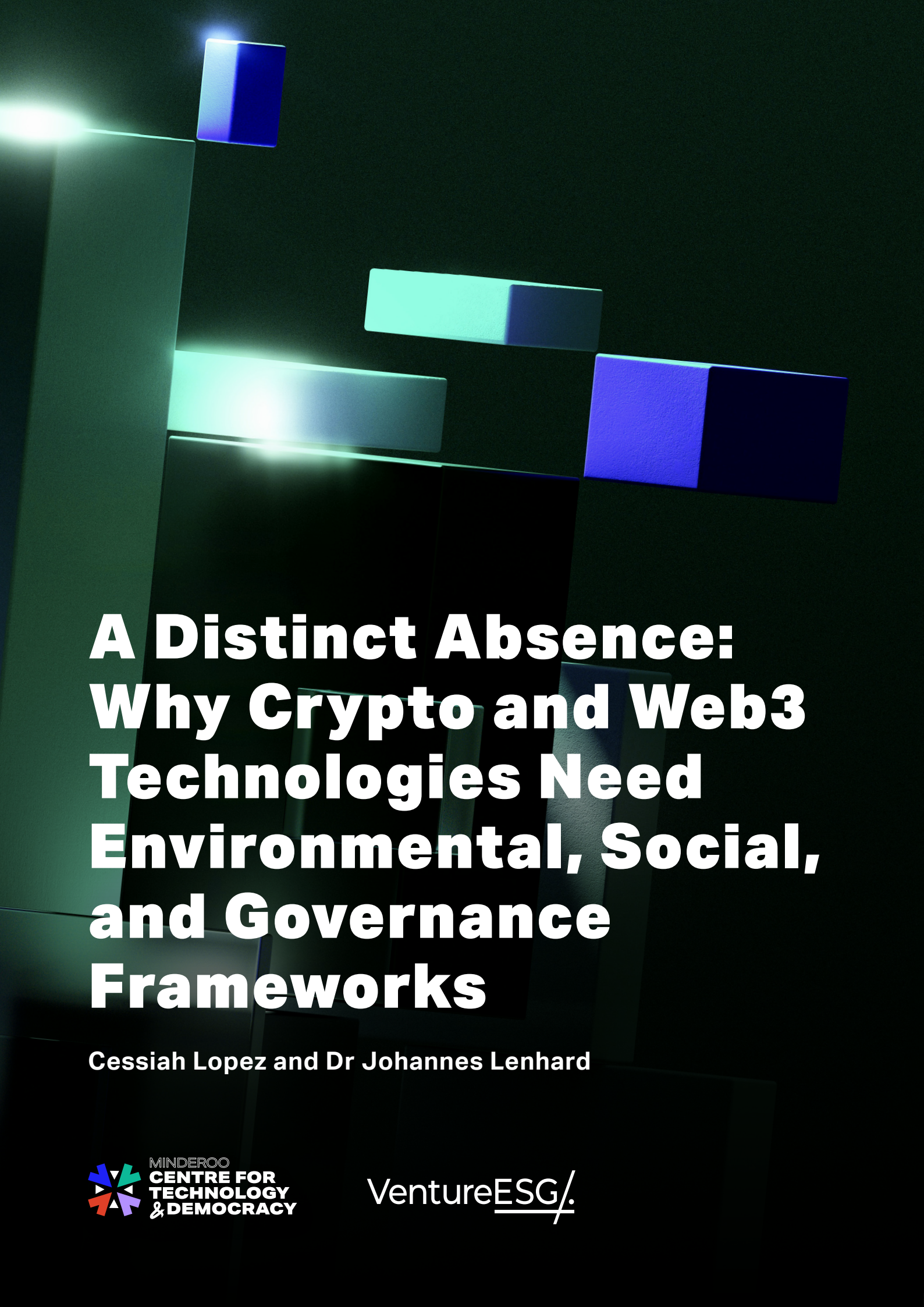

A Distinct Absence: Why Crypto and Web3 Technologies Need Environmental, Social, and Governance Frameworks

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MINDEROO CENTRE FOR TECHNOLOGY & DEMOCRACY

VentureESG

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December 2023

About the Minderoo Centre for Technology and Democracy

The Minderoo Centre for Technology and Democracy is an independent team of academic researchers at the University of Cambridge, who are radically rethinking the power relationships between digital technologies, society and our planet.

More information: **www.mctd.ac.uk**

About VentureESG

VentureESG is a community-based non-profit organisation by VCs (Venture Capital investors) for VCs to support the ecosystem with meaningful ESG integration. Together with a growing group of 450+ VC funds and 110+ asset owners (LPs) from across the globe, VentureESG are working to make ESG a fixture across the VC value chain, from due diligence and portfolio management to internal fund management and reporting.

More information: **www.ventureesg.com**

DOI: **10.17863/CAM.104095**

CONTENTS

FOREWORD

Are corporate governance standards robust enough for the challenges that crypto and web3 technologies present?

Cryptocurrencies and blockchain technologies have been mired with controversies—from the environmental impact of crypto mining and proof-of-work chains to pseudo-anonymous communities. As the sector continues to attract attention from investors, it is important to support responsible and sustainable practices. Regulation is one tool. This report examines to what extent other types of governance frameworks could be used to reduce the potential harms in the area.

Both a provocation and a call to action, this new report from the Minderoo Centre for Technology and Democracy and VentureESG examines whether existing environmental, social, and governance principles used in the financial sector could help get to better solutions in a space that has been fraught with problems.

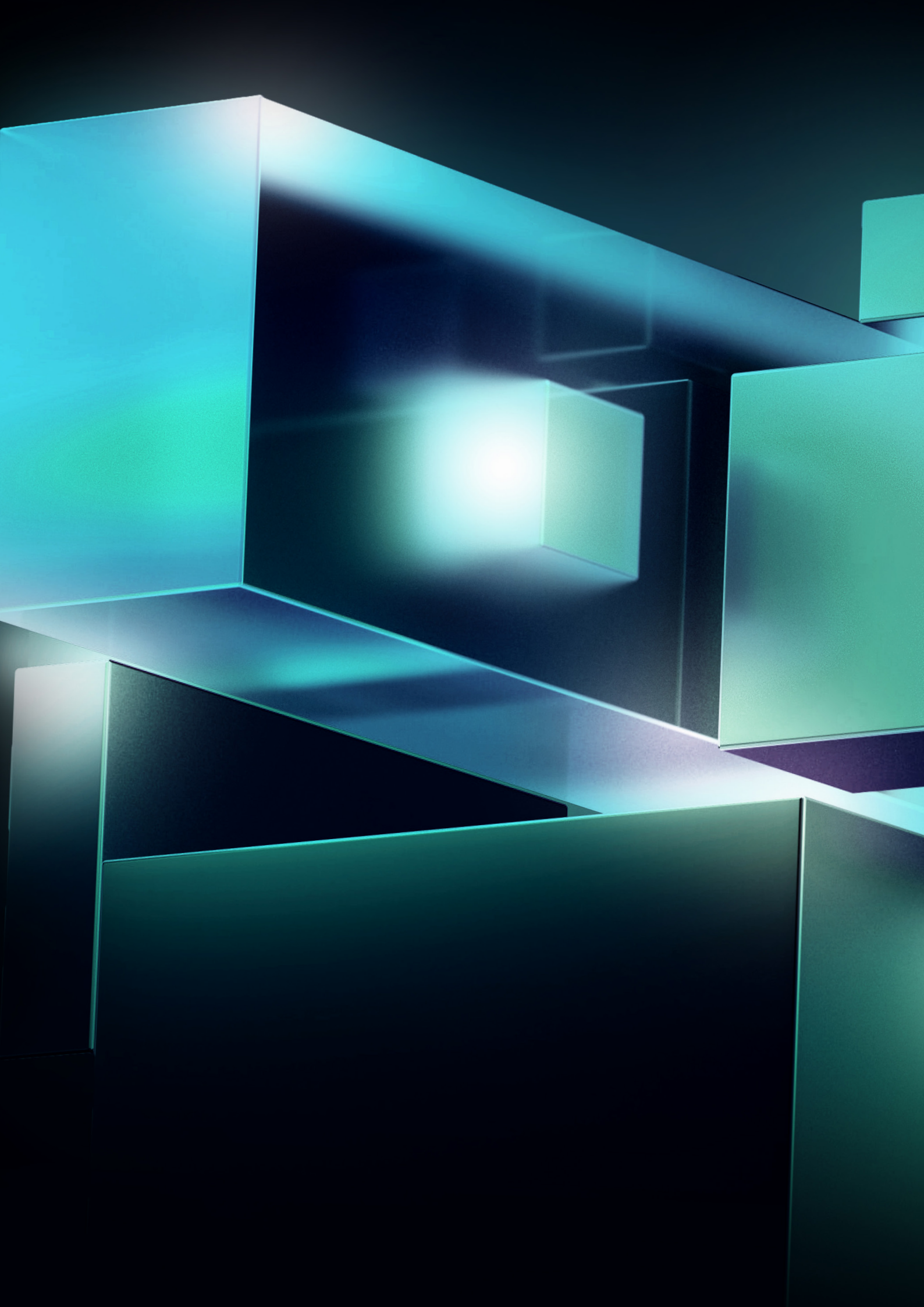
Through their extensive research with over 50+ interviews with industry participants, Cessiah and Johannes have developed a new framework for understanding what responsible investing could look like for crypto and Web3.

At the Minderoo Centre for Technology and Democracy at the University of Cambridge, we study how digital technology is transforming society to ensure democratic accountability over the increasing power of tech across the globe. Our research is anchored in creating ways to build capacity in how we as a society can hold tech power systems to account, to create a just future.

Working in collaboration with VentureESG, we hope that this report will be useful to a wide range of different stakeholders in understanding how to increase awareness of the goals that environmental, social, and governance principles try to support and to create new ways to apply good governance to this sector.

Prof. Gina Neff

Executive Director,
Minderoo Centre
for Technology and
Democracy



EXECUTIVE SUMMARY

Goal of the report and framework:

This report demonstrates the importance of environmental, social, and governance principles ('ESG') specific to the crypto and Web3 space. Developed by VentureESG and the Minderoo Centre for Technology and Democracy, University of Cambridge, the report provides fundamental recommendations and a practical ESG framework to help VC ('venture capital') investors integrate ESG factors into their investment processes.

Context:

ESG is a set of principles guiding a firm's or a fund's management, processes, and practices. The term 'ESG' was introduced in a UN Report in 2004 and can be generally defined as 'how corporations and investors integrate environmental, social, and governance concerns'[1] into their business models.[2]

Despite the recent 'crypto winter' (this period of decline in the crypto market generally characterised by low or falling prices and reduced investor interest), crypto and Web3 technologies may have profound and enduring impacts on our digital ecosystems. Integrating ESG principles into the VC process for investing in the crypto/Web3 space can play a pivotal role in building more resilient and socially responsible companies within the sector. By fostering responsible product design and practices, these principles can ultimately contribute to guiding the industry towards governance structures that work better for society.

Process and methods:

We interviewed more than two dozen VCs, Web3 founders and operators, lawyers, and other policy makers and regulators (collectively referred to as 'participants') to understand the current landscape of crypto and Web3 and ESG's place in it. We covered questions and topics regarding (ESG) challenges in the industry, such as those around NFTs, token governance, DeFi, and the pseudo-anonymous culture of the space. (more in **Appendix 2**)

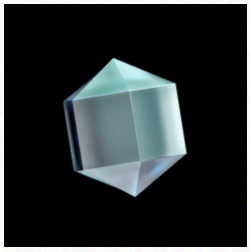
We also explored VCs' current investment processes and theses, looking at how ESG can be integrated with pragmatic, implementable guidance. We then worked on creating an explicitly crypto and Web3 focused ESG framework.

1. Stuart L. Gillan, Andrew Koch and Laura T. Starks, 'Firms and Social Responsibility: a Review of ESG and CSR Research in Corporate Finance', *Journal of Corporate Finance* 66.101889: 101889 (2021), DOI: 10.1016/j.jcorpfin.2021.101889

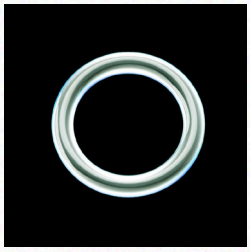
2. When considering the impact and ESG practices of an organisation, it is important to distinguish between the end goal of the product or service (impact) and the specific operations and practices taken to reach them (ESG) (see Johannes Lenhard and Elena Lutz, 'What ESG Means for Venture Capital', VentureESG White Paper 1 (2021), at https://static1.squarespace.com/static/612443c0742cee5ec50528df/t/6227d2e1f9467356249c9d9b/1646777058568/VentureESG+Whitepaper+%231+-+ESG+in+VC+.pdf [accessed 16 November 2023]). Impact refers to the desired outcome, such as positive change to the environment for a climate tech company. On the other hand, ESG practices encompass the management, processe and operational practices adopted to address environmental, social, and governance issues, risks (and opportunities) in the production of the service or product. It is crucial to understand that while a company may focus on achieving a certain positive impact, this does not automatically guarantee effective organisational management. Our focus in this white paper is on ESG; see Appendix 4 for some considerations around crypto/Web3 impact.

Recommendations:

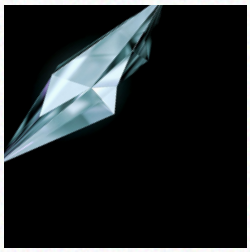
Using our findings, we present five key recommendations for VCs to ensure responsible investing in the crypto and Web3 industries. We also present a fit-for-purpose ESG framework that VCs can use to enable the integration.



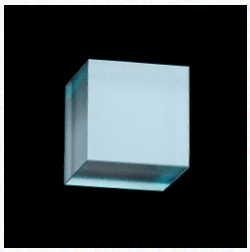
1. Question the need for blockchain.
VCs should prioritise evaluating the necessity of blockchain technology in startup projects, indirectly scrutinising environmental impact, societal, and governance implications.



