GBBC
Global Blockchain Business Council

STRONGER TOGETHER:
REBUILDING AFTER THE MAELSTROM OF MARKETS

GBBC 2022 Annual Report

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OUR MEMBERS' WORK

FINANCIAL INCLUSION

DEMOCRATIZING AND INSTITUTIONALIZING BLOCKCHAIN FINANCIAL PRODUCTS IN LATAM

We are proud to announce that 7CC Blockchain Investments established a partnership with Visions Brasil Investments, to form 7Visions LATAM Digital.

Founded in 2021, 7Visions LATAM Digital is focused on being the leading provider of real asset tokenization in Latin America. By leveraging blockchain technology, 7Visions democratizes access to Latin American institutional-grade financial products by bridging the gap between traditional finance, ESG, and the blockchain world.

Across 2022 and 2023, 7Visions LATAM Digital has been implementing three unique projects, supported by cutting-edge technical expertise and vast local market experience:

Tokenization of Structured Credit

Precatórios are considered a high-grade structured credit issued by public entities such as the federal, state, and city governments in Brazil. This type of credit is currently only accessible to institutional investors or high-net-worth individuals, given the required capital-intensive investment. 7Visions is actively tokenizing Precatórios to give individual retail investors access to fractional ownership of this type of product and its attractive returns by distributing tokenized structured credits through both crypto exchanges and local banks.

Tokenization of Environmental Assets

On March 3rd, 2022, the Global Environmental Asset Platform (GEAP), a subsidiary of 7Visions LATAM Digital, signed an agreement to develop a minimal viable product (MVP) with Nasdaq and the State of Rio de Janeiro for an environmental asset platform based on blockchain technology. The agreement seeks to take advantage of Rio's environmental assets (estimated US$ 25 billion) and promote the creation of the GEAP platform in conjunction with fiscal policies to stimulate the consumption and trade of tokenized carbon credits and other environmental assets.

Helium (HNT) MVP

The Helium project is a decentralized wireless network built around an open-source protocol. Our objective is to wirelessly connect remote large-scale farms through a network of devices installed and owned by 7Visions LATAM Digital using the Helium protocol and tokenomics.

7Visions' central goal is to democratize and institutionalize blockchain financial products for Latin American markets by developing institutional-grade tokenized products, partnering with top retail distributors, and supporting our products with liquidity pools and active market making.

For more information, please contact:
alex.nascimento@7visions.co ■

SUPPORTING AFGHANISTAN WITH THE RIGHT PAYMENT SYSTEMS

Ninety seven percent of the Afghan population lives below the poverty line. Almost 20 million people – half the population – are suffering from high levels of food insecurity according to the United Nations' World Food Programme (WFP). Many are on the brink of starvation, including more than one million children under the age of 5 who are in the throes of prolonged malnutrition. For those children lucky enough to survive, the maladies that will afflict them for the rest of their lives are daunting. In this context, perhaps more than in any other, the need for humanitarian aid is not only crucial, it is a matter of life and death.

Sanctions, frozen assets, a paralyzed banking sector, and a shortage of physical currency are drastically constraining liquidity in Afghanistan's economy which exacerbates the humanitarian crisis. Often the only resources available to the average Afghan come from agencies like WFP, UNICEF, or large Non-Governmental Organizations. In the face of all of this, an Afghan company called HesabPay has built a payments platform on the Algorand Blockchain to facilitate digital payments from international relief organizations directly to recipients.

HesabPay issues digital Afghani (Afn) – the Afghan fiat currency – based on fiat deposits, and settles transactions on the Algorand blockchain network. To aid in humanitarian relief efforts and bridge the financial exclusion gap in Afghanistan, anyone can send and spend their digital Afn with any phone that has an account. Users can make digital payments using the network to shop at merchants, buy airtime, pay electric bills, and go to the nearest HesabPay offices to on-ramp and off-ramp their fiat and digital Afghani. So far, there have been 4.5 million transactions by 400,000 users with 3,000 merchants across all 34 provinces.

The humanitarian impact in Afghanistan of a direct payment system that is fast, reliable, and traceable is profound. Recent evaluations have documented the positive changes that occur when women are the direct recipients of payments, and what that means for their families and their communities. In this case, blockchain technology is the best answer possible. It's an answer that could be replicated in some of the most difficult places to work in the world. Places where lives may literally depend on its adoption. ■

COMMUNITY-LED, SHARIAH-COMPLIANT FINANCE

Muslims make up roughly one-fifth of the world's population and live predominantly in emerging and frontier markets. Yet, an estimated 70% of the 1.5 billion Muslims do not use basic banking products. Many of these people are deterred from traditional banks and fintechs due to the lack of Sharia-compliant financial products. Similarly, in just nine countries across the MENA region, the International Finance Corporation (IFC) estimates that small and medium enterprises (SME) are in need of up to $13.2 billion in Islamic finance. It is estimated that Sharia-compliant assets are growing 12% per year but still represent only 1% of global financial assets.

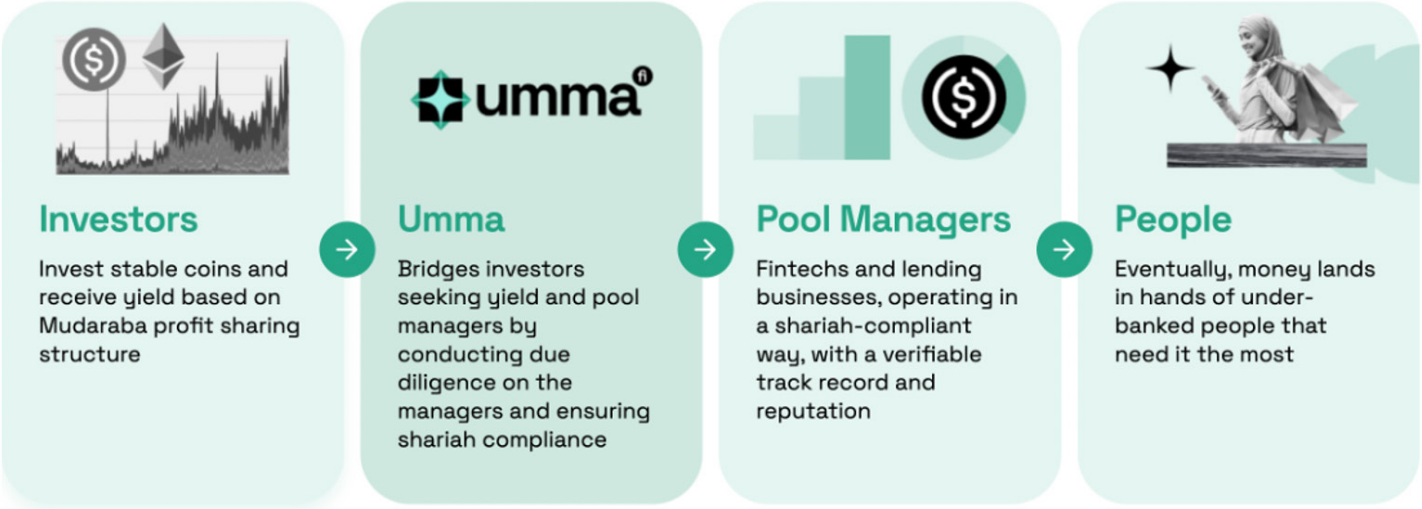
Founded in 2021, IMAN addresses the gap in access to Shariah-compliant products by offering a halal finance one-stop shop for merchants, shoppers, and investors. IMAN's tailored mobile platform for Muslim majority markets consists of IMAN Invest, an investment platform, and IMAN Pay, a halal buy-now-pay-later (BNPL) solution, enabling people to invest or get funding in line with their beliefs. With 60,000+ active users, IMAN Invest manages over $5 million from 10,000+ retail investors with the vision to become a full-fledged Islamic neobank.

To scale the investment product throughout the world and facilitate the development of a global Islamic finance ecosystem, IMAN team is building Umma.Finance, a decentralized finance (DeFi) protocol that bridges the crypto world with fintechs that provide Sharia-compliant funding to individuals and businesses off-chain.

With the recent downturn in the crypto markets, the pressing need for sustainable income in DeFi has ignited the growth of protocols that generate a yield from real-world assets (RWA). Goldfinch, Credix, and Mohash have all emerged as decentralized liquidity protocols that expand access to capital for fintech lenders in emerging markets. Amidst market volatility, they have been able to maintain strong yield stemming from the companies' real-world returns not correlated to crypto markets.

Umma differentiates itself in the RWA lending space by focusing on the $3 trillion market for Islamic finance liquidity. Today, close to no Islamic assets are locked in DeFi as most DeFi protocols are interest-based, preventing both retail and institutional Islamic investors from entering the crypto markets. Umma intends to become the first protocol to offer a low-risk, diversified, sustainable, Sharia-compliant yield for stablecoins, all while easing access to halal financing for consumers and SMEs in the most underserved markets. Additionally, Umma is employing the power of DeFi to reduce the hefty transaction costs traditionally associated with Islamic securitization, costs ultimately passed on to the end borrowers (i.e. small businesses or individuals). The team intends to launch the protocol by Q2 2023.

Islamic finance principles are rooted in Islamic ethics but are not exclusive to Muslims. With its underlying principles of equitable distribution for all, more emphasis on productive investment, judicious spending of wealth, and the well-being of the community as a whole, Islamic finance presents an ethical alternative for non-Muslims and goes hand-in-hand with sustainable or responsible investing. As the demand for sustainable investing continues to rise even during what is highly likely to be a period of global recession, a defensive and low-debt investment philosophy of Islamic investing is intrinsically attractive for institutions. ■



BACKING EVERYDAY DEFI SOLUTIONS TO ACCELERATE THE DAY-TO-DAY USE OF DECENTRALIZED FINANCE

IOVlabs
Building Value Networks

Current decentralized finance (DeFi) solutions are too complex for the average user. IOVlabs is dedicated to creating decentralized solutions that facilitate ease of use and affordability for average people and help to enable financial freedom in emerging economies.

> **"We are building a DeFi ecosystem for everybody, everywhere. We are creating the first generation of Everyday DeFi."**
> **- Diego Gutierrez Zaldivar, IOVlabs CEO.**

In July 2022, IOVlabs delivered RIF Aggregation - the first product released for the Everyday DeFi venture. A Layer 2 solution that uses highly scalable rails in order to process transactions between users, RIF Aggregation removes the barriers of existing DeFi technology by allowing low-fee near-instant transactions using Zero-Knowledge rollups and giving users the ability to pay transaction fees using the token being transferred.

