their proposed tokens or coins are not securities. Many of these assertions appear to elevate form over substance. Merely calling a token a "utility" token or structuring it to provide some utility does not prevent the token from being a security. Tokens and offerings that incorporate features and marketing efforts that emphasize the potential for profits based on the entrepreneurial or managerial efforts of others continue to contain the hallmarks of a security under US law.*[27]

The accompanying *Munchee* enforcement order provides color and detail. The SEC did not appear to believe that the MUN token was a true utility token, despite its being described as an "ecosystem" (the SEC put ecosystem in quotations throughout its enforcement order, signaling its skepticism of the ecosystem argument). The MUN token appeared opportunistically retrofitted to an existing app merely as a funding mechanism that would purportedly escape the regulatory requirements of the SEC. Indeed, Munchee was *not* an ecosystem as we have defined it above, since its goal was not that of building an open network of open-source tools upon which others could build applications. Instead, Munchee was purely a traditional social media-type application for food reviews, now incorporating an internal token as a payment and loyalty reward mechanism.

The SEC noted that the MUN token did not have immediate use, that it was marketed only to crypto speculators and profiteers, not to Munchee app users, and that the Munchee team used language describing how the value of MUN, as a utility token, would increase because of the demand and the efforts of the Munchee team to build the Munchee ecosystem.

The SEC provides some valuable guidance as to how tokens may be sold in a way that would be consistent with a utility token, despite the token's not being immediately usable:

The SEC provides some valuable guidance as to how tokens may be sold in a way that would be consistent with a utility token, despite the token's not being immediately usable.

> *Munchee and its agents targeted the marketing of the MUN tokens offering to people with an interest in tokens or other digital assets that have in recent years created profits for early investors in ICOs. This marketing did not use the Munchee App or otherwise specifically target current users of the Munchee App to promote how purchasing MUN tokens might let them qualify for higher tiers and bigger payments on future reviews. Nor did Munchee advertise the offering of MUN tokens in restaurant industry media to reach restaurant owners and promote how MUN tokens might let them advertise in the future. Instead, Munchee and its agents promoted the MUN token offering in forums aimed at people interested in investing in Bitcoin and other digital assets, including on BitcoinTalk.org, a message board where people discuss investing in digital assets.*[28]

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As the SEC intimates, Munchee could still have sold the MUN tokens to its existing and future customer base for *future* utility of the MUN tokens. But because the tokens were promoted exclusively to crypto investors interested in the profit-making aspect of ICOs and cryptocurrencies, the marketing effort and sales strategy undermined Munchee's argument that the token was integral to the function and internal economy of the app itself. Rather, the sales channels deployed were evidence of Munchee's true intent to sell these tokens as purely investment vehicles. In short, the MUN token was a security token dressed up as a utility token.

While the SEC noted that the MUN tokens had no immediate utility, careful reading of the enforcement letter shows that actual utility of a token is not dispositive of the securities law question either way. Selling for *future utility* to the appropriate audience using language that eschews any expectation of value appreciation may pass muster. Conversely, selling a utility token with immediate usability through sales channels and marketing language targeting investor profit expectations and value appreciation will run afoul of the *Howey* test and be viewed as a securities offering. The SEC stated:

> *Even if MUN tokens had a practical use at the time of the offering, it would not preclude the token from being a security. Determining whether a transaction involves a security does not turn on labelling—such as characterizing an ICO as involving a "utility token"—but instead requires an assessment of "the economic realities underlying a transaction."* Forman*, 421 US at 849.*[29]

The sales channels deployed were evidence of Munchee's true intent to sell these tokens as purely investment vehicles. In short, the MUN token was a security token dressed up as a utility token.

Rather than solely focusing on the utility aspect of a token, the SEC enforcement letter and Chairman Clayton's press release made clear that the marketing language and sales strategy is an important factor in the securities law analysis in determining those "economic realities." Chairman Clayton noted:

> *It is especially troubling when the promoters of these offerings emphasize the secondary market trading potential of these tokens. Prospective purchasers are being sold on the potential for tokens to increase in value—with the ability to lock in those increases by reselling the tokens on a secondary market—or to otherwise profit from the tokens based on the efforts of others. These are key hallmarks of a security and a securities offering.*[30]

Furthermore, in the Munchee enforcement letter, the SEC noted that Munchee had used language describing the economic mechanism by which the team expected the MUN token would appreciate in value. Such language, therefore, created a reasonable expectation of profit in the token purchasers. It quoted the following language that a founder had used in a podcast:

> *So [users] will create more quality content to attract more restaurants onto the platform. So the more restaurants we have, the more quality content Munchee has, the value of*

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> *the MUN token will go up—it's like an underlying incentive for users to actually contribute and actually build the community.*[31]

In addition, the SEC also noted that Munchee planned to burn tokens in order to regulate the token supply and therefore the token value.

Most economic transactions do not implicate securities laws. All economic transactions involve some assessment of value.

While we do not disagree with the ultimate decision of the SEC to cease and desist the MUN token sale, which we believe was clearly a security offering, we find somewhat puzzling the language around value appreciation that the SEC has chosen to highlight as evidence supporting a securities classification. *Most* economic transactions do not implicate securities laws. *All* economic transactions involve some assessment about value, whether the goods or services are fairly priced, and whether that good or asset will rise in value because it is currently undervalued relative to the purchasers' views of factors affecting that asset's values, and so forth.

Let's examine investing in real estate, which may include buying shares of a corporation in a cooperative structure. Real estate investments generally do not implicate securities laws. Real estate certainly has a utility value. It is a place where people live, work, play, and develop. But many people also purchase real estate in hopes of future value appreciation. In fact, for most ordinary people, their homes are their primary financial asset, from which they derive both utility (living in the home) and financial security (value appreciation). A developer may use proceeds from real estate sales to invest further in the development, thereby enhancing the value of the real estate units.

Others explicitly buy real estate as investment properties or for rental income, with clear analysis of rental pricing trends or historical housing appreciation trends as part of the sale process. Should the law forbid a real estate broker from discussing with prospective homebuyers what they believe the true "appraised" value of the home is relative to the market price, and therefore whether a particular house is a good buy that will likely increase in value because of such factors as positive demographic trends?

The greater the community participation and end-user uptake, the greater the demand for the ecosystem token, which increases its value. Describing this economic mechanism alone should not require the supervision of securities laws.

The language that the SEC has singled out in the case of *Munchee*, when applied in the context of a true ecosystem (not Munchee's), is the economic mechanism by which ecosystem tokens incentivize public contribution to a public resource: individuals contribute positively to the ecosystem because they are rewarded for doing so.

The greater the community participation and end-user uptake, the greater the demand for the ecosystem token, which increases its value, if all else remains equal. Describing this economic mechanism alone, in our view, should not require the supervision of securities laws. It is no different from a real estate agent's explaining to a prospective buyer that home values are affected by such factors as demographics, gross domestic product, crime, quality of the local school district, gentrification, and so forth. Simply describing the factors that affect value in a particular economic transaction should not categorize an ecosystem token, on its face, as a security.

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On the other hand, the public should be protected when project promoters make or endorse statements such as "199% GAINS on MUN token at ICO price! Sign up for PRE-SALE NOW!" or "Pretty much, if you get into it early enough, you'll probably most likely get a return on it" or "a $1,000 investment could create a $94,000 return."[32] *Specific* statements about profit appreciation of a particular asset should be the crux of the focus, rather than general statements describing the economic theory on how a particular asset may appreciate to align incentives.

Hampering public discussions of tokens among entrepreneurs and market participants would be harmful to analyzing, challenging, and testing these new models.

Marking all such discussions—regardless of their nature—as evidence of a securities offering will likely have the negative public policy effect of chilling relevant discussions about the inherent characteristics of a networked ecosystem. Given the nascent field of tokens and token economics, hampering public discussions by entrepreneurs and market participants would be harmful to analyzing, challenging, and testing these new theories and models.

Nonetheless, despite remaining open to ICOs and the use of tokens as a fundraising tool, the SEC appears to have narrowed its view on the securities law question. When the SEC first issued its report classifying TheDAO token as a security, many practitioners such as former SEC attorney Nick Morgan thought the SEC analysis of the *Howey* test was weakest on the last element, requiring the expectation of profits derived from the managerial efforts of others. In this area, a legal fight might possibly be won.[33] This element centered on the conclusion that the DAO, despite being a decentralized fund mechanism, was not sufficiently independent of the managerial efforts of the Slock.it team; therefore, the DAO investors were primarily passive investors relying on Slock.it to fulfill its expectations of profit.

With the latest SEC guidance in the *Munchee* enforcement letter, the last prong of the *Howey* test—whether the expectation of profits are to be derived from the entrepreneurial or managerial efforts of others—appears to be increasingly moot, especially for preproduction projects. That prong goes hand in hand with finding a reasonable expectation of profit.

Whether a utility token has immediate versus future usability is neither necessary nor sufficient to escape the securities law question.