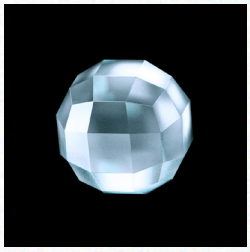
2. Conduct comprehensive due diligence.
VCs should engage in active dialogue with Web3 founders, operators, and community members, moving beyond traditional due diligence methods in order to seek tangible evidence (e.g., that ESG principles are being followed by potential Web3 investments before making a decision to invest).



3. Standardise crypto-ESG terminology.
While we strongly suggest sticking to the widespread concept of ESG, the application of its principles are more important than the nomenclature. An alternative could be 'responsible investing' which has become more popular, e.g., among LPs in VCs more generally.



4. Foster collaboration among key stakeholders.
This includes policymakers and regulators, to create a comprehensive approach to ESG integration and involve the entire ecosystem for a holistic solution.



5. Use our tailored framework.
VCs are encouraged to use our fit-for-purpose due diligence ESG framework, specifically designed for assessing crypto and Web3 ESG issues. The framework enables VCs to make responsible investments in the ecosystem.

Framework:

Building upon VentureESG's comprehensive 'Universe of ESG issues' document,[3] and informed by qualitative feedback from industry participants, our new fit-for-purpose ESG framework offers VCs a practical resource to enhance their due diligence processes for crypto and Web3 startups. It provides a concise and effective 'list of questions' that guides VCs to address unique industry-specific aspects, which are often overlooked.

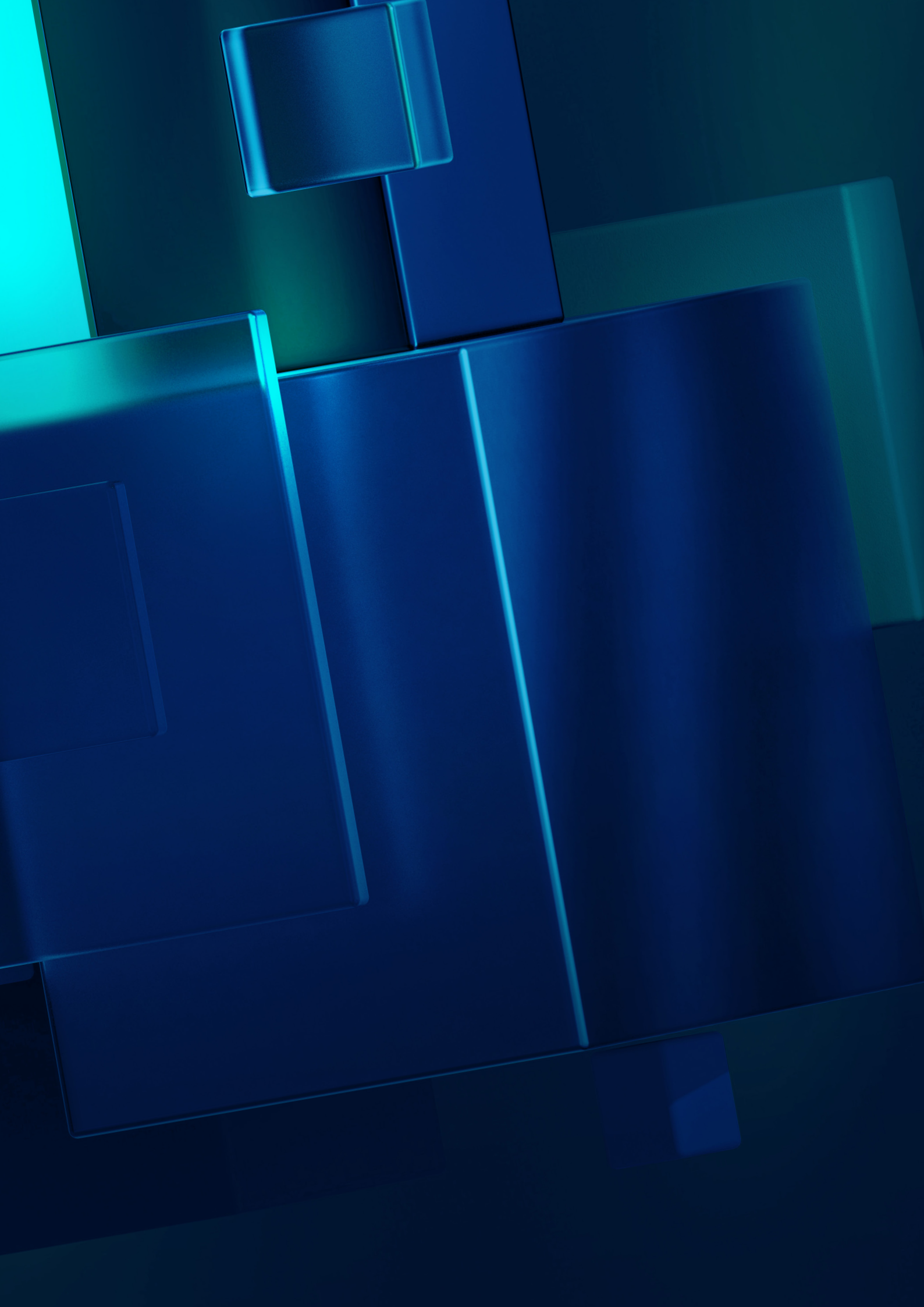
The framework touches on crypto/Web3 specific ESG issues, such as the environmental impact of crypto mining and proof-of-work (PoW) chains, the social impact of certain tokenomics, and governance issues around centralised exchanges or pseudo-anonymous communities. The framework's aim is to make ESG fit-for-purpose for the ecosystem fostering responsible and sustainable investing practices.

3. The VentureESG 'Universe of Issues' is an ESG framework which can be used to inform investor due diligence questions; it is constantly updated and available to use for the VentureESG community.

Glossary

Glossary Table (alphabetical order)	Description
Airdrops/airdropping	The distribution of free tokens or cryptocurrencies to a specific group of individuals or wallet addresses as a promotional or community-building activity.
Blockchain technology	Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network. An asset can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding).
Cryptocurrency	Digital money that does not need a bank or financial institution to verify transactions and can be used for purchases or as an investment. Transactions are then verified and recorded on a blockchain.
Cryptocurrency mining/ cryptomining	The process by which new units of a cryptocurrency are created and transactions are added to the blockchain through the solving of complex mathematical problems using specialised computer hardware, validating and securing the network in the decentralised system.
Decentralised autonomous organisation (DAO)	A type of self-governing organisation controlled by members, and not influenced by a central government or entity. DAOs operate on blockchain technology and use smart contracts to automate decision-making and execution of actions driven by the collective decisions of their participants.
Decentralised IDs	A type of globally unique identifier that enables individuals to be identified in a manner that is verifiable, persistent, and does not require the use of a centralised registry or central authority. It relies on blockchain and cryptographic technology to ensure privacy, security, and user-centric control over identity data.
Distributed Ledger Technology (DLT)	A decentralised database system; like a digital record-keeping system shared among many computers, making information transparent, secure, and immutable.
Environment, Social, Governance (ESG)	ESG is a set of principles focused on the (internal) processes of a company or VC (in contrast to the (external) outcomes associated with 'impact'). VentureESG proposes a fit-for-purpose definition in its first White Paper. 'Doing ESG' for a VC fund means (re)structuring its operations and (internal) practices in accordance with a set of ESG principles in mind. ESG involves implementing practices across the VC value chain, from investment decision making (as part of due diligence) to fund management and portfolio management. The VentureESG 'Universe of Issues' can serve as a starting point to define the specific practices and issues. Overall, ESG incorporates both a (non-financial but material) risk analysis and value creation activities.
Gas prices	Fees required for processing transactions or executing operations on a blockchain. Higher gas prices indicate greater demand for network resources and faster transaction processing.
Limited partner (LP)	Investors in a private equity fund, hedge fund, or other investment partnership. LPs provide capital to the fund but generally have a passive role in its management and decision-making processes.
On-chain data	Information that is recorded and stored directly on a blockchain. This includes transaction details, smart contract code, and any other data that is part of the blockchain's immutable ledger.

Glossary Table (alphabetical order)	Description
Off-chain data	Information that is not stored on the blockchain itself. Instead, it is kept off the blockchain, often in external databases or systems. Off-chain solutions are used to handle certain aspects of transactions or interactions more efficiently, reducing the burden on the blockchain and improving scalability.
Off-chain voting	A voting process conducted outside a blockchain or decentralised network. Instead of recording each vote directly on the blockchain, it utilises external systems or mechanisms for collecting and tallying votes, offering potential efficiency gains but requiring trust in the external process.
Play-to-earn (P2E)	A genre of video games in which players can, supposedly, earn real-world value or digital assets by actively participating in and progressing through the game. These games often leverage blockchain technology to enable the ownership, trade, and monetization of in-game assets.
Proof-of-work (PoW)	A consensus mechanism in blockchain where miners compete to solve complex mathematical puzzles using computational power. The first to solve it gets the right to add a new block to the blockchain, providing security through the computational effort required. It is considered the most energy-intensive consensus mechanism and has raised concerns about the carbon footprint of PoW-based cryptocurrencies such as Bitcoin.
Proof-of-stake (PoS)	A consensus mechanism in blockchain where validators, chosen to create new blocks and confirm transactions, are selected based on the amount of cryptocurrency they hold and are willing to 'stake' as collateral. PoS is more energy-efficient, aiming to achieve consensus in a more environmentally friendly way.
Pump-and-dump schemes	A type of financial fraud where the price of a stock, cryptocurrency, or other asset is artificially inflated ('pumped') through misleading or false positive statements. Once the price pumps to a high level, the fraudsters sell off their holdings ('dump'), causing a significant price drop and resulting in losses for unsuspecting investors who bought in during the inflated period.
Rug pull	Fraudulent or malicious actions in crypto projects where the creators (founders, developers, operators) intentionally disappear or abandon a project after attracting investments, often taking with them investors' funds or assets, leaving the project's community with substantial losses.
Tokenomics	Tokenomics, derived from the words 'token' and 'economics', is the study of the supply, demand, distribution, utility, and valuation of tokens (which could be cryptocurrencies, stablecoins, or any other type of digital or blockchain-based coin).
Venture capitalists (VC)	Individual investors or firms that provide financial capital to startup companies and small businesses in exchange for equity ownership or convertible debt.
Web3 protocols	Web3 protocols refer to decentralised internet protocols, enabling trustless, peer-to-peer interactions, and applications. They differ from Web2 protocols by supposedly eliminating central authorities, with goals of enhancing user privacy, and integrating technologies like smart contracts and cryptocurrencies.



PART I: DEFINING 'ESG' FOR CRYPTO

(i) Why we need ESG for crypto and Web3

ESG (environmental, social, and governance) is a set of principles guiding a firm, or a fund's management, processes and practices. While ESG began to influence corporate and investment behaviour from the mid-2000s, venture capital and the technology companies receiving VC investment have only recently started incorporating ESG considerations.[4]

Few of the existing frameworks or regulations are fit-for-purpose for (early-stage) technology investors and their underlying companies, not least when it comes to technologies such as Web3, crypto, or biotech.[5]

Web3 is a way to describe the new paradigm of the internet, in which its digital citizens interact with new forms of digital infrastructures which are owned by them – as individuals or as a collective – but never owned by one large corporation or institution. Web3 offers an advancement of the internet from Web1 as 'read-only' and Web2 as 'read-write' to Web3 being 'read, write and own'.[6]

It promises a decentralised infrastructure that 'anyone can build on to create new economic and social paradigms, for individual or collective control and coordination of shared resources'.[7]

The term 'crypto' refers to the broader concept of cryptocurrencies, which are one digital medium of value, ownership, and/or participation. These currencies are a use case for blockchain or distributed ledger technology ('DLT').[8]

Web3's vision or ideology of a decentralised internet– a web without central authorities or control– is achievable through the integration of blockchain with web applications. This vision of Web3 has been criticised as a means for 'the ultimate solution for re-engineering digital networks captured by Big Tech."[9]

Web3 has gained the attraction of Silicon Valley and its VC investors. In 2021 alone, VCs invested over $25 billion in crypto-startups[10] and more in 2022.[11] VCs have been the major source of fuel for the explosively scaling Web3 ecosystem.

4. Johannes Lenhard, 'European VC Funds are Building Community around ESG Initiatives', *TechCrunch* (11 February 2021), at https://techcrunch.com/2021/02/11/european-vc-funds-are-building-community-around-esg-initiatives/ [accessed 16 November 2023].

5. VentureESG, 'ESG for Biotech and Life-Science VC – a First Fit-for-Purpose Framework', *Medium* (25 April 2023) at https://medium.com/@hello_23899/esg-for-biotech-and-life-science-vc-a-first-fit-for-purpose-framework-21886da5862 [accessed 16 November 2023].

6. James Beck, 'What is Web3? Here are Some Ways to Explain it to a Friend', *ConsenSys* (12 January 2022) at https://consensys.net/blog/blockchain-explained/what-is-web3-here-are-some-ways-to-explain-it-to-a-friend/ [accessed 16 November 2023].

7. Kelsie Nabben, 'Web3 as "Self-Infrastructuring": the Challenge is How', *Big Data & Society*, 10.1 (2023), 6. DOI: 10.1177/20539517231159002

8. It is important to note that blockchain technology has evolved beyond cryptocurrencies and has found applications in various other industries and sectors such as supply chains.

9. Jathan Sadowski and Kaitlin Beegle, 'Expansive and Extractive Networks of Web3', *Big Data & Society*, 10.1 (2023), 14, DOI: 10.1177/20539517231159629

10. Michael Bellusci, 'Global VC Funding for Blockchain Firms Surged to Record $25B in 2021: CB Insights', *CoinDesk* (1 February 2022) at https://www.coindesk.com/business/2022/02/01/global-vc-funding-for-blockchain-firms-surged-to-record-25b-in-2021-cb-insights/ [accessed 16 November 2023].

11. Gareth Jenkinson, 'VC Blockchain and Crypto Funding Drops off in Q4 2022: Report', *Cointelegraph* (24 February 2023), at https://cointelegraph.com/news/vc-blockchain-and-crypto-funding-drops-off-in-q4-2022-report [accessed 16 November 2023].