In August, IOVlabs delivered further on their Everyday DeFi promise through a partnership with El Salvador-based finance cooperative ASCAV. IOVlabs provided a loan to ASCAV using the rDOC stablecoin valued at 20,000 USD. ASCAV used the rDOC value to generate loans for entrepreneurs without access to the traditional banking system. Loans were made available to two hundred borrowers in El Salvador using ASCAV's product.

IOVlab's most recent integration with Buenbit in November 2022 established access to Everyday DeFi products and services for users in Latin America through the Buenbit marketplace. This integration enables users in the region to use crypto to pay their bills, receive their salary, send money overseas, and lend-borrow at fair rates in a safe, secure way.

Going forward, IOVlabs endeavors to build and integrate new technologies to enable fintech and Web3 innovators to develop the first generation of everyday DeFi applications. ■

NEXT-GENERATION INFRASTRUCTURE

THE ANSWER FOR GENERATING YIELD WITH CRIPTONITE-WAVE

The crypto industry offers unique yield generation strategies and represents huge opportunities for investors looking at the crypto market. Another wave of institutional adoption will likely occur during the next bull run when institutions see their competitors profiting. Institutional investors increased allocations during the crypto winter, with many using this as an opportunity to onboard crypto to learn and build for the future. Digital assets are seen as offering one of the most attractive opportunities to generate alpha, especially giving access to yield opportunities. Here are some interesting yield generating investment strategies:

Staking your digital assets to support transaction processing on the underlying network offers a unique yield source. Staking can also provide an improved risk profile compared to traditional asset lending.

Centralized finance (CeFi) lending is a more traditional credit underwriting process where a thorough due diligence of balance sheets is conducted, and management practices, the executive team, and corporate structure, all ensure clients' funds are handled carefully and that counterparties are over 100% collateralized.

Collateralized borrowing is another investment strategy, which uses clients custodied staked assets as collateral to borrow stablecoins and deploy into high yielding strategies.

Decentralized finance (DeFi) applications are composable, which generates sophisticated, complex, and ever-changing capital markets but are also a powerful strategy to generate yield.

DeFi expertise can be leveraged to allow clients to take advantage of the attractive yield opportunities available in the burgeoning ecosystem regarding **lending, liquidity provision, and hybrid yield opportunities.**

Criptonite-Wave Financial's strongest expertise lies in yield generating strategies. We strive to provide unparalleled expertise in digital assets to guide investment exposure with a strong risk management framework and credit due-diligence structure to avoid any exposure to distressed entities. One of our core products, the Wave Bitcoin Income & Growth, uses derivatives to generate a monthly target yield of 1.5% through the sale of out-of-the-money bitcoin call options. ■

DRIVING A DIGITAL FUTURE FOR CAPITAL MARKETS

The past few years have been profound for digital assets and blockchain ecosystems, particularly for capital markets. As an industry, we've been on a multi-decade journey towards full digitization, from the advancement of paper-based trading to electronic platforms; and now the tokenization of financial instruments. It's an exciting time for market participants. Tokenizing the entire lifecycle of financial assets brings many new opportunities - greater

liquidity, reach, speed-to-market, and reduced risks are among the benefits.

Let's examine securities and, in particular, the issuance process of these asset classes. The current state of issuance processes for any asset class is defined by error-prone, manual processes between multiple participants, leading to high costs and long lead times. Paper-based issuance results in minimal standards, no rules for streamlining, and lacks real-time visibility into the state of the asset, pricing, and allocation, all of which create bottlenecks and lowers the opportunity for greater liquidity.

Deutsche Börse is one organization tackling these industry challenges, paving the way for an innovative future for European markets with D7, a digital post-trade platform. D7, powered by Daml, enables same-day issuance and paperless, automated straight-through processing (STP) for the entire value chain of issuance, custody, settlement, and asset servicing for digital securities.

As of October 2022, European issuers can leverage the new infrastructure to issue digital securities. The first automated issuances on D7 were performed by LBBW and Vontobel and facilitated by Clearstream, Deutsche Börse's post-trade service provider. Underpinned by Daml, Digital Asset's smart contract language, Clearstream reduced the issuance time from days to minutes. Market participants were equally impressed with the "go-live." Vontobel said, "Issuances are 21 hours faster than before." And LBBW said, "We are taking the next technologically important step towards end-to-end digitalization."

New business models are emerging. Market leaders are rethinking how they create value using open technology frameworks to connect with customers in new ways. Tokenization and the digitization of financial instruments, done right, unlock these opportunities. Deutsche Börse, and other market leaders, showcase how early adopters are not just tokenizing assets but creating new digitally interconnected markets, leveraging the best of smart contract and blockchain technologies. ■

DEDICATED CRYPTO INSURANCE

Evertas

In business, there are many advantages realized through specialization, including efficiencies achieved by investment in developing highly specialized tools and the unique perspectives that can only come from repeatedly focusing on solving a very narrow set of problems.

Evertas is the first and only dedicated crypto insurance company. Our business model leverages many proprietary tools and technologies, in addition to insights into the risks associated with cryptoasset custody. The outcome is a set of insurance products that not only safeguard our Web3 clients' customers and their assets, but that also make our clients more resilient.

Nowhere has this been made more evident in 2022 than in the insolvency events we've all observed with concern and, in particular, how those events have resulted in the customers losing their cryptoassets to creditors and investors.

Over three years ago, Evertas underwriters preemptively acknowledged that market downturns were a threat to this industry. We expanded our already exhaustive custodial crypto underwriting application to include requirements that customer and institutional funds be thoroughly segregated, to keep customers' property from being used to pay the exchange's debts. We also added underwriting, ensuring that the custodian responsible for making unambiguous trust arrangements returns assets to their owners in case of insolvency.

It's impossible to say whether these operational changes alone would have prevented the unfortunate recent failures of centralized exchanges, but we can be certain they would have left their customers in possession of what is rightfully theirs. Evertas is proud to be the first and only dedicated crypto insurance provider, and prouder still of the benefit our customers and the Web3 space as a whole gain from our high degree of specialization. ■

USING DATA TO PREVENT THE NEXT BLACK SWAN EVENT

Kaiko

A neglect of proper risk management and a poor understanding of liquidity caused some of the largest (and most opaque) crypto firms to become insolvent throughout the year. If one lesson is to be learned going into 2023, it is that risk management is paramount.

Understanding an asset's liquidity is a vital component in a robust risk management framework. The valuation of a fund's balance sheet is only as strong as its ability to efficiently liquidate their holdings in a black swan scenario.

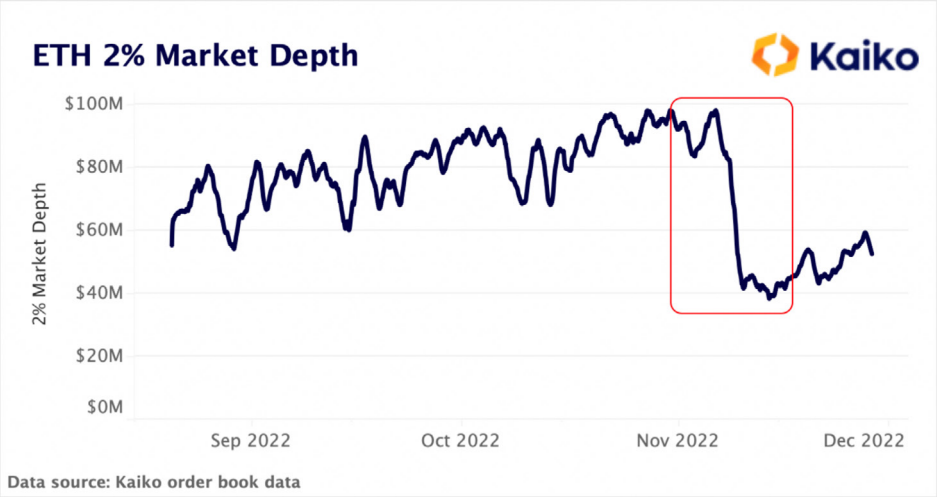
In crypto, liquidity is fragmented across thousands of centralized and decentralized markets. As such, each asset has a unique risk profile that can only be understood with access to the right data.

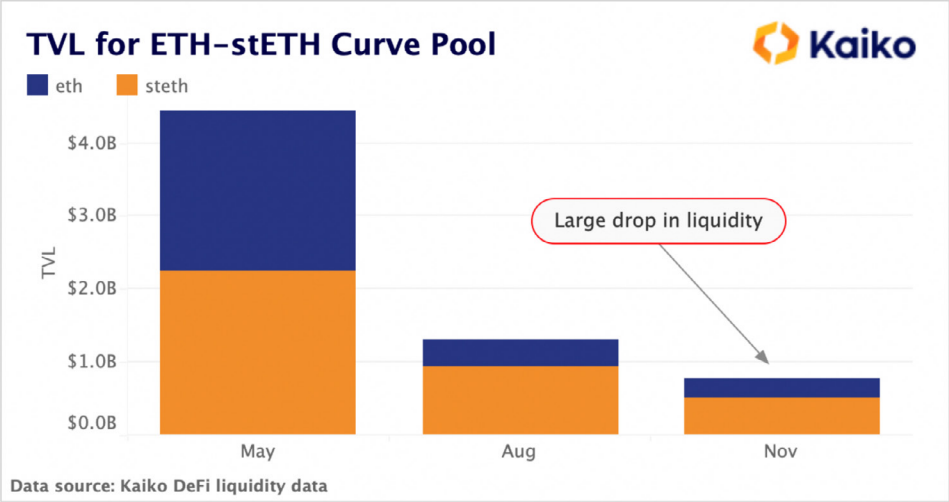
Let's take the example of ethereum (ETH). ETH's total market depth before the collapse of FTX was around $100m across the largest centralized exchanges. After the collapse, market depth halved to between $50-$60m. If I were a portfolio manager, I would need to incorporate this sharp drop in liquidity into my risk framework to account for higher price slippage in the event of liquidation.

But centralized market depth is just one half of liquidity in crypto. Billions of dollars worth of ETH are traded on decentralized markets everyday and, as such, liquidity on decentralized exchanges (DEXs) must be accounted for too.

Looking at the Total Value Locked (TVL - the DeFi equivalent of market depth), we can observe an even sharper drop in liquidity for one of the largest ETH liquidity pools. This suggests that decentralized markets have been more heavily impacted than centralized, which could mean my portfolio would suffer depending on my exposure to DeFi.

