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RECEIVED 13 April 2023

ACCEPTED 22 February 2024

PUBLISHED 11 April 2024

CITATION

Kiskis M (2024), Private law framework
for blockchain.
Front. Blockchain 7:1205461.
doi: 10.3389/fbloc.2024.1205461

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Private law framework for blockchain

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Current attempts to regulate blockchain technology are mainly based on securities law framework, which considers crypto tokens and digital assets as either securities, currencies or derivatives thereof. The main limitation of such approach lies in its inability to accommodate the diverse legal rights, obligations and assets that blockchain technology can virtually reproduce. Already in 2017–2018 there were attempts to tokenize rights outside of securities law framework, these initiatives served more as makeshift solutions to circumvent securities regulations than as thorough frameworks for managing real-world assets and commercial activities. This article conducts a comparative and historical analysis of blockchain regulatory initiatives in Europe and the US, positing that the regulation of blockchain technology through a securities law lens is driven by reactionary opportunism. Such a basis is deemed inappropriate and insufficient, as securities laws being a field of public law were not designed to govern real-world assets and commerce, which fundamentally rely on the principles of laissez-faire and freedom of contract inherent in private law. A regulatory stance focused solely on public law overlooks the full potential of blockchain technology, and risks stifling innovation and practical applications. To illustrate this, the article presents case study of tokenization of contractual rights demonstrating that securities law-focused legal regulations, such as the EU Regulation 2023/1114 on Markets in Crypto-Assets (MiCA) and Regulation 2022/858 on Distributed Ledger Technology (DLT), inadequately address the field of private commerce. Based on the analysis, the article concludes that comprehensive legal framework for blockchain technology shall combine public and private law regime akin to the regulation of traditional rights, obligations and assets.

KEYWORDS

blockchain, crypto, digital assets, tokenization, private law, contractual rights

1 Introduction

Blockchain technology, and its applications such as cryptographic tokens and smart contracts, are innovative, cross-disciplinary concepts that have evolved into promising technological and economic phenomena over the past decade¹.

At its core, blockchain is a decentralized, permissionless, and trustless database technology where the authenticity of records is verified not by a trusted third party, but

1 [Swan, M. \(2015\)](#). Blockchain: Blueprint for a New Economy. O'Reilly Media. p. 1-3.

through cryptographic proof². A smart contract is a computer protocol (code) designed to digitally facilitate, negotiate, and execute the terms of a contract³. Smart contracts record terms and automate the performance of contracts in a trackable and irreversible manner⁴. The definition of crypto tokens is less established⁵; instead of offering a clear definition, commentators often jump straight to technical and functional descriptions or classifications⁶, indicating that social context is missing. Both smart contracts and crypto tokens can be maintained on public or private blockchains, but it is also possible to issue and maintain smart contracts and tokens without utilizing blockchain technology⁷.

From a technological perspective, crypto tokens are encrypted data strings that serve as avatars for underlying data representing various elements, such as value, functionality, promises of service, identity, or other particulars⁸. Crypto tokens operate according to the rules defined in smart contracts, which enable or issue the respective tokens⁹. If designed accordingly, a crypto token may also represent the smart contract itself¹⁰. Economically, crypto tokens are most often associated with cryptocurrencies, digital transfers of value, stakeholding and governance¹¹. This association is the basis for the securities law approach to regulating crypto tokens and blockchain technology¹², which has been stalking whole field of blockchain technology since. Technologically crypto tokens

can also be associated with promises of future digital products and services, or just about anything else.

At a more fundamental level, crypto tokens can be understood as a technological embodiment of rights, obligations, or both - a digital record that records the existence and potentially the scope of these rights and/or obligations. This approach to crypto tokens has seen limited exploration in research and practice, likely because it is more removed from the practicalities of blockchain technology. The author believes that overlooking this perspective leads to suboptimal approaches to blockchain regulation for the industry, regulators, and society at large.

Regulators have had little opportunity to ponder the proper fundamental approach to blockchain regulation due to pressing economics of this emerging technology and the world-changing financial ambitions of the original blockchain technology pioneers¹³. The first wave of blockchain regulation (2017–2018) hastily addressed the use of crypto tokens for unregulated fundraising¹⁴. At present (2023), regulators are attempting to manage additional financial applications of crypto tokens, such as stablecoins, crypto exchanges and brokerages. There is also a persistent, yet speculative argument that legal clarity is in high demand by the global community, entrepreneurs, and financial markets, which has contributed to the regulatory push.

The purpose of this paper is to critique the current legal approach to regulating blockchain technology, based on public law—securities law—as fundamentally restrictive. The author proposes and analyzes an example of contract law-based crypto tokens, which do not fit into the existing securities law approach, while representing basic private law concepts that have existed for millennia. A private law framework would not limit the possibilities for crypto assets and tokens, and therefore has to be combined into the fused public-private law framework to regulate blockchain technologies.

The legal framework for blockchain needs to reconnect with the existing legal rights frameworks, established over millennia. A crucial feature of private law legal rights frameworks is open-endedness, illustrated by the freedom of contract, which is vital for allowing digital markets to benefit from rights based on existing private law frameworks. Digital markets must be inclusive and open to all kinds of private rights available under the law. In a rapidly developing field such as crypto tokens and blockchain technology, only legal, regulatory, or classification frameworks based on a combined public-private law approach will maintain flexibility and open-endedness in order to promote further innovation.

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- 2 Mougayar, W. (2016). *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology*. John Wiley & Sons. p. 1-2.
 - 3 Buterin, V. (2014). "A Next-Generation Smart Contract and Decentralized Application Platform." *Ethereum White Paper*. (accessed 3 March 2023) https://ethereum.org/669c9e2e2027310b6b3cdce6e1c52962/Ethereum_Whitepaper_-_Buterin_2014.pdf
 - 4 Antonopoulos and Wood, (2018). *Mastering Ethereum: Building Smart Contracts and DApps*. O'Reilly Media. p. 127.
 - 5 See early attempts to define here (accessed 3 March 2023): <https://cryptocurrencyfacts.com/what-is-a-cryptocurrency-token/or> <https://steemit.com/blockchain/@levelnet/what-is-crypto-token>
 - 6 Kulkarni, K. (2018). *Learn Bitcoin and Blockchain: Understanding Blockchain and Bitcoin Architecture to Build Decentralized Applications*. India: Packt Publishing. p. 27.
 - 7 McCormick (2018). *Blockchain Made Simple - A Non-Technical Explanation: Harvard Business Review Says Blockchain Could Reshape the Economy*. p. 27.
 - 8 Supra n 1.
 - 9 Supra n 3.
 - 10 Ibid.
 - 11 Vagadia, B. (2020). *Digital Disruption: Implications and Opportunities for Economies, Society, Policymakers and Business Leaders*. Springer International Publishing. p. 159.
 - 12 De Filippi and Wright. (2018). *Blockchain and the law: The rule of code*. Harvard University Press. p. 173–193.