However, in the last two years, the narrative around Web3 has shifted dramatically. At first seen in the light of extravagant success and idealistic rhetoric, the industry has since dealt with revelations of fraud and failures. This had led to less investment and major losses for VCs and consumers alike.

Some of this is crime and fraud related. In mid-2022, the nascent industry began to experience a deluge of exploits (mostly in forms of smart contract bugs, non-existent security audits and 'rug pulls')[12] causing widespread reports of NFT hacks and wallet drains.[13]

Then, after Luna,[14] the third-largest cryptocurrency ecosystem following Bitcoin and Ethereum, crashed over a span of three days (resulting in a loss of $50 billion) a game of 'liquidation dominoes'[15] ensued. The downfall of crypto lender Celsius[16] and multi-billion dollar hedge fund Three Arrow Capital[17] followed, and the FTX collapse began right after.[18]

These events led to wider discussions on who was to blame for such failures. Some put them down to 'the distinct absence of effective regulation',[19] whilst others claimed 'venture capitalists and investors are culpable'[20] for lacking the strength to do legitimate due diligence.

Failures and fraud show the vulnerabilities and gaps in an ecosystem that often hides behind the excuse of being in an 'experimental phase' and blunted discourse about the opportunities within this field.

Governance can bring stability to emerging technologies, but in a sector dominated by discourse that opposes traditional forms of governance, could other approaches help? Integrating ESG principles into the investing process could be one way to build more resilient and socially responsible companies within the crypto/Web3 space.

12. Valerio Puggioni, 'Crypto Rug Pulls: What is a Rug Pull in Crypto and 6 Ways to Spot it', *Cointelegraph* (6 February 2022), at https://cointelegraph.com/explained/crypto-rug-pulls-what-is-a-rug-pull-in-crypto-and-6-ways-to-spot-it [accessed 16 November 2023].

13. Scott Chipolina, 'Solana Wallets "Drained" in Blow to Crypto Network', *Financial Times* (4 February 2022), at https://www.ft.com/content/65e5829f-8107-48a8-a5d0-f7a8c8f79df3 [accessed 16 November 2023; paywall].

14. Q.ai, 'What Really Happened to LUNA Crypto?', *Forbes* (20 September 2022), at https://www.forbes.com/sites/qai/2022/09/20/what-really-happened-to-luna-crypto/ [accessed 16 November 2023].

15. MilkRoad, 'The Next Phase of the Crypto Crash', *MilkRoad* (15 June 2022), at https://milkroad.com/daily/the-next-phase-of-the-crypto-crash/ [accessed 16 November 2023].

16. Jack Schickler and Elizabeth Napolitano, 'Fahrenheit Wins Bid to Acquire Assets of Insolvent Crypto Lender Celsius', *CoinDesk* (25 May 2023), at https://www.coindesk.com/policy/2023/05/25/fahrenheit-wins-bid-to-acquire-assets-of-insolvent-crypto-lender-celsius/ [accessed 16 November 2023].

17. Hamza Shaban, 'Three Arrows Capital Falls into Liquidation after Crypto Crash', *Washington Post* (29 June 2022), at https://www.washingtonpost.com/business/2022/06/29/three-arrows-liquidation-crypto/ [accessed 16 November 2023].

18. Allison Morrow, 'Everything You Need to Know about the FTX Saga that Unfolded Today', *CNN* (13 December 2022), at https://www.cnn.com/2022/12/13/business/ftx-sbf-december-13/index.html [accessed 16 November 2023].

19. Kate Gee and Tom Crawford, 'Kate Gee and Tom Crawford Discuss Tougher Regulation of Digital Assets in Compliance Monitor', *Signature Litigation* (6 February 2023), at https://www.signaturelitigation.com/kate-gee-and-tom-crawford-discuss-tougher-regulation-of-digital-assets-in-compliance-monitor/ [accessed 16 November 2023].

20. Brad Myers, 'Who's Really to Blame for FTX Crypto Collapse?', *FOXBusiness* (15 November 2022), at https://www.foxbusiness.com/money/who-really-blame-ftx-crypto-collapse [accessed 16 November 2023].

(ii) A beckoning for ESG standards in the industry

Many people point to the paradox in adopting ESG strategies for crypto investments.[21] Mainstream media has focused heavily on narratives proclaiming that 'crypto is a scam'. We believe that some of these concerns are valid.

Environmentalists have long voiced concerns regarding blockchain technology's energy consumption. Early reports by the European Central Bank showed some crypto assets have huge carbon footprints, with an annualised energy consumption similar to that of some mid-sized countries,[22] whilst others reported noise pollution caused by cryptomining 'like a jet that never leaves'.[23]

The White House also published the Crypto Assets and Climate Report which outlined, 'Crypto-asset mining raises environmental justice concerns because it can create disproportionately adverse public health and environmental burdens for communities of colour, indigenous communities, and low-income communities'.[24]

In turn, prominent social issues caused or exacerbated by crypto are brought into question. Social implications, such as Web3's pseudo-anonymous communities being a safe space for everyone;[25] financial inclusion;[26] democratisation of access;[27] and empowering marginalised communities[28] and content creators,[29] are at the forefront of discussions pertaining to whether or not Web3 is fulfilling what it claims to do for society.

The whole system has been challenged, described as 'preying on the poor',[30] and accused of being built on the structure of economic inequality to advantage rich people to make them even richer, and at times doing so while 'build[ing] a biometric database from the bodies of the poor'.[31]

Governance issues have been even more obvious to the masses since the contagion of crypto companies going bankrupt as a consequence of the absence of basic financial controls, which are expected to exist in traditional organisations. For example, FTX had one large pool of money that mixed customer funds and investors' money. From this mix, Sam Bankman-Fried made two $100

21. Jacqueline Curran, 'Cryptocurrency and ESG – Heading for a Collision Course?', *Kennedys Law* (9 March 2022), at https://kennedyslaw.com/en/thought-leadership/article/cryptocurrency-and-esg-heading-for-a-collision-course/ [accessed 16 November 2023].

22. Isabella Gschossmann, Anton van der Kraaij, Pierre-Loïc Benoit and Emmanuel Rocher, 'Mining the Environment – is Climate Risk Priced into Crypto-Assets?', *ECB Macroprudential Bulletin*, 22 (July 2023), at https://www.ecb.europa.eu/pub/financial-stability/macroprudential-bulletin/html/ecb.mpbu202207_3~d9614ea8e6.en.html [accessed 16 November 2023].

23. Kevin Williams, 'A Neighborhood's Cryptocurrency Mine: "Like a Jet That Never Leaves"', *Washington Post* (31 August 2023), at https://www.washingtonpost.com/business/interactive/2022/cryptocurrency-mine-noise-homes-nc/ [accessed 16 November 2023; paywall].

24. White House Interagency Policy Committee, *Climate and Energy Implications of Crypto-Assets in the United States* (September 2022), at https://www.whitehouse.gov/wp-content/uploads/2022/09/09-2022-Crypto-Assets-and-Climate-Report.pdf [accessed 16 November 2023].

25. Cessiah Lopez, 'Is Web3 a Safe Space for Everyone?', *Mirror.Xyz* (17 October 2022), at https://mirror.xyz/czawolf.eth/cdVFINXs-m8G-WYME4aM3uiZ-kke3tbv9A_whqD-SUiE [accessed 16 November 2023].

26. Tonantzin Carmona, 'Debunking the Narratives about Cryptocurrency and Financial Inclusion', *Brookings* (26 October 2022), at https://www.brookings.edu/articles/debunking-the-narratives-about-cryptocurrency-and-financial-inclusion/ [accessed 16 November 2023].

27. Charles Clancy, Michael Norman and Sanith Wijesinghe, 'Democratizing Technology: Web3 and the Future of the Internet', *Mitre* (12 October 2022), at https://www.mitre.org/news-insights/publication/democratizing-technology-web3-and-future-internet [accessed 16 November 2023].

28. Edoardo Liotta, 'Beyond Crypto Bros, Web3 Has the Potential to Empower the Marginalised', *RICE* (6 October 2022), at https://www.ricemedia.co/web3-can-empower-the-marginalised/ [accessed 16 November 2023].

29. Solo Ceesay, 'How Content Creators and Influencers Can Leverage Crypto', *Rolling Stone* (1 October 2021), at https://www.rollingstone.com/culture-council/articles/content-creators-influencers-crypto-1233751/ [accessed 16 November 2023].

30. Peter Howson and Alex de Vries, 'Preying on the Poor? Opportunities and Challenges for Tackling the Social, and Environmental Threats of Cryptocurrencies for Vulnerable and Low-Income Communities', *Energy Research & Social Science*, 84 (2022), 102394, DOI: 10.1016/j.erss.2021.102394

31. Eileen Guo and Adi Renaldi, 'Deception, Exploited Workers, and Cash Handouts: How Worldcoin Recruited its First Half a Million Test Users', *MIT Technology Review* (6 April 2022), at https://www.technologyreview.com/2022/04/06/1048981/worldcoin-cryptocurrency-biometrics-web3/ [accessed 16 November 2023].

million venture investments through a subsidiary of FTX.[32] Such governance and business practices would have been simply unthinkable for a traditional financial company, and there are doubts that this type of mismanagement of funds is isolated in the industry.

For the industry to stabilise, there needs to be a way to mitigate the influx and impact of bad actors taking advantage of regulatory gaps. Regulation is one way to do this. What satisfactory ESG due diligence for crypto and Web3 technologies could do in the absence of new regulations is to help ensure that those building products and services with genuine intentions are properly guided – and their customers adequately protected.

(iii) Applying ESG to crypto and Web3

When applied to the realm of crypto and Web3, ESG must assess the environmental, social, and governance aspects that are specific to blockchain technology, cryptocurrencies, tokenomics, community engagements and Web3 protocols. In general, making sure that 'material' ESG issues are in focus is quintessential to the business case for any ESG integration.[33] For crypto and Web3, ESG must generally touch on:

1. Environmental: the E of crypto-ESG focuses on the ecological impact of the technology, including cryptocurrency mining and the associated energy consumption of blockchain networks and the noise pollution the computers and fans cause. At its core, it can be an examination of the technology's carbon footprint, energy efficiency, and the sustainability, transparency, and geographical location of the cryptocurrency mining operations. Strategies could include the adoption of renewable energy sources and the mitigation of environmental harm caused by computationally-intensive proof-of-work systems.[34]

For example, Ethereum moved to the eco-friendly proof-of-stake ('PoS')[35] consensus mechanism due to the carbon footprint of this system being orders of magnitude lower than PoW.[36] Mining algorithms should also be considered, as varying sets of algorithmic models can produce different levels of energy efficiency and financial profitability. For example, as explained by one participant, a Research Associate for a digital asset private market firm: 'Better algorithms can reduce GPU [Graphics Processing Units, used to verify transactions on a blockchain] usage, thereby increasing profitability as energy costs are reduced and thus the impact on the environment is also reduced'.[37]

32. Rohan Goswami and Mackenzie Sigalos, 'FTX Diverted $200 Million of Customer Money for Two Venture Deals That Caught the SEC's Attention', *CNBC* (28 December 2022), at https://www.cnbc.com/2022/12/28/ftx-used-200-million-of-customer-funds-for-two-venture-investments.html [accessed 16 November 2023].

33. Susan Winterberg, with Hannah Leach and Johannes Lenhard {VentureESG}, *Materiality Assessment For Venture Capital: Identifying ESG Risks and Opportunities for Due Diligence and Portfolio Management* (October 2022), at https://drive.google.com/file/d/1XPgua7_e5fcmNkuE1kr8UsPBCE8kqBb-/view [accessed 16 November 2023].

34. E. Napoletano, 'Proof of Work Explained', *Forbes Advisor* (30 October 2023), at https://www.forbes.com/advisor/investing/cryptocurrency/proof-of-work/ [accessed 16 November 2023].

35. McKinsey.com, 'What Is Proof of Stake?', *McKinsey & Company* (3 January 2023), at https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-proof-of-stake [accessed 14 July 2023].

36. Yves Renno, 'From PoW to PoS: the Ethereum Merge's Game-Changing Impact Explained', *WireX* (15 September 2023), at https://wirexapp.com/blog/post/from-pow-to-pos-the-ethereum-merges-game-changing-impact-explained-0787 [accessed 16 November 2023].

37. In economics, however, the Jevons paradox occurs when technological progress or government policy increases the efficiency with which a resource is used, but the falling cost of use induces such an increase in demand that resource use actually increases (rather than reduces). In this context, the consideration of better mining algorithms might be better for reducing energy costs whilst driving profits, but the incentive for the latter might actually increase the usage of mining and therefore drive the consumption of energy higher due to more excessive use.

2. Social: the S of crypto-ESG pertains to the impact of crypto on individuals, communities, and society. It considers issues around diversity, equity and inclusion ('DEI'), data privacy and security, labour practice policies, and issues related to economic inequality such as financial disempowerment.

This can cover accessibility issues too. For example, if people struggle to get access to crypto without going through exchanges, and such exchanges require bank accounts in order to make a purchase/transaction to access on-chain assets, then a lot of financial inclusion benefits evaporate. Cybersecurity also falls within this category, as the protection of users and their data is a social responsibility. But in crypto and Web3, users' privacy and data security is left up to them (self-custody of your private keys, i.e., 'Not your keys, not your coins').

There is an argument for prompting VCs to enquire about the cybersecurity measures embedded in the projects they're prospecting.