This quick case study demonstrates the importance of both centralized and decentralized liquidity metrics in understanding an asset's risk profile. Liquidity metrics, combined with traditional risk metrics such as Value at Risk (VaR) or Expected Shortfall, will enable investors to better survive the next bear market. ■





ANTITRUST MATTERS: WHAT DIGITAL ASSET INNOVATORS NEED TO KNOW

LATHAM&WATKINS LLP

In a sea of regulatory hurdles, antitrust and competition laws may not be the first thing digital asset innovators and investors worry about. However, competition in the digital asset space is a focus of key industry regulators and enforcement agencies, including the Securities and Exchange Commission (SEC), the Federal Trade Commission (FTC), and the Department of Justice (DOJ). For digital asset ecosystem participants, overlooking antitrust can lead to company-threatening liabilities or stop innovators from executing on their strategic vision. The following are three essential antitrust issues for digital asset players to keep top of mind:

Mergers and acquisitions

When considering M&A opportunities, companies should remember that antitrust enforcement agencies globally are aggressively investigating and seeking to block acquisitions across a range of industries, including fintech. Assessing filing requirements and antitrust risk early (especially before negotiating deal terms such as outside dates and termination fees) can minimize regulatory costs and delays. Lengthy investigations can slow or even stop deals from closing (especially when access to capital is limited). Companies should not assume that regulators will ignore an acquisition of a distressed target, or even in the case of bankruptcy. Enforcers will investigate these deals if there are competition concerns, particularly if there are other buyers who raise fewer concerns.

Interlocking directorates

The DOJ's Antitrust Division has made a recent push to investigate competitors that share officers or directors. Section 8 of the Clayton Antitrust Act prohibits the same person (or company) from holding officer or director positions of companies that compete with one another unless certain exceptions apply. In addition, Section 8 investigations can lead to follow-on investigations under other antitrust laws that can lead to significant fines, damage awards, and even criminal penalties. In nascent industries, including those with active private capital and/or M&A, an extra degree of vigilance can help ensure against creating, or growing into, illegal interlocks.

Interoperability

As digital asset companies choose which firms they will partner with or integrate into their ecosystems, firms that are excluded or disintermediated may rely on antitrust laws to seek access (and/or damages). In the US, the government and private parties have used antitrust to argue that cutting off access to a "must-have" platform or input is illegal. Similar causes of action exist around the world. Bundling, tying, and predatory pricing are similar antitrust claims plaintiffs and regulators may pursue. The digital asset ecosystem, built on interconnected blockchains and exchanges, is likely fruitful ground for antitrust claims arising from ecosystem design decisions about how — and with whom — to collaborate. ■

ENCOURAGING AND EMPOWERING RISK MANAGEMENT FOR CRYPTO

Lukka

Recent developments within the crypto industry captured the public's attention. With the industry facing greater scrutiny, it is imperative for crypto entities to re-evaluate their business practices by instituting heightened risk management methods in order to build trust with anyone interacting in crypto. Protecting the market and its customers must be the priority. The risk management principles below will allow the industry to avoid the mistakes of the recent past:

Focus on substance over form

- The form and substance of transactions and agreements should both match, be made crystal clear, and look beyond marketing to the product's underlying components.

Use liquidity analysis and audited financials

- As a matter of course, entities should disclose internal controls, identify key board members, explain corporate governance, and issue audited financials and name the auditor.

Conduct ongoing performance monitoring of the transactions and the counterparty(ies)

- Entities loaning or investing should be responsible for substantive performance monitoring of the product and counterparty, e.g. financial trend, variance analysis, and smart contract audits.
- Reliable, third-party fair value assessments of crypto is key.

Clarify collateral, custody, and segregation of assets

- Collateral processes are vital for the maturation of the industry – custody should be clear, and pledged assets should not be commingled with corporate assets.
- Security interest should be carefully documented and crafted so lenders are adequately protected.

Enhanced disclosures and terms and conditions

- Consumer awareness is a necessity. Crypto platforms must be transparent about how customer assets are stored, whether and how assets are being rehypothecated, and identify the risks associated with all products. How businesses handle customer assets is not a trade secret.

Crypto ushered in new opportunities in financial services, but it opened the door to many risks. Institutional quality solutions are critical for businesses engaging with crypto. Lukka has built best-in-class data and software offerings to aid businesses in managing risks when they interact with crypto finance. ■

THE FUTURE OF VOUCHERS

Lykke

Through cooperative work and discussions with representatives of the city council and the business community, we have developed a blockchain-based platform for 'City Coins' and digital vouchers. This platform was designed for a flexible set of use cases, including the implementation of a city-based digital currency and tokens, the implementation of a city marketplace for local merchants to issue digital vouchers, and the improvement of existing loyalty programmes, providing additional functionalities for the benefit of end-users.

The ultimate aim of this project is to replace an out-dated voucher mechanism (that, despite its obsolescence, is highly amenable to replacement by blockchain) with a faster and more efficient process.

Our goal is to make the user experience seamless and to introduce end-users to blockchain/crypto gradually by making the blockchain aspect largely 'invisible' (initially, at least). Vouchers are a familiar and relatively straightforward means by which to enable digital payments within an app.

The launch of a spendable token on the platform will make the benefits of this innovation evident, because retailers will be able to create customer loyalty initiatives, while customers will be able to receive tokens as loyalty rewards.

We also aim to make adopting the technology as simple and risk-averse as possible for the organizations that implement it. That is why we have made this platform 'blockchain-invisible', meaning that we will introduce end-users to crypto/blockchain gradually in planned phases. This will allow organizations to learn how the technology works and discover its benefits at a pace that suits them.

Now, let's answer the most important question: what are the benefits?

They are twofold: for merchants, the platform brings improved security thanks to blockchain's enhanced fraud prevention and smart-contract-based process automation; for customers, the technology brings increased engagement thanks to its gamification aspect, spendable earned tokens, and access to personalized offers tailored to the customer's purchasing needs. ■

BRINGING ADVANCED TRADING ORDERS TO DEFI, POWERED BY ORBS

ORBS

Decentralized Finance (DeFi) has solidified itself as the killer feature for blockchain, with over $1B in daily trading volume across decentralized exchanges and protocols becoming more and more complex. That being said, due the inherently limited capabilities of smart contracts, DeFi markets lack features, such as advanced trade orders, that could help traders manage the heightened volatility and liquidity that characterize the space.

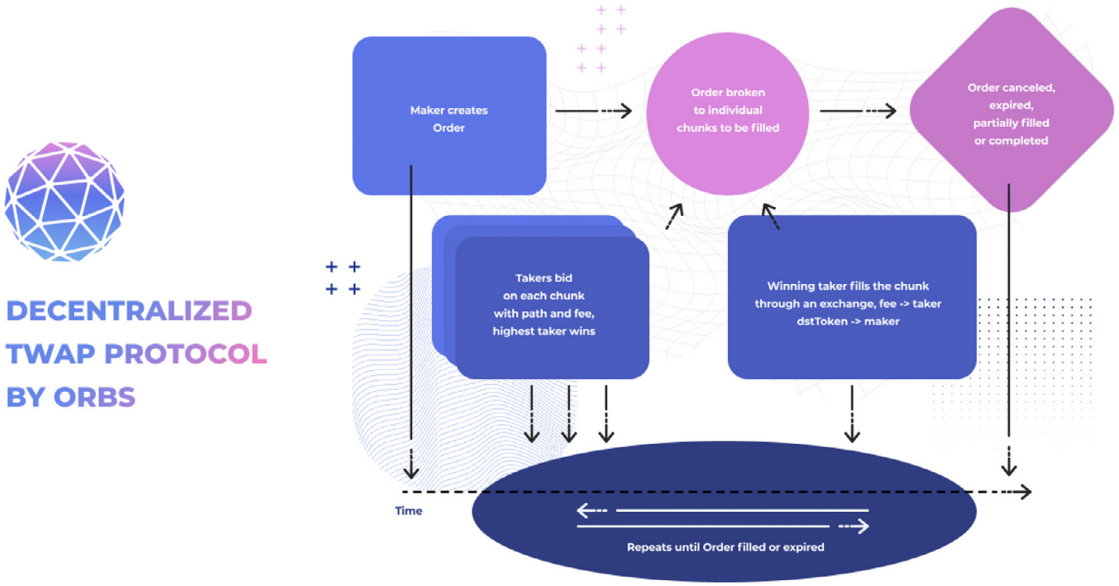
Orbs is a decentralized protocol executed by a public network of permissionless validators using Proof of Stake (PoS) consensus staked with over one hundred million dollars. Orbs pioneers the concept of L3 infrastructure, utilizing its decentralized network to enhance the execution capabilities of smart contracts that run on L1 blockchains. Orbs' unique L3 infrastructure can be used to expand the capabilities of DeFi platforms to provide highly efficient trading orders to its user base without sacrificing decentralization.

TWAP Use-case

Time-weighted average price (TWAP) is a common algorithmic trading executing strategy in traditional finance that seeks to minimize a large order's impact on the market by dividing it into a number of smaller trades and executing them over time.

Using Orbs validators as decentralized bidders, Orbs implements a decentralized TWAP protocol for decentralized exchanges (DEX) or automated market makers (AMM), which allows for advanced time-spread trades to be executed on these platforms in a decentralized manner.