13 Ibid.

- 14 Zetzsche, D. A., Buckley, R. P., Arner, D. W., & Föhr, L. (2018). *The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators*. University of Luxembourg Law Working Paper No. 11/2017, UNSW Law Research Paper No. 17–83, University of Hong Kong Faculty of Law Research Paper No. 2017/035, European Banking Institute Working Paper Series 18/2018, *Harvard International Law Journal*, Vol. 63, No. 2, 2019, available at SSRN: <https://ssrn.com/abstract=3072298> or <http://dx.doi.org/10.2139/ssrn.3072298>

2 Overview of blockchain regulatory efforts

The blockchain technology is a rapidly evolving field, where both legal scholarship and legislation are still catching up. This section provides an overview of two waves of regulatory attempts for blockchain technology: the first occurring between 2017–2018 and the ongoing one spanning from 2020 to 2023. The overview focuses on the most notable efforts in Europe and the US, which serve as role models for other countries. This overview is not meant to be exhaustive. It is worth noting that some countries (e.g., China, India, El Salvador) are exploring their own blockchain regulatory scenarios, ranging from outright bans¹⁵ to embracing crypto as legal tender¹⁶; however, these cases will not be reviewed here.

Due to the exponentially growing monetary value and risks involved, initial attempts to regulate blockchain were made in 2017. The primary drivers in the 2017–2018 period were initial coin offerings (ICOs) and other schemes intended to channel investments into new crypto ventures¹⁷. In many instances, these efforts were driven by opportunism and have been likened to a new gold rush¹⁸.

The issue has invoked the response of the securities regulators around the world. The SEC in the United States and FINMA in Switzerland emerged as pioneers in the field. However the initial approach taken were mainly emergency measures aimed at cooling down the field. In their approach, SEC focused on comparing tokens with securities¹⁹. FINMA framework is the most comprehensive earliest example focused on the economic functions of crypto tokens (FINMA Guidance 04/2017²⁰). The framework that they have proposed from the vantage point of the securities law was largely accepted by regulators in other European jurisdictions and welcomed by token and blockchain entrepreneurs, as well as the broader blockchain community, who were seeking legal clarity²¹. This

development also helped propel Switzerland onto the international stage as one of the premier blockchain-friendly jurisdictions²².

The later 2019 SEC approach²³ evolved but remained focused on features of crypto tokens that would subject them to existing securities laws. The EU was slower to adopt these regulatory proposals, but the European Securities and Markets Authority (ESMA) generally reiterated FINMA's approach in late 2019²⁴. ESMA also recognized that crypto tokens might not fit into the strict interpretation of existing securities law.

Under the aforementioned frameworks, crypto tokens are generally divided into three categories, the first two of which can be accommodated by securities law-based legal regimes²⁵:

- Security Tokens - tokens imparting rights to the bearer, which are similar to securities;
- Cryptocurrencies or Payment Tokens - tokens representing a unit of monetary value;
- Utility Tokens - tokens related to certain privileges with respect of current or future products and/or services.

Crypto tokens in the form of cryptocurrencies have been around since the inception of the Bitcoin blockchain and are often cited as the original application of blockchain technology. They are increasingly recognized as legal tender, through emerging case law²⁶ and outright attempts (e.g., in El Salvador and the Central African Republic). Similar initiatives have been made in some US states (e.g., Arizona²⁷ and Wyoming²⁸), which were eventually converted into state legislation supporting blockchain industries, as described further in this section.

More recently, payment tokens in the form of stablecoins—tokens whose value is pegged to an actual state currency—have captured regulatory attention both because of specific risks and as a form of legal tender. This has led to exploration for wider governmentally accepted adoption in the

15 China declares all crypto-currency transactions illegal. (accessed 3 March 2023) <https://www.bbc.com/news/technology-58678907>

16 Fear and excitement in El Salvador as Bitcoin becomes legal tender. (accessed 3 March 2023) <https://www.bbc.com/news/technology-58473260>

17 De Filippi and Wright, (2018). *Blockchain and the law: The rule of code*. Harvard University Press. p. 173–193.

18 Geron, T. (2018) "New Wave of Firms Race to Capitalize on ICO Gold Rush." *WSJ*. (accessed 3 March 2023) <https://www.wsj.com/articles/new-wave-of-firms-race-to-capitalize-on-ico-gold-rush-1523914537>

19 SEC Statement on Cryptocurrencies and Initial Coin Offerings. (accessed 3 March 2023) <https://www.sec.gov/news/public-statement/statement-clayton-2017-12-11>

20 FINMA Guidance 04/2017. (accessed 3 March 2023) <https://www.finma.ch/en/~media/finma/dokumente/dokumentencenter/myfinma/4dokumentation/finma-aufsichtsmittelungen/20170929-finma-aufsichtsmittelung-04-2017.pdf?la=en&hash=9DCC5C1FF8F61C9AA9412FAD2D7C70533F341EF2>

21 Finck, M. (2018). *Blockchains as a Regulatable Technology*. In *Blockchain Regulation and Governance in Europe*. p. 34–65. Cambridge: Cambridge University Press. doi:10.1017/9781108609708.002.