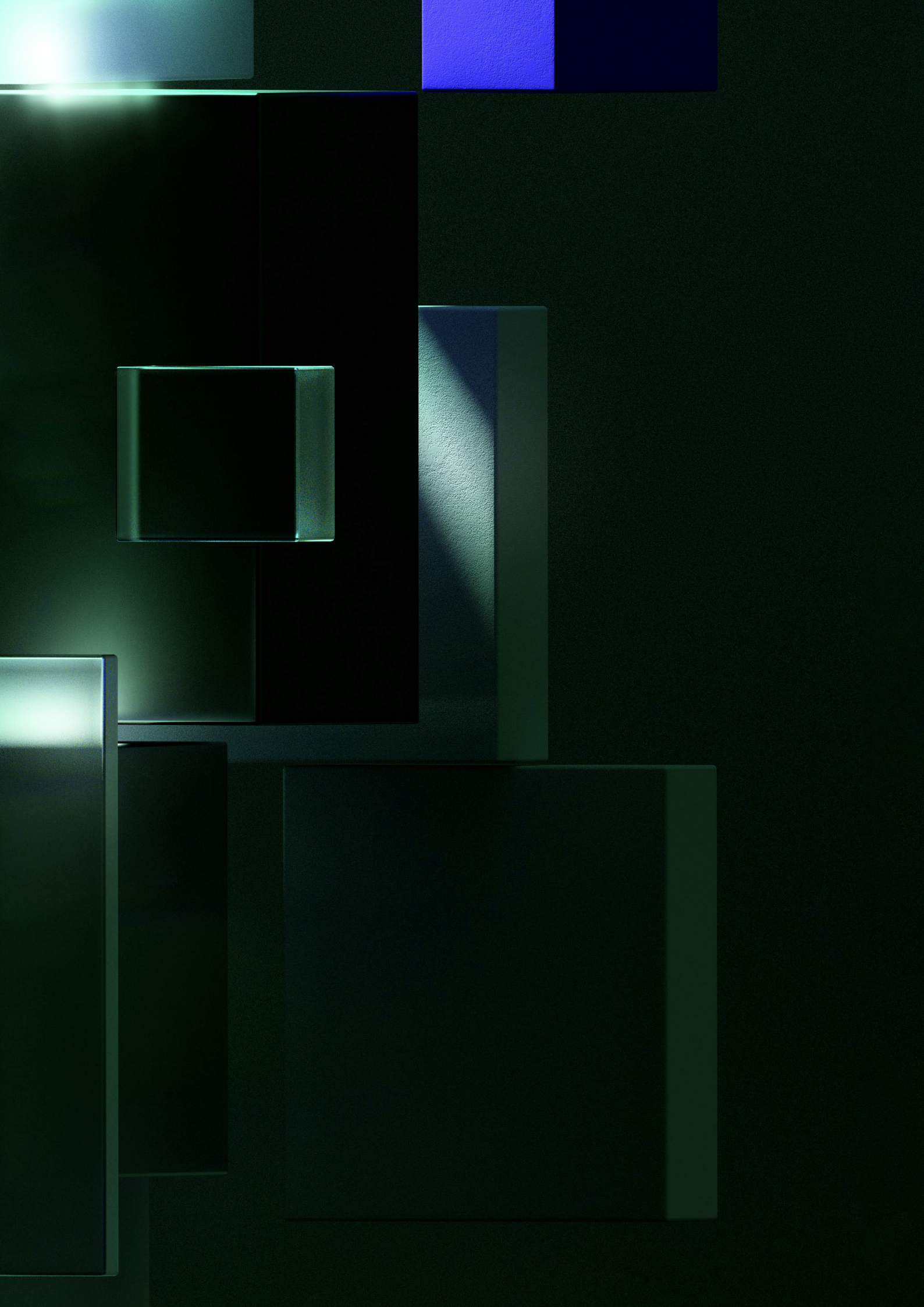
3. Governance: the G of crypto-ESG focuses on the transparency, accountability and governance practices applied within the industry.

It examines the governance structures of blockchain projects, including decision-making processes, participation, regulatory compliance, adherence (or lack thereof) to industry standards (where existent), and measures to mitigate fraud, money laundering, and other illicit activities. Additionally, it assesses the alignment of project leaders' incentives with the long-term interests of stakeholders relating to decentralisation.

Of particular significance is the exploration of governance mechanisms in the context of decentralised autonomous organisations ("DAOs"). DAOs are designed to operate autonomously via smart contracts and collective ownership within a token-holding community. Autonomy and decentralised decision-making are paramount to these new organisational systems.

A well-defined governance framework therefore becomes a linchpin for maintaining ethical standards and ensuring the sustained integrity of the broader crypto ecosystem.

However, to grasp how and why ESG factors are key to unlocking the potential of crypto and Web3, it is imperative to dive deeper into the specifics of what crypto-ESG could include.



PART II: TOWARDS CRYPTO-ESG

(i) Key perceived challenges for ESG integration

In our research, our aim was to explore existing best practices and to identify ESG gaps and challenges in order to gain a comprehensive understanding of the nuanced relationship between crypto and ESG. During our interviews, we found that:

1. ESG is not a term the crypto-world uses or likes. Despite conversations around environmental, social, and governance issues in the space (and the impact of some crypto-projects on ESG issues), ESG is not a recognisable term for most Web3 ecosystem participants. The underlying ideology of Web3 – creating new social, and economic paradigms – is pushing its operators, and to a certain extent investors, away from traditional corporate practices and values, which ESG is often associated with. There is a consensus that ESG is not the type of language (ambiguous and non-crypto specific) that Web3 communities are willing to engage with. Some VCs suggested an entirely new term or language be used when referring to ESG in crypto and Web3.
This resistance is notable because it reflects a divergence in language and values between the traditional corporate world (where ESG is a recognised concept) and the emerging crypto and Web3 ecosystems.

2. Lack of incentives. In one of our interviews, a VC from a global investment firm explained to us, '[ESG] is not how we're measured. We don't get any ESG bonus. We're measured based on the returns we generate. And it's very competitive, and it's already a tough time to be in this space'.

A second VC from a smaller firm commented in a similar way: 'If I have an LP [limited partner] giving me $5 million, and it tells me to include [ESG] in the due diligence, and want it included in our quarterly report, I'll do it'. Based on a common misunderstanding on what ESG is (and the perceived negative impact it has on return generation), these investors and many other VCs expressed doubts about introducing ESG into their practices.

Some investors suggested that instead the focus should be on enforcing ESG directly in the practices of startup founders and operators, distancing themselves from the responsibility of incorporating ESG into their own practices– often because they fail to see a direct positive correlation between ESG implementation and their financial success. More education is necessary to ensure crypto and Web3 investors and participants understand the relevance of ESG for their (financial) success, especially when in traditional finance such as bond trading, ESG compliance is common and reports have shown a positive relationship between ESG integrations and corporate financial performances.[38]

3. ESG principles are perceived to be in conflict with time-sensitivity and being 'founder friendly'. There is an overall reluctance to adopt additional steps and frameworks, especially within the due diligence process, where it could delay investment decisions.

38. Théo Kotula, 'ESG and Financial Returns: the Academic Perspective', *AXA Investment Managers UK* (22 July 2020), at https://www.axa-im.co.uk/research-and-insights/investment-institute/sustainability/environmental/esg-and-financial-returns-academic-perspective [accessed 16 November 2023].

In line with the idea of being 'founder friendly', too much friction created by the implementation of ESG may put VCs 'at a disadvantage against other firms as far as time-sensitivity when wanting to get in on certain fundraising rounds', as one VC investor commented. During the 'bull run' of 2021, this was especially problematic; competitive deals led to exorbitant valuations and fast-raising startups. Discipline was lost – both in terms of scale and building efficient companies – because of the seemingly free influx of money from competitive investors.[39] Given the shift in both the overall macro-environment ('no more free money') and the specific 'crypto winter', the power has shifted further away from founders and deeper into the hands of investors. This shift of power means VCs have a greater say and influence in providing an opportunity to explore the validity of ESG due diligence in their investment processes.

4. Web3's anonymity makes governance and tracking ESG hard. A key feature that entices thousands of people to flock to crypto and Web3 and crypto is the fact that people can choose to remain anonymous.[40] The value of anonymity can create problems around governance and transparency.

For instance, startups might not feel the need to track the social (DEI) make-up of their communities because the premise of the Web3 ethos is based largely on anonymity. Also, whilst on-chain voting can be decentralised to ensure privacy, it makes it challenging to identify the individuals involved in the decision-making processes, leading to difficulties in ascertaining the motivations and interests of participants, especially in contexts where transparency is essential for accountability.

5. Crypto and Web3 regulations are currently a 'moving target'. New crypto regulations (e.g., the Financial Service and Markets Act (FSMA) 2023, which introduces into the FSMA 2000 a definition of cryptoassets) are likely to change the rules of investing in crypto-related products on an on-going basis; many VCs do not feel it is operationally efficient to introduce new frameworks now, including ESG, as there is risk that these might not be aligned with future statutory regulations.

6. Lack of formalised or structured tools. Several VCs cited a lack of tools to help them with due diligence generally. Decision making is often based on personal and team judgments, without necessarily following formalised processes. Paired with the lack of 'concrete data' (e.g., when scrutinising a company pre-product), formal processes (e.g., standardised questionnaires) are seen to be of limited value.[41] Some of our participants pointed to the possibility of ESG questions, like the ones in our tailored framework, being added to informal pre-term sheet and formal due diligence 'sanity checks'.

It is important to bear in mind that the conversation around ESG in crypto is new, and almost non-existent. Many people in the crypto community are not aware of ESG unless they have come across the terminology in their line of work or personal research.

While ESG terminology may not be what this community uses, they are in fact having active conversations around environmental, social, and governance issues.

39. Blair Silverberg, 'Redefining "Founder-Friendly" Capital in the Post-FTX Era', *TechCrunch* (29 December 2022), at https://techcrunch.com/2022/12/29/redefining-founder-friendly-capital-in-the-post-ftx-era/ [accessed 16 November 2023].

40. This 'shield of protection' is widely revered as a fundamental aspect of the space, to a point that doxxing someone (revealing their 'real world' identity against their will) is considered malpractice: Alex Libertas, 'Doxxing – the Ultimate Crypto Taboo?', *Hackernoon* (30 December 2018), at https://hackernoon.com/doxxing-the-ultimate-crypto-taboo-3c19ce278d72 [accessed 16 November 2023].

41. Paul A. Gompers, Will Gornall, Steven N. Kaplan and Ilya A. Strebulaev, 'How Do Venture Capitalists Make Decisions?', *Stanford University Graduate School of Business Research Paper*, 16–33, *European Corporate Governance Institute (ECGI) – Finance Working Paper*, 477/2016 (1 August 2016), 95 pp., at SSRN: https://ssrn.com/abstract=2801385 or DOI: 10.2139/ssrn.2801385

Most VCs we interviewed shared the potential of ESG in the crypto space as a way of incentivising more founders and builders to consider better business practices to determine longevity of their firms. Alongside these key challenges, we also wanted to outline where ESG can play a specific role in the crypto ecosystem.

(ii) Identifying nuances in Web3 – where is ESG needed?

Participants were keen to explore the specific aspects of the crypto/Web3 ecosystem. But a one-size-fits-all approach will not work for this area. By modifying assessments and guidance to fit specific cases with specific needs, VCs' due diligence processes can help with the development and maturity of the sector. Starting from specifics means applying specific analysis to specific cases. Below, we look at three uses of crypto and Web3 technologies to map where ESG due diligence is needed.

NFTs. One of the most hyped-up areas in the ecosystem has been non-fungible tokens, usually used as easy-to-sell art projects such as the Bored Ape Yacht Club. From an environmental perspective, concerns arise due to the energy consumption associated with the minting and transaction processes of NFTs on certain blockchains. In some extreme cases, the 'gas fees' (transaction costs) are higher than the price of the NFT itself.

The environmental impact of the underlying blockchain infrastructure used for NFTs, such as proof-of-work systems, needs to be considered. Some foresee a rapid mitigation of the environmental issues around NFTs.

For example, one participant predicted a move towards a 'carbon neutral train of chains'. Other interviewees predict the importance of NFTs overall to decrease. On the social side, NFT projects' business models often involve the distribution of 'free money'[42] via airdrops. Airdrops primarily benefit those who already possess significant cryptocurrency holdings or are part of influential networks (e.g., owning a large percentage of token supply or holding the majority of an NFT collection) which can widen pre-existing economic divides and negatively affect social equity. This underscores the importance of considering social implications and promoting inclusivity in business models which align with the broader goals of ESG.

Play-to-Earn gaming. Play-to-earn ('P2E') NFT games, such as Axie Infinity, pose very real concerns under the 'S' of ESG because of their predatory and addiction-based business models. Often with P2E games, they target marginalised communities, who may have less access to money or opportunities, promising financial empowerment and freedom through leisure and 'real world' utility of NFTs. Axie Infinity, for instance, was especially widely used in the Philippines, Venezuela, and Vietnam – lower middle income countries where people often earn less and where such prospects promised to lift people out of poverty.[43]

The game's pricing made it difficult for people in lower middle income countries to play, so they introduced 'scholarship' systems where users could 'rent' the necessary NFTs to participate.

42. Taylor Locke, 'Bored Ape Yacht Club Just Dropped an "ApeCoin" Token to its NFT Holders. Some Made Tens of Thousands of Dollars in Hours', *Fortune* (17 March 2022), at https://fortune.com/crypto/2022/03/17/nft-bored-ape-yacht-club-dropped-token/ [accessed 16 November 2023].

43. AFP (Manila), '"Life-Changing" or Scam? Axie Infinity Helps Philippines' Poor Earn', *France 24* (15 February 2022), at https://www.france24.com/en/live-news/20220215-life-changing-or-scam-axie-infinity-helps-philippines-poor-earn [accessed 16 November 2023].

However, since its downfall, Axie Infinity has come under scrutiny for its exploitative system of 'managers' and 'scholars', even prompting comparisons to sharecropping.[44] People who relied on the game for income soon found themselves trapped and in debt.[45] This digital sharecropping paradigm highlights the challenges and pitfalls with criticisms extending to the VCs who promote the games' financial liberation potential.[46]

Pseudo-anonymous communities. For pseudo-anonymous projects or communities – a common feature in the space[47] – the social aspect of ESG leads to the biggest question marks. Engaging with ESG principles in communities where users' identities (gender/location/age/ethnicity) are not fully disclosed can present challenges in terms of accountability, transparency, and governance – as well as inclusion and equity.

Concerns around diversity can become especially problematic; a widely observed 'bro culture'[48] has been known to perpetuate stereotypes, incite misogyny, and provoke unsafe environments for anyone who is not a cis gendered man.

One of the problems is the lack of reliable data on the social make-up of crypto or Web3 firms and communities, especially DAOs. Even if on-chain data is accessed, the available wallet addresses do not point towards real identities.