With Orbs' L3 infrastructure ensuring that TWAP orders are executed at an optimal price and at fair fees, this type of trade can become a viable option for DEX users, giving them a number of new ways to optimize their trading activities. In turn, DEXs themselves, and their communities, can benefit from increased liquidity and attract new users by offering features that are currently unavailable on decentralized venues. ■



2022: INITIAL WAVE OF MEANINGFUL INSTITUTIONAL BLOCKCHAIN ADOPTION

PROVENANCE BLOCKCHAIN

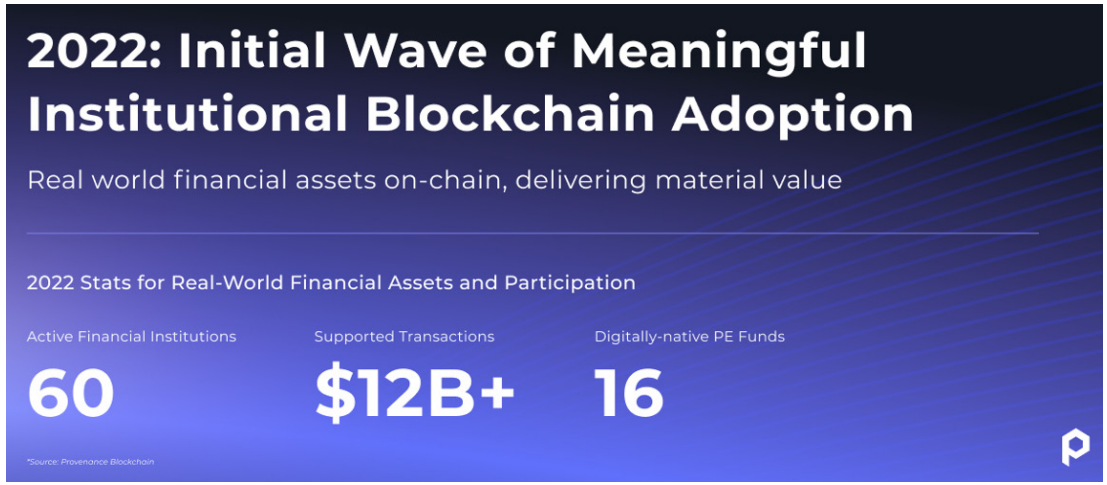
Financial services industry adoption of blockchain technology continued this year in the most meaningful ways we've seen to date. In 2021, traditional financial firms made headlines on a global level, mainly asset managers and large banking institutions for their increased participation in cryptocurrencies and record-level investments in decentralized finance (DeFi) and centralized finance (CeFi) companies. Particularly, the investment activity has continued into 2022, with investments in the billions of dollars.

In 2022, the traditional financial services industry expanded their participation in blockchain technology by increasing the scope and number of real world financial assets issued in a digitally native format. Digitally native means that the financial assets are initially created on blockchain, which also enables the entire lifecycle to be managed on blockchain including servicing, trading, and securitization.

Specific sectors of the financial industry played leadership roles from an adoption perspective, including private market investment assets and lending. For example, Provenance Blockchain saw major institutional firms, such as Apollo, Hamilton Lane and Neuberger Berman all launching digitally-native funds on-chain. Hamilton Lane introduced the first digitally-native 1940 Act Registered fund, leveraging Figure Digital Fund Services and Provenance Blockchain. On the lending side, leading U.S. based lenders Homepoint and Movement Mortgage leveraged Provenance Blockchain and Figure's white-label home equity line of credit (HELOC) solution to originate HELOCs leveraging blockchain technology.

For these firms, blockchain technology reduces operating costs and time to market by removing intermediaries from the process, while also broadening access and affordability for their offerings. For example, traditionally it takes between two and six weeks for an individual to receive HELOC funding. Whereas a fully digital loan process leveraging blockchain technology enables approval in minutes, and HELOC funding in fewer than five days.

We are in the early stages of blockchain adoption, and these meaningful use cases and innovators are helping to pave a path for broader industry adoption. We expect that in 2023, the adoption curve of real world assets issued natively on chain will accelerate, scaling further across lending and private assets, with additional new asset classes being put on chain, including a range of special purpose vehicles (SPV), distressed, infrastructure and receivables. ■



BUILDING A DIGITAL ASSET ECOSYSTEM THROUGH INSTITUTIONAL DEFI

Recent market developments have evidenced the need for trusted anchors to lead the transformation of the financial services value chain. At SBI Digital Asset Holdings (DAH), we are preparing the groundwork for a true commercialization of financial services under DLT/blockchain rails with several of our new offerings to come live in 2023.

In November 2022, SBI DAH successfully executed an industry-first live trade of tokenized assets with JP Morgan on a public blockchain, conducted under the Project Guardian pilot project led by the Monetary Authority of Singapore (MAS). The pilot also included a simulated tokenized bond transaction between SBI DAH and DBS Bank.

Completion of the pilot demonstrated that cross-currency tokenized assets could be traded, cleared, and settled instantaneously and directly between institutional participants using the public blockchain, whilst ensuring appropriate compliance with risk management frameworks. Institutional decentralized finance (DeFi) promises to significantly reduce the requirement for reconciliation following transactions by fusing ledgers and networks in a way that allows different parties to view the same information.

The live transaction also brought insight into the challenges and bottlenecks preventing further adoption and has set a roadmap of issues to solve ro prepare for full commercialization.

SBI Digital Markets awarded license to launch institutional digital assets platform

SBI Digital Markets (DM) is now licensed to advise on corporate finance, to deal in capital markets products, and to provide custodial services after having been awarded the Capital Markets Services (CMS) License by the Monetary Authority of Singapore (MAS) in September 2022.

SBI DM is launching, in Q1 2023, an institutional platform for the issuance, custody, management, and liquidity of these digital assets. SBI DM's digital asset securities platform will provide a solution to help traditional financial service operators capture growth opportunities fuelled by the advent of digital assets and aims to become the go-to digital partner for institutional investors.

AsiaNext

AsiaNext, a joint venture by SBI Digital Asset Holdings and SIX, aims to go live mid-2023 and will operate a trusted and regulated exchange for institutional investors in Asia and globally. The venture will offer institutional grade infrastructure, technology, and processes, following the same strong principles of governance, risk, and compliance together with innovation in financial markets while benefiting from the core benefits of the distributed ledger technology (DLT), including faster settlements. The venue will offer crypto derivative, spot and digital securities once the respective licenses are approved. AsiaNext will provide listing, trading, settlement, and custody services. ■

SUPPORTING FINANCIAL INSTITUTIONS IN THE SAFE AND SECURE ADOPTION OF WEB3 TECHNOLOGY

Custody is a core requirement for any institution entering digital assets, and we know that setting up and managing crypto custody is complex. It requires the build-up of substantial capabilities, including technical, operations, risk, and compliance know-how.

In this context, the SDX Web3 offering abstracts away the complications of blockchain infrastructure management and provides best-in-class security and service. With SDX offering crypto custody-as-a-service, clients can quickly develop a crypto capability without the substantial cost and resource investment in building out in-house technology and operations.

SDX institutional custody enables client firms to offer secure and integrated access to the digital asset market without committing the extensive resources required to develop an in-house platform. It is a fully compliant custody solution with professional handling of value transfer, reporting, and blockchain management.

The advantage of using the SDX Web3 Custody offering is that it is operated by a riskless counterparty – we are not financially exposed, as might be the case for a crypto exchange. We offer institutional-grade custody services with the built-in security and resilience that are to be expected from an operator of regulated market infrastructure – giving clients additional confidence and peace of mind.

Our strategy is to provide key infrastructure services to address various crypto-related topics for our clients. Firstly, we're starting with custody for key tokens. We will then look to continuously expand it to support additional protocols, improved integration/interfacing for clients, and integration with other market participants for automated straight-through-processing (STP) of crypto transactions. In a second stage, we will add additional services to the initial custody offering by integrating it with our existing non-custodial ETH staking service. Thirdly, we plan to expand our crypto services further into the trade and post-trade area, aiming to provide our clients with a comprehensive gateway to interact with the digital asset ecosystem. ■

CBDCs FOR RETAIL PAYMENTS

SORAMITSU

SORAMITSU is a boutique FinTech company with a diverse and highly skilled international team of around 150 employees. We build innovative payment and asset management systems, focusing exclusively on blockchain technology. While we work with several blockchains, our platform of choice is Hyperledger Iroha, an open-source blockchain that we designed and contributed to the Linux Foundation.

Hyperledger Iroha is a secure and scalable blockchain that was designed specifically to be used in systemically important infrastructure, such as Bakong, a central bank digital currency (CBDC) developed by SORAMITSU in cooperation with the National Bank of Cambodia. Bakong is the first blockchain-based retail payment system to be launched by a central bank, and has processed over $8.5 billion in transactions over hundreds of thousands of users across 41 financial institutions; its user base is growing daily.

Using Bakong, anyone with a Cambodian phone number and smartphone can send and receive instant payments in Khmer Riel or USD. Bakong is integrated with all other QR code-based payments in Cambodia via the KHQR standard and marks a new stage in the modernization of the Cambodian financial system, creating new opportunities for those who are currently unbanked or underbanked. For SORAMITSU, Bakong is an important milestone on the path toward our goals of empowering people with control over their assets and improving the efficiency, security, and accessibility of financial systems worldwide.

SORAMITSU's work on Bakong is also being applied to other countries. We have received several grants from the Japanese government to work with the Central Bank of the People's Democratic Republic and to study the applicability of a CBDC to the financial systems in Vietnam, the Philippines, Fiji, the Solomon Islands, Tonga, and Vanuatu.

SORAMITSU is also a contributor to decentralized finance (DeFi) projects. We actively contribute to SORA, a decentralized economic system designed to enable high economic growth. We were awarded a Web3 Foundation grant to build Polkaswap, a decentralized exchange (DEX) for the Polkadot ecosystem, and we are also grant recipients for the C++ implementation of Polkadot Host (Kagome). The Klaytn Foundation awarded us a grant to build an open source DEX for the Klaytn ecosystem as well. We have also developed Fearless Wallet, a cryptocurrency wallet that is designed specifically to enable ease-of-use and self-custody of cryptoassets. ■

CENTRAL BANKING FINTECH REGTECH Global Awards 2020
CENTRAL BANK DIGITAL CURRENCY PARTNER

A BETTER DIGITAL ASSET EXCHANGE

The recent implosion of FTX sparked a brushfire that is cleaning out crypto-industry undergrowth while turning up the heat on TradFi to offer a superior digital asset exchange. In fact, the CEOs of JP Morgan, Blackrock, Goldman Sachs, and Wisdom Tree recently reiterated a growing demand for tokenized assets powered by blockchain-enabled infrastructure. Ultimately, investors want exchanges that are managed by reputable brands, well-regulated and secured, and offer a diverse range of assets including tokenized traditional assets such as stocks, bonds, and digital currency, as well as crypto-native assets. A well-managed, trusted, and regulated exchange can provide a secure and transparent platform for users to buy, sell, trade, and hold digital assets.

Tel Aviv Stock Exchange "Eden" powered by VMware Blockchain for Ethereum and Fireblocks
The Tel Aviv Stock Exchange announced its plan to introduce a new digital asset exchange dubbed "Eden" in concert with Israel's Ministry of Finance and its primary dealers. The roadmap for the exchange plans to offer a wide range of digital products starting with digital government bonds in 2023 then leading into private markets, crypto-native assets, utility tokens, non-fungible tokens (NFT) and lending pools. VMware Blockchain for Ethereum will be used to quickly and securely issue assets and trade while institutional-grade digital asset custody is provided by Fireblocks MPC wallets. These core technologies enable benefits for:

Buyers and sellers: The use of smart contracts streamlines the trading process and reduces the risk of errors by enabling more efficient and secure trade.