As with the DAO report, the SEC in *Munchee* noted that Munchee highlighted the credentials of its team, creating reasonable reliance on Munchee's promise to alter the app and foster a valuable "ecosystem" of food reviewers and restaurants that use MUN tokens as loyalty rewards. As such, the expectation of profit would depend on Munchee's ability to create that "ecosystem" and to manage the token supply by burning tokens, thereby increasing their value.[34]

Distilling the latest guidance, what becomes clear is that a utility token is a necessary but *insufficient condition* to escape SEC jurisdiction. Whether a utility token has immediate versus future usability is neither necessary nor sufficient to escape the securities law question. We purposefully use the word *usability* here to distinguish between "theoretical utility" and "actual functionality." A utility token is functional by design, whereas its immediate

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usability in a platform or network is a function of how far along the development process is.

Usability of a token, as the SEC has stated, is not dispositive of (i.e., does not settle) the securities law question. Rather, how a token is marketed and sold, including the customer channels, may suffice in determining the application of securities law, including whether a token is truly a utility token. For example, marketing language and strategies that would create a purchaser's reasonable expectation of profit are sufficient to bring a token offering within the bounds of securities regulations, irrespective of the token's utility with immediate usability.

How a token is marketed and sold, including the customer channels, may suffice in determining the application of securities law, including whether a token is truly a utility token.

From an advocacy perspective, we would argue to the SEC or to a judge (i.e., judicial review of SEC administrative lawmaking) that the marketing and sales strategies of a token sale are important (and perhaps decisive) *indicia* of whether a token is truly a utility token or a security masquerading as one. Nonetheless, we believe that the marketing analysis alone is not an element or requirement of the securities law analysis under the *Howey* test.

Recontextualizing *Howey* in light of ecosystem tokens and app coins

Step 1: Functional analysis of the token

Because of the latest SEC guidance, and respecting the adage of "substance over form," we reiterate our view that the securities law analysis of a token must start with a functional analysis:

- What is the nature of the project or the application being built?
- What is the economic design and rationale for the token?
- Are there compelling reasons for the token's existence and design?
- Is fundraising the token's primary function?

Yet, we believe that, to determine whether a token will qualify as a security, we must also look at the type of platform to which the token belongs.

- Is this platform an open-source ecosystem or network that enables many businesses and use cases to be built around it, where the token represents an essential feature and economic mechanism to coordinate and develop shared open-source resources?
- Or is it one particular business application or Dapp, with the token's serving as an internal economic mechanism (e.g., loyalty points) that is not intrinsically connected with the inner operations of the platform, but is being used merely in lieu of traditional membership fees, revenues, or transaction fees?

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Such a distinction between ecosystem tokens and Dapp tokens (or app coins) is useful in determining the extent to which, when assessing the future profitability of the tokens, investors considered the "effort of others" as one significant criterion of analysis. With a Dapp, there is no fundamental economic need for investors to be involved in development and operations. Investors play a rather passive role, mostly relying on the efforts of the Dapp team to develop, maintain, and promote the system.

In an ecosystem, tokens play a function intrinsic to the operation of the underlying blockchain-based platform. Hence, these tokens will always have a utility, as they are used to solve the "tragedy of the commons" related to the overexploitation or underutilization of common resources. Moreover, because the value of these tokens is inherently connected with the value of the ecosystem, their value will increase as more stakeholders participate or contribute to the ecosystem.

In this context, the token appreciation also depends on the "effort of others," but "others" refers here to a much wider community of stakeholders, including the investors, who all contribute to furthering the ecosystem in such different ways as contributing to the open-source code, promoting the platform, developing the community, or even creating or developing other Dapps on top of that ecosystem.

We think it useful to recontextualize the applicability of the Howey *test depending on the type of tokens under assessment.*

In light of this, we think it useful to recontextualize the applicability of the *Howey* test depending on the type of tokens under assessment. When the *Howey* test was established in 1946, it could not anticipate the existence of open-source projects, let alone blockchain-based ecosystems. We should be mindful of that when applying the test to an entirely new context. In particular, we argue that the fourth item of the *Howey* test, concerning the "effort of others," should be interpreted differently according to whether the test is being applied to an open ecosystem or to the private profit center of a Dapp.

Indeed, an open and decentralized ecosystem will always rely on the "effort of others," because the ecosystem is built through the contributions of all actors in that ecosystem. We argue that in the Web 3.0 context, the last element of the *Howey* test should be interpreted as *significant* or *material permanent* reliance on the efforts of others—where "others" refers to an identifiable management team or organizational body without which the ecosystem would no longer and could no longer effectively operate. Thus, we may need a "fragmentation" or "granularity" test to determine whether the fourth prong of the *Howey* test is indeed satisfied:

- Is there a group of community members that is significantly more involved than others and produces the lion's share of effort?
- Will the removal of that team from the community jeopardize the whole project?

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If the answers to both of these questions are positive, there likely exists a standard core "management" team whose activities are crucial to the success of the system. Yet, the same is not true if the efforts of a small team remain "atomic" relative to the rest of the community. That a particular group is influential and core to the community should not be the dispositive factor; rather, the question should be whether the project's survival or success fundamentally depends on the operations of this group over a long period.

Accordingly, token sales intended to raise funds for the development of an ecosystem—what we might refer to as an *ecosystem coin offering* (ECO)—should not necessarily be subject to securities laws because of the efforts of others or the mere possibility of token value appreciation, unless other reasons justify the application of the *Howey* test.

Only a few projects will likely qualify as true ecosystems like Bitcoin or Ethereum, and most projects will simply remain in gray areas of the law.

Of course, we are not saying that an ecosystem token will never be regarded as an investment security. Some behaviors might trigger the security flag, such as the blatant marketing of the investment value of the token by a core and identifiable team, as with Slock.it's marketing of the DAO.

Ultimately, the SEC will have to rely on the "smell test": does it smell like a security offering? It is a "totality of the circumstances" type of analysis. No one particular feature, in isolation, will likely sway the analysis. Ultimately, only a few projects will likely qualify as true ecosystems like Bitcoin or Ethereum, and most projects will simply remain in gray areas of the law.[35]

Step 2: Marketing and timing of a token sale

A true utility token, as we have argued, is always a utility token by design, irrespective of its usability at any point in the development of the underlying protocol. Utility is a necessary but insufficient condition to fall outside securities law. As the SEC has clarified, the securities law question depends not simply on the usability of a token, but also on its marketing:

Claiming that a token is not a security is easier when selling it to a potential customer or user base than to a purely investor base, because customers will be able to use the token on a running network.

- To whom, how, and when is the entity selling its tokens?
- Did marketing language give purchasers a reasonable expectation of profit?

The timing of the token sale relative to the development of the project has critical implications, since it affects the marketing and sales strategy, as well as the degree to which potential purchasers rely on the efforts of others to make profits. Claiming that a token is not a security is easier when selling it to a potential customer or user base than to a purely investor base, because customers will be able to use the token on a running network.

So far, projects have been using ICOs only to raise funds at preproduction phases; that's why this usage has been the scope of

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the SEC's analysis. In preproduction phases, the difference between an ecosystem token and an app coin is theoretical: in practice, both an ecosystem and Dapp project are likely to be nascent, with small managerial teams controlling and writing a limited codebase. Therefore, ecosystem tokens are at risk of classification as securities, given the practical difficulties of selling to future customers and users before there is a ready platform.

For the regulator not versed in parsing technical white papers, there will be little difference between an ecosystem and a Dapp.

For the regulator not versed in parsing technical white papers, there will be little difference between an ecosystem and a Dapp; most of the analysis will focus on the mechanism of sale the promises made, and whether such practices and promises warrant action from the SEC to protect the public. The SEC is mandated to consider this important public policy point: a token purchaser has significantly greater risk without the protections that securities laws offer an investor in more traditional financing.

For these early-stage projects, the SEC found that token purchasers relied significantly on the managerial efforts of the project promoters. The SEC has not been moved by the argument that token purchasers had to put in their efforts to increase the value of the token (as was the case of the DAO). In early-stage projects, arguing against the applicability of the fourth prong of the *Howey* test ("the effort of others") will be difficult because it could always be argued that purchasers predominantly rely on the efforts of the project promoters to seed the ecosystem and galvanize the community.

Therefore, interesting questions remain for ecosystem projects that are much further along when they seek funding through a public token sale. For example:

- What facts and circumstances will change the analysis of whether purchasers relied on the managerial efforts of others?
- Will it be relevant to the SEC if
  - Forking the code becomes a real possibility or has already happened?
  - Anyone can join as a node validator or miner?
  - The public is actively using, adapting, and consuming open-source code and building on top of the ecosystem without any kind of centralized control?
  - The voting and governance mechanism is robust enough to overcome the criticism the SEC noted in its DAO report?

As before, the analysis will come down to a smell test and whether public policy warrants the SEC to take action against an offering. If the overall smell of the offering is that of a security, as in the case with the DAO, then the SEC may deem the purchasers' efforts insufficient to overcome the reliance on the managerial efforts of the promoters.

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Legal fictions and creative structuring: A review of practical solutions

In this section, we review and assess various legal solutions that projects have deployed to anticipate various regulatory issues, including the Swiss nonprofit foundation model, the SAFT, convertible notes, and securities registration exemptions.