However, popular solutions are being considered to tackle this, such as zero-knowledge proofs (ZK proofs)[49] and decentralised IDs ('DID').[50]

Reliance on centralised servers. The emergence of focused and project-specific communities managed via Discord servers and Telegram fosters social interactions on a global scale, but it also raises questions about inclusivity, diversity, and potentially exclusionary practices.

As one interviewee explains: 'social pressure is particularly heightened [in crypto] because if something is more decentralised, people feel they have more say in how *everything* is governed, which is a hard thing to combat because sometimes people will just be exiled because the community said so'.

Ensuring that communities reflect ESG principles is important, but the lax culture within these servers also poses a huge governance and cybersecurity issue – especially since most interaction with customers and community members are on Discord or Telegram, not a company website or system with greater security measures.[51]

Tokenomics (token governance, stablecoins, and 'meme' coins). A portmanteau of 'token' and 'economics', tokenomics is a catch-all for the elements that make a particular cryptocurrency valuable and interesting to investors.

44. PBS, 'Sharecropping: Slavery by Another Name', *Public Broadcasting Service* (2021), at https://www.pbs.org/tpt/slavery-by-another-name/themes/sharecropping/ [accessed 16 November 2023].

45. Andrew R. Chow, 'A Crypto Game Promised to Lift Filipinos out of Poverty. Here's What Happened Instead', *Time* (25 July 2022), at https://time.com/6199385/axie-infinity-crypto-game-philippines-debt/ [accessed 14 July 2023].

46. Jathan Sadowski and Edward Ongweso Jr., '*Unlocked* – 151. Sharecropping by Another Game', *This Machine Kills*, online podcast, SoundCloud (2022) at https://soundcloud.com/thismachinekillspod/unlocked-151-sharecropping-by-another-game [accessed 16 November 2023].

47. David Yaffe-Bellany, 'Millions for Crypto Start-Ups, No Real Names Necessary', *The New York Times* (2 March 2022), at https://www.nytimes.com/2022/03/02/technology/cryptocurrency-anonymity-alarm.html [accessed 16 November 2023].

48. Jay Speakman, 'Crypto Bro Culture: a Barrier to Wider Adoption of Cryptocurrency?', *be(in)crypto* (28 April 2023), at https://beincrypto.com/crypto-bro-culture-hindering-crypto-innovations/ [accessed 16 November 2023].

49. 'Zero-Knowledge Proofs', Ethereum.org, at https://ethereum.org/en/zero-knowledge-proofs/ [accessed 16 November 2023].

50. Dock Labs, 'Decentralized Identifiers (DIDs): the Ultimate Beginner's Guide 2023', *Dock* (23 October 2023), at https://www.dock.io/post/decentralized-identifiers [accessed 16 November 2023].

51. Mansi Sarvaiya, 'Orbiter Finance Discord Server Hacked', *The Crypto Times* (2 June 2023), at https://www.cryptotimes.io/orbiter-finance-discord-server-hacked/ [accessed 16 November 2023].

That includes everything from a token's supply, distribution, utility, and economic dynamics – anything that drives the token's value, purpose, and usage within the ecosystem. The specifics of tokenomics raise concerns around all three dimensions of ESG. From an environmental standpoint, the energy consumption associated with token mining and transaction validation can be a concern. Participants foresaw larger efforts in the future to address this (e.g., operators finding more ways to make their operations environmentally efficient).

Socially, token governance models raise concerns around inclusivity, transparency, and fair representation. Similar to the social implications of NFTs to the further enrichment of wealthy individuals, tokenomics can also play a role in disenfranchising users through unequal distribution strategies. This touches on governance issues too, like smart contract engineering, token distribution, decision-making processes, and the prevention of fraudulent practices or scams in the form of 'meme coins' (characterised by their humorous or satirical nature, these often attract significant attention and speculative trading).[52]

These coins, compared to stablecoins (which are designed to maintain a stable value, often pegged to a fiat currency like the US Dollar) are much more susceptible to pump-and-dump schemes,[53] where coordinated efforts are made to artificially inflate the price before selling off, leaving unsuspecting investors with significant losses and completely undermining the potential for good governance in crypto and Web3.

Decentralised Finance. DeFi is an aspect of Web3 focused on building an alternative financial infrastructure to replace institutions such as banks. Within DeFi, questions along all three dimensions of ESG arise. DeFi aims to allow financial transactions to occur in a secure way without the scrutiny – and the costs, privacy concerns, and occasional delays – associated with third parties such as banks.

However, environmentally, the energy consumption of blockchain networks supporting DeFi protocols is at play here, as many DeFi protocols use highly complex procedures in an effort to simplify and increase accessibility.[54] The social aspect of accessibility, inclusivity, and fair access to financial services are mostly considered the byproduct and impact of DeFi, as opposed to vital considerations for protocol practices and operations. However, some participants have signalled that improvements on governance is becoming more 'top of mind' amongst users and builders, especially in light of works such as Gnosis Safe,[55] a multi-sig crypto wallet.[56]

Off-chain data vs on-chain data. One participant emphasised that 'governance in crypto has its own set of sub-sectors by itself'. For example, firms will often invest in infrastructure dedicated to improving governance methods, whilst teams build out their own interfaces to fit their specific needs.

52. Crypto.com, 'What Are Meme Coins and How Do They Work?', *Crypto.com* (11 March 2022), at https://crypto.com/university/what-are-meme-coins [accessed 16 November 2023].

53. Utulu Hope, 'The Dark Side of Memecoins: Scams, Pump and Dumps, and Ponzi Scheme', *BSC news* (30 May 2023), at https://www.bsc.news/post/the-dark-side-of-memecoins-scams-pump-and-dumps-and-ponzi-scheme [accessed 16 November 2023].

54. Nathan Reiff, 'What Are the Most Important DeFi Protocols?', *Decrypt Media* (10 February 2023), at https://decrypt.co/resources/what-are-some-important-defi-protocols [accessed 16 November 2023].

55. Safe, with Anichohan and Lucas Schor, 'Gnosis Safe Raises $100 Million Led by 1kx to Unlock Digital Asset Management. Announces Rebrand to "Safe"', *Mirror.xyz* (12 July 2022), at https://safe.mirror.xyz/zMPp8uqZpxKgeXotSFv76bd2G8lJTmghH1FDWFm604c [accessed 16 November 2023].

56. By providing secure custody solutions and programmable ownership features, Safe is improving governance practices in DeFi by allowing users to securely manage their digital assets with options for extra-layers of security such as multi-sig authentication, recovery mechanisms and improved transaction experiences.

Then, each protocol will have their own ways of discussing governance decisions (going from internal forums in Discord servers to services like Snapshot for off-chain voting, then using a separate platform for on-chain implementations like Tally).

This highlights the relationship between on- and off-chain data in the context of governance decisions,[57] showing the transition from discussions and decision-making in off-chain environments to the execution of those decisions on the actual blockchains, where the data becomes immutable and transparent.

Crypto critic Molly White outlined this during an episode of the 'Tech Won't Save Us' podcast: while the industry is presented as 'much more transparent than the traditional financial system, so we can see whenever there are difficulties or problems in these companies', in reality, 'these large, centralised companies [are] not really recorded to the chain, or it's in a way that's actually difficult to untangle'.[58]

Blockchain specific cultures. Different blockchain networks have varying governance models, cultural norms, and ethoses which all impact how ESG principles are adopted, enforced, and integrated into decision-making processes. For example, Ethereum is considered more eco-conscious, mostly built and pushed by researchers and academics, while Solana is mostly built and pushed by 'hardcore, seasoned systems and hardware nerds';[59]

Cardano on the other hand is generally accepted as 'the least cool blockchain' despite its effort to market itself as the 'most environmentally sustainable cryptocurrency'.[60] Hence, when considering a specific project, the underlying blockchain needs to be taken into account as a possible indication of the overall project culture.

(iii) Making ESG the VCs' job

Taking into consideration environmental, social, and governance factors that are effectively unique to crypto and Web3 can help VCs identify the long-term viability of potential investments and assess their sustainable practices and operations in a dynamic industry. We also posit that integrating ESG-inspired questions during the due diligence stage can help mitigate the high risks the crypto industry is riddled with, especially in light of the FTX fraud.

ESG integration allows VCs to be thoroughly cognisant of the expectations of their stakeholders, especially limited partners, who are now prioritising investments that align with their responsible investment strategies, and VCs can place themselves in better competitive positions as the market increasingly favours responsible investing.

57. Xenia Soares, 'On-Chain vs. Off-Chain Transactions: What's the Difference?', *CoinDesk* (29 August 2023), at https://www.coindesk.com/learn/on-chain-vs-off-chain-transactions-whats-the-difference/ [accessed 16 November 2023].

58. Paris Marx and Molly White, 'FTX Goes to Zero', *Tech Won't Save Us*, 147, online podcast (22 December 2022), at https://techwontsave.us/episode/147_ftx_goes_to_zero_w_molly_white [accessed 16 November 2023].

59. mert|helius.dev, 'simplified worldview of the current state of crypto:
eth + eco mostly built and pushed by very smart researchers, academics, PhDs
solana mostly built and pushed by hardcore , seasoned systems and hardware nerds
can see this in the culture and tech very clearly
I'm sure this will trigger folks but eth feels like a proof of concept / academic project or a first prototype
historically, the first prototype rarely ends up sticking around — especially in engineering fields that require hardware (i.e., not pure software)
eth proved the concept works, now solana (and others like monad) will do the serious scaling work and squeeze every ounce of juice from the machines', 'tweet', X [formerly *Twitter*] (@0xMert_, 2 June 2023), at https://twitter.com/0xMert_/status/1664474869843611649?s=20 [accessed 16 November 2023].

60. Anthony Cuthbertson, 'What Is Cardano? The "Green" Crypto Hoping to Surpass the Tech Giants', *Independent* (18 May 2021), at https://www.independent.co.uk/space/cardano-crypto-bitcoin-elon-musk-b1849021.html [accessed 16 November 2023].

1. Risk management and mitigation. Specific ESG due diligence will help VCs identify and assess potential crypto-specific risks associated with crypto and Web3 startups that may not be immediately obvious when applying traditional ESG considerations and frameworks. Factors that may influence long-term viable and sustainable growth and scale – or threaten this growth – can be picked up by fit-for-purpose ESG line of questioning.

2. Market opportunity. There are increasing demands to take into consideration sustainable and socially responsible solutions across all markets, including crypto and Web3. For instance, Europe's first Bitcoin exchange traded-fund (ETF) recently received an ESG label.[61] Particularly in the EU, consumers and investors are seeking out companies that prioritise robust ESG practices.

By integrating ESG due diligence, VC firms can identify startups that are especially well-positioned to capitalise on the demand for 'sustainable' and 'responsible' investments, with the expectation of higher returns on investment.

3. Regulatory compliance. ESG-based due diligence can help VC firms prepare their portfolio companies for compliance with any forthcoming industry regulation (as well as existing regulation for investors, e.g., Sustainable Finance Disclosure Regulation (SFDR)).[62]

4. Reputation. VC firms (and startups) that prioritise ESG due diligence demonstrate a commitment to responsible investment practices and sustainability independently of the sector they operate and invest in. This can enhance their reputation and attract money from asset owners who are increasingly interested in aligning their investments with their values, best practice, and regulation (which VentureESG covers in a whitepaper pertaining to Limited Partners).[63] This reputational opportunity for alignment with values and purpose can also influence a company's and investor's potential to attract and retain employees/talent.[64]

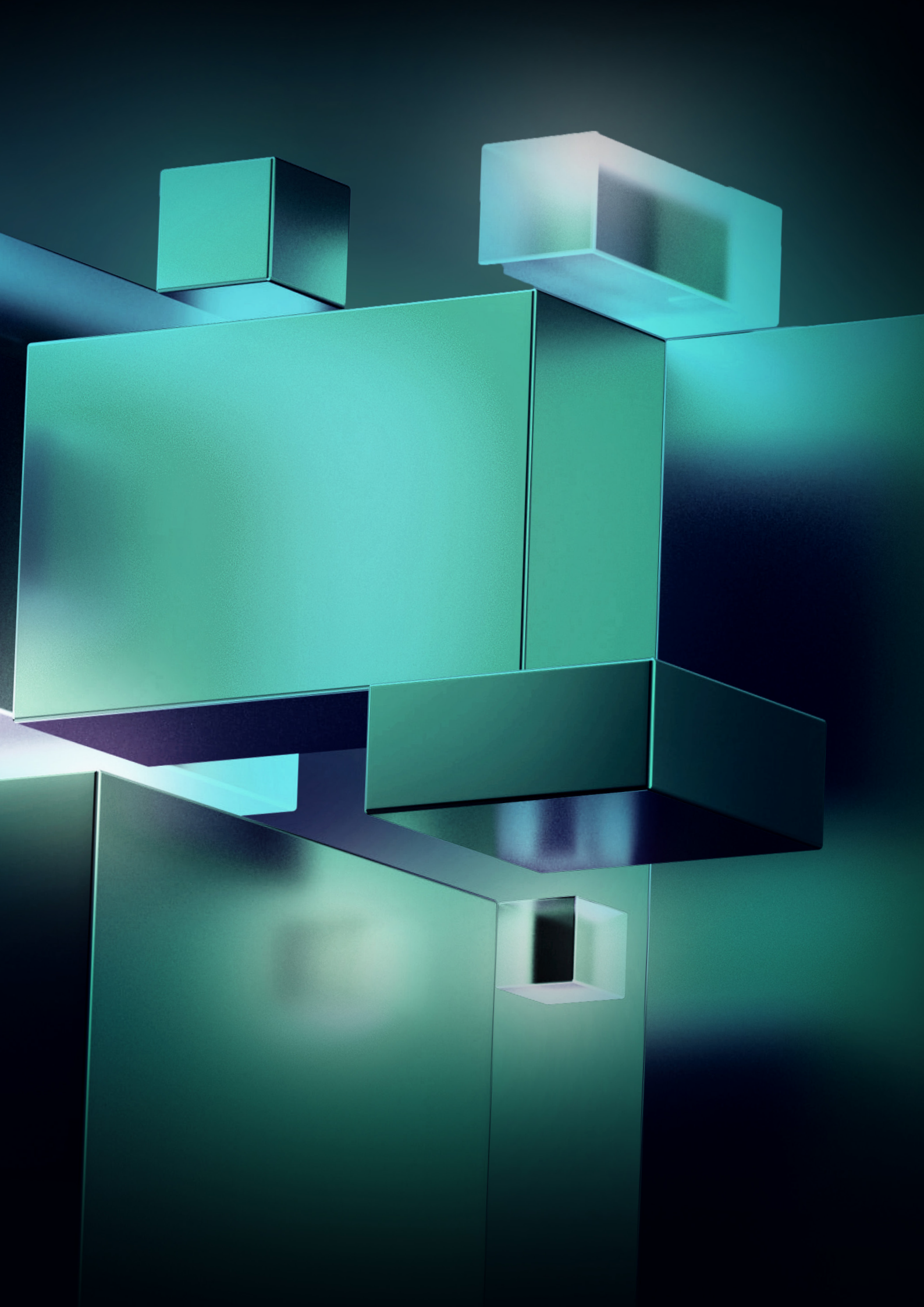
Overall, implementing ESG principles within VC due diligence for crypto and Web3 startups allow for a comprehensive evaluation of potential risks, market trends, regulatory compliance, and reputation building. It aligns investments with sustainability goals and supports startups that demonstrate risk awareness and positive use cases (for case studies of companies using ESG goals in their work in crypto see: **Appendix 3**), making it a valuable approach in the current landscape of the growing market. It is key, however, to focus on material issues, i.e., those that are specifically impactful for the crypto and Web3 space (in terms of their financial bottom line implications). Collecting what industry participants and experts believe these material issues to be is the focus in Part III.