Financial institutions: Reduces the need for intermediaries and data reconciliation in the trading process, which can save time and reduce costs for these institutions.

Regulators: The blockchain provides a transparent and auditable record of transactions, which can help regulators to effectively monitor and oversee the trading process.

Consumers: Reduce the risk of fraud and other types of malicious activity, which can benefit consumers by providing a more secure and trustworthy trading and custody environment.

The broader economy: The increased efficiency and security of the trading process enabled by blockchain can help to support economic growth by making markets accessible to more investors. ■

WAVE FINANCIAL'S SUCCESSFUL MANAGEMENT OF TERRA / LUNA'S STABLECOIN DEPEGGING: A CASE STUDY IN RISK MANAGEMENT, DUE DILIGENCE, AND SOUND PRACTICES

During the past year, digital assets lost two-thirds of their value due to mismanaged centralized finance, over-leveraged investors, and possible fraud within crypto's marquis institutions like FTX and Alameda. While the spread of FTX's contagion is not yet known, digital assets have also been affected by geopolitical conflicts, surging inflation, flagging growth, and other macroeconomic headwinds.

More than ever, working with established professional entities to navigate crypto investing is critical. Wave Financial LLC is a 100% crypto and digital asset investment adviser regulated by the United States' Securities and Exchange Commission (SEC) as an investment adviser (Central Registration Depository #305726). As a fiduciary, we strive to uphold best-in-class risk management with rigorous and uncompromising processes and controls. Due to our counterparty due diligence, we avoided relationships with many of the firms that came under

pressure in June 2022, including Three Arrows Capital and Celsius. Additionally, our risk management protocols resulted in a successful timely removal of all Terra Luna exposure, thereby protecting our clients' assets.

UST Stablecoin Depegging Event

Saturday, May 7th - Wave Takes Action

Wave noticed signs of UST instability (increased price volatility, imbalanced Curve pool) and swiftly removed all exposure (~ $16M) to mitigate risk.

Sunday, May 8th - Calm Before the Storm

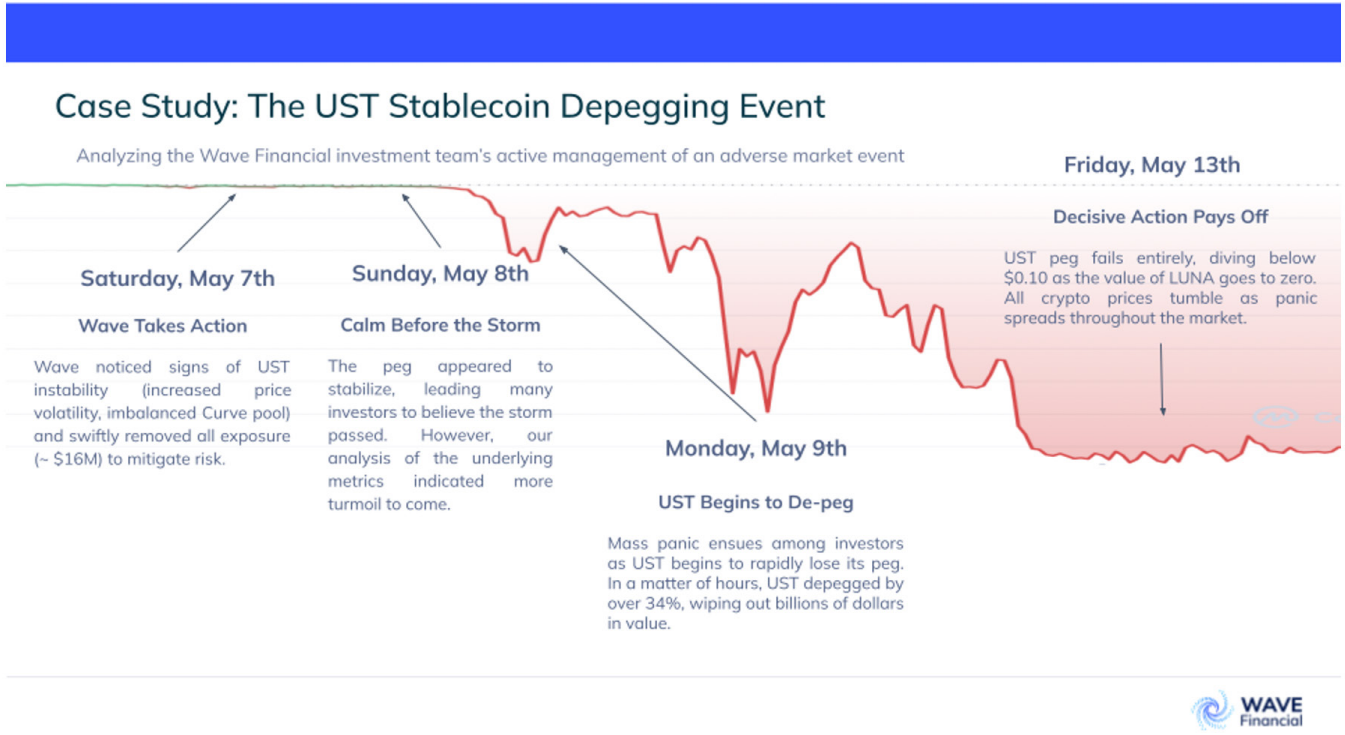
The peg appeared to stabilize, leading many investors to believe the storm passed. However, our analysis of the underlying metrics indicated more turmoil to come.

Monday, May 9th - UST Begins to De-peg

Mass panic ensues among investors as UST begins to rapidly lose its peg. In a matter of hours, UST depegged by over 34%, wiping out billions of dollars in value.

Friday, May 13th - Decisive Action Pays Off

UST peg fails entirely, diving below $0.10 as the value of LUNA goes to zero. All crypto prices tumble as panic spreads throughout the market. ■



SUSTAINABILITY

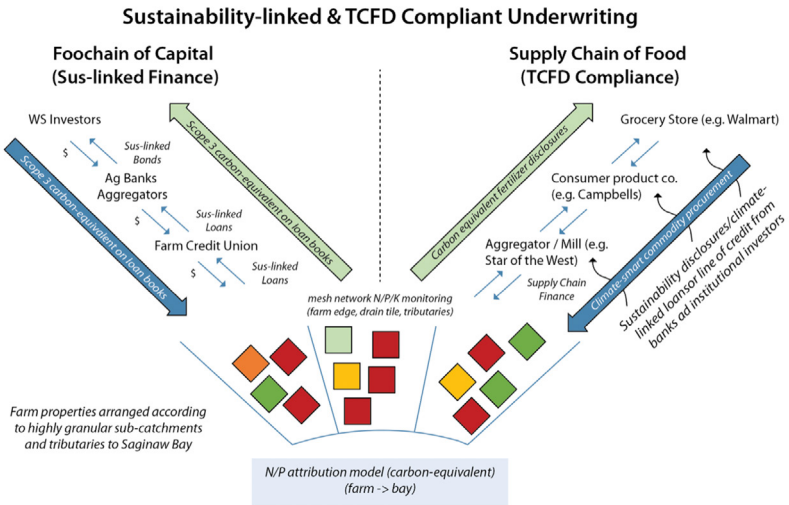
SUSTAINABILITY-LINKED AG FINANCE: THE SAGINAW BAY PILOT

BLOCKCHAIN TRIANGLE

Each year, more than one billion tons of carbon flow into the Great Lakes of North America in the form of Nitrogen (N), Phosphorus (P), and Potassium (K) run-off that create algae fields and kill biodiversity. Cash crops (corn, wheat, and soybeans) release N, P, and K nutrients into the groundwater while cattle release Methane into the air from manure pools at the farm, where N, P, and K leaches into ground water.

Blockchain Triangle (BCT), and its partners, seek to mitigate this outcome and align with the Task Force on Climate- Related Financial Disclosures (TCFD) climate compliance initiative to achieve the lowest cost of capital for farmers from institutional investors through the sustainability-linked bond market.

BCT collects Internet of Things (IoT) sensor data and links the data to sustainability-linked loans (SLL) that are tokenized. The SLL loans can be aggregated bundled as securitizations. The dataset referenced in the loans include traditional loan terms, IoT sensors for on-farm fertilizer use, edge of field sensors, tributary sensors, and water buoys in Lake Michigan and Ontario.



TCFD Value Chain:
Food Chain of Capital: Because asset managers require sustainability-linked assets for their portfolios, this program will qualify loans by linking each loan to IoT sensors to communicate both fertilizer usage and farm productivity. This will provide farmers with carbon credits and reduced cost of capital to improve profitability.

Supply Chain of Food:
New TCFD climate compliance will compel all the different hops (as one company's Scope 1 & 2 is another company's Scope 3 emissions) of the supply chain to report that information to stakeholders, suppliers, and customers. Starting at the farm level, farmers are the first part of that process to begin the reporting of information downstream to all of the stakeholders that will ultimately make up the carbon footprint for the product that is on the shelf. ■

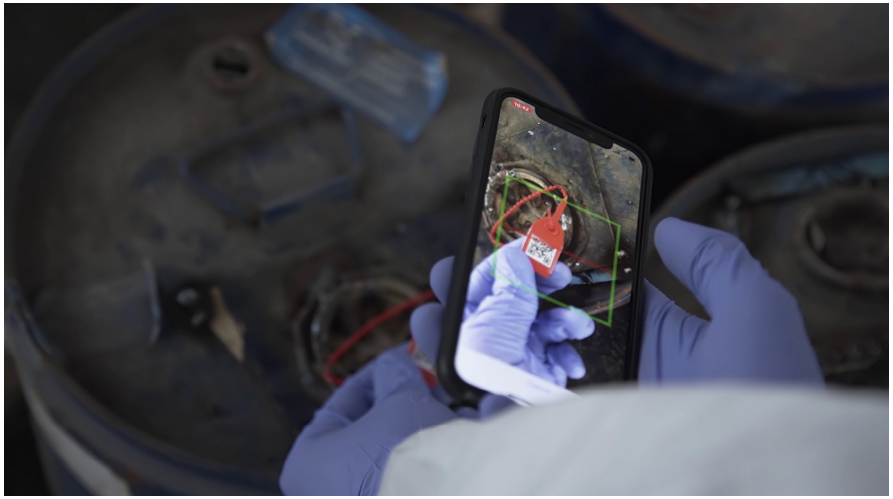
BLOCKCHAIN-ENABLED TRANSPARENCY FOR SUSTAINABLE AND CIRCULAR EV BATTERIES

Circulor

Electric vehicles (EV) are one of the most powerful climate change solutions. The growing need to prove what's in our vehicles and how sustainably they're produced is therefore essential to facilitate the energy transition.