The Swiss foundation model was first used to manage the proceeds of initial crowdfunding transactions aimed at funding the development of new blockchain-based networks or applications.

The foundation model

The Swiss environment and its regulatory facilities appeared attractive for establishing new blockchain ventures. The Swiss foundation model, in particular, was first used to manage the proceeds of initial crowdfunding transactions aimed at funding the development of new blockchain-based networks or applications. In 2014, Ethereum was the first blockchain project to establish its foundation (*Stiftung Ethereum*) in the Swiss canton of Zug. Soon followed by other blockchain-based projects, the Ethereum Foundation laid the cornerstone of "Crypto Valley," self-described as "one of the world's leading blockchain and cryptographic technology ecosystems."[36]

Until mid-2017, Zug was the jurisdiction of choice, and the Swiss foundation (Stiftung) the organizational structure of choice, for crypto projects looking to fundraise in a (hopefully) legally compliant manner. Zug was attractive for its low cantonal taxes and business-friendly reputation. The Swiss organizational structure would frame fundraising as donations to a foundation, the mission of which was that of an open-source software foundation in the vein of the Linux and Mozilla Foundations, both based in California with tax-exempt status.[37] To our knowledge, none of these Swiss foundations has received actual tax-exempt status to date, which would enable donations to be tax-deductible in Switzerland.

The idea was, if the funds raised were framed as charitable donations (despite the lack of legally recognized charitable status) rather than investments, then they would not be in violation of securities laws globally. Yet, given the requirements of the *Howey* test and the long-arm jurisdiction of US regulators such as the SEC, Swiss lawyers recommended blocking US persons and US IP addresses from participating in ICOs as an extra precaution.

Furthermore, because the Swiss foundation was strictly regulated with a purpose that could not be changed without approval from the Swiss Federal Foundation Supervisory Authority (*Die Eidgenössische Stiftungsaufsicht* [ESA])—the federal regulatory body overseeing charitable foundations in Switzerland—it was argued that the Swiss foundation was actually a good governance structure to oversee the use of funds to develop blockchain projects. As defined in the Swiss Civil Code, Swiss foundations are "established by the endowment of assets for a particular purpose."[38] For instance, the official purpose of the Ethereum Foundation is:

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> *to promote and support Ethereum platform and base layer research, development and education to bring decentralized protocols and tools to the world that empower developers to produce next generation decentralized applications (Dapps), and together build a more globally accessible, more free, and more trustworthy Internet.*[39]

According to our discussions with several law firms in Switzerland, FINMA is now requiring all projects to receive a no-action letter prior to public fundraising.

Subsequent crypto foundations have been using similar language in describing their official and legal purpose.

However, as increasingly large sums of funding came through the Swiss foundations, regulators and politicians in Switzerland have increased their scrutiny. Swiss foundations were originally meant to function more like family trusts or endowments, rather than global fundraising instruments or cutting-edge technology projects. According to our discussions with several law firms in Switzerland, FINMA (the Swiss Financial Market Supervisory Authority, which is equivalent to the SEC but has a broader mandate including commodities and banking) is now requiring all projects to receive a no-action letter prior to public fundraising.

FINMA's primary concern is that the sale of tokens constitutes public deposit-taking, which would thereby require the organization conducting the sale to have a banking license. Furthermore, token sale contributions greater than 500 Swiss francs will need full know your customer (KYC) video verification and be subject to full ongoing anti-money laundering (AML) obligations (e.g. filing *suspicious activity reports* or "SARs").[40]

FINMA recently released specific guidelines describing how it intends to apply financial market regulations to ICOs. The guidelines distinguish among

- Payment tokens that are not treated as securities but must comply with AML regulations
- Utility tokens that provide access to a particular application or service and would not qualify as securities to the extent that they are already functional at the point of issue, provided that they have no additional features with an investment purpose;
- Asset tokens that represent participations in physical assets, companies, or other revenue streams and that would clearly qualify as securities under Swiss law.

Questions of fact remain as to how functional a token must be to draw the line between a security token and a utility token.

In theory, this is legally distinct from the SEC's approach—where actual utility is not necessarily dispositive. Yet in practice, we expect both approaches to converge, as utility tokens with investment features will qualify as securities according to both the SEC and the FINMA. Besides, under both regimes, utility tokens sold before they are actually "functional" will likely be held as securities with investment purposes. Questions of fact remain as to how functional a token must be to draw the line between a security token and a utility token—that is, how much actual utility is sufficient for a token to qualify as a utility token?

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In addition, cantonal authorities in Zug are also concerned that, while hundreds of millions of Swiss francs have been technically raised in Zug, the canton of Zug has hardly seen any benefit, as most of these proceeds have been subject to very little tax. At the same time, very few jobs have been created in the area (although it has been a boon to lawyers and consultants), bringing in technical expertise and developing a true ecosystem of knowledge and talent. Most of these foundations have a foundation council, as required by law, with a statutory local Swiss resident council member, usually a professional council member, to satisfy their local presence requirements. The core teams of these projects remain located elsewhere outside of Switzerland. Swiss authorities will likely also scrutinize local presence requirements and tax treatments.

As a result of the change in regulatory landscape, it has become increasingly difficult for a crypto foundation (or any other legal structure) to open bank accounts in Switzerland, as compliance departments in banks may take a more conservative approach than regulators. Many have stopped taking on crypto clients altogether.

As other jurisdictions globally compete for business, the attractiveness of the Swiss foundation model remains to be seen in 2018. Many jurisdictions are now working on reforming their own regulatory frameworks to accommodate blockchain-based projects and token sales.

The SAFT model: Simple agreement for future tokens

The *simple-agreement-for-future-tokens* (SAFT) model, popularized by Filecoin and the Cooley law firm, is an investment contract that limits participation to "accredited investors" to benefit from a SEC exemption (Regulation D or "Reg D" for short). While the SAFT qualifies as a security and is targeted only toward accredited investors, it provides investors with the right to a particular number of tokens as soon as the relevant platform is up and running.

The SAFT model is based on the idea that, before a platform is built, utility tokens issued through an ICO might qualify as a security despite their future utility.

The SAFT model is based on the idea that, before a platform is built, utility tokens issued through an ICO might qualify as a security despite their future utility. Only after the platform is operative will these utility tokens actually acquire the necessary usability to no longer qualify as a security. Consider the Ethereum crowdsale: when ether was sold in 2014, before the Ethereum network was even built, these tokens had no usability and thus probably qualified as a security. Today, however, these tokens definitely have acquired a tangible utility because their holders can use them to pay for transactions on the Ethereum network.

To reduce the securities law risk of selling the tokens prior to the platform's operability, the SAFT model creates a two-step process:

» The first is the issuance of an investment contract to accredited investors who can bear the risk of the project's potential failure.

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» The second is the issuance of utility tokens (once the platform is operative) to these early investors who will then be able to sell these tokens on a secondary market to those eager to use the platform.

More precisely, the SAFT white paper states:

> *The SAFT is an investment contract. A SAFT transaction contemplates an initial sale of a SAFT by developers to accredited investors. The SAFT obligates investors to immediately fund the developers. In exchange, the developers use the funds to develop genuinely functional network, with genuinely functional utility tokens, and then deliver those tokens to the investors once functional. The investors may then resell the tokens to the public, presumably for a profit, and so may the developers.*
>
> *The SAFT is a security. It demands compliance with the securities laws. The resulting tokens, however, are already functional, and need not be securities under the* Howey *test. They are consumptive products and, as such, demand compliance with state and federal consumer protection laws.*
>
> *To be sure, public purchasers may still be profit-motivated when they buy a post-SAFT utility token. Unlike a pre-functional token, though, whose market value is determined predominantly by the efforts of the sellers in imbuing the tokens with functionality, a genuinely functional token's value is determined by a variety of market factors, the aggregate impact of which likely predominates the "efforts of others." Sellers of already functional tokens have likely already expended the "essential" managerial efforts that might otherwise satisfy the* Howey *test.*[41]

Given the latest guidance from the SEC and our analysis above, we take the position that the SAFT model is wholly untenable.

Given the latest guidance from the SEC and our analysis above, we take the position that the SAFT model is wholly untenable. The SAFT model requires two conditions to be true:

» The SEC will recognize a legal distinction between the investment contract to pre-sell the tokens and the public sale or issuance of tokens at a later date.

» Tokens will indeed be considered non-securities utility tokens or commodities because of their actual usability.

We have already analyzed that the second condition is untrue, based on the *Munchee* enforcement letter. This alone is sufficient to render the SAFT moot, as both conditions must be true for the SAFT to work.

Given the SEC's primary emphasis on evaluating the "economic realities of the transaction" rather than the form of a transaction, the SEC will very likely agree with the Cardozo Blockchain Project's analysis that, by declaring the SAFT itself a security (hence, subject

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to Reg D exemption), the entire transaction (including the object of such transaction, i.e., the utility tokens) is a securities transaction with an expectation of profit. The Cardozo report noted:

> *Artificially dividing the overall investment scheme into multiple events does not change the fact that accredited investors purchase tokens (albeit through SAFTs) for investment purposes, and likely will not prevent a court from considering these realities when assessing whether these tokens are securities.*[42]

Accordingly, to the extent that these tokens had been marketed as an investment vehicle at the time of contracting the SAFT, they are and will remain a security even if they subsequently acquire an effective utility within an ecosystem or a Dapp.