22 Layr, A.K. (2021). *Tokenization of Assets: Security Tokens in Liechtenstein and Switzerland*. *Milan Law Review*: V.2 N.1 (2021). <https://doi.org/10.13130/milanlawreview/16475>

23 Framework for 'Investment Contract' Analysis of Digital Assets. (accessed 3 March 2023) <https://www.sec.gov/news/public-statement/statement-framework-investment-contract-analysis-digital-assets>

24 ESMA Advice "Initial Coin Offerings and Crypto-Assets". (accessed 3 March 2023) <https://www.esma.europa.eu/document/advice-initial-coin-offerings-and-crypto-assets>

25 Nägele and Bergt (2018). *Kryptowährungen und Blockchain-Technologie im liechtensteinischen Aufsichtsrecht, Regulatorische Grauzone? Liechtensteinische Juristen-Zeitung, Heft 2 (LJZ 2/18)*, p. 63.

26 EU Court of Justice Judgement in the Case C-264/14. (accessed 3 March 2023) <http://curia.europa.eu/juris/document/document.jsf?docid=170305&doclang=EN>

27 Arizona House Bill AZ HB2601, 2018 (enacted). (accessed 3 March 2023) <https://legiscan.com/AZ/bill/HB2601/2018>

28 Wyoming House Bill WY JB0019, 2018 (draft). (accessed 3 March 2023) <https://legiscan.com/WY/bill/HB0019/2018>

form of CBDCs (Central Bank Digital Currencies), which are crypto token forms of a country's official currency issued and governed by the country's central bank²⁹.

The three forms of crypto tokens are based on common securities law subject matter—securities, money (currency), and rights to financial services. FINMA's 2018 guidance (ICO Guidelines³⁰) directly identifies three types of tokens—Payment, Utility, and Asset tokens—while also acknowledging the existence of hybrid models. This classification clearly originates from a securities law background but is disconnected from the broader legal system's rights framework, assuming that only finance and securities related risks need to be regulated in the context of blockchain technology.

In addition to regulatory initiatives, there were early research attempts to provide a framework for crypto tokens. The most notable attempt was the Untitled INC framework³¹, based on five facets of crypto tokens: Purpose, Utility, Legal Status, Underlying Value, and Technical Layer. The effort was commendable and useful for demonstrating the limitations of the initial regulatory approaches. However, for the legal dimension, it only accepted the three limiting categories prescribed by securities regulators described above and was not updated beyond 2019.

These initial frameworks were incomplete as they were limited by securities law, and to some extent, consumer rights law (all public law domains). The Untitled INC framework already highlighted the limits of this approach by emphasizing that the legal framework fails to include all types of crypto tokens. It was developed in isolation from the broader public and private law legal rights framework that underpins modern legal systems. It resonated as a framework for classifying blockchain tokens due to the lack of any comprehensive alternatives. The three-class framework does not and cannot represent all possible uses and risks pertinent to blockchain technology, whether approached from a function or purpose perspective. Additional applications, uses, and risks of blockchain technology are certainly feasible, modeled through private law (especially contract law and personal rights law) framework alone. This is precisely how the applications of blockchain technology have developed in the 2018–2020 period—the Decentralized Finance (DeFi) industry has modeled blockchain products and services on contract law frameworks of the traditional financial services industry³².

It is noteworthy that by the beginning of 2023, there is no substantive blockchain-focused legislation. The regulatory framework for blockchain is based on the activist policies of various government agencies responsible for implementing securities law, rather than comprehensive legislation. This further entrenched the role of securities law as central to blockchain legal regulation. The best evidence for this comes from the US, where the main federal securities law regulators, such as the SEC and the US Financial Crimes Enforcement Network (FinCEN), have been most eager to assert their authority over the emerging blockchain economy.

For example, FinCEN issued the 2019 Guidance³³, in which it considered applying the US Federal Bank Secrecy Act (BSA) to common business models involving the transmission of digital assets ("convertible virtual currencies", in FinCEN's terms). In 2021, FinCEN contributed to amendments of the BSA (the Anti-Money Laundering Act (AMLA)), expanding the definition of "financial institutions" to include "value that substitutes for currency"³⁴.

The SEC in the US generally has regulatory authority over the issuance or resale of securities. Under US law, a security includes an "investment contract", which has been defined by SCOTUS in *Howey* case as an investment of money in a common enterprise with a reasonable expectation of profits derived from the entrepreneurial or managerial efforts of others³⁵. There has been an ongoing debate over whether crypto tokens and digital assets constitute securities and how the *Howey* test should be applied to them.

In determining whether a token or other digital asset is an "investment contract", both the SEC and the courts look at the substance of the transaction, rather than its form. In 1943, SCOTUS determined that "the reach of the [Securities Act] does not stop with the obvious and commonplace. Novel, uncommon, or irregular devices, whatever they appear to be, are also reached if it is proved as a matter of fact that they were widely offered or dealt in under terms or courses of dealing which established their character in commerce as "investment contracts," or as "any interest or instrument commonly known as a security"³⁶. It later case law SCOTUS further expanded that "Congress" purpose in enacting the securities laws was to regulate investments, in whatever form they are made and by whatever name they are called"³⁷.

29 Huber, J. (2023). *The Monetary Turning Point: From Bank Money to Central Bank Digital Currency (CBDC)*. Palgrave Macmillan. p. 87.

30 FINMA ICO Guidelines. (accessed 3 March 2023) <https://www.finma.ch/en/-/media/finma/dokumente/dokumentencenter/myfinma/1bewilligung/fintech/wegleitung-ico.pdf?la=en>

31 Euler (2018). "The Token Classification Framework: A multi-dimensional tool for understanding and classifying crypto tokens.". Untitled, Inc (2018). (accessed 3 March 2023) <http://www.untitled-inc.com/the-token-classification-framework-a-multi-dimensional-tool-for-understanding-and-classifying-crypto-tokens/>

32 Zetzsche et al. (2020). Decentralized finance. *Journal of Financial Regulation*, 6(2), 172–203.

33 FinCEN Guidance FIN-2019-G001. Application of FinCEN's Regulations to Certain Business Models Involving Convertible Virtual Currencies. (accessed 3 March 2023) <https://www.fincen.gov/sites/default/files/2019-05/FinCEN%20Guidance%20CVC%20FINAL%20508.pdf>

34 The Financial Crimes Enforcement Network (FinCEN): Anti-Money Laundering Act of 2020 Implementation and Beyond. (accessed 3 March 2023) <https://crsreports.congress.gov/product/pdf/R/R47255>

35 SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946). (accessed 3 March 2023) <https://www.law.cornell.edu/supremecourt/text/328/293>