61. Ed Moisson, 'Europe's First Bitcoin ETF Set to Launch after 12-Month Delay', *Financial Times* (13 July 2023), at https://www.ft.com/content/1d1de06a-a904-4db3-9017-4c061bd6854d [accessed 16 November 2023; paywall].

62. Frank Gannon, Conor Holland and Ian Nelson, 'What Is the SFDR? A Snapshot of the Sustainable Finance Disclosure Regulation (SFDR)', KPMG (9 March 2021), at https://kpmg.com/ie/en/home/insights/2021/03/what-is-the-sfdr-sustainable-futures.html#:~:text=The%20Sustainable%20Finance%20Disclosure%20Regulation%20(SFDR)%20imposes%20mandatory%20ESG%20disclosure,effective%20from%2010%20March%202021 [accessed 16 November 2023].

63. Johannes Lenhard, David Kampmann and Moriam Masha, *Driving It Forward: ESG in Venture Capital the LP Perspective*, VentureESG White Paper, 3 (2023), at https://drive.google.com/file/d/1tCkcvyl8xAcLkFuNn1NJ-IZvhXAOMBjE/view [accessed 16 November 2023].

64. Megan Leonhardt, 'The Employers Gen Z Is Rejecting Show Where Companies Need to Step Up', Fortune (13 November 2022), at https://fortune.com/2022/11/13/what-gen-z-wants-at-work-employers-climate-change-focus/ [accessed 16 November 2023].

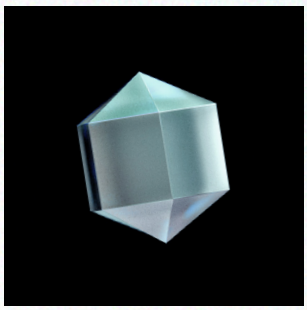


PART III: RECOMMENDATIONS AND CRYPTO-ESG FRAMEWORK

Based on our conversations with participants and the need for practical guidance, we present five key recommendations, with our most important recommendation being the use of a tailored framework for crypto-ESG.

Our recommendations provide foundational understanding on nuanced ESG principles specific to the sector, while the framework is intended to incite deeper thinking amongst individuals – most importantly VC investors, but also operators and founders – in the crypto space. These are presented as a way of ensuring responsible decision-making in the crypto market, and they are by no means a tool of persuasion towards crypto investments.

(i) Our five key recommendations

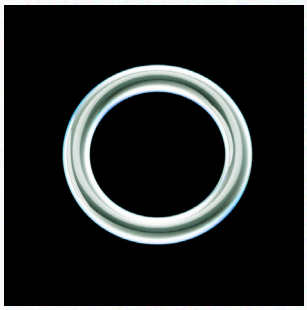


Recommendation 1 – Question the need for blockchain technology for startups

In direct tension with the ongoing techno-utopianist tendencies across some parts of the industry, we want to start with a fundamental question (see **Framework**): 'Does a project need blockchain technology to succeed? Is this underlying technology truly necessary for a particular idea?'

Rather than finding applications for technologies, we believe the first principles of building meaningful and responsible innovation is to begin the other way round. Operators should evaluate the need for implementing blockchain technology in the first place.

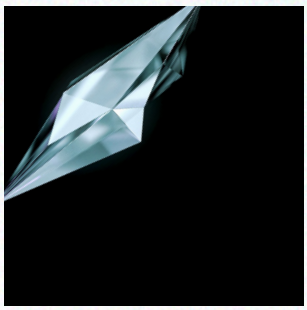
By examining the necessity of blockchain technology, VCs are indirectly scrutinising the project's potential environmental impact, societal implications, and governance practices, and the validity of the startup's value proposition in general.



Recommendation 2 – Conduct comprehensive stakeholder due diligence

After the FTX collapse and the surfacing of Sequoia's due diligence documents, the Financial Times asked: do VCs not do due diligence anymore?[65] Scrutinising every potential investment and its stakeholders – employees (former and current); customers; partners – will help in understanding the founding/operating team's experiences, capacities, and history, beyond relying solely on slide decks and pitches.[66]

VCs have a fiduciary duty to safeguard their investors' (LPs') money; being 'founder friendly' or following an emotional path of FOMO (fear of missing out) should be replaced by an active search for tangible evidence and actions that align with materially responsible business standards. Especially in a space predicated on principles of decentralisation and anonymity, engaging in wider conversations across ecosystem participants will enable VCs to assess the authenticity of a project as well as its willingness to adapt to emerging ESG standards even if the term 'ESG' is not explicitly used in organic discussions.



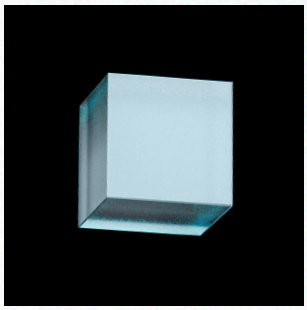
Recommendation 3 – Standardise crypto-ESG terminology

In order for the underlying ESG principles and questions to be widely accepted and used, the crypto and Web3 investors, communities, and eventually the whole ecosystem, need to embrace a standard terminology. While we strongly suggest sticking to the widespread concept of ESG, the application of its principles with a long-term value and lens on materiality are more important than the nomenclature as such.

One alternative could be 'responsible investing' which has become more popular and accepted, e.g., among LPs in venture capital more generally, especially those operating in the US. One step following the publication of this report could be the establishment of such a consensus, potentially in line with regulatory demands.

65. Brooke Masters, 'Doesn't Anyone Do Due Diligence Any More?', *Financial Times* (30 November 2022), at https://www.ft.com/content/e739d9ed-b8ee-4d8e-ad29-0d01889d5775 [accessed 16 July 2023; paywall].

66. Molly White, 'Is Web3 Bullshit?', transcript of YouTube video (4 November 2022), at https://blog.mollywhite.net/is-web3-bullshit/ [accessed 16 November 2023].



Recommendation 4 – Foster collaboration

Encourage more productive collaborations in the crypto and Web3 industry amongst key stakeholders such as VC investors, policymakers, regulators and legislators, asset owners (LPs), and operators/entrepreneurs.

Working towards a common definition of ESG or responsible investing could be a starting point; a second step could be the creation of adequate incentives (e.g., between LPs and VCs) that encourages startups to embrace ESG practices within the space. Collaboration rather than competition will enable a more comprehensive and effective approach that takes into consideration different perspectives and interests holistically.

Recommendation 5 – Use our tailored framework for assessing crypto and Web3-specific ESG issues

Due diligence around ESG issues should not follow intuition alone. As for investors in any other sector, we recommend using a fit-for-purpose ESG framework to identify the right material questions when scrutinising a startup.

Our list of questions (see **Framework**) provides a comprehensive starting point for building your own framework. We designed it specifically for VCs to help identify gaps and red flags but also simply to lay out areas for future improvement post-investment.

By utilising the framework, VCs can make informed investment decisions ultimately focused on making better investments with a better financial and stakeholder return. We aim to regularly update the framework but also suggest VCs can adapt it to fit their particular needs and investment focus areas.

(ii) Framework

Material Issues	Questions	Definitions	Limitations
Preliminary/'First' Questions			
Application of blockchain	Why do you need to use blockchain technology?		These are deliberately high-level questions to open a dialogue about the founders' general reasons for the choice of technology and its potential implications. Answers will probably point towards E, S, and G based issues that can be tackled further with the below questions.
	How exactly is blockchain technology helping to solve the problem you are addressing?		
Unintended consequences	What unintended consequences could your project/product produce? How could you mitigate those?		
Environment			
Crypto mining (specifically, hardware)	Are you directly or indirectly using hardware to operate, e.g., Validators, Nodes, Crypto mining hardware? If yes, are you thinking about chips and components used to determine the most cost-efficient results?	**Validator:** a computer program used to check the validity or syntactical correctness of a fragment of code or document. **Node:** refers to a device or computer that participates in a blockchain network.	
	How are you taking into consideration the implications of the geographical location of your mining operations as it relates to noise pollution? What measurements are in place to ensure you aren't complicit?		
	If hardware is used, how are you monitoring the proper and careful (re)distribution and/or disposal of crypto mining equipment?		Determining the exact hardware components can be challenging, especially if they rely on complex supply chains or multiple vendors. Startups may not have comprehensive visibility into the entire lifecycle of the hardware.

Material Issues	Questions	Definitions	Limitations
Environment			
Crypto mining (specifically, hardware)	Are you using carbon accounting frameworks? Is it planned?		Defining the scope and boundaries for carbon accounting will be challenging, especially for projects with interconnected networks or decentralised operations. Determining which activities to include, such as energy consumption, transportation, or indirect emissions from third-party services, etc. is difficult.
	Are you aware of your mining and general algorithms' levels of profitability and efficiency? Are you making additional investments towards R&D to improve such algorithms? For example, Green Software Foundation develops baseline specifications for 'Green Software' to control the efficient use of technology, which helps manage cost and carbon.	**Mining algorithms:** The functions that make the task of mining cryptocurrency possible. There are various algorithms, each with its own characteristics adapted to the cryptocurrencies that make use of them. Sometimes the more profit-focused the algorithm is, the more energy it consumes.	
Blockchain choice: PoW or PoS	Are there any mechanisms in place to offset or reduce the carbon emissions associated with the token's mining or transactional activities (e.g., choosing a L2 or sidechain instead of the L1 mainnet)?	**L1 or Layer 1:** represents the base layer of a blockchain network. **L2 or Layer 2:** refers to secondary scaling solutions built on top of the Layer 1 blockchain.	
	Are you using renewable energy?		This is only usually prevalent amongst startups/projects that are directly using mining.

Material Issues	Questions	Definitions	Limitations
Environment			
Gas prices	Are there any measures in place to mitigate the environmental impact of cross-chain transactions or data transfers (e.g., optimising gas fees in smart contracts)?	**Gas fees:** transaction fees are charges associated with executing transactions on a blockchain network. **Smart contract:** a self-executing digital agreement or program that automatically enforces the terms and conditions of a contract without the need for intermediaries.	Startups/projects may rely on various blockchain platforms or protocols to facilitate cross-chain transactions or data transfers. While optimisations can be implemented within operations, they may have limited control over the environmental impact of transactions from the underlying platforms or protocols.
Social			
Operational location(s)	Where are your major operational activities located? Are there measurements in place to ensure local citizens aren't being disadvantaged and/or displaced as a byproduct of the operations?		
Tokenomics and inequality	How are you thinking about token distribution (e.g., through airdrops)? Are there measurements in place to ensure that there is a fair allocation of tokens to the community (e.g., avoiding distributing tokens based on existing holding amounts)?		
	Are there any risks that you are potentially contributing to the unequal distribution of money/power (e.g., increasing the prevalence of 'crypto whales')?	**Whales:** individuals or entities that hold significant amounts of cryptocurrency, often possessing the ability to influence market prices and trends due to their large holdings.	Limited control over the broader market dynamics that influence wealth concentration or the prevalence of whales. Factors such as token distribution, market speculation, and investor behaviour, e.g., FOMO (fear of missing out).