Furthermore, from a public policy perspective, the SEC is wary of presale pricing structures that give significant discounts to early investors, as is often the case with SAFTs, because these early investors have incentive to flip their tokens to the public for an immediate return. This incentive undermines the argument that the SEC would recognize a legal distinction between the sale contract and the eventual issuance of a utility token.

Even if the token had immediate usability, the SAFT contract would incentivize flipping the tokens in a manner consistent with securities trading and speculation, to the detriment of public buyers—irrespective of whether the public was buying these tokens for their utility. In fact, the injury would be much worse and the public policy concerns greater if the public was purchasing tokens based on utility considerations and was negatively impacted by the speculative trading of these tokens.

Moreover, once an issuer has filed for an exemption, as a matter of law, it has declared the instrument a security. The SAFT model is particularly problematic because it requires issuers to file with the SEC under Rule 506(b) or 506(c) of Reg D. This exemption was designed to reduce the burden of security issuance by providing general exemptions from registration requirements—with the caveat that securities filed under Reg D can only be sold to accredited investors.

Once a security, always a security: even if these tokens eventually acquire usability, they will remain subject to trading restrictions.

If the artificial separation between the SAFT and the tokens sold through the SAFT is not recognized as a legitimate one, and if these tokens qualify themselves as securities, then tokens sold through a SAFT contract will be treated permanently as an exempted security with all attendant restrictions. In other words, *once a security, always a security*: even if these tokens eventually acquire usability, they will remain subject to trading restrictions. Only accredited investors will be able to trade them, despite their actual utility within a particular platform.

Hence, true utility tokens cannot be exempt securities tradeable only among other accredited investors, because only accredited investors

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would be able to use the underlying network. That would defeat the purpose of these tokens.

A variation on the theme of the SAFT is the *simple agreement for future tokens or equity* (SAFTE) introduced by the blockchain start-up Colony. Instead of relying on the SAFT elaborated by Cooley, the Colony team drafted an agreement that gave investors equity, should there be no ICO.[43] Like the SAFT, the SAFTE is also based on Y Combinator's SAFE (discount, no cap), which is a *simple agreement for future equity* "with a negotiated discount rate ... off the price per share of the standard preferred stock ... applied to the conversion of the SAFE into shares of SAFE preferred stock."[44] Colony's SAFTE stipulated that the funds raised from early investors could be converted either into equity (at a particular discount) at the first liquidity event or into tokens (at the same discount) at the token generation event—whichever came first.

Although it adds an equity fallback option, should an ICO not occur, the SAFTE is fundamentally no different from the SAFT in form and substance: it shares the fundamental securities law problem around the presale of tokens. As with a SAFT, issuers pre-sell tokens classified as a security through the Reg D exemption. Expecting the SEC to accept a legal distinction between an investment contract that pre-sells the tokens and *the sale of the actual tokens* once they have acquired "utility" requires the same leap in logic.

Investors taking equity as an acceptable alternative to receiving tokens may constitute evidence that the investors view the tokens as an investment instrument equivalent to equity, a classic security. Hence, the economic realities of the token sale are in fact that of a securities offering, irrespective of whether the token has actual utility.

We could imagine convertible loans where conversion is voluntary and offers investors not only equity or token conversion alternatives, but also a third possibility: redemption and accrued interests in such a qualifying event as a successful token issuance.[45] However, this type of product—where entities acquire tokens through convertibility of an existing financial instrument—would likely entail the same regulatory risks as the SAFT and SAFTE. In other words, a strict interpretation of "once a security, always a security" could still apply.

Investors taking equity as an acceptable alternative to receiving tokens may constitute evidence that the investors view the tokens as an investment instrument equivalent to equity, a classic security.

Securities registration exemptions

Section 5 of the Securities Act of 1933 requires any offer or sale of securities to be registered with the SEC or meet an exemption requirement. Numerous exemptions are available, primarily under Reg D Rule 506, which provides two distinct exemptions: 506(b) and 506(c). Both these exemptions enable an issuer to raise an unlimited amount of money primarily from accredited investors, who satisfy either of these conditions:

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- Annual income of $200,000 in each of the two prior years
- Net worth of at least $1 million, excluding the value of the person's primary residence.

Under 506(b), issuers may not advertise the offering publicly but can sell to up to 35 non-accredited investors, and given reasonable belief, may rely on the investor's self-accreditation. Under 506(c), issuers may advertise publicly but only to accredited investors, and the burden of proving accredited status falls upon the issuer.[46]

The SAFT model in particular has encouraged filing under the 506(c) exemption, as it would enable crowdfunding to accredited investors. Traditional financings that have availed themselves of the Reg D exemptions have chosen 506(b). Rule 506(c) is a more recent addition under the JOBs Act in response to the rise of crowdfunding platforms, enabling general solicitation for investors through the Internet, social media, and advertisements.[47] Up until now, uptake of 506(c) has remained slow, primarily because of legal uncertainty around the burden of verification of accredited status, such as review and verification of financial filings, although third-party services have emerged to verify status.

To our knowledge, to date there have been no ICOs issued under Reg A+.

Securities issued pursuant to Reg D are restricted securities: the default rule of securities offerings is that they must be registered. Reg D exemptions are privy only to the issuer, not to a reseller. Resellers typically would be considered underwriters, requiring licensing. Rule 144, "Selling Restricted and Control Securities," provides a safe-harbor exemption for the resale of restricted securities on a public market without being an underwriter.[48]

Under Rule 144, a non-reporting company would need to hold a Reg D restricted security typical of ICOs for at least one year. Certain information about the private company should be available publicly, including the nature of its business, the identity of its officers and directors, and its financial statements. The primary obligation for complying with Rule 144 or seeking other exemptions for reselling falls on the reseller of restricted securities; however, the SEC expects issuers to establish adequate internal controls to prevent breach of federal securities laws by their officers, directors, and employees.

Moreover, any company with more than 500 non-accredited shareholders or 2,000 total shareholders will be deemed a full "reporting company" under the Securities Exchange Act of 1934, effectively a public company with all attendant disclosure and reporting obligations.

The reporting company obligation under the Exchange Act also limits the attractiveness of crowdsales under Regulation A+, "Amendments for Small and Additional Issues Exemptions under the Securities Act (Regulation A)," which enables issuers to solicit the public without limitation to accredited investors.[49] Furthermore, Reg A+ requires disclosure documents and financial statements that must be approved by the SEC. To our knowledge, to date there have been no ICOs issued under Reg A+.[50]

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We believe that, as most ICOs are for Dapps, the increasing practice will be to issue ICOs as security tokens using the various exemptions, particularly under Rule 506(c), which allows for public solicitation, but of accredited investors only. Like Reg A+, Rule 506(c) would be subject to the 2,000-shareholder threshold before being deemed a full reporting company.

However, in theory, a Rule 506(c) offering would raise more funds than a Reg A+ because there are no limitations on the offering size (up to $50 million under Reg A+ Tier II, and up to $25 million under Reg A+ Tier I) and no investment limits. (Under Reg A+ Tier I, there are no investment limits. Under Reg A+ Tier II, investors can invest a maximum of the greater of 10% of their net worth or 10% of their net income, which may be self-reported).

We predict market adoption of blockchain-based decentralized alternative trading platforms that enable peer-to-peer exchanges of security tokens with transactions recorded to a distributed ledger.

These security tokens will require specialized trading systems, including regulated exchanges and *alternative trading systems* (ATSs) that are non-exchange trading venues that match buy and sell orders. The SEC regulates ATSs under Regulation ATS, as broker-dealers rather than as exchanges, with fewer regulatory requirements compared to exchanges. We predict market adoption of blockchain-based decentralized alternative trading platforms that enable peer-to-peer exchanges of security tokens with transactions recorded to a distributed ledger.

Security tokens and ATSs may leverage smart contracts to encode automatic enforcement of Rule 144 and other reselling exemptions (e.g., an automatic one-year lock period). The equivalent term for an ATS under European regulation is a *multilateral trading facility* (MTF).

Creative solutions moving forward

All token issuers, especially at the early stage of development, will need to consider their sales, marketing, and token design approaches very carefully. Those launching Dapps, in particular, will need to identify how to frame their token sales to raise funds without running afoul of securities laws.

We present here a series of solutions that might reduce the likelihood of tokens qualifying as securities. While token issuers have no control over the motivations of token buyers, they can intervene on a series of technical, contractual, or practical grounds, to discourage buyers from engaging in pure speculation.

Sell only to strategic partners or potential platform users

The marketing of a token is a determining factor in the SEC's assessment of whether the token qualifies as a security. Hence, the audience to which the issuer markets the token will likely have a

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significant weight in the legal analysis. Selling tokens for their utility value to those who want to use them in an ecosystem or marketing them as investment vehicles to those who want to profit from their appreciation could ultimately affect the legal qualification of these tokens.

An issuer could make a case for selling utility tokens legitimately before the launch of the platform, provided that the sale targets its users and customers.