36 SEC v. C.M. Joiner Leasing Corp., 320 U.S. 344, 351 (1943). (accessed 3 March 2023) <https://www.law.cornell.edu/supremecourt/text/320/344>

37 *Reves v. Ernst & Young*, 494 U.S. 56, 61 (1990). (accessed 3 March 2023) <https://www.law.cornell.edu/supremecourt/text/494/56>

The SEC interprets these rules very expansively and considers all ICO-issued tokens, including utility tokens, to be securities if they meet the elements of the Howey test. This applies even though the US federal courts have not yet issued any decisive precedent on how the Howey test should be applied to crypto tokens. Only a few relevant precedents exist, and they haven't been vetted by the higher courts. The most awaited court guidance will come out of the SEC legal action in the SDNY against Ripple Labs, Inc.³⁸, alleging that the sale of the XRP digital coin was an unregistered securities offering in violation of the US Securities Act. Ripple asserts that XRP is a cryptocurrency, not a security. The Ripple case is still ongoing in March 2023, and the ruling in this case will set a precedent for differentiating digital assets, cryptocurrencies, and securities.

If digital assets are found to be securities, two implications will apply (i) the requirement that a person be a broker-dealer licensed with the SEC and a member of the Financial Industry Regulatory Authority ("FINRA") in order to facilitate the sale of securities or to act as a market maker or otherwise constitute a dealer in the asset, and (ii) the asset can only trade on a licensed securities exchange or alternative trading system ("ATS") approved by the SEC. Currently, there isn't regulatory clarity on how to accomplish this with respect to peer-to-peer networks that operate by means of software and without formal intermediaries. However, in their push to regulate the blockchain industry, the SEC has made legislative proposals to the US Congress redefining the terms "exchange" and "dealer" very broadly and setting informal criteria for being an exchange and dealer³⁹. According to the proposed definition of "exchange", any organization, association, or group of persons that passively makes available a communication protocol under which buyers and sellers with trading interest can interact and agree on the terms of trades is considered an exchange. The proposed definition of a "dealer" essentially equate any trader or user of an exchange to a dealer – "market participants who engage in a routine pattern of buying and selling securities for their own account that has the effect of providing liquidity [...] regardless of whether the liquidity provision is a chosen consequence of the activity", requiring them to register with the SEC as dealers and become members of FINRA or a national securities exchange.

In addition to the US Federal securities laws, some states are also eager to reign in the blockchain technology. Arizona became the first state in the US to adopt a "regulatory sandbox" to foster blockchain and crypto industries in Arizona⁴⁰. The Arizona law grants regulatory relief for innovators in these sectors who desire to bring new products to market within the state. Under the law, companies can test their products for up to 2 years and serve as many as 10,000 customers before needing to apply for any formal license. Other states have followed with very similar laws in the

2018–2022 period. State securities regulators increased their scrutiny of digital assets during the 2020–2021 bull market, especially focusing on exchanges and others offering interest-bearing crypto accounts. For example, several US states issued cease and desist orders against BlockFi for offering interest-bearing crypto products and in February 2022, BlockFi agreed to pay a substantial civil penalty to settle the charges that BlockFi failed to comply with state registration requirements and deprived investors of critical information and disclosures pertaining to its crypto products⁴¹.

The intensified push for blockchain regulation and enforcement in 2020–2021 coincided with the new cryptocurrency bull market of that period, which led to further exponential growth in monetary value and, consequently, heightened perceived risks of blockchain projects. Despite substantial growth in the market capitalization of key blockchains, primarily Bitcoin and Ethereum, the most significant growth came from newcomers in the blockchain projects sector. In contrast, many of the 2018 crypto cycle favorites (except for Bitcoin and Ethereum) faded into obscurity.

This second wave regulatory response so far culminated with the POTUS Executive Order on Digital Assets in the US⁴² and the EU Proposal for the Regulation On a pilot regime for market infrastructures based on distributed ledger technology⁴³ (DLT Regulation) and Proposal for the Regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937⁴⁴ (MiCA). While the US initiative primarily provides guidance on further action, the EU initiatives involve actual legislative proposals that could become mandatory rules in 2023.

The 2022 POTUS Executive Order (EO) was enacted in March 2022 and outlines the financial risks inherent to the digital assets and blockchain technology. The EO focuses on six key priorities: (1) consumer and investor protection; (2) financial stability; (3) illicit finance; (4) US leadership in the global financial system and economic competitiveness; (5) financial inclusion; and (6) responsible innovation. The EO "supports responsible innovation" and "harnessing the benefits" of digital assets and blockchain technology, which suggests that digital assets are not a threat to be eliminated but rather an emerging technology that should be developed and regulation shall not be overburdening to such development. Nevertheless the EO calls on addressing the risks of the Blockchain technology in upcoming blockchain rules,

38 SEC v. Ripple Labs Inc, U.S. District Court, Southern District of New York, No. 20-CV-10832. (accessed 3 March 2023) <https://www.sec.gov/litigation/complaints/2020/comp-pr2020-338.pdf>

39 See SEC Proposals (accessed 3 March 2023): <https://www.sec.gov/news/press-release/2020-340>; <https://www.sec.gov/news/press-release/2020-227>; <https://www.sec.gov/news/press-release/2023-30>.

40 Supra n 27.

41 BlockFi Agrees to Pay \$100 Million in Penalties. (accessed 3 March 2023) <https://www.sec.gov/news/press-release/2022-26>

42 Executive Order on Ensuring Responsible Development of Digital Assets. (accessed 3 March 2023) <https://www.whitehouse.gov/briefing-room/presidential-actions/2022/03/09/executive-order-on-ensuring-responsible-development-of-digital-assets/>

43 European Commission Proposal for the Regulation On a pilot regime for market infrastructures based on distributed ledger technology. (accessed 3 March 2023) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020PC0594>

44 European Commission Proposal for the Regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937. (accessed 3 March 2023) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020PC0593>

specifically - illicit finance, consumer protection issues, cybersecurity and climate impact. From said priorities and financial risk focus it is obvious that Blockchain regulation is still anchored to securities law led framework for Blockchain regulation, while claiming the goal of a comprehensive digital asset regulatory framework, again assuming the need for legal clarity by the market participants.