This is no easy task given the geopolitical landscape and supply chain disruptions for critical minerals that highlight how fragile our supply chains are and the growing need for resource security. In parallel, increasing consumer awareness, mounting regulations, and investor pressure to prove products are sustainable compels organizations to analyze their supply chains and create 'digital product identifiers.'

The EU Battery Regulation, which was recently agreed on by the European Council and Parliament, requires proof of sourcing, recycled materials, ethical production, and embedded carbon for each battery with a 'digital battery passport' and QR code to make this information transparent. In the United States, the Clean Vehicle Tax Credit of the Inflation Reduction Act, calls for automakers to provide proof of where they are sourcing their critical minerals and manufacturing their battery components which, thanks to major technological advancements in cloud computing, edge computing, and software like blockchain, is possible today.



Circulor is the leading supply chain traceability solution for complex industrial supply chains that enables visibility into material flows, responsible sourcing, and embedded greenhouse gas (GHG) emissions of entire supply chains. Circulor's traceability solution creates a digital twin of the material itself at source and tracks materials as they change state through each stage of production, recycling, and end-of-life, encoding the data onto a blockchain which, in turn, provides visibility into what have been largely opaque supply chains.

Circulor and Polestar have been working together for a few years to trace battery materials and ensure responsible sourcing, which started with Circulor tracking cobalt for the Polestar 2. As the Polestar portfolio has expanded, so has the Circulor partnership, with the company now tracking mica, lithium, and nickel. This will enable Polestar to prove its progress in achieving its progressive sustainability strategy—to become a climate neutral company by 2040, to halve emissions per sold car by 2030 as compared to 2022, and to create a climate neutral car by 2030. Our short film, along with Polestar, shows the importance of tapping into supply chain transparency within EVs today.

Companies like Polestar have been leading the change to date. 2022 marks an important year in which global regulations have followed suit and will help in continuing to build a responsible, sustainable, circular battery economy and electrified future. ■

THE MERGE MADE ETHEREUM FUTURE READY

CONSENSYS

The year 2022 will go down in blockchain history as the year of the Merge. Ethereum, the world's largest programmable blockchain, transitioned from the energy-intensive Proof of Work (PoW) consensus mechanism to the more sustainable Proof of Stake (PoS). The transition created several changes.

1. It reduced Ethereum's energy consumption by 99.95%, making it one of the first technologies to effectively erase its carbon footprint.
2. It made Ethereum more secure, and set it up for future scalability. This likely made institutions more keen to engage with Web3. Despite the downward pressure on crypto valuations, institutional investors have been increasing their allocations to digital assets, a survey by *Institutional Investor* found.
3. It reduced Ether's (ETH) annual issuance by 89.4%, creating deflationary pressure on the ETH token.
4. It changed the way value is accrued across the Ethereum network. Earlier, any value that ETH generated was paid back to the network as rewards to miners. Following the Merge, the value from network usage accrues to both validators and token holders.
5. Finally, it increased the security of the Ethereum network by democratizing network participation and improving decentralization of PoS. As a result, the cost to attack the Ethereum blockchain running on PoS is roughly 10-20X more than PoW. In addition, the network running PoS will become more secure over time as more validators come on board, and the amount of staked ETH increases.

As a result of these changes, on-chain apps and Layer 2 solutions will likely leverage the improved security conditions and multiply on top of Ethereum.

Ethereum is a technology platform that forms the foundation of the future of the internet and finance. And as with any efficient technology, the Ethereum roadmap is full of upgrades to its infrastructure that make it future-proof. The Merge was the first.

In a post-Merge world, MetaMask Institutional can help organizations access and engage in DeFi and Web3 with institution-required security, operational efficiency, and compliance. ■

REDEFINING MINING

HUT 8

The blockchain and the digital asset mining industry has been criticized in the media for its positions on ESG because of the energy requirements for Proof of Work (PoW) mining. Hut 8, as one of the oldest and largest digital asset miners, is an industry leader with a stated commitment to focus on all facets of ESG, taking proactive steps to minimize impact to the environment, support communities, and advance inclusive and transparent corporate governance efforts.

As part of taking a leadership position in addressing these environmental challenges, Hut 8 has partnered with Sparta Group's carbon credit program established by their e-waste division, ERS International, to work toward their commitment to achieving carbon neutrality by 2025. Through the program, Hut 8 was able to reuse and recycle approximately 210 metric tonnes of electronic waste, which have translated into earning 5,200 verified carbon credits on the CSA registry.

ERS International's innovative program, the first of its kind in Canada, has allowed Hut 8 to responsibly recycle obsolete miners and divert CO2 from being released into the atmosphere. The carbon credits are generated for every metric tonne of carbon dioxide diverted from landfills, after accounting for shipping and processing costs. This program is annually verified by the AET Group Inc in accordance with the procedures set out in the ISO 14064 Standard. ■

REAL-TIME CLIMATE DATA COLLECTION WITH HYPHEN EARTH

HYPHEN

Hyphen provides higher climate data resolution to support source attribution with higher accuracy. Providing state-of-the-art infrastructure, Hyphen's methodology has been applied to environmental data, specifically tracking Greenhouse Gas (GHG) concentrations, fluxes, and observations from global to regional sources while providing this data of the highest scientific quality to any interested parties.

In the face of our climate crisis, it is vital that we have timely and accurate data on GHG emissions and sinks. Case studies to date have demonstrated that inventory-based estimates prepared with prevailing bookkeeping methodologies often do not correspond to values obtained based on observations of GHG fluxes into and out of the atmosphere. For policy applications, countries report on progress towards achieving their mitigation-related targets under the Paris Agreement. For these purposes, Intergovernmental Panel on Climate Change (IPCC) guidelines for preparation of national inventories are used. The private sector, on the other hand, uses the methods and emission factors provided by the GHG protocol. GHG protocol guidelines include the IPCC guidance as "third party" guidance. Although the IPCC guidance focuses on emission factor-based inventory preparation, it explicitly encourages complementing them with observation-based methods.

To achieve global climate goals we must understand what is actually happening in the atmosphere to match with environmental claims and targets in a timely manner. Hyphen provides automated systems for near real-time GHG data collection, aggregation, standardization, validation, and dynamic distribution through a decentralized oracle network. We achieve this through rigorously-collected, tamper-proof GHG data, in order to support various organizations with validated data to improve their validation methods of environmental claims through Digital Measurement, Reporting, and Verification (dMRV) in support of carbon trading markets. This improves climate accounting, physical and transition risk analysis, modeling, and forecasting. Hyphen empowers the private and public sectors with validated, near real-time global GHG observation data to ensure we are on track to building a more sustainable future for our planet. ■

THE DEMOCRATIZATION OF POWER, FOR A SUSTAINABLE FUTURE.

Powerledger

Powerledger develops software solutions for the tracking, tracing, and trading of renewable energy. The company has deployed its blockchain-enabled solutions across five continents, and in 2022 it expanded its blockchain capabilities even further with the launch of the Powerledger Energy Blockchain.

This blockchain consumes less energy than Powerledger's previous chain. The Powerledger Energy Blockchain is a customized permissioned Solana blockchain. The design is both faster and less energy intensive than Proof-of-Work (PoW) blockchains, as it utilizes Proof-of-History (PoH) and Proof-of-Stake (PoS) consensus mechanisms.

The blockchain allows Powerledger to build and scale energy projects across the globe, processing over 50,000 transactions per second. This scalable technology is fast, transparent and secure. Powerledger's blockchain technology facilitates secure trading and mitigates settlement risk, whilst also providing an immutable and verifiable audit trail.

Validators need to be invited by Powerledger and only those accepted by Powerledger can participate.

Powerledger has also successfully launched TraceX, a digital marketplace for the trading of Environmental Attribute Certificates (EAC). This platform enables users to trade EACs in a way that is simple, secure, and efficient. With real-time price discovery, users can make market-based decisions about their renewable energy procurement.

TraceX offers a standardized set of terms for all trades, meaning all marketplace participants are pre-qualified, resulting in no back-office costs.

Anonymised orders become visible for all market participants as soon as they are placed. When matched, TraceX streamlines the transfer of EAC ownership and financial settlement.

Powerledger is now migrating the TraceX digital marketplace to the new Energy Blockchain. With a mission to create markets that remove the obstacles to achieving 24/7 renewable energy, Powerledger is perfectly poised to offer a global marketplace for renewables. ■

USING BLOCKCHAIN TO COMBAT CLIMATE CHANGE

ripple

Ripple is a global blockchain solutions company that is transforming how the world moves, manages, and tokenizes value. We enable global financial institutions, businesses, and governments to facilitate instant cross-border payments, lower capital requirements, source crypto, and drive new revenue, unlocking greater economic opportunity globally. Ripple uses the XRP Ledger (XRPL), the world's first major global carbon neutral blockchain (since 2020), as a foundation for its products and services. Together with our partners, we're contributing to delivering a sustainable global economy —increasing access to inclusive and scalable financial systems while leveraging carbon-neutral blockchain technology. In this way we are delivering on our mission to build crypto solutions for a world without economic borders.

As co-founders and active members of Blockchain for Climate, the Crypto Climate Accord and WEF's Crypto Impact and Sustainability Accelerator (CISA), Ripple is committed to a low-carbon future. We work in partnership with respected climate players such as the non-profit RMI and crypto sustainability advocates like the Alliance for Innovative Regulation— with the goal of moving the crypto industry towards 100% renewable energy use and net-zero emissions. In 2020, we announced plans to go carbon neutral by 2030, and are on track to achieve this by 2030 or sooner.

Mitigating climate change is an urgent global priority. This is why, in 2022, Ripple announced a $100 million commitment to scale and strengthen carbon markets, the largest such pledge in the crypto industry. This funding will accelerate new, high-quality carbon removal activity and help modernize and scale carbon markets through the use of blockchain technology and capital investments.