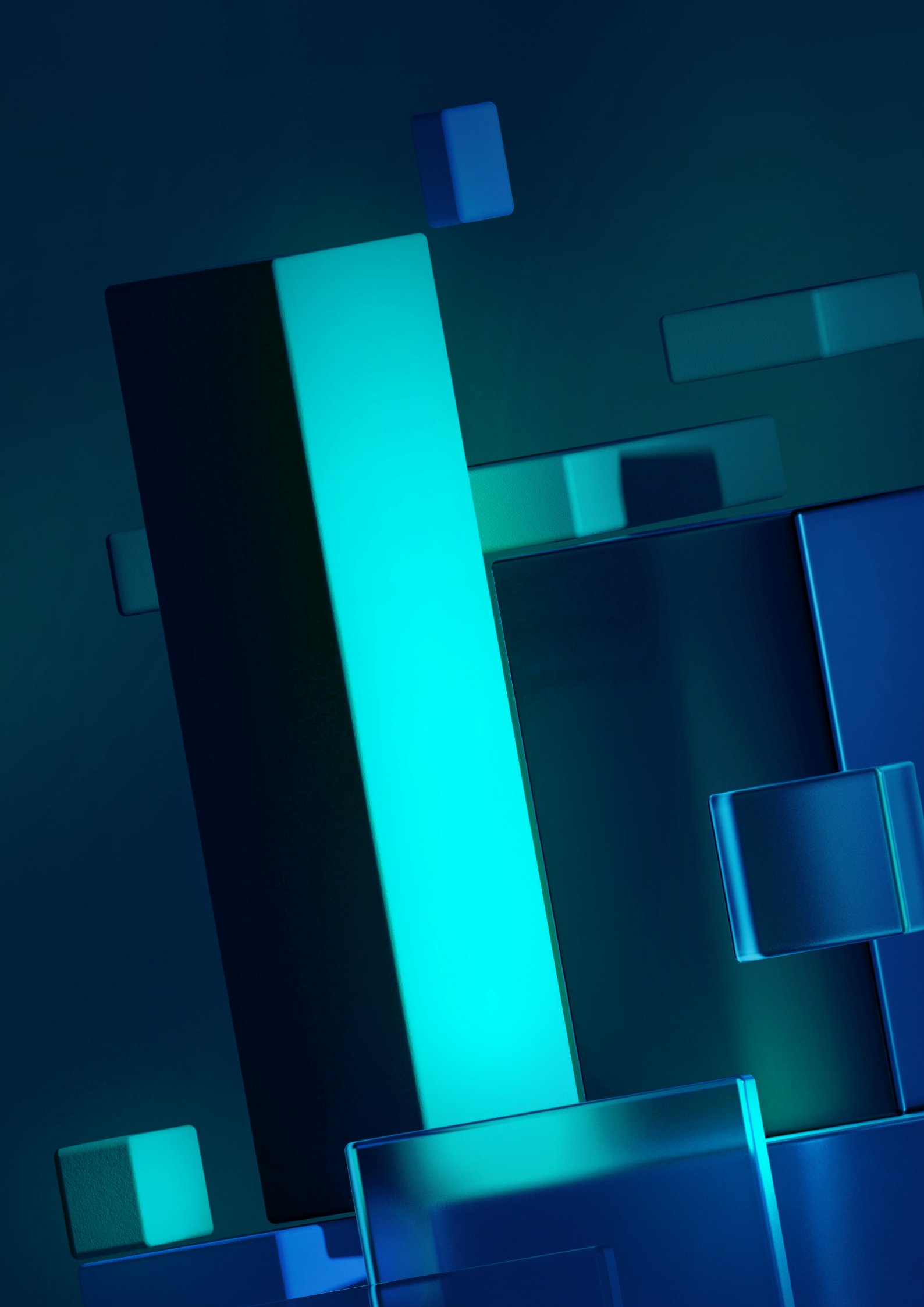
Material Issues	Questions	Definitions	Limitations
Social			
Gas prices	Are there measures in place to mitigate the pricing out of customers who come from emerging markets/marginalised backgrounds through extremely high gas fees?		Overall limited control over gas fee structures imposed by the underlying blockchain network. Gas fees are typically determined by factors such as network congestion and market dynamics.
Social platform choices and management	What social platform are your community and customers using (e.g., Discord servers, Telegram)? How do you assert digital behaviour within these communities (e.g., banning slurs in chat)?		Even if bots or features are used on Discord servers to allow users to assign roles to themselves that share their gender, location, age, ethnicity, etc., this does not stop someone falsely ticking those boxes to misrepresent themselves. This can lead to inaccurate data.
	How do you track the social and demographic make-up of pseudo-anonymous communities (e.g., zero-knowledge proofs (ZK proofs) or decentralised ID (DID))?	**Zero-knowledge proofs (ZK proofs):** used to verify an individual's identity, without revealing any sensitive personal information. **Decentralised ID (DID):** globally unique identifier that enables an entity to be identified in a manner that is verifiable, persistent (as long as the DID controller desires), and does not require the use of a centralised registry.	The only usual available data projects that are 100% accurate are on-chain data which are often just wallet addresses. There are limited ways to identify a persona as no identifying information is stored directly on the blockchain, so often they'll have to (most likely) use off-chain data which is difficult to collate.

Material Issues	Questions	Definitions	Limitations
Social			
Cybersecurity	What measures are in place to ensure that customers/users are being educated on wallet hygiene/better OpSec practices?	**Wallet hygiene:** refers to the practices and measures taken to ensure the security and proper management of cryptocurrency wallets. **OpSec:** short for Operational Security, refers to measures employed to safeguard sensitive information, maintain privacy and protect against potential threats and vulnerabilities.	
Governance			
Tokenomics (Airdrops, Meme Coins, etc.)	Are there mechanisms to mitigate potential negative impacts, such as market manipulation, fraud, or illicit activities (e.g., through MACI voting)?	**MACI:** Minimal Anti-Collusion Infrastructure, is an application that allows users to have an on-chain voting process with greatly increased collusion resistance.[67]	
	Are you transparent with your airdropping process, including clear disclosure of token distribution/ allocations, and intended use cases?	**Airdropping:** the distribution of free tokens or cryptocurrencies to a specific group of individuals or wallet addresses as a promotional or community-building activity.	Intended use cases that do not determine what users and owners will actually use them for. Once tokens are airdropped, their utility is in the hands of the owners. They can choose to also burn (essentially, get rid of) the tokens, making them useless.
	Are there governance measures in place to ensure fair distribution of tokens and prevent concentration of wealth or power (e.g. through Quadratic voting)?	**Quadratic voting:** a voting system where participants can assign more voting power to options they care about the most, facilitating a more nuanced and proportional expression of preferences.[68]	

67. Kyle Charbonnet, 'A Technical Introduction to MACI 1.0', *Medium* (18 January 2022), at https://medium.com/privacy-scaling-explorations/a-technical-introduction-to-maci-1-0-db95c3a9439a [accessed 16 November 2023].

68. Galen Moore, 'What is Quadratic Voting and Why Don't More Projects Use It?', *Axelar* (23 January 2023), at https://axelar.network/blog/quadratic-voting-DAOs-dPoS-and-decentralization [accessed 16 November 2023].

Material Issues	Questions	Definitions	Limitations
Governance			
Tokenomics (Airdrops, Meme Coins, etc.)	Do you plan on using 'Meme coins' as part of their project in any way (go-to-market strategy, promotion or marketing)? If so, are they showing user education as priority, providing clear risk disclosures and investor protection?	**Meme coins:** a type of cryptocurrency that gains popularity primarily through online communities and social media platforms, often driven by humorous or viral content, rather than through intrinsic value or underlying utility.	
Third-Party Considerations	Do you use third-party custodials (e.g., Centralised Exchanges)? If so, how are customers' assets being managed to ensure they're safe and still strictly owned by them?		
	How are you managing operations security (OpSec) in regards to Multisig wallets? How are they distributing this private information amongst their team?	**Multisig wallets:** cryptocurrency wallets that require multiple authorised signatures or approvals from different parties to authorise transactions, adding an extra layer of security and control.	
	What legal resources do you have to ensure enforceable contracts when outsourcing/hiring third-parties who do not want to be doxxed?	**Doxxing:** involuntary doxxing is considered as the malicious act of publicly revealing or publishing private information about an individual without their consent, often with the intent to harass, threaten, or incite harm. Voluntary doxxing, however, is choosing to reveal one's identity willingly.	



CONCLUSION

This report and tailored framework derived from sector interviews, addresses some of the pressing issues within the crypto and Web3 industry.

Throughout our interviews, we were met with unanimous agreement that more care is needed, especially in light of the FTX scandal. We are also happy to see similar pieces of work such as the recently published ESG Benchmark for digital assets by CCData and the Crypto Carbon Ratings Institute (CCRI)[69], which bestows further validation to our recommendations.

We believe that – like in other sectors – ESG can help make the crypto and Web3 landscape more robust, aligning successful company and project building with risk management and value creation for investors.

However, the challenges to adoption, rooted in the sector's cultural resistance to being affiliated with Web2 (traditionally corporate or institutionalised) ideologies, necessitate strategic and concerted efforts to establish ESG, especially in light of the lack of regulation.

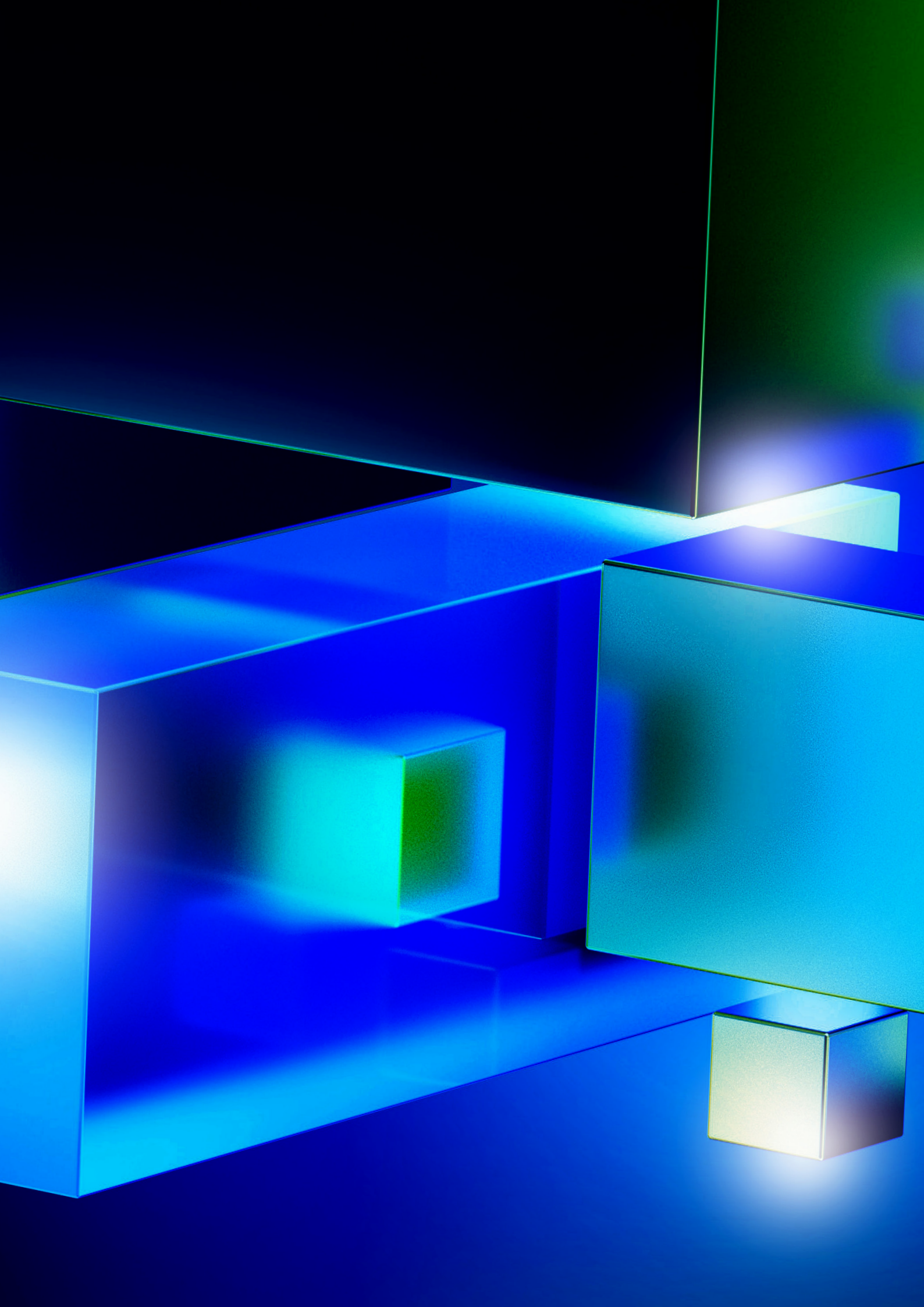
These efforts, if driven further by industry collaboration and standardisation of terminology (we strongly suggest using the widespread concept of ESG, but an alternative standardised terminology could be 'responsible investing') can direct the sector towards embracing the underlying ESG principles.

As for the next steps, a concerted focus on education and awareness raising is essential. VCs and their LPs need to understand the productive role ESG can play for their companies. Integrating ESG (e.g., by using the following framework during investment decision making) can be seen as part of the investors' fiduciary duty.

Misunderstandings regarding capital, entrepreneurs' and builders' approaches need to be replaced by the right knowledge, and we believe that VCs can play an active role in this. The disconnect between policymakers/regulators and the founders, users, and investors in crypto and Web3 is palpable, with interests and goals misaligned, causing disparate results from both ends.

We strongly encourage cross-function conversations, workshops, and engagement, leading ultimately to collective action. We do believe that the crypto and Web3 sector, as with many VC-backed sectors, can still adapt towards responsible and sustainable innovation.

69. CCData, 'CCData & CCRI Launch Industry First, Institutional Grade Digital Asset ESG Benchmark', press release, *CCData* (13 July 2023), at https://ccdata.io/press-releases/ccdata-ccri-launch-industry-first-institutional-grade-digital-asset-esg-benchmark [accessed 16 November 2023].



APPENDIX 1: METHODS AND RESEARCH

Our research approach involved engaging with a diverse range of stakeholders in the crypto and Web3 industries. We conducted over two dozen interviews with various participants, capturing their insights and perspectives on the topic.

In order to ensure accuracy and inclusivity, we recorded each conversation, allowing us to refer back to them during the writing process. It was important for us to also consider and incorporate thoughts and opinions from VCs not actively investing in crypto or Web3 projects, as well as operators and policymakers not working within those spaces to obtain critical perspectives for a more well-rounded approach.

It is worth noting that the majority of participants preferred to remain anonymous to foster more authentic and honest discussions, and anonymity is a quintessential preference for most people who are working in crypto and Web3.

Key interview questions

For VCs:

- What are some important factors that you consider when making an investment decision?
- How does regulation affect your business currently/might it affect your business going forward?
- How do recent events in the market affect the way you're currently investing?
- What are some potential drawbacks to your current due diligence process?
- Do you assess the environmental risks and opportunities associated with a particular crypto project or startup?
- What kind of social criteria do you consider when evaluating potential investments in the crypto/Web3 space?