The EO does not directly prescribe the mandatory rules for crypto tokens and Blockchain project stakeholders, instead in order to advance said priorities it sets the plan for draft reports and regulations on (1) the future of money and the US CBDC; (2) consumer protection and financial inclusion; and (3) financial stability risks and regulatory gaps. The EO also paves the path to increasing international cooperation on digital asset regulation.

What is very notable in the EO is the shift from the 2017–2018 language of “crypto tokens” to a much broader language of “digital assets”. Although it is not clearly defined and addressed in the EO itself, this is a sea change in perception of the scope of applications of the Blockchain technology and important step towards embracing existing rights frameworks for digital Universe underpinned by the Blockchain technology.

Overall, despite calls to enact formal regulations from as early as 2017, as well as regulatory action by government agencies and some US states, as of 2023, formal US federal rules for blockchain technology are still absent. All of the current efforts mainly attempt to expand US federal securities law with respect to new actors of the blockchain economy.

The EU has also been actively working on creating a comprehensive regulatory framework for blockchain since at least 2018. The EU’s approach to blockchain regulation has been generally characterized by a desire to balance innovation with the protection of investors and the mitigation of risks associated with digital assets. In September 2020, the European Commission proposed a legislative package for crypto-assets, and presented draft DLT Regulation and MiCA, which aim to provide legal clarity and certainty for crypto-asset issuers and service providers. MiCA focuses on creating a consistent set of rules across the EU, making it easier for blockchain and cryptocurrency businesses to operate within the single market.

The EU has also taken steps to address the risks associated with digital assets through the 5th Anti-Money Laundering (AML) Directive⁴⁵, which was implemented in January 2020. This directive extends the scope of AML and CFT regulations to cover virtual currency exchanges and custodian wallet providers, requiring them to perform customer due diligence, monitor transactions, and report suspicious activities to relevant authorities.

Simultaneously the European Central Bank (ECB) has been actively exploring the potential of central bank digital currencies (CBDCs) as a response to the growing interest in digital currencies.

The ECB has launched the Digital Euro project⁴⁶ to study the feasibility, benefits, and potential risks associated with the issuance of a CBDC in the Eurozone. The Digital Euro project seeks to ensure that the Euro remains fit for the digital age and serves as a complement to cash, rather than replacing it.

At first glance, the EU proposals appear more comprehensive than those currently proposed in the US or elsewhere, and to some extent, represent the EU’s eagerness to catch up in the field of blockchain technology. This might not be the best rationale for regulatory initiatives, but it has been present in multiple recent EU technology regulatory initiatives in areas such as data protection, web platforms, and AI.

The EU DLT and MiCA proposals also demonstrate the acknowledgment by EU banking and financial market regulators that, aside from EU legislation targeting money laundering and terrorism financing, most crypto-assets fall outside the scope of EU financial services legislation and as a result, they are not subject to existing provisions concerning consumer and investor protection and market integrity, even though they may pose such risks.

As it was noted, the EU proposals are split into two draft Regulations – (1) Regulation on a pilot regime for market infrastructures based on distributed ledger technology (DLT Regulation), and (2) Regulation on Markets in Crypto-assets (MiCA).

The EU proposals declare four general and related objectives: (1) “legal certainty”; (2) support for “responsible innovation”; (3) instilling consumer and investor protection and market integrity; and (4) financial stability. The explanations on the need for the DLT Regulation and MiCA also suggest that it is limited to “enable [ing] markets in crypto-assets as well as the tokenization of traditional financial assets and wider use of DLT in financial services”, yet the language of MiCA especially is very broad and may be designed to blanket all economic applications of Blockchain technology. There is a tacit acknowledgement that tokenization and DLT (the term used *in lieu* of Blockchain technology) have wider applications for private law rights, obligations and assets, and even for certain public law rights (e.g., identity), which can also be tokenized. This would be laudable regulatory objective, yet regulations proposed for the technology are strong derivative of securities law, even though they are proposed to be a kind of bespoke *sui generis* legal regime.

Although the EU acknowledges the broader applicability of tokenization and DLT, the regulatory objectives do not fully support a democratic virtual economy, individual participation and autonomy in the virtual economy, decentralized liquidity, or universal marketplaces for virtual assets—which would embody a free virtual market based on *laissez-faire*, individual property rights, freedom of contract, and freedom of commerce.

The DLT Regulation primarily extends existing EU securities law to financial instruments in DLT form, while proposing some special rules for market infrastructures based on distributed ledger technology, which are not a substantive departure from existing rules applicable to regular financial instruments. MiCA, on the other

45 Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU. (accessed 3 March 2023) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018L0843>

46 ECB Digital Euro. (accessed 3 March 2023) https://www.ecb.europa.eu/paym/digital_euro/html/index.en.html

hand, introduces a substantive legal regime for crypto-assets based on the financial services framework, making them exclusive to professional legal parties and imposing stringent capital requirements, liquidity management, and interoperability requirements for such parties. This regulatory approach raises questions about whether it aims to support a *laissez-faire*-based free virtual market or leans more towards a permissioned and planned market, as it imposes stringent requirements and exclusivity to professional legal parties, potentially limiting the decentralization and freedom that underpin the core principles of blockchain technology.

Crypto-assets are defined as “digital representations of values or rights, which are transferred and stored electronically.” This extremely broad definition clearly goes into the realm of all private law rights and assets, and potentially even public law rights and assets, yet in the context of MiCA it is troublesome, since the MiCA special rules make crypto-assets exclusive for professional legal entities and sets forth stringent capital requirements, liquidity management and interoperability requirements for any the party issuing and dealing in such assets. Under MiCA, issuers of crypto-assets are required to produce a prospectus containing extensive information about the offering and the associated risks. The prospectus must be approved by a competent authority before the offering can proceed. Additionally, MiCA imposes strict requirements on crypto-asset service providers, including mandatory registration and ongoing compliance obligations, such as maintaining adequate capital, implementing effective governance structures, and adhering to AML and CFT rules.