Following the SEC reasoning in *Munchee*, an issuer could make a case for selling utility tokens legitimately before the launch of the platform, provided that the sale targets its users and customers. The marketing language to these stakeholders and future customers should describe the utility of the platform rather than the value appreciation of the token.

For ICOs launched at the preproduction phase, token issuers could form partnerships with key stakeholders or future users of the platform for pilot funding in exchange for tokens. The result would be a financing model in the form of a service contract that does not appear to go against securities laws but develops go-to-market pilots that demonstrate the viability of the project.

At the same time, if a platform uses utility tokens as an internal coordinating mechanism, then we could argue that these tokens should not even be visible to end users. For retail users, we could argue that the tokens should be completely invisible, just as card payment networks are invisible to a card user.

Good user-experience design would have end users purchase access to a service using fiat currency, and the platform would then convert the fiat into the native tokens behind the scenes—that is, end users would not need to know or understand that there was a utility token in the backend. That's why many of the Dapp token sales seem forced; the token appears only to complicate the user experience without adding functionality besides raising funds.

Aside from legal considerations, from a business and ecosystem development perspective, institutional or bulk token sales to institutional and strategic partners and to large and repeat users of the platform would make more sense than selling tokens on a one-off retail basis. Institutional or bulk sales of ecosystem tokens to Dapp developers would also make sense.

To avoid tokens qualifying as a security, token issuers should not promise to undertake any efforts related to establishing a secondary market for these tokens or to engage, support, or promote the establishment thereof.

Discourage the establishment of a secondary market

To avoid tokens qualifying as a security, token issuers should not promise to undertake any efforts related to establishing a secondary market for these tokens or to engage, support, or promote the establishment thereof. As Chairman Clayton stated, establishing a secondary market constitutes one of the "hallmarks of a security and a securities offering."[51]

Of course, even if token issuers do not actually participate in creating secondary markets for their tokens, someone else might. To avoid the risk of investors purchasing tokens solely for speculation, token

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issuers can intervene technically by preventing, for example, the transferability of the tokens issued through an ICO. If a token is not transferable, then few will likely purchase it with expectations of profit—thereby failing the *Howey* test—and the token will not qualify as a "transferable security" under EU law.[52]

Without liquidity through secondary markets, attracting node validators to a new network will be difficult, since tokens compensate for their maintaining network infrastructure.

Actual or future users of the platform will purchase tokens merely because of their utility value, not because of the potential profits they might derive by reselling them later. A non-transferable token would also reduce regulatory concerns around banking and money transfer laws, including ongoing AML/KYC obligations, as regulated by Financial Crimes Enforcement Network (FinCEN) under the US Department of Treasury.[53]

This approach, however, is unlikely to be popular and actually applied in practice, especially in the context of real ecosystem tokens such as the native cryptocurrencies of many blockchain-based networks. As we discussed, without liquidity through secondary markets, attracting node validators to a new network will be difficult, as the tokens compensate for their time and resources to maintaining network infrastructure.

A less drastic alternative would be to limit token transferability for a period (e.g., one year), which would be required under Rule 144 safe harbor to resell restricted Reg D securities. While such a time restriction would not necessarily disqualify these tokens as securities, it could nonetheless reduce the speculative dynamics inherent in the trading of these tokens and align the interests of the token holders with those of the project or ecosystem.

Cap the token price or use token bounding mechanisms

To counteract speculative dynamics, token issuers can set up a continuous ICO so that, at any point in time, people can purchase tokens through the ICO smart contract at a particular price (upper cap).

Even if issuers decide not to prevent transferability of tokens issued through an ICO, they can still avoid excessive speculation by introducing an upper cap on token price. Indeed, if there is a secondary market, there is a risk that the price of the tokens will rise to a point at which accessing or using the platform becomes extremely expensive. Depending on the actual or potential appreciation of the tokens' value, people might decide to hoard them or resell them at a higher price rather than spending them on the platform. It is a self-defeating model: speculation on the value of a utility token actually reduces the usability of its associated platform.

One critical element of utility token design is its price stability, because prices of services and goods should be stable, unlike profit-bearing or speculative instruments. To counteract speculative dynamics, token issuers can set up a continuous ICO so that, at any point in time, people can purchase tokens through the ICO smart contract at a particular price (upper cap).

Whenever the market price of the token exceeds the upper cap, people will stop purchasing tokens on the market and will instead

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purchase them directly from the ICO smart contract at the cap price. As people buy tokens through the ICO smart contract and increase supply in the market, the market price will drop. Only when the market price falls below the upper cap will people buy these tokens on the market again.

"A constant ceiling removes all reasonable expectation of return that token purchasers may otherwise have. Any low-enough ceiling can prevent 'pumps-and-dumps' from pumping."

VLAD ZAMFIR
Ethereum developer

Ethereum researcher Vlad Zamfir discussed token bounding mechanisms that implement a price floor and price ceiling, whereby—contrary to the Bitcoin economics of fixed supply—the token supply may fluctuate to keep within price boundaries. As Zamfir noted, "A constant ceiling removes all reasonable expectation of return that token purchasers may otherwise have. Any low-enough ceiling can prevent 'pumps-and-dumps' from pumping."[54]

Token designers can tailor price-control mechanisms to meet desired objectives. For instance, a perpetual ceiling mechanism could adjust annually for inflation or other relevant metrics. In the crypto world, such metrics as gas costs for running Ethereum smart contracts may be better suited for anchoring a pegging mechanism than some broad-based economic definition of inflation.

The perpetual enforcement of a periodically-adjusted ceiling should be (theoretically) easy to do, since it requires automatically issuing new tokens at the ceiling price whenever there is demand. However, guaranteeing a floor level may not be possible in all circumstances. As Zamfir noted, "[T]he sale administrator can't raise the floor price if doing so would make it unable to purchase all of the tokens at the floor price."[55]

Even if a significant portion of the ICO proceeds was deposited in the ICO smart contract so that people could redeem tokens at the floor price, this reserve would have limited capacity; once it was used, the ecosystem would lack funds for development, and the token price would plummet on the secondary market. The point here is not to support a floor price, but to ensure price stability: speculative gain in token value that is decoupled from utility demand reduces the incentive for real projects to use the protocol for its intended purpose.

The point here is not to support a floor price, but to ensure price stability.

By skewing downward the distribution of expected returns (since a price ceiling could be fully guaranteed, but not always a floor price), such a control mechanism should send a positive signal regarding the token buyers' genuine intention: they would be investing because they really supported the development of such a platform and believed that such platforms were necessary "infrastructural" investments to build out the token economy as whole (e.g., Dapps and security tokens).

As the token market matures, ecosystem tokens will become anchor tokens that investors hold in their portfolios of tokens to diversify risk as they would use fiat currencies or closely related instruments, such as government bonds, to reduce beta risk in more traditional portfolios.

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Thus far, token bounding design remains legally untested. In the SEC's view, will the introduction of a price floor, which could potentially sustain the token price above a certain level, engender expectations of profit? Will the introduction of a price ceiling be enough to remove any profit expectation?

In the *Munchee* case, the SEC considered the team's promise to burn tokens as a way to increase token value germane to the profit expectation analysis. The SEC found this language under "Token Burning Plan" in the Munchee white paper relevant:

> *Munchee could potentially choose to [sic] burn (take out of circulation) a small fraction of MUN tokens everytime [sic] a restaurant pays Munchee as [sic] advertising fee. This ... could potentially increase the appreciation of the remaining MUN tokens as the total supply in circulation reduces ... .* [56]

Would the SEC's analysis have differed, had Munchee framed the token burning as downside risk mitigation rather than as value appreciation, to stabilize the token price for better functionality within the app rather than purely as a price-supporting mechanism no different from stock buybacks?

To limit the reasonable expectation of profit, we can imagine token designs with various price-ceiling mechanisms.

To limit the reasonable expectation of profit, we can imagine token designs with various price-ceiling mechanisms. However, as with all things in this evolving space, the analysis will come down to facts and circumstances. The SEC may consider such questions as

- How tight is the price ceiling, and what are its drivers?
- Are the mechanisms truly deployed for price stability or for price appreciation?
- What enhanced functionality will token price stability provide in the platform?

Ultimately, the SEC will likely take a holistic approach to assessing the economics of token transactions—the smell test—to determine case by case whether a token qualifies as a security.

The necessity of price-stabilizing functions for true ecosystem tokens and the unclear position of the SEC on the subject highlight this inherent ontological problem: true ecosystem tokens are not quite classical securities, but function similarly to currencies. In fact, fiat currencies move resources and facilitate transactions within economic ecosystems that, much like Web 3.0 network ecosystems, have multiple profit centers sharing common infrastructure.

Separate fundraising from token ecosystem governance

We return to our initial theme that there is an inherent tension in using an ecosystem token—meant to coordinate common resources—as a means of private fundraising. While there is merit to a true

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ecosystem token sold to core ecosystem stakeholders for maintaining and developing common resources, in early-stage fundraising, distinguishing between the development of a networked ecosystem and the deployment of a Dapp operating on top of that ecosystem might be difficult. In other words, the difference between funding a profit-capturing enterprise operating on public rails and funding the underlying public rails is often theoretical and unclear.