For Web3 founders and operators:

- What excites you the most about Web3?
- How does regulation affect your business currently/might it affect your business going forward?
- How important is sustainability to you when considering operation strategies and designing your business model?
- Since Web3 startups are largely community-based, how do you track their community management?
- If the essence of Web3 is decentralisation, how do you manage decision-making power that's distributed among many different stakeholders?
- Tokenomics and pseudo-anonymous communities are unique aspects of crypto and Web3. What other aspects are there that you have come across that are inherently unique to this industry only?

For policymakers, regulators and lawyers:

- Given the way this space has evolved in recent years, what excites you about this space and what are your main concerns?
- What do you think the drawbacks are for an industry, from an ESG perspective, that's designed to operate seamlessly across borders with often anonymous, non-traceable actors?
- Have you come across anything in this ecosystem that is so innately unique that you may not have encountered in other industries?
- Do you have any examples of a crypto or Web3 firm working within an ESG framework?
- Why do you think ESG is not at the top of discussions amongst Web3 users and operators?

To organise the information we gathered, interviews (recorded calls) were transcribed and converted into detailed notes. Each participant's input was categorised based on the key themes, specifically focused on conversations related to the environment, social aspects and policy and regulations surrounding crypto and Web3. This categorisation allowed for a systematic analysis and ensured that the various dimensions of ESG were appropriately addressed in the research. Various perspectives were thoroughly examined and incorporated, encompassing viewpoints from both critics and proponents of cryptocurrencies.

In parallel to writing the report, we sought feedback on the initial version of the ESG framework and engaged in discussions with VCs (both with a crypto/Web3 focus and without). The feedback allowed us to refine the tool. Throughout the research process, we attempted to sample Participants from a variety of geographical locations, roles (e.g. VCs, operators, founders, lawyers), and investment focus to ensure a comprehensive and diverse range of perspectives (See **Table 1**).

APPENDIX 2: TABLE 1. INTERVIEW WITH PARTICIPANTS

Participant #	Role	Geography/location
1	VC	Canada
2	Operator	USA
3	VC	USA
4	VC	UK
5	Operator	US
6	VC	US
7	Operator	EU/US
8	Lawyer	UK
9	VC	UK
10	VC	UK/US
11	VC	UK/US
12	Lawyer	UK
13	VC	US
14	Operator	US
15	Operator	EU
16	Operator	US
17	Operator	UK
18	VC	US
19	Policymaker	US
20	Operator	UK

Participant #	Role	Geography/location
21	Operator	UK
22	VC	US
23	Lawyer	UK
24	Operator	US
25	Operator	EU/US
26	Operator	UK
27	Operator/Policymaker	US
28	Operator	US
29	Academic	US
30	Lawyer	UK
31	VC	US
32	VC	US
33	VC	UK/Zimbabwe
34	VC	Kenya
35	VC	UK
36	Policymaker	US
37	VC	US

APPENDIX 3: 'IMPACT IN CRYPTO' – POSITIVE USE CASES

Positive use cases in Environment:

Besides carbon-negative blockchain ecosystems like Celo leading a thriving new digital economy and DaVinci 3.0 creating the next generation of mining systems for those looking to monetise unused surplus electricity, more and more projects are embracing the power of blockchain technology to drive their climate goals. One of the best examples of this is the Solana blockchain who open-source their data, have real-time energy emission tracking, and enable anyone in the world to examine the network's emissions, proving their commitments to neutralise Solana's carbon impact and to stay climate focused.

Similar positive applications include Agriledger, a startup disrupting the food industry with blockchain-based solutions for transparency, fair pricing, and traceability to tackle agriculture challenges. This is impact.

Bitcoin miners are developing their operations to set the record straight that the proof-of-work method is not bad for the environment.[70] These new developments have seen Bitcoin miners flocking to Texas,[71] where the western portion of the grid boasts 32 GW of capacity (much of it wind and solar), 5 GW of load and only 12 GW of transmission to load centres elsewhere in Texas.

The rest of the power is habitually curtailed and Bitcoin miners have essentially turned to 'excess renewables'.[72] Other blockchains like Ethereum have also moved from PoW to 'proof of stake' ('PoS')[73] to help process transactions in a more environmentally friendly way.

Reports show that the transition reduced the network's electricity consumption and carbon footprint by over 99.988%.

Positive use cases for Social:

Cryptocurrencies have proven their use cases during events like the Ukrainian war, where an NGO raised $63.8 million, through more than 120,000 crypto asset donations. It would not ordinarily have been possible to deploy such a large donation to citizens in a war-stricken country, where the central bank had been shut down, but crypto wallets made it possible without third-party intermediaries intercepting the funds.

There have also been other emergency relief efforts around the world supported by blockchains like Polkadot, who partnered with the UN's World Food Programme, recognising the potential of blockchain as a tool that can help feed the hungry.[74] This is all impact.

70. Martina Igini, '8 Bitcoin Facts: Why Is This Cryptocurrency Bad for the Environment?', *Earth.org* (12 April 2022), at https://earth.org/bitcoin-facts/ [accessed 17 November 2023].

71. Brandon Mulder, 'Bitcoin Miners Flocking to Texas Want to Stabilize ERCOT's Volatile Renewables', *S&P Global Commodity Insights* (23 February 2023), at https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/022323-bitcoin-miners-flocking-to-texas-want-to-stabilize-ercots-volatile-renewables [accessed 17 November 2023].

72. Nic Carter, 'Bitcoin Mining Is Reshaping the Energy Sector and No One Is Talking about It', *CoinDesk* (11 May 2023), at https://www.coindesk.com/policy/2021/10/11/bitcoin-mining-is-reshaping-the-energy-sector-and-no-one-is-talking-about-it/ [accessed 17 November 2023].

73. McKinsey.com, 'What Is Proof of Stake?'.

74. Phil Lucsok, 'Fighting Hunger with Blockchain', *Parity Technologies* (21 March 2018), at https://www.parity.io/blog/fighting-hunger-with-blockchain/ [accessed 17 November 2023].

75. Polkadot, 'Decentralized Governance: the Way Forward for Web3', *Linkedin* (17 April 2023), at https://www.linkedin.com/pulse/decentralized-governance-way-forward-web3-polkadot-network [accessed 17 November 2023].

ESG comes into play when analysing how entities like Polkadot are implementing good governance practices within their ecosystems. One Participant who works at Polkadot mentions that they offer a decentralised governance solution by giving full control to the community through referenda.[75]

Unlike many Web3 projects, Polkadot emphasises decentralisation not only in network operations but also in decision-making and automatic execution (Polkadot's governance innovations can even be integrated by any team building on its technology), offering a sophisticated solution to the challenges faced by democracy.

They demonstrate that by being highly efficient in areas such as energy consumption, logistics, and employee values, sustainability becomes a natural byproduct rather than a deliberate focus for the platform.

Positive practices for Governance:

Many decentralised autonomous organisations exist to achieve social good. DAOs are blockchain-based entities that operate through smart contracts and enable decentralised decision-making for better governance,[76] which many people believe to be the most effective way to establish equitable funding to support impact-driven projects or start-ups. DAOs like Gitcoin aim to build an internet that is open source, collaborative, and economically empowering by funding projects. Similarly, VitaDAO is a globally distributed, community-owned collective that funds and incubates translational ageing research governed by $VITA (their native token) holders. But again, these are considered impact instead of direct ESG practices.

An example of engaging in ESG practices for Gitcoin though would be their Grants Stack,[77] which allows communities to fund projects of their choice in a permissionless environment. The DEI round is operated by external Round Operators, not the Gitcoin team.

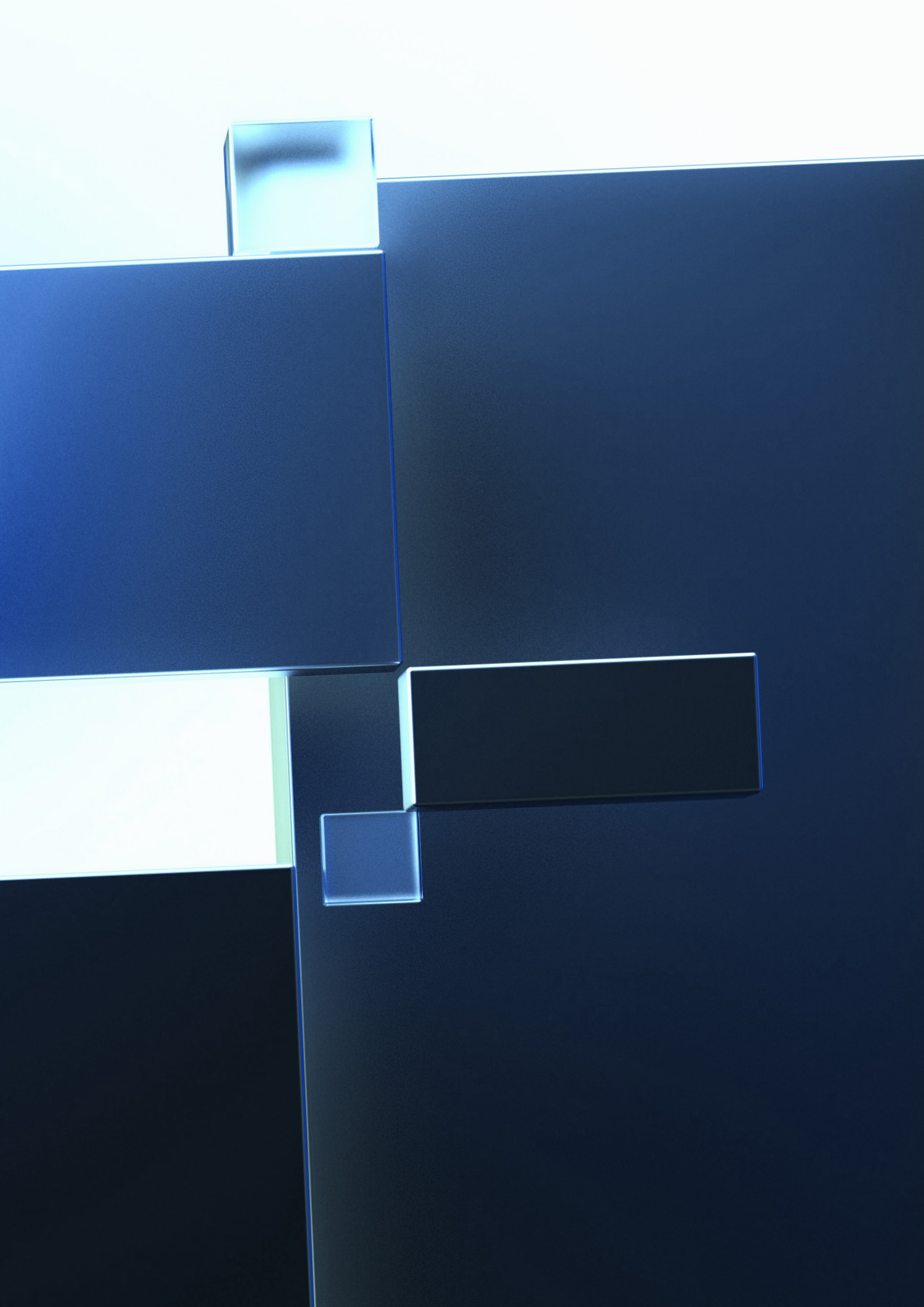
The inclusion of a DEI question in all core rounds was optional, with Gitcoin stating they value diversity but do not require everyone to participate in the round, and maintain an open-source platform accessible to all teams. This reflects their strategies on management and processing aligned with ESG principles.

Other examples of positive practices showing good governance is the Gnosis Chain, often known as 'the community-run chain'. As one of Ethereum's first sidechains, Gnosis allows contributors around the globe to easily run a node and has secured over 120, 000 validators. Its diverse validator set and the community governance ensure the chain remains credibly neutral at a much lower price point than mainnet.

Nonetheless, the aforementioned use cases spanning different factors of ESG show that although there will always be bad actors in any industry, the pursuit for 'the good' is present. The focus should be on how to create more beneficial applications for crypto and Web3 while mitigating the bad ones, and simultaneously encouraging better business practices through robust ESG frameworks. More light should be shed on the true potential of Web3 technology to contribute 'good' to our society, not only in terms of innovation but also by fostering responsible and sustainable practices that prioritise environmental, social, and governance considerations.

76. Mateja Durovic, 'What Are Smart Contracts? An Attempt of their Demystification', in *Digital Technologies and the Law of Obligations*, ed. Zvonimir Slakoper and Ivan Tot (London: Routledge, 2021), pp. 121–32.

77. Gitcoin, '1/ With Gitcoin's new Grants Stack, powered by Allo Protocol, this enables communities to fund what matters to them in a permissionless environment. The DEI round operates like a featured round that is run directly by an external group of Round Operators, not the Gitcoin team.', 'tweet' thread, X [formerly *Twitter*] (@gitcoin, 5 May 2023), at https://twitter.com/gitcoin/status/1654527857815613441?s=20 [accessed 17 November 2023].



ACKNOWLEDGEMENTS

The authors would like to thank every single participant who contributed their time, knowledge and expertise towards the helpful conversations that shaped the core of this paper.

Special thanks and gratitude are due to the following individuals for their feedback during the development of this research:

Ann Kristin Glenster, Senior Policy Advisor on Technology Governance and Law, Minderoo Centre for Technology and Democracy, University of Cambridge

Matthew Sekol, Sustainability GBB, Microsoft

Sam Gilbert, Bennett Institute for Public Policy, University of Cambridge

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eth + eco mostly built and pushed by very smart researchers, academics, PhDs

solana mostly built and pushed by hardcore , seasoned systems and hardware nerds

can see this in the culture and tech very clearly

I'm sure this will trigger folks but eth feels like a proof of concept / academic project or a first prototype

historically, the first prototype rarely ends up sticking around — especially in engineering fields that require hardware (i.e., not pure software)

eth proved the concept works, now solana (and others like monad) will do the serious scaling work and squeeze every ounce of juice from the machines', 'tweet', X [formerly *Twitter*] (@0xMert_, 2 June 2023), at https://twitter.com/0xMert_/status/1664474869843611649?s=20 [accessed 16 November 2023].

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