According to the substantive rules of MiCA, all crypto assets without any exception will be deemed to be special financial instruments, which is a misunderstanding of the nature of crypto assets, predetermined by the traditional financial asset and financial services worldview. This approach disqualifies individual asset owners or rights holders from tokenizing and transacting themselves, mandating licensed professional service providers as the only allowed purveyors of such services. As a result, MiCA extends the clout of securities law onto all rights, obligations and assets in the virtual economy leaving no room for private law. While consumer and investor protection and market integrity are necessary, they should not replace the fundamental freedom of contract and individual autonomy in a free market. The existing regulatory framework for individual assets and freedom of contract under private law must be maintained, regardless of the form or tools employed. Unfortunately, MiCA does not provide express carveouts for private law contracts setting crypto asset rules.

An owner of an asset or private right is free to exercise the freedom of contract in the traditional economy, and should be equally free to do the equivalent in the virtual realm, regardless of the technology used to embody said asset or right, and without the mandatory participation of professional service providers or undue regulatory interventions. Thus, MiCA, in proposing regulations on crypto-assets beyond the blockchain equivalents of traditional financial instruments, appears to be an attempt to chip away at the fundamental rights of individuals, opting instead for restrictive public law regulations and a permission-based virtual economy.

These concerns add to more general critique of the EU DLR Regulation and MiCA⁴⁷, which include overregulation that could stifle innovation and exclude startups and SMEs from the blockchain economy in favor of incumbent and established financial service providers; lack of flexibility to accommodate the rapidly evolving blockchain technology landscape; general ambiguity and legal uncertainty; leaving enough space for fragmentation of regulation across member states; data privacy concerns arising from extensive data collection needed for the regulatory compliance.

Overall, several key takeaways can be identified from these two waves of regulatory attempts in both the US and the EU:

- (1) the opportunistic approach, where regulatory initiatives seemingly follow crypto market cycles, rather than being independent comprehensive attempts to appreciate the full scope of applications for the underlying technology;
- (2) the shift of focus from crypto token technology to digital/crypto assets and marketplaces;
- (3) the persistence of securities law as the basis for blockchain regulation, despite a growing awareness that blockchain technology can provide an embodiment not just for securities or currency, but essentially for any private law rights, obligations and assets; and
- (4) the practice of frontrunning comprehensive statutory rules with enforcement actions, which, however, have not prevented high-profile failures and bankruptcies, such as Celsius and FTX in 2022, which affected millions of users in the US and the EU.

3 The intersection of public and private law in blockchain regulation

The workings of a society cannot be easily simplified into frameworks based on just a few modalities. Furthermore, it would be unwise to invent new frameworks when we already have well-established systems developed over millennia, such as the public law and private law legal rights framework. Therefore, it is useful to consider these existing frameworks as the starting point for any attempt at legal regulation of rights, obligations and assets in a new technological milieu.

At the broadest sense, law can be split into two major branches⁴⁸:

- Public law, which includes areas such as constitutional law, underpins the workings of the government, public administration, public services, and law enforcement; and
- Private law, which includes areas such as contract law and governs private matters involving individuals, property, contracts, etc.

47 van der Linden and Shirazi, (2023). Markets in crypto-assets regulation: Does it provide legal certainty and increase adoption of crypto-assets? *Financ Innov* 9, 22. <https://doi.org/10.1186/s40854-022-00432-8>

48 Harlow, C. (1980). “Public” and “Private” Law: Definition Without Distinction. *The Modern Law Review*. 43(3), 241–265 (1980).

Both public and private law are centered on legal rights and obligations. Legal rights is the broad term⁴⁹, which has different meanings in the context of public law and private law. Public law rights are statutory rights, which are enabled through statutes and are generally enforced by the government through the criminal justice system. Public law rights include basic constitutional rights, such as the right to vote, but also cover areas like securities investor rights or consumer rights, which are enforced by government regulators. Most private law rights, on the other hand, generally arise out of private dealings. Private law rights can be:

- Real (in rem) rights, which are rights with respect to real estate and chattels;
- Contractual rights, which are rights established through contracts; or
- Personal rights, which arise from a person (such as personal image or privacy rights) or unilateral acts of the person (for example, the creation of a work of art giving rise to copyright).

Private law rights, with some exceptions and unless the violation thereof threatens public order, are generally not enforced through the criminal justice system, nor are they enforced by government regulators. Instead, the civil justice system is made available by governments for private parties to enforce their private rights themselves. Certain personal rights may be enforced through both systems; however, these are not explored in this paper.

This basic system of rights has existed since at least Ancient Rome and has been well developed in Roman law⁵⁰, as well as independently re-developed in common law legal systems. The public-private law distinction may initially appear to have transferred into the blockchain world in the categories of tokens acknowledged by financial industry regulators; however, this impression is not entirely accurate. Security tokens and cryptocurrencies represent only very narrow fields of the public law rights domain, while utility tokens represent an even narrower aspect of the private law rights domain, respectively.

The framework of securities law, which is part of public law, is an obvious fit to regulate analogues of securities and money in the virtual economy when they are implemented as crypto-assets or cryptocurrencies. However, the question remains whether it is suitable to regulate contract law within the virtual economy? Security tokens grant holders rights and obligations similar to those of securities owners, which can be enforced against the issuing entity both by the government (securities regulators) and the holder themselves. The issuer of security tokens must implement regulatory compliance measures designed to protect the purchasers of such tokens. However, this regime may be unsuitable for general private rights tokens, and especially for contractual rights tokens, which could represent virtual

equivalents of civil law or contract law rights that have not traditionally been subject to regulatory permissions or governmental interventions.

Utility tokens, which are intended to provide digital access to an application or service, initially appear to represent the domain of private law, however, upon closer examination, the flaws of this regulatory construct become apparent. Rights to future applications, products, and services represent such a narrow field of private law that it defies any preexisting justification or category in the private law rights framework. From a private law rights perspective, utility tokens are akin to incentive coupons⁵¹, providing holders with no rights or stake in a company's platform or assets. They may offer some limited contractual rights (but no obligations on the holder) if sufficiently specified and warranted. In reality, most utility tokens are not specific enough to qualify as a contract and are not enforceable if the issuer fails to deliver on the product or service or if it does not meet expectations⁵². The multiple failures of tokens issued during the ICO boom of 2017–2018 are a testament to the marginality and irrelevance of this regulatory category. Utility tokens are not archetypes for private law rights and not even for tokens virtualizing contractual rights.

