



GBBC
Global Blockchain
Business Council

**BUILD
BACK
BETTER:**
DIGITAL UPDATES
FOR TODAY'S
CHALLENGES

ANNUAL REPORT

**GLOBAL BLOCKCHAIN
BUSINESS COUNCIL**

Geneva
London
Washington, DC
New York

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FOREWORD

DAVID TREAT, GBBC BOARD CHAIR; HEAD OF BLOCKCHAIN AND MULTI-PARTY SYSTEMS AT ACCENTURE

As a child, I had the privilege and opportunity to learn how to whitewater canoe. Before my first real river run, we were given a final lesson that has been replaying in my mind as I've processed the events of the past year. The crux of the lesson was that you are only in control on the river when you are moving slower or faster than it is. Without paddling, you are at the mercy of where the water takes you; such a trip invariably ends with you hitting the rocks.

Our Global Blockchain Business Council (GBBC) community should be incredibly proud of how we navigated the past year: with constant focus and effort to take immediate action when our wider community needed help, and to slow down when thoughtfulness, responsibility, and caring were required for us to honor our common principles of what is right and good.

The acceleration of innovation over the past 10 months has been staggering. Moving consumer sentiment and behavior to a digital, work-anywhere mindset and remote collaboration — typically a multi-year strategy — was achieved in weeks. The legacy debts of our current infrastructures were laid bare and came due as unprecedented scale and performance were required to handle the record volumes of financial transactions, the record numbers of digital communications, the massive challenges to our global supply chains, and the rapid changes to our modes of education, shopping, and healthcare, among other areas.

A constant through all of this has been the need and opportunity to drop our long-held beliefs about how things are supposed to work. We've shown that automakers can make ventilators, that anyone with a 3-D printer can make a face shield, and that we can be human in a digital world.

**THROUGH OUR USES
OF BLOCKCHAIN
TECHNOLOGIES,
WE'VE SHOWN
THAT WE CAN**

be confident in a single source of truth for information, with privacy and security;

create a new form of money fit for the digital world, enabling financial inclusion;

create secure, transparent, and responsible supply chains;

enable individuals, companies, and objects with secure self-managed digital identities that can revive the concepts of privacy and control over our data;

fundamentally rethink the concept of a corporate firewall and unproductive competition that hampers innovation; and

build secure and value-based collaborative ecosystems where what's efficient and non-differentiating is shared and competition is reserved for the creation of new products and services.

Over the past year, the GBBC community has demonstrated its continued leadership in education, advocacy, standards, and value-led transformation programs. I'm particularly proud of our Global Standards Mapping Initiative (GSMI), which received tremendous feedback as a tool to help navigate the standards aspect of this innovation frontier. Our ability to team with the World Economic Forum and partners to survey 185 jurisdictions, 379 industry groups, and more than 30 technical standards communities was a demonstration of the power of our collaboration, thought leadership, and delivery capabilities.

I look forward to the GBBC community continuing to be stewards of ethical, equitable, and valuable transformation of our world, applying the master speed required to move faster and slower than the flows of innovation, regulation, social mandates, and human needs.



CEO UPDATE

SANDRA RO, CEO, GBBC

As we take a moment to look back on 2020, I am continually amazed by the fortitude, ingenuity, and collaborative spirit of the blockchain and digital asset community globally. Despite the collective difficulties of 2020, I can confidently say that we have continued to build upon and make progress toward creating more secure, equitable, and functional societies around the globe.

The GBBC community has been hard at work since before 2020 to solve many of the inefficiencies, shortcomings, and inequalities that came to light over the past year. And perhaps, now more than ever, there is a greater need for the innovative ideas, products, and solutions that our community has been developing. As you flip through the pages of this year's GBBC Annual Report, you will discover the myriad of digital and blockchain-based solutions GBBC members are developing to tackle COVID-19, rethink financial services and money, address climate change, manage 21st century risks, and beyond.

As we look ahead with renewed energy and hope, we are delighted to take this opportunity to extend our gratitude to our global GBBC community for your support, dedication, perseverance, and courage to think differently and work together to build the next multi-trillion-dollar industry with our neighbors, communities, and human-centric tech in mind.