The fight to mitigate climate change is not an individual effort. It requires all of us—nations, nonprofits, innovators, and more—to work together.

Read more about Ripple's commitment to sustainability ■

THE FUTURE OF TOKENIZED MARKETS

tergo

Climate change is one of the biggest issues humanity faces today. Following the alarming calls of scientists, people are starting to reduce greenhouse gas emissions to halt global warming and avoid the worst consequences. While we cannot stop emitting CO2 emissions immediately, we are entering a transition period. Before the entire economy is reshaped, carbon offsets provide an effective way to compensate for our actions.

> ***"Blockchain records immutability can solve most problems, but we must address off-chain concerns first. Tokenizing junk carbon credits will only recycle the old issues and won't improve the credibility of the voluntary offsets and carbon market as a whole,"*** **says Thuy Nguyen, Founder and CEO of TerGo.**

There should be one universal standard for each industry type without financial barriers. All carbon credits need to follow the rule of additionality.

Only after solving the current off-chain issues can we digitize the new, high-quality carbon credits and store their life cycle history as non-fungible tokens (NFTs) on the blockchain. We need a single,

coherent, worldwide system for voluntary offsets tracking and certification. It will solve the current issues, such as lack of transparency, double counting, impaired tracking, inconsistent third party audits, and oversight. These flaws provoke criticism of the general idea behind carbon offsetting and impede global climate action.

Automation with smart contracts will bring transparency to methodologies and payouts. Once an offset is generated through proven off-chain sources, it will be registered on-chain for immutable record-keeping. Using well-vetted smart contract technology enables the creation of an automated and transparent marketplace for carbon credits. Digitizing the entire carbon credits' life cycle history as NFTs is the most transparent and permanent solution to addressing challenges troubling the voluntary offsets market. Finally, blockchain-based offsetting can be done within seconds, globally, and immutably, allowing the market to grow internationally and assuring that purchases bring about a meaningful and measurable change. ■

BUILDING THE NEXT GENERATION OF INFRASTRUCTURE

EY is creating groundbreaking solutions to help build a better working world. As the only Big Four organization dedicated to the Ethereum network, EY has committed $100 million into blockchain and cryptoasset research and engineering over the next three years.

Latest products

Nightfall

EY pioneered Nightfall to help enable the management of private transactions on the public blockchain. To achieve privacy in the Mainnet, which is critical for enterprise users, EY and Polygon co-developed Nightfall – a privacy-focused rollup which will be a professional privacy solution available on Ethereum.

EY and Polygon will release production of open-source code for Nightfall Version 3, industrializing privacy on the Ethereum blockchain so developers can create privacy-enabled applications on Ethereum Layer 2 & 3 networks.

Starlight

Starlight bridges the gap by making an ordinary public blockchain application a ZK-enabled privacy preserving one. Developers can input their existing code and receive a fully working application, custom to their use case, instantly.

There is nothing currently available which allows ordinary blockchain developers to create and use ZK applications for privacy.

EY OpsChain

There has been significant growth in companies establishing public commitments to drive net-zero emissions. EY OpsChain ESG provides a trusted platform for emissions and carbon credit traceability across value chains through the use of tokenization.

EY Blockchain Analyzer

The EY organization is deploying within Analyzer the tools and calculations necessary to determine tax liabilities from business transactions done on blockchains.

Reconciler

Reconciler released its latest/third version digital signature feature in May 2022 to simplify the access for EY Audit teams and clients, allowing demonstration of ownership of thousands of wallet addresses without the need to move cryptocurrencies.

API Services

Enterprises can perform functions including minting, transferring, and burning of tokens in either the Ethereum public blockchain or Polygon Layer 2 network.

Explore more at Blockchain.ey.com ■

FROM RECORDING HISTORY TO SPACE: THE FUTURE IS DECENTRALIZED

Filecoin Foundation

Filecoin is a decentralized storage network designed to store humanity's most important information.

Filecoin Foundation (FF) was founded to advocate for Filecoin and the decentralized web, facilitate governance of the Filecoin network, and fund critical development projects.

Today's internet is largely centralized, with control and distribution of information in the hands of a few powerful companies. Centralization makes the internet fragile: a recent FF survey found that a majority of Americans (71%) have lost information and records due to link rot. And over 80% of Americans want technology companies to do more to enable control over how their personal information is used.

Decentralized technologies like Filecoin let users harness the collective power of the web to store and share data. At FF, we share a common vision with our community for building a better internet – an internet that is more resilient, robust, and secure.

In 2022, FF supported some of the biggest Filecoin community events to-date to bring the ecosystem together, including the first cornerstone events hosted by the Foundation, FIL Austin and FIL Lisbon. We also established a presence at notable events – including the World Economic Forum, Consensus, and Web Summit – to introduce decentralized storage to a broader audience.

The Foundation secured critical partnerships to drive more widespread adoption of decentralized storage technology. In Davos, we announced a project with Lockheed Martin to deploy the Interplanetary File System (IPFS) in space. We continued our work with the Internet Archive to preserve their collection of digital history, including their new Democracy's Library initiative. And we announced our involvement in the Decentralized Storage Alliance, bringing together Web2 organizations, including AMD, EY, and Seagate, to foster decentralized storage at the enterprise level.

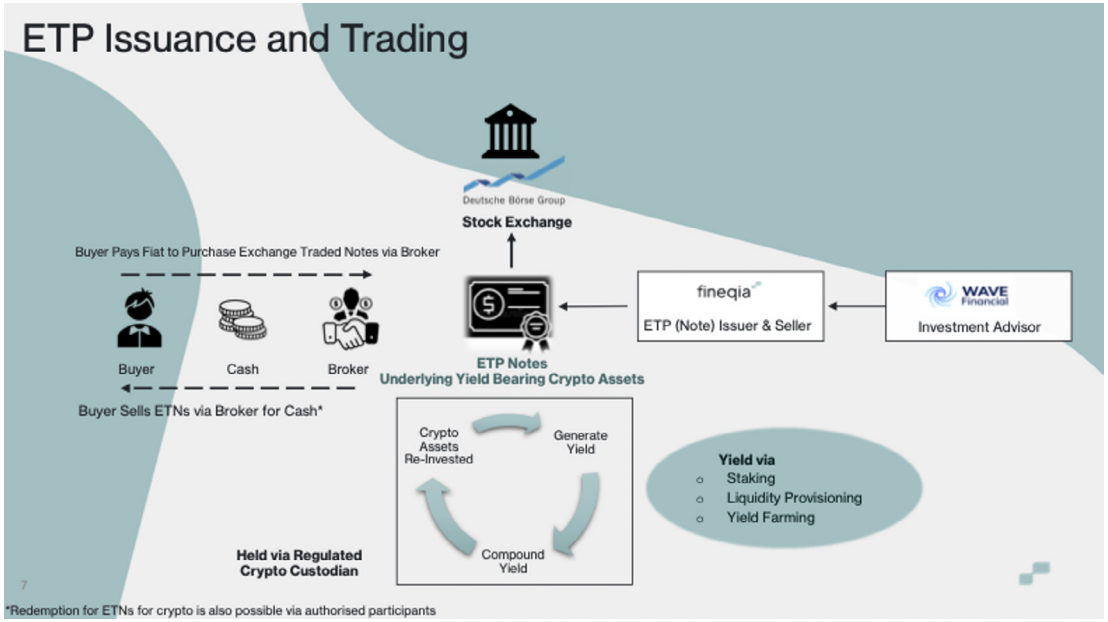
Together, we're building the backbone for the next generation of the web. ■

CRYPTO EXCHANGE TRADED PRODUCTS AND THE FUTURE OF MUSIC FINANCE

fineqia

Fineqia aims to be a leading and prudent asset manager in the emerging economy of decentralized assets. To that end, it will embark on two new businesses in 2023.

Fineqia plans to issue some of the most innovative crypto Exchange Traded Products (ETP) in Europe. The Fineqia FTSE ADA Enhanced Yield ETP, for example, will provide above market yields and launch with a significant commitment of assets under management (AUM). The ETP garners enhanced yield by providing liquidity to carefully selected projects in the Cardano DeFi ecosystem. Additional ETPs include the Fineqia FTSE Sustainable Staking Yield ETP, a risk-balanced exposure to top proof of stake (PoS) cryptocurrencies that adhere to sustainable investment requirements. Its yield is generated by committing a portion of its crypto assets to staking



pools. Both ETPs are supported by, and co-branded, with FTSE Russell, a unit of the London Stock Exchange Group.

Fineqia is partnering with one of the world's top music producers known as Naughty Boy, to create a new metaverse-oriented record label called NaughtyVerse Records. In addition to distributing music through digital platforms such as Spotify, Soundcloud, and YouTube, music non-fungible tokens (NFT) will be offered for specific tracks. Through partial ownership in such tracks, token holders will be entitled to a portion of ongoing royalty income. Naughty Boy's debut album, *Hotel Cabana*, featured singers Ed Sheeran, Emile Sandé and Sam Smith, and peaked at No. 2 on the U.K. charts. His new album, to be released via NaughtyVerse Records, is expected to be a commercial success. Social media and press coverage of the new label will enhance Fineqia's position as an innovator in the digital asset industry. ■

TACKLING COUNTERFEIT DRUGS AND GOODS ON THE SUPPLY CHAIN WITH AVC

Hedera

AVC Global offers a next-generation, intelligent supply chain platform that maximizes efficiencies, eliminates fraud, and ensures the quality of goods, protecting both producers and consumers. AVC was developed in response to threats within pharmaceutical supply chains that stand in the way of moving drugs safely and securely, from production to the consumer. AVC saw that there was no existing mechanism of trust in place and developed a blockchain platform that reliably and securely validates and records all transactions across complex pharmaceutical supply chains.

To deal with the increasingly international nature of the pharmaceutical industry, AVC used Hedera to develop a blockchain platform with a consensus mechanism that reliably and securely validates and records all of the transactions across complex, multi-party supply chain networks in an immutable, transparent, and secure way. AVC has designed its platform to be auditable and capable of servicing supply chains regardless of their location.

AVC's platform ensures compliance with various national regulatory conditions as well as customs requirements – not just for the movement of pharmaceuticals in and out of different country jurisdictions, but also the collection of taxes and customs duties on these drugs. This has allowed the team to look beyond pharmaceuticals and apply the use of its Hedera Consensus Service-based platform to track and trace and customs processing of all asset classes such as oil and gas, halal-certified product provenance, humanitarian aid, and precious metals.