On closer scrutiny, the rationale for distinguishing utility tokens during the first wave of regulatory attempts (2017–2018) was not to acknowledge that tokens might represent private law rights, but rather to have a catch-all category for tokens that did not fit the definition of a security under securities laws. This rationale is simply improper. Due to the lag in legal scholarship, the crypto ecosystem has accepted utility tokens as a valid legal token type and an escape from the complexities and expenses of securities regulation. This has been a damaging path, which now engulfed applications of blockchain technology to contract law and other private law domains. The problem, as it was demonstrated in the previous section that this has shifted the whole blockchain commerce into the regulatory arms of the securities law.

While multiple scholars have suggested the potential usefulness of the existing private law frameworks to regulate blockchain technology⁵³, no one has recognized that under the current regulatory proposals in the EU there is not much left for the private law framework, since the issuance and transacting in crypto tokens is now engulfed by the public law regulations.

49 Hohfeld, W. N. (1913). "Some fundamental legal conceptions as applied in judicial reasoning." *Yale Lj*, 23, 16 (1913).

50 Jolowicz, H. F. (1957) "Roman foundations of modern law." Oxford University Press.

51 Pollock, D. (2018). "Utility or Security Token: Choosing Between ICO Coins." *Cointelegraph* (accessed 3 March 2023) <https://cointelegraph.com/news/legitimising-the-ico-token-finding-utility-over-security>

52 Romero, T. (2018) "Why Your ICO Investment Is Going To Zero." *Forbes* (accessed 3 March 2023) <https://www.forbes.com/sites/tromero/2018/01/09/why-your-ico-investment-is-going-to-zero/#45eff19a3922>

53 DiMatteo and Poncibò (2019). *Smart Contracts and Contract Law*; in L DiMatteo, M Cannarsa and C Poncibò (eds), *The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms* (Cambridge University Press 2019). P. 3–19; and Moslein, (2021). *Smart Contracts and Civil Law Challenges*. *Routledge Handbook of Financial Technology and Law*. P. 27–44.

Regulatory differentiation of blockchain technology into public law and private law domains is essential and shall be based on the intended purposes and the scope of risks, rather than on desirability or undesirability for permission based regulation.

4 Applications of blockchain technology to contract law and other private law domains

Roman law (especially during the Byzantine period) developed a very elaborate system of personal and contractual legal rights, as well as various instruments for the assignment of or permission to use these rights⁵⁴, which survived to modernity and are widely employed in many modern legal systems (especially Civil Law systems). They may be applicable and potentially very useful for the blockchain enabled virtual economy as illustrated by the examples provided further in this section. Importance of private law in supplementing public law frameworks in regulating blockchain technology is also supported by legal research⁵⁵.

Most private law legal rights arising from simple bilateral contracts are transferable and tradable under the corpus of private law and within the framework of existing contract law in both Common Law and Civil Law legal systems. These are contractual or personal rights, distinct from real (in rem) rights. Contractual or personal rights are not corporeal and cannot be delivered or physically transferred, while real (in rem) rights concern the actual physical delivery of an asset. However, most contractual or personal rights are assignable. Someone may be allowed to use them by means of a license, or they may be reestablished with respect to a new party. In Roman law, this would be cession, permission (license or consent), or novation respectively. Cession is the most common method for transferring incorporeal contractual or personal rights by the contract of cession (known as rights assignment in Common Law systems).

It is crucial to note that both having and transferring contractual or personal rights is not permitted in private law and has never been permitted in any democratic system. Permitted ownership and transfer of rights, obligations and assets is completely incompatible with *laissez-faire* based free markets.

Some rights transfers are subject to special requirements, such as notification to the debtor, while others are entirely unencumbered. However, these requirements are not the same as regulatory permissions or compliance with regulatory requirements. Right transfers are distinct from negotiable instruments, which carry only payment obligations on the order of a specified person or any bearer, and need to follow a statutory format. Due to these characteristics, negotiable instruments become a matter of public law - securities law.

Cession, one of the most common rights transfer instruments, is best illustrated through a simple example.

Alice and Bob enter into a legal contract: Alice borrows \$100 from Bob, agreeing to repay it in 1 year. In most legal systems, Alice's contractual claim against Bob can be transferred by Alice (the creditor) to any new creditor without any external permission or compliance requirements. Alice's contractual rights are essentially tradeable. After the transfer, the new creditor (transferee) steps into Alice's place. Such a contract and the exchange between Alice and the transferee are not securities, financial instruments, or matters of public law. Unless the contract takes the form of a check or promissory note, the simple loan contract and transfer of claim are not subject to securities law. The contract does not grant property or ownership rights and may be disputed or even annulled under contract law rules. It is not a utility, as there is no current or future service or product involved. The object of exchange between Alice and the new creditor is Alice's rights in the legal contract, which exists between the contractual parties for a specific period and involves no one else.

If the parties do not intend to assign the rights completely, a license (permission to use) might be an option. Licenses are especially pertinent to personal rights, such as intellectual property rights, privacy rights, or personal image rights. A license can be best explained using the example of an individual's image, a classic personal right. Assume Alice is a professional model. An image rights company hires Alice for a professional photo session. Alice and the company sign a contract that allows the company to license the image rights to third parties (e.g., fashion websites) to use Alice's image in return for royalty payments. In this case, Alice's image rights are freely licensable to unspecified third parties. The object of the license would be the rights granted by the original contract. Such rights are neither securities nor utilities, and the ownership and transfer of these rights do not require permission or compliance with regulatory requirements.

Cession, license, or novation transactions are not limited to one-off transactions. The carry-over of the original contractual rights (and sometimes obligations) may be iterated an unlimited number of times. Transactions may be private (between two parties who know each other), or may be conducted on an open market, including online marketplaces.

The object (subject matter) of cession, license, or novation is effectively unlimited, since they are based on the basic principles of personal autonomy, freedom of contract, and *laissez-faire* of private law. Regulatory limitations are imposed only on account of the rights of others and limits on the exercise of free will.

The legal functionality of these private law instruments can be virtualized into blockchain-based tokens and smart contracts, i.e., the contractual or personal rights may be embodied in a crypto token and transacted through a smart contract. The novel blockchain-based virtual form alone does not change the legal status of the underlying rights and transactions, in the same way as we do not require any new regulations to license digital photographs in an online marketplace. Thus, the existing private legal rights, obligations and assets legal regime should carry over to the new medium of owning and transacting in them. This approach would allow the established and flexible private law legal framework to carry over into the blockchain world.