As a practical matter, these ecosystem projects will likely need a separate, arms-length, private enterprise for fundraising purposes that gives investors classical debt or equity financing instruments. This model would be analogous to what is generally found in the open-source ecosystem, which features a variety of nonprofit software foundations (e.g., the Linux Foundation), and for-profit companies commercializing particular products or services related to open-source software (e.g., the Red Hat company that distributes and commercializes an operative system leveraging the Linux kernel).

For ecosystem projects, funding from the private enterprise could be used to initially build the ecosystem infrastructure in exchange for tokens from a nonprofit organization that would be the steward of the open-source ecosystem. The exchange for tokens in this case would be a simple services agreement (e.g., tokens as compensation for open-source IP development), which would not run afoul of any securities law regulations. The private enterprise could focus on a particular vertical or business application of the ecosystem, or be a for-profit incubator for other Dapps in the ecosystem—thereby kick-starting the ecosystem development. The for-profit private enterprise may well be a social enterprise, electing to be a benefit corporation and/or be B-Corp certified.

From a pragmatic perspective, the private enterprise could have access to a wide variety of investors, including crypto investors, but also more traditional professional investors whose funds do not have the legal mandate to accept tokens in lieu of equity. However, these traditional investors would get indirect exposure to tokens through the balance sheet of the private enterprise. In effect, the value of the ecosystem tokens represents the value of the private enterprise's contribution toward the open-source IP. Unlike traditional proprietary IP, which is often a start-up's core asset, the ecosystem tokens sitting on the balance sheet would, in theory, be marked to market with far greater liquidity and tradability, should a secondary market for them develop.

As a practical matter, these ecosystem projects will likely need a separate, arms-length, private enterprise for fundraising purposes that gives investors classical debt or equity financing instruments.

Eventually, such new creative financing instruments may emerge as

- Convertible notes typical of seed stage financing pre-valuation that may be extinguished with tokens rather than equity
- Equity interests that may be convertible to tokens
- Preferred interests that are redeemable for cash upon an ICO.

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Through smart contracts, dynamic ledgers, and decentralized trading platforms and exchanges, it will become easier to manage perhaps more complex but also more dynamic capital structures that combine debt, equity, and tokens.

Conclusion

ICOs are changing the fundraising landscape, but at a different level than most people seem to think today. While currently a large majority of ICOs have been done at the preproduction phase (i.e., at the seed level), we argue that it is very difficult—both for an ecosystem token and for an app coin—to avoid securities laws and regulations if a token is sold before its associated blockchain-based platform or decentralized application is built.

An ecosystem token constitutes an inherent component of its blockchain-based system and might therefore have a greater chance of being regarded as a utility token. However, the current SEC guidance with respect to the *Howey* test seems to confirm the idea that selling a token with an actual or potential utility does not constitute, as such, a sufficient condition to preclude it from being sold as a security. We must also take into account how tokens are marketed to the public and why people are buying them.

Hence, unless issuers want to introduce specific technical guarantees that will reduce or eliminate speculative opportunities over the appreciation of their tokens (e.g., by making the tokens non-transferable or by creating a low-ceiling token price cap), they need to devise new approaches to ensure that the tokens being sold do not qualify as securities. While the SAFT (and the related SAFTE) is an interesting proposition for achieving that goal, the SEC will likely not accept its logic, post-*Munchee.*

Unless issuers want to introduce specific technical guarantees that will reduce or eliminate speculative opportunities over the appreciation of their tokens, they need to devise new approaches to ensure that the tokens do not qualify as securities.

There is an inherent conflict between the use of an ecosystem token as a coordinating mechanism and as a fundraising instrument similar to securities. Taking a pragmatic approach, open-source blockchain-based ecosystems will initially have to build some profit centers by relying on fundraising practices typical of private enterprises and start-ups. As such, these ecosystems may develop as the traditional Web 2.0 model did.

Decentralization is an evolution that, in practice, starts more centralized but, under the right governance and development, devolves over time into a truly decentralized ecosystem.

We believe that ICOs, especially for true ecosystem tokens, will have to move away from the preproduction phase (seed round) and instead be conducted at funding rounds in post-production phases (series A, B, C, etc.), when there is a minimally viable network or product with a ready base of users and customers. Only after the

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platform has been deployed and an ecosystem has emerged around it, will the utility emerge and the value inherent in these tokens become apparent to all. Then the issuer will finally be able to sell tokens as true goods or commodities rather than as investment instruments.

Working toward the future, we hope the blockchain community can collaborate with regulators such as the SEC in devising a regulatory framework for the emergent token economy.

To do so, token issuers might need to devise creative corporate forms combining nonprofit structures (overseeing access to shared open-source resources) with for-profit structures (perhaps as benefit corporations or B Corps) focused on the development of specific business applications or Dapps. Most ICOs will not be true ecosystem tokens and will therefore be well suited as securities token offerings using registration exemptions and trading through decentralized alternative trading systems.

Working toward the future, we hope the blockchain community—entrepreneurs, technologists, researchers, academics, lawyers, and others—can collaborate with regulators such as the SEC in devising a regulatory framework for the emergent token economy, including fundraisings such as ICOs and ongoing market oversight. Indeed, significant questions remain around how to think about and discuss token "economics," that is, the factors that should drive utility value, and whether token price bounding would allay some of the SEC's concerns.

Furthermore, even for true ecosystem tokens, markets will need some level of speculative trading in those tokens to provide liquidity. How does the market necessity for some speculative activity square with regulatory concerns around secondary markets, while respecting the functional requirements of an ecosystem token? As we try to create more decentralized economic models assisted by blockchain technology, how should we rethink what it means to rely on the "efforts of others," from the *Howey* test perspective?

The SEC's concerns as a public watchdog for consumer and investor protection are well founded. We hope to devise regulations that encourage innovation, minimize speculation, and ultimately enable blockchain technologies to fulfill the promise of Web 3.0—ecosystems that are more productive, more resilient, and more just in their allocation of power and resources.

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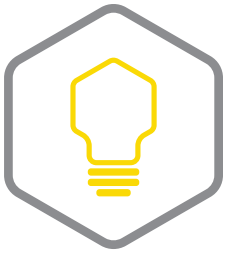

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About the Blockchain Research Institute

Co-founded in 2017 by Don and Alex Tapscott, the Blockchain Research Institute is a knowledge network organized to help realize the new promise of the digital economy. It builds on their yearlong investigation of distributed ledger technology, which culminated in the publication of their critically acclaimed book, *Blockchain Revolution* (Portfolio|Penguin).

Our syndicated research program, which is funded by major corporations and government agencies, aims to fill a large gap in the global understanding of blockchain technology and its strategic implications for business, government, and society.

Our global team of blockchain experts is dedicated to exploring, understanding, documenting, and informing leaders of the market opportunities and implementation challenges of this nascent technology.

Research areas include financial services, manufacturing, retail, energy and resources, technology, media, telecommunications, healthcare, and government as well as the management of organizations, the transformation of the corporation, and the regulation of innovation. We also explore blockchain's potential role in the Internet of Things, robotics and autonomous machines, artificial intelligence, and other emerging technologies.

Our findings are initially proprietary to our members and are ultimately released under a Creative Commons license to help achieve our mission. To find out more, please visit www.blockchainresearchinstitute.org.

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Notes

1. Louise Matsakis, "Cryptocurrency Scams Are Just Straight-Up Trolling at This Point," *Wired*, Conde Nast, 5 Feb. 2018. www.wired.com/story/cryptocurrency-scams-ico-trolling, accessed 27 Feb. 2018.

2. Anna Irrera, "More than 10 Percent of $3.7 Billion Raised in ICOs Has Been Stolen: Ernst & Young," *Reuters*, Thomson Reuters, 22 Jan. 2018. www.reuters.com/article/us-ico-ernst-young/more-than-10-percent-of-3-7-billion-raised-in-icos-has-been-stolen-ernst-young-idUSKBN1FB1MZ, accessed 27 Feb. 2018.

3. John Markoff, "Entrepreneurs See a Web Guided by Common Sense," *The New York Times*, The New York Times Co., 11 Nov. 2006. www.nytimes.com/2006/11/12/business/12web.html, accessed 3 Feb. 2018.

4. Joseph Lubin, "Announcing 'The Brooklyn Project' for Token Launches," *ConsenSys Media*, A Medium Company, 30 Nov. 2017. media.consensys.net/announcing-the-brooklyn-project-for-token-launches-22ba89279f5f, accessed 3 Feb. 2018.

5. Sources of Figure 1 data: Oscar Williams-Grut, "The 11 Biggest ICO Fundraises of 2017," *Business Insider,* Business Insider Inc., 1 Jan. 2018. www.businessinsider.com/the-10-biggest-ico-fundraises-of-2017-2017-12; and "CoinDesk ICO Tracker," *CoinDesk*, Digital Currency Group, 1 Jan. 2018. www.coindesk.com/ico-tracker, both accessed 26 Feb. 2018.