**THE GBBC REMAINS MORE COMMITTED THAN EVER TO ITS MISSION,
AND IS PROUD TO SHARE A FEW OF OUR MILESTONES FROM 2020:**

MEMBERSHIP

We represent over **220+** institutional members across **70+** jurisdictions, representing a **~250%** increase in membership year-over-year. We expect to carry this momentum forward and grow our membership to over **300** institutions in 2021.

220+
INSTITUTIONAL
MEMBERS

ACROSS
70+
JURISDICTIONS

250%
INCREASE YEAR
OVER YEAR

GLOBAL STANDARDS MAPPING INITIATIVE (GSMI)

In October 2020, the GBBC, the World Economic Forum, and industry leaders released the GSMI version 1.0, the first comprehensive effort to survey blockchain and digital asset standards and regulations across **185** jurisdictions, **379** industry groups, and **30+** technical standard-setting entities. GSMI version 2.0 is underway and will be released in 2021. Learn more about the GSMI on page 11.

AMBASSADORS

The GBBC has had tremendous success in building a global network of **130+** ambassadors across **70+** jurisdictions and disciplines. Learn more about the GBBC's 2021 Ambassadors on page 10.

WEBINARS & VIRTUAL CONVENINGS

Since going fully virtual in April 2020, the GBBC has hosted and produced **89** virtual panels and sessions, including the GBBC's yearly flagship event, Blockchain Central UNGA, which brought together **99** speakers from **28** jurisdictions and **1,100+** registrants to discuss the role of technology and community in accelerating progress toward the United Nations Sustainable Development Goals.



OPEN-SOURCE IDEAS REPORTS

GBBC published 6 open-access reports authored in partnership with GBBC members and partners as part of our ongoing “Open-Source Ideas” series.

THE RISE OF CENTRALBANK DIGITAL CURRENCIES
WITH SORAMITSU

EMPOWERING WOMEN AND GIRLS THROUGH BLOCKCHAIN
WITH IDB LABS & LACCHAIN

UTILITY TOKENS AND ERC-20 ICOS: WHERE ARE WE NOW?
WITH SELECT GBBC MEMBERS

EXAMINING VULNERABILITIES OF VOTING MACHINES
WITH REMTCS, INC.

BLOCKCHAIN & BUY SIDE ADOPTION: LEGAL AND REGULATORY CHALLENGES
WITH NORTON ROSE FULBRIGHT

THE FUTURE OF URBAN LIVING: SMART CITIES
WITH AIFC; CITI GATE DEW ROGERSON; LA BLOCKCHAIN LAB; NYC BLOCKCHAIN CENTER

BOARD APPOINTMENTS

Staci Warden, Executive Director of Global Market Development at the **Milken Institute** and **Tim Grant**, CEO of **SIX Digital Exchange** joined the GBBC Board of Directors. **David Treat**, Senior Managing Director and Global Lead of Blockchain and Multiparty Systems at **Accenture**, was named GBBC Board Chair.

AS WE LOOK FORWARD TO A PRODUCTIVE 2021, THE GBBC'S WORK WILL BE GUIDED BY 3 KEY PILLARS:

1 | Digital Infrastructure and Digital Economy:

Engaging with governments, academia, and the private sector on the state of digital infrastructure building, policy, governance, and oversight.

2 | Global Standard Mapping Initiative

Version 2.0: Building upon the 2020 release of GSMI 1.0, the GBBC and its partners will continue to maintain and expand jurisdictional coverage of blockchain and digital asset guidance and regulation, as well as establish specific working groups based on community feedback.

3 | Building Sustainable and Resilient Systems:

From next generation capital markets, digital identity, and climate change to dealing with the next global crisis, we will continue to work with organizations and institutions across the public and private sector to tackle society's most-pressing challenges.

The GBBC team is here to support as our industry grows and evolves. Thank you for doing your part.

A final solemn note: we pay tribute to the members, partners, and friends of GBBC lost during 2020. Special remembrance and respect to our colleague, **Arnold Waldstein**, whom we admire, whom we miss, and whom we lost too soon. Arnold was founder and producer of Medley Media, and a partner of our 2020 webinar series “Ask-Me-Anything Town Halls” with GBBC member Ocean Elders. Thank you, Arnold, for supporting, collaborating, and believing in us.