54 Frier (2016). "The Codex of Justinian. A New Annotated Translation, with Parallel Latin and Greek Text." Cambridge University Press.

55 Kulms (2020). BLOCKCHAINS: PRIVATE LAW MATTERS. Singapore Journal of Legal Studies, 63–89. <https://www.jstor.org/stable/27032601>

Tokens representing cessionable rights may be nicknamed privity tokens. Privity is a concept of contract law, which refers to the close relationship to the same right by the parties of the contract⁵⁶. It usually means that the contract confers rights or imposes obligations only on the parties of the contract. Privity is the special relationship that the contract creates among the parties and follows them. If a party leaves the contract for any reason, privity with respect to that party is dissolved. Thus, having privity represents being in a contractual relationship.

Privity may be embodied in a crypto token using basic contractual clauses. The bearer of the privity token would be assumed to carry over the rights (or even freely assignable obligations) of being a party to a contract among identifiable physical parties. The bearer of the privity token would have privity (a contractual relationship, including the right to judicial enforcement, as well as any other assignable rights provided to the creditor in the contract itself) against the debtor, while the privity between the original parties is eliminated. The object of a privity token—pertinent contractual rights—would be defined in the underlying contract and should be specific, defined in time and space, but freely assignable.

A privity token described above is distinct from securities, cryptocurrencies, financial instruments, and utilities, in that it carries transferable contractual rights, not products or services. It is distinct from equity or security tokens in that it carries only private law (non-statutory) rights. It is distinct from currency in that it is a matter of contract between specific parties, carries no inherent value, and the contractual rights may or may not be enforceable and are determined by the underlying contract only. An additional feature of the privity token is that it is backed by a continuous contractual obligation of the debtor. Utility tokens impart no such obligations, while security token obligations are statutory. Transacting in a privity token would involve multiple persons, including the issuer of the privity token (original creditor and transferor); the new creditor (transferee); and the debtor. All these parties must be legally identifiable, and it is up to them to agree or disagree on the appropriate identifications, including possible identification through blockchain tools. The identities need not be public but must be available to the parties involved. Most importantly, the rights and obligations imparted by such a token are entirely contractual, and as long as the contract is legal in terms of private law, there is no rationalization for permissioning and conditioning such a contract or privity in such a contract through any public law regime.

A privity token is just one example. Based on existing legal frameworks of private law, tokens may be conceptualized for almost any right or asset (especially chattels). There are already blockchain projects attempting to tokenize licenses (permissions to use rights), consents, etc. All these possibilities open up a realm of applications for blockchain technology in many basic contracts of daily life and commerce, allowing tokenization of the daily economy, real world assets, tokenization and dealing of digital content, as well as many other applications that we have not yet imagined and that should be left for the domain of private law. There are already empirical

examples and research evidence supporting the essential contribution of blockchain technology in enhancing freedom of contract and democracy⁵⁷.

5 Conclusion

Over the short existence of blockchain technology, it has proven to be a new frontier and medium for the virtual representations of rights, obligations and assets, which are embodied, transferred, and stored virtually on a blockchain. It was also proven to enhance freedom of contract and democracy, rather than threaten it. This technology has immense potential for the emergence and growth of a new blockchain-augmented virtual economy, tokenization of virtual and real assets, rights and obligations. Emerging applications like Decentralized Finance (DeFi) are examples of democratization, inclusiveness and added value provided by blockchain technology.

The overall purpose of this paper is to demonstrate that securities law frameworks alone are unfit for the comprehensive regulation of blockchain technology. This is not to say that they are not needed at all, but they should not be the primary approach of regulators for all embodiments of blockchain technology. Securities law derivative frameworks are appropriate only for virtual equivalents of securities and financial instruments, and not for all of blockchain technology. While it is commendable that regulators attempt to address the risks posed by blockchain technology, it is not justified to propose permissioned legal frameworks indiscriminately for all applications of blockchain technology, including transactions, contracts, rights, obligations, assets that are not permissioned in the traditional or even digital economy.

Attempts to regulate blockchain should be reconnected to the underlying legal systems at large. Large parts of the economy and commerce operate within the framework of private law, and there is little reason for that to change in the blockchain-driven domains, except for narrowly defined cases where systemic risks need to be addressed. Blockchain technology simply provides a new form of embodiment for private law commerce, rights, obligations and assets, most of which are based on long-established legal concepts and instruments. There is little justification for introducing permissioned legal frameworks for free virtual markets, daily commerce, and individual rights to own and transact in them, regardless of the new forms that these phenomena may adopt.

An unlimited diversity of crypto tokens are possible under both public and private law frameworks, as demonstrated by the privity token examples in this paper. Such blockchain equivalents of private contractual rights will be useful only if they are left to private law domain. Individuals and entities shall have freedom of contract in the virtual blockchain economy without needing compliance or regulated intermediaries.

⁵⁶ The paper refers to “privity” as a concept, and does not invoke the doctrine of privity of contract in the Common Law.

⁵⁷ Capiello and Poncibò (2023). Freedom to Contract and Democracy in the Age of Blockchain and Smart Contracts. In: Andenas, M., Heidemann, M. (eds) *Quo vadis Commercial Contract? LCF Studies in Commercial and Financial Law*, vol 1. Springer, Cham. doi: https://doi.org/10.1007/978-3-031-14105-8_3

Imposing permissioned rules on private crypto asset ownership and commerce may be a critical regulatory mistake that unnecessarily undermines blockchain and virtual economy innovation, DeFi and other applications. Public law intervention shall be limited to the objectives declared in current blockchain regulatory initiatives, which are lost in the substantive rules—addressing consumer and investor protection, financial stability, and illicit finance. Everything else shall be regulated by private law. Existing private law frameworks should be unambiguously extended to crypto assets and apply to everything (all applications of blockchain technology) outside of the said public law objectives. Only such a combined regime, uniting permissionless and permissioned regulation, will allow the full potential of blockchain technology to be realized.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding author.

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Author contributions

Article fully conceived and written by MK.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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