6. Elinor Ostrom, "Tragedy of the Commons," eds. Steven N. Durlauf and Lawrence E. Blume, *The New Palgrave Dictionary of Economics*, 2nd ed., Palgrave Macmillan, Macmillan Publishers Ltd., 2008. www.dictionaryofeconomics.com/article?id=pde2008_T000193, accessed 3 Feb. 2018.

7. Garrett Hardin, "The Tragedy of the Commons," *Journal of Natural Resources Policy Research*, Vol. 1, Iss. 3, 2009: 243-253. Taylor and Francis, doi.org/10.1080/19390450903037302, accessed 3 Feb. 2018.

8. In the context of a blockchain-based system, *overexploitation* refers to the risk of network overload, deriving from too many transactions sent to the networks, without enough computational resources to process these transactions. This problem has been solved through the introduction of dynamically adjusted transaction fees (paid in tokens), which allow the system to self-manage these transactions without third-party intervention. *Under-allocation* refers instead to the risk of there not being a sufficient amount of computational resources contributed to the network, thereby hindering the security thereof. Most blockchain-based networks have solved this problem through the probabilistic allocation of a "block reward" to all those who contribute resources to the network.

9. SEC Chair Jay Clayton, "Statement on Cryptocurrencies and Initial Coin Offerings," *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017. www.sec.gov/news/public-statement/statement-clayton-2017-12-11, accessed 1 Feb. 2018.

10. The seminal white paper describing the Bitcoin protocol was circulated on a cryptographic mailing list by a certain Satoshi Nakamoto in 2008. See Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System," white paper, *www.bitcoin.org*, 1 Nov. 2008. www.bitcoin.org/bitcoin.pdf, accessed 5 Feb. 2018.

11. From an economic standpoint, public goods are resources that are both non-excludable and non-rivalrous in consumption. More specifically, according to Gravelle and Rees, "The defining characteristic of a public good is that it is *non-rival*: consumption of it by one individual does not actually or potentially reduce the amount available to be consumed by another individual." See Hugh Gravelle and Ray Rees, Ch. 14, "Market Failure and Government Failure," *Microeconomics*, 3rd ed. (Harlow, Essex: Pearson Education Ltd., 2004): 326. A quasi-public good is a resource that presents the characteristics of a public good, but that might be subject to partial excludability, partial rivalry, or partial diminishability. Bitcoin is only partially non-rival because, although one person using the Bitcoin network will generally have no impact on the usability of the system for others, if too many people are using the network at the same time, it might actually lead to a potential congestion of the system. It is partially excludable, because, to execute a transaction on the Bitcoin network, one needs to spend (and therefore first to acquire) some fraction of bitcoin.

12. In principle, the incentives of individual miners are aligned with the public good. Indeed, we consider here that any "selfish mining" strategy should yield a negative expected profit for its operator. For more details on the notion of selfish mining, see Ittay Eyal and Emin Gün Sirer, "Majority is not Enough: Bitcoin Mining is Vulnerable," *ArXiv.org*, Cornell University Library, NSF Trust STC, and DARPA, 15 Nov. 2013. arxiv.org/abs/1311.0243, accessed 5 Feb. 2018.

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13. "Vitalik Buterin," *Bitcoin Magazine*, BTC Media LLC, n.d. bitcoinmagazine.com/authors/vitalik-buterin, accessed 31 Jan. 2018.

14. See Vitalik Buterin, "A Next-Generation Smart Contract and Decentralized Application Platform," *Ethereum/Wiki*, GitHub, Inc., Nov. 2013, first edited on GitHub by HeikoHeiko 1 Sept. 2014, and last updated by James Ray, 3 Feb. 2018. github.com/ethereum/wiki/wiki/White-Paper, accessed 6 Feb. 2018. From its introduction: "A blockchain with a built-in fully fledged Turing-complete programming language that can be used to create 'contracts' that can be used to encode arbitrary state transition functions, allowing users to create [any application] simply by writing up the logic in a few lines of [smart contract] code."

15. VitalikButerin, Administrator, "So Where Did the Name Ethereum Come from?" *Ethereum Community Forum*, Ethereum Foundation, March 2014. forum.ethereum.org/discussion/655/so-where-did-the-name-ethereum-come-from, accessed 1 Feb. 2018.

16. The token sale went live on 30 July 2014, before the Ethereum platform had been built. Promises for 11.9 million tokens were sold to the public, with an expectation that these promises would be converted into ether as soon as the platform launched.

17. However, about a month later, a code weakness was detected and exploited by an attacker leading to its demise, and triggering a governance crisis that resulted in a hard fork of the Ethereum blockchain supported by the majority of Ethereum developers, while the remaining part of the community decided to maintain the original blockchain—which became Ethereum Classic.

18. See Slock.it GmbH, https://slock.it. For a technical analysis of the DAO, see Christoph Jentzsch, "The History of the DAO and Lessons Learned," *Slock.it Blog*, A Medium Company, 24 Aug. 2016. blog.slock.it/the-history-of-the-dao-and-lessons-learned-d06740f8cfa5, accessed 1 Feb. 2018.

19. Curators acted as a "failsafe mechanism" whose mission was to ensure a network distribution preventing project submitters from colluding into a 51% attack, meaning checking on their identity (the "Who's Who of crypto") to ensure the network decision process might not be subject to alliances. For a short explanation on the curator role, see Stephan Tual, "Vitalik Buterin, Gavin Wood, Alex Van De Sande, Vlad Zamfir announced amongst Exceptional DAO Curators," *Slock.it Blog*, A Medium Company, 25 Apr. 2016. blog.slock.it/vitalik-buterin-gavin-wood-alex-van-de-sande-vlad-zamfir-announced-amongst-stellar-dao-curators-44be4d12dd6e, accessed 3 Feb. 2018. For more details, see Stephan Tual, "On DAO Contractors and Curators," *Slock.it Blog*, A Medium Company, 9 Apr. 2016. blog.slock.it/on-contractors-and-curators-2fb9238b2553, accessed 3 Feb. 2018.

20. This is the standard principal/agent model in economics, whereby the owner (acting as principal) hires a manager (the agent) to run and manage the day-to-day operations of the firm. The agent's incentives need to be properly configured so that the agent's behavior will conform to the principal's set objective.

21. Sources of data in this paragraph and Figure 2: Oscar Williams-Grut, "The 11 Biggest ICO Fundraises of 2017," *Business Insider*, Business Insider Inc., 1 Jan. 2018. www.businessinsider.com/the-10-biggest-ico-fundraises-of-2017-2017-12; "Cryptocurrency ICO Stats 2017," *CoinSchedule*, CoinSchedule.com, 26 Feb. 2018. https://www.coinschedule.com/stats.html?year=2017; "IOTA: ICO Overview with Rating and Review," TokenTops.com, 21 Dec. 2015. tokentops.com/ico/iota, all accessed 26 Feb. 2018.

22. Sanjeev Verma, Nghi Bui, and Chelsea Lam, "Munchee Token: A Decentralized Blockchain Based Food Review/Rating Social Media Platform," White Paper, Munchee Inc., 16 Oct. 2017, p. 11. www.theventurealley.com/wp-content/uploads/sites/5/2017/12/Munchee-White-Paper.pdf, accessed 3 Feb. 2018. For instance, page 11 of MUN's white paper refers to the "Munchee token (MUN) [as] a method of exchange inside of the Munchee ecosystem."

23. SEC, "Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO," Release No. 81207, SEC.gov, US Securities and Exchange Commission, 25 July 2017. www.sec.gov/litigation/investreport/34-81207.pdf; and "SEC Issues Investigative Report Concluding DAO Tokens, a Digital Asset, Were Securities," Press Release 2017-131, *SEC.gov*, US Securities and Exchange Commission, 25 July 2017. www.sec.gov/news/press-release/2017-131, both accessed 1 Feb. 2018.

24. SEC, "Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO," Release No. 81207, *SEC.gov*, US Securities and Exchange Commission, 25 July 2017: 12-13, Point 4(a). www.sec.gov/litigation/investreport/34-81207.pdf, accessed 1 Feb. 2018.

25. SEC, "Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO," Release No. 81207, *SEC.gov*, US Securities and Exchange Commission, 25 July 2017: 13, Point 4(b). www.sec.gov/litigation/investreport/34-81207.pdf, accessed 1 Feb. 2018.

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26. SEC Chair Jay Clayton, "Statement on Cryptocurrencies and Initial Coin Offerings," *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017. www.sec.gov/news/public-statement/statement-clayton-2017-12-11, accessed 1 Feb. 2018.

27. SEC Chair Jay Clayton, "Statement on Cryptocurrencies and Initial Coin Offerings," *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017. www.sec.gov/news/public-statement/statement-clayton-2017-12-11, accessed 1 Feb. 2018.

28. SEC, "In the Matter of MUNCHEE INC., Respondent; Order Instituting Cease-and-Desist Proceedings Pursuant to Section 8A of the Securities Act of 1933, Making Findings, and Imposing a Cease-and-Desist Order," Securities Act of 1933 Release No. 10445, Administrative Proceeding File No. 3-18304, *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017: p. 6, pt. 18. www.sec.gov/litigation/admin/2017/33-10445.pdf, accessed 2 Feb. 2018.