AVC Global's ongoing roadmap prioritizes environmental sustainability. Using Hedera, the most sustainable public ledger for the decentralized economy, AVC ensures that every transaction written to the Hedera ledger is carbon negative. Hedera also enables AVC to purchase transparent carbon offset credits to support the minimization of AVC's carbon footprint. This is a much-needed and important initiative in eliminating fraud and counterfeit drug businesses. ■

BLOCKCHAIN PROVENANCE SYMPOSIUM 2022

kenja

In 2020, Kenja K.K. entered the blockchain field by becoming the first content management system (CMS) platform to be blockchain-enabled and has since been incredibly active in the community. The past two years has seen numerous successful blockchain solutions developed as well as multiple participation in blockchain community activities and events such as the Blockchain Provenance Symposium.

The Purpose

The Blockchain Provenance Symposium was established with the belief in blockchain as a transformational technology which should be accessible to all. This drive to democratize the knowledge of blockchain experts led to the Symposium's launch in 2021, offering a stage where

experts may broadcast their insights and experiences for free to people all over the world.

The Concept: Reality & Beyond – Redefining the Business World and into the Metaverse

Following last year's success, the GBBC was proud to co-sponsor the Symposium alongside Kenja and BlockchainHub with Nagoya University of Commerce & Business (NUCB) as host. The event, held on November 17, centered on the new game-changer in the field: the Metaverse.

Seventeen world-renowned experts on Blockchain and the Metaverse from EY, Glimpse Group, and MetaTokyo amongst others were invited to present six sessions, four panel discussions, and two keynotes on several topics ranging from Fintech to Supply Chain.

The Results

- 198 Individuals Registered (53% APAC; 28% US; 19% Europe)
- 481 Views (52 Peak; 33 Average)
- 49:13 Minutes Average Watch Time
- 123 Impressions

First Hybrid Event

In celebration of its second year, the Symposium also held its first hybrid event at Nihonbashi Japan in partnership with BlockchainHub. There, Japanese industry and academic leaders enjoyed one keynote and two panels on the Metaverse followed by a social networking event. ■

DRINKING TO THE MOON

NOIR

NOIR is a luxury wine brand of the future. Our mission is to disrupt the worlds of art and wine through cosmic taste and innovation.

Web3 is the third major evolution of the internet. Through blockchain-enabled advancements such as non-fungible tokens (NFT) and cryptocurrencies, art and collectibles have been revolutionized. We are creating a luxury wine brand for a new wave of collectors and consumers that fits into their physical and digital worlds.

As the center of tech and innovation, California is now a premier wine destination, with the best climates for growing juicy and organic Pinot Noir grapes. Our winemaker uses biodynamic techniques, like harvesting under the full moon, to create euphoric, award-winning wines.

NOIR's first product was a sleek canned Sparkling Rosé. We were the first direct-to-consumer alcohol brand to accept crypto, starting with SORA's XOR token. We built a following within decentralized finance (DeFi) communities, shipping orders globally, and sponsoring events like ETHDenver and NFT. NYC. This futuristic wine won the Silver Medal at the Monterey Wine Festival with its delicious taste.

Our next innovation was to create the world's first phygital wine, by combining our luxury wine with a digital token. We minted 777 dynamically-priced $NOIR tokens, each one tied to a physical bottle, and created noir.digital, where users can buy, sell, and redeem $NOIR. When you redeem a $NOIR token, you receive a bottle of our Méthode Traditionelle Sparkling Rosé, NOIR New Moon.

$NOIR redeemers also receive a utility NFT, which is on-chain proof of their bottle's authenticity, bottle number, and ownership. This NFT provides holders with NOIR Club membership, granting them access to upcoming events, parties, and promotions.

We were honored to co-host the event "Drink the Moon" featuring a presentation and the first tasting of NOIR New Moon, in partnership with the GBBC, in Davos last May. Currently, the $NOIR token hovers around $500 and only 232 remain.

NOIR is the first wine brand to step into the world of Web3 — creating a more interactive, advanced, and immersive experience for collectors and consumers alike. In 2023, we will be working to scale NOIR into a massive wine and lifestyle brand. We will continue to utilize blockchain technology in our process, to build a more beautiful, sustainable, and phygital future. Cheers! ■

POA STUDIOS

A social impact focused start-up which partnered with Brij Lok Kala Foundation (BLKF) to bring an ancient art from India into the digital age via its inaugural non-fungible token (NFT) collection in 2022

Brij Kala is an art (Kala) form that comprises music, dance, singing, and painting based on Lord Krishna's life, his *leelas* (divine play, adventures), and his teachings. There are multiple forms of Brij Dance: Raas Leela (Holi & Mayur Dance), Charkula Dance, Deepak Dance, Bam Rasiya, and Dhol Wadan.

The term "**Raas Leela**" means "Dance of Divine Love." This divine dance depicts the story of love between

Lord Krishna, Radha, and their Gopi friends (milk maids). Raas Leela is a folk dance.

Banner photograph by Sonu Sharma

India is home to many art forms, but Brij Kala is unique in that it dates back 5,000 years.

This art form carries the original dance form through the people of the villages within 200 km of "Govardhan parvat" (Govardhan mountain) which is considered a sacred place.

Indigenous art like Brij Kala are under threat of extinction due to lack of investment and support to teach the next generation of artists.

There are now an estimated 30-40 actively practicing artists for Brij Kala. Further, lack of records means that Brij Kala will not be preserved for future generations.

Story of Sohait Kumar

Sohait is one of the few artists who can play Lord Krishna. He was associated with this art for the last 10 years. Unfortunately, as he is the main bread earner for a family of six, he had to leave the Brij region and take a job in Delhi. He no longer performs.

BLKF was founded to promote this art globally and partnered with PoA Studios to launch its inaugural NFT collection in 2022 to raise awareness, raise funds, and document.

The inaugural set of Brij dance video and photo NFTs released were sold to international buyers and supporters. BLKF is likely the first non-profit to combine technology & art to support indigenous art in India. Next year, BLKF hopes to launch more NFT collections to continue its mission to help support Brij art for generations to come.

Thank you to our contributors: Mr. Hiralal Sharma Saroj; Mr. Varun Arora; Mr. Vishnu Dutt Sharma; Ms. Sumiran Garg; Ms. Elizabeth Hui; and Ms. Heidi Pease. ■

DEVELOPING ROBUST BLOCKCHAIN STRATEGIES

Rethink Ledgers

Rethink Ledgers is a blockchain consulting firm focused on delivering impactful ledger and smart contract solutions for our clients. We recently received SOC2 compliance on a smart contract solution we built for TYDEI Heath. TYDEI Health offers a blockchain platform to manage physician preference items (medical devices) on behalf of hospitals and ambulatory surgical centers. They focus on end-to-end management of supply chain, financial transactions, patient safety and digital contract management. As part of this application, we were able to build a bridge to Discover's ACH payments to bring existing payment rails into the smart contracts for medical devices. Utilizing smart contracts and ledger technology is bringing greater transparency and cost efficiency to the healthcare industry.

Additionally, over the past year we have been helping clients build their blockchain strategy specifically focused on asset tokenization. We believe tokenization is the future for the way companies will conduct business. The World Economic Forum (WEF) estimates that up to 10% of global GDP, or around $10 trillion, could be tokenized by 2030 and PwC suggests that tokenization could unlock $1.7 trillion of value in the global economy by 2030. We have expertise in multiple tokenization platforms and technologies for clients such as VMware's Ethereum blockchain, Provenance Blockchain, Digital Asset's Canton, and Digital Asset Modeling Language (Daml). Rethink Ledgers' key offerings include Tokenization Strategy, Design Thinking & Use Case Development, and Smart Contract Development. ■

METAVERSE REAL ESTATE AND FUTURE OF GAMING

Tokens.com

Tokens.com Corp is a publicly traded company that invests in Web3 assets and builds Web3 businesses. The company focuses on three operating segments: i) crypto staking, ii) the metaverse and, iii) play-to-earn crypto gaming. Tokens.com owns digital assets and operating businesses within each of these three segments.

Staking operations occur within Tokens.com. Metaverse real estate and ecomm3 solutions operations occur within a subsidiary called Metaverse Group. Crypto gaming operations occur within a subsidiary called Hulk Labs. All three businesses are tied together through the use of blockchain technology and are linked to high-growth macro trends within Web3. By sharing resources and infrastructure across these business segments, Tokens.com is able to efficiently incubate these businesses from inception to revenue generation.

Tokens.com is one of the only publicly traded companies with such diverse Web3 business lines.

Metaverse Group, a Web3 technology company with products and services that bring businesses to life in Web3 environments, including metaverses, non-fungible tokens (NFT), and the next iteration of retail, ecomm3. We integrate Web3 technology solutions with a Web3 marketing agency and virtual real estate development services, so that our clients can own ecomm3, engage new audiences, and be first movers. Metaverse Group has worked with over 80 clients including Skechers, Forever 21, The UPS Store, and Miami Fashion Week to name a few. The company owns over 750 parcels of virtual land and has relationships with different metaverses and industry players, allowing them to deliver category leading solutions.

Hulk Labs is a Web3 technology company focused on building tools and systems to generate income from Play-to-Earn (P2E) blockchain games. Hulk Labs builds calculators to evaluate the profit potential and longevity of P2E games.

In addition, the company has built a global player network with over 1,500 players enrolled to date and a goal of 10,000 players enrolled in 2023, creating safe and livable wage jobs in the African economy. These players play games on behalf of asset-holders

and are building tools to securely delegate and track in-game NFTs.

Tokens.com builds businesses in the most exciting areas of Web3, with all three businesses being revenue positive, even in this crypto winter. We are early movers on new and exciting projects who further develop Web3 ecosystems. Tokens.com is not a fund or an exchange. All of the company's digital assets are self-custodied. Tokens.com is an easy way for investors to invest in Web3, available via the company's publicly traded shares in Canada, the USA, and Germany. ■

ACKNOWLEDGMENTS

The GBBC and GBBC Digital Finance are grateful for the extraordinary community who have contributed to the report this year.

Thank you for joining us as we continue to carry out our mission in 2023 to further adoption of blockchain technology by engaging and educating regulators, business leaders, and lawmakers on the benefits and applications of this groundbreaking technology.

THANK YOU TO THE MEMBERS, REGULATORS, AND POLICYMAKERS WHO CONTRIBUTED TO OUR REPORTS THIS YEAR:

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