VIRTUAL CONVENINGS

PARTICIPANTS IN OUR CO-PRODUCED "GLOBAL LEADERS SERIES"
WITH GLOBAL DIGITAL FINANCE INCLUDED:



MARTIN BARTLAM
DLA PIPER



ROD BECKSTROM
FMR. ICANN



RICHARD BYWORTH
DIGINEX



MICHAEL COLETTA
LONDON STOCK EXCHANGE GROUP



DANTE DISPARTE
DIEM ASSOCIATION



TAREK EL DIWANY
KEATOC ZEST



TONYA EVANS
PENN STATE DICKINSON LAW



TIM GRANT
SIX DIGITAL EXCHANGE



TOOMAS HENDRIK ILVES
FMR. PRESIDENT OF ESTONIA



RODNEY HOOD
NATIONAL CREDIT UNION ADMIN. (NCUA)



JASON HSU
FMR. LEGISLATOR-AT-LARGE, TAIWAN



EVA KAILI
EUROPEAN PARLIAMENT, GREECE



KAIRAT KELIMBETOV
ASTANA INTL. FINANCIAL CENTRE (AIFC)



STEVE KOKINOS
ALGORAND



LINDA LACEWELL
NY STATE DEPT. OF FINANCIAL SERVICES



CHRIS LEE
HUOBI



DR. JEMILAH MAHMOOD
GOVERNMENT OF MALAYSIA



MICHAEL MAINELLI
ALDERMAN & SHERIFF, CITY OF LONDON



SANTOSH MISRA
TAMIL NADU E-GOVERNANCE AGENCY



YUVAL ROOZ
DIGITAL ASSET



JOHN SALMON
HOGAN LOVELLS



HEATH TARBERT
COMMODITY FUTURES TRADING COMMISSION



RICHARD TENG
ABU DHABI GLOBAL MARKETS



DAVID TREAT
ACCENTURE



CLYDE VANEL
NY STATE ASSEMBLY



ED VAIZEY
HOUSE OF LORDS OF THE UNITED KINGDOM



STACI WARDEN
MILKEN INSTITUTE



SHEILA WARREN
WORLD ECONOMIC FORUM

The GBBC & GDF's "Global Leaders Series" is an ongoing weekly webinar series featuring policymakers and business leaders providing insights into their work, the future of fintech and blockchain, and fielding questions from members of the community. All episodes are available on [GBBC's YouTube Channel](#).

POST-TRADE DISTRIBUTED LEDGER GROUP

The GBBC's Post-Trade Distributed Ledger (PTDL) Group, which serves as a rallying point for prominent financial institutions under the aegis of the GBBC, would like to thank the financial institutions, market infrastructure players, fintech companies, and government officials who presented during the PTDL's 2020 meetings.

THANK YOU 2020 PTDL PRESENTERS:

Bank for International Settlements (BIS)

London Stock Exchange Group (LSEG)

Blockchain Technology Partners

Norton Rose Fulbright

Diginex

NY Dept. of Financial Services (NYSDFS)

Digital Asset

Opus Pear Tree

Evertas

SEBA Bank AG

Financial Conduct Authority (FCA)

SIX Digital Exchange

Fidelity Digital Assets

Signature Bank

Hong Kong Exchanges and Clearing Limited (HKEX)

Stellar Development Foundation

Hyperledger, Linux Foundation

Member of the Legislative Yuan, Taiwan

Kaiko

Tangem





GBBC AMBASSADORS

GBBC Ambassadors are an exceptional group of super-connectors, innovators, and changemakers hailing from diverse backgrounds and industries — with an emphasis on technology, governance, law, finance, civil society, and academia. Since its inception, the GBBC has relied on its global Ambassador network to expand our global community, presence, and impact on a global scale. GBBC Ambassadors act as trusted advisors to the GBBC’s leadership and members, providing invaluable guidance and assistance on how to engage with diverse global communities to carry out GBBC’s mission to the highest of standards.

GBBC’s 2021 cohort of 130+ Ambassadors hail from 70+ jurisdictions and disciplines, and represent some of the foremost leaders and thinkers in their areas of expertise.



For more information on GBBC’s 2021 Ambassadors, visit us [online](#).

GLOBAL STANDARDS MAPPING INITIATIVE

Launched in October 2020, the Global Standards Mapping Initiative (GSMI) is an industry-led effort to map and assess the blockchain and digital asset landscape in three distinct areas:

1. Technical standards
2. Legislation and guidance released by sovereign and international bodies
3. Industry best practices and blockchain consortia

Version 1.0 of the GSMI was spearheaded by the Global Blockchain Business Council (GBBC) and World Economic Forum with key collaborators, including: Accenture, Digital Currency Initiative, MIT Media Lab, ESG Intelligence, Global Digital Finance, Hyperledger, The Linux Foundation, ING, the Milken Institute, and SIX Digital Exchange.

IN TOTAL, GSMI 1.0 CATALOGUED OUTPUTS FROM:

185

JURISDICTIONS

379

INDUSTRY GROUPS

30+

TECHNICAL STANDARDS
SETTING ENTITIES

GSMI 1.0 FINDINGS AND ANALYSIS ORGANIZED AS:



LEGAL & REGULATORY
REPORT



TECHNICAL STANDARDS
REPORT



INTERACTIVE WORLD MAP OF
BLOCKCHAIN AND DIGITAL ASSET
LEGISLATIONS AND GUIDANCE

GSMI 2.0 WILL FOCUS ON:

1
Launch of GSMI
Fellows Programme

2
Working Groups
Focused on
Taxonomy,
Policy, Regulation,
Derivates, Green
Economy, and
Taxation

3
Updating and
Expanding
Jurisdiction
Coverage

4
Mapping
Academic
Institutions,
Foundations,
and Consortia
Engaging in
Blockchain
and Digital Asset
Related Work



OUR MEMBERS' WORK



DIGITAL SOLUTIONS TO TACKLE COVID-19

COLLABORATION IS KEY TO THE VACCINE CHALLENGE

MELANIE CUTLAN, MANAGING DIRECTOR, CO-LEAD BLOCKCHAIN & MULTIPARTY SYSTEMS, ACCENTURE

We are in the midst of the most complex and consequential human impact initiative we will likely see in our lifetimes: the distribution of COVID-19 vaccines to billions of people, in virtually every country. The speed, scale, and resources necessary to accomplish this creates unprecedented challenges — from distribution logistics, authentication and monitoring, to policy and risk management. Missteps can have immeasurable impact. To succeed now, and for what lies ahead, we must create collaborative ecosystems.

We have seen this come to life over the past several months as we work with the world's largest pharmaceutical, distribution, and logistics companies, governments, providers, pharmacies, and healthcare systems to improve our ability to deliver swift, safe, and effective vaccine management solutions. The sheer scale and complexity of these programs, along with the demand for vaccines globally, means traceability, visibility, and security are critical. To ensure each stakeholder has the most up-to-date information, from a single source of truth, we must share data.

That may be easier said than done, because we need these solutions now. The first step is to leverage existing capabilities and then to build



the necessary innovations to drive better data consistency. And we must do this together.

Implementing a track and trace solution, from pharma to pharmacy, which provides timely information on the state of each vaccine, tracks its steps as it moves through the supply chain, and verifies its condition and authenticity when it's administered allows us to be more nimble and direct vaccine supply to meet demand. This will help reduce vaccine shortages or spoilage and mitigate the risk of counterfeits.

On December 2nd INTERPOL issued a global alert to law enforcement across its 194 member countries warning them to prepare for organized crime networks targeting COVID-19 vaccines, both physically and online. There are many opportunities for bad actors in this space, but they will be easier to thwart with an established data lineage that is secure and tamper resistant.

As vaccine deployment continues to ramp up, data reconciliation between parties will be at an unprecedented scale, and collaboration across ecosystems will be more important than ever. In many respects it will require all of us, as we capture and report key information to reinvent processes

with new technologies, such as distributed ledger technologies. This task is so much bigger than the sum of its parts. But together, as we increase

collaboration across stakeholders in every corner of the earth, we can meet this challenge.

USING BLOCKCHAIN TO MONITOR COVID-19 VACCINE SUPPLY CHAIN