29. SEC, "In the Matter of MUNCHEE INC., Respondent; Order Instituting Cease-and-Desist Proceedings Pursuant to Section 8A of the Securities Act of 1933, Making Findings, and Imposing a Cease-and-Desist Order," Securities Act of 1933 Release No. 10445, Administrative Proceeding File No. 3-18304, *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017: p. 9, para. 35. www.sec.gov/litigation/admin/2017/33-10445.pdf, accessed 2 Feb. 2018.

30. SEC Chair Jay Clayton, "Statement on Cryptocurrencies and Initial Coin Offerings," *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017. www.sec.gov/news/public-statement/statement-clayton-2017-12-11, accessed 1 Feb. 2018.

31. SEC, "In the Matter of MUNCHEE INC., Respondent; Order Instituting Cease-and-Desist Proceedings Pursuant to Section 8A of the Securities Act of 1933, Making Findings, and Imposing a Cease-and-Desist Order," Securities Act of 1933 Release No. 10445, Administrative Proceeding File No. 3-18304, *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017: p. 5, para. 16. www.sec.gov/litigation/admin/2017/33-10445.pdf, accessed 2 Feb. 2018.

32. SEC, "In the Matter of MUNCHEE INC., Respondent; Order Instituting Cease-and-Desist Proceedings Pursuant to Section 8A of the Securities Act of 1933, Making Findings, and Imposing a Cease-and-Desist Order," Securities Act of 1933 Release No. 10445, Administrative Proceeding File No. 3-18304, *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017: p. 6, para. 17. www.sec.gov/litigation/admin/2017/33-10445.pdf, accessed 2 Feb. 2018.

33. "Nick Morgan: The DAO, the SEC, and the ICO Boom," *Epicenter*, hosted by Brian Fabian Crain, Sebastien Couture, and Meher Roy, episode 198, Let's Talk Bitcoin Network, Epicenter Media Ltd., 29 Aug. 2017. epicenter.tv/episode/198, accessed 2 Feb. 2018.

34. SEC, "In the Matter of MUNCHEE INC., Respondent; Order Instituting Cease-and-Desist Proceedings Pursuant to Section 8A of the Securities Act of 1933, Making Findings, and Imposing a Cease-and-Desist Order," Securities Act of 1933 Release No. 10445, Administrative Proceeding File No. 3-18304, *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017: pp. 6-7, points 21-24; p. 9, point 33. www.sec.gov/litigation/admin/2017/33-10445.pdf, accessed 2 Feb. 2018.

35. Automation also brings about an interesting gray area concerning the very nature of "managerial efforts." What happens if tokens are sold for a DAO once (and only once) it is up and running, and operated by algorithmic governance? And suppose the objective of this DAO were solely to generate profits through automated trading rules for its token holders. A judge may find herself in a gray area where it is not clear that the fourth prong of the *Howey* test is met, while it is clear that in this profit-only oriented case, the token should be treated as an investment security. There again, a clear determination of substance over form will undoubtedly be needed.

36. "Why Switzerland?" Crypto Valley Association, Crypto Valley Association, n.d. cryptovalley.swiss/why-switzerland, accessed 3 Feb. 2018.

37. See ProPublica's records for the Linux Foundation here, projects.propublica.org/nonprofits/organizations/460503801, and the Mozilla Foundation here projects.propublica.org/nonprofits/organizations/200097189, both accessed 3 Feb. 2018.

38. Swiss Civil Code of 10 Dec.1907 (status as of 1 Sept. 2017), articles 80-89. www.admin.ch/opc/en/classified-compilation/19070042/index.html, accessed 7 Feb. 2018.

39. "About the Ethereum Foundation: Mission and Vision Statement," *Ethereum Project*, Ethereum Foundation (*Stiftung Ethereum*), 14 July 2014. www.ethereum.org/foundation, accessed 3 Feb. 2018.

40. "AML News and Trends Cryptocurrencies ICOs Latest FINMA Guidelines on ICOs; How to Do KYC for Your Token Holders," *Competitive Compliance*, Competitive Compliance GmbH, 3 Oct. 2017. www.competitivecompliance.com/single-post/2017/10/04/Latest-FINMA-Guidelines-on-ICOs-How-to-do-KYC-for-your-token-holders, accessed 3 Feb. 2018.

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41. Juan Batiz-Bennet, Jesse Clayburgh, and Marco Santori, "The SAFT Project: Toward a Compliant Token Sale Framework," *SaftProject.com*, Protocol Labs Inc. and Cooley LLP, 2 Oct. 2017. saftproject.com/static/SAFT-Project-Whitepaper.pdf, accessed 7 Feb. 2018.

42. Cardozo Blockchain Project, "Not so Fast, Risks Related to the Use of 'SAFT' for Token Sales," Research Report 1, co-directed by Aaron Wright and Jeanne Schroeder, *Benjamin N. Cardozo School of Law*, Yeshiva University, 21 Nov. 2017. cardozo.yu.edu/sites/default/files/Cardozo%20Blockchain%20Project%20-%20Not%20So%20Fast%20-%20SAFT%20Response_final.pdf, accessed 3 Feb. 2018.

43. Jack du Rose, "SAFTE: A Simple Agreement for Future Tokens (or Equity)," *Colony*, Collectively Intelligent Ltd., 18 April 2017. blog.colony.io/a-simple-agreement-for-future-tokens-or-equity-b8ef08608347, accessed 1 Feb. 2018.

44. Carolynn Levy and Cadran Cowansage, "SAFE Primer," YCombinator.com, Y Combinator LLC, 28 June 2017. www.ycombinator.com/docs/SAFE_Primer.rtf, accessed 3 Feb. 2018.

45. In this case, the convertible loan holder would—because of an immediate need for cash or other reasons—decide neither to participate in the token issuance, nor to convert his/her loan into equity.

46. Office of Investor Education and Advocacy, "Rule 506 of Regulation D." *SEC.gov*, US Securities and Exchange Commission, 16 Jan. 2013, updated 27 Nov. 2017. www.sec.gov/fast-answers/answers-rule506htm.html, accessed 1 Feb. 2018.

47. "Eliminating the Prohibition against General Solicitation and General Advertising in Rule 506 and Rule 144A Offerings: A Small Entity Compliance Guide," *SEC.gov*, US Securities and Exchange Commission, 20 Sept. 2013. www.sec.gov/info/smallbus/secg/general-solicitation-small-entity-compliance-guide.htm, accessed 1 Feb. 2018.

48. "Rule 144: Selling Restricted and Control Securities," Investor Publications, *SEC.gov*, US Securities and Exchange Commission, 16 Jan. 2013. www.sec.gov/reportspubs/investor-publications/investorpubsrule144htm.html, accessed 1 Feb. 2018.

49. SEC, "Final Rules: Release No. 33-9741: Amendments for Small and Additional Issues Exemptions under the Securities Act (Regulation A)," *SEC.gov*, Division of Corporation Finance, US Securities and Exchange Commission, June 2015. www.sec.gov/rules/final/2015/33-9741.pdf, accessed 3 Feb. 2018.

50. Anzhela Knyazeva, "Regulation A+: What Do We Know So Far?" *SEC.gov*, Division of Economic and Risk Analysis, US Securities and Exchange Commission, Nov. 2016. www.sec.gov/files/Knyazeva_RegulationA%20.pdf, accessed 3 Feb. 2018.

51. SEC Chair Jay Clayton, "Statement on Cryptocurrencies and Initial Coin Offerings," *SEC.gov*, US Securities and Exchange Commission, 11 Dec. 2017. www.sec.gov/news/public-statement/statement-clayton-2017-12-11, accessed 1 Feb. 2018.

52. Article 4(1), point (44)(c) of Markets in Financial Instruments Directive (MiFID) II includes in its scope "any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities, currencies, interest rates or yields, commodities or other indices or measures." See "Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU," eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014L0065&from=EN, accessed 5 Feb. 2018.

53. "FinCEN's Mandate from Congress," *Financial Crimes Enforcement Network*, US Department of Treasury, n.d. www.fincen.gov/resources/fincens-mandate-congress, accessed 3 Feb. 2018.

54. Vlad Zamfir, "A Safe Token Sale Mechanism," *Medium*, A Medium Corporation, 13 Mar. 2017. medium.com/@Vlad_Zamfir/a-safe-token-sale-mechanism-8d73c430ddd1, accessed 1 Feb. 2018.

55. Vlad Zamfir, "A Safe Token Sale Mechanism," *Medium*, A Medium Corporation, 13 Mar. 2017. medium.com/@Vlad_Zamfir/a-safe-token-sale-mechanism-8d73c430ddd1, accessed 1 Feb. 2018.

56. Sanjeev Verma, Nghi Bui, and Chelsea Lam, "Munchee Token: A Decentralized Blockchain Based Food Review/Rating Social Media Platform," White Paper, Munchee Inc., 16 Oct. 2017, updated 14 Nov. 2017, p. 22. s3.amazonaws.com/munchee-docs/Munchee+White+Paper+-+EN.pdf, accessed 3 Feb. 2018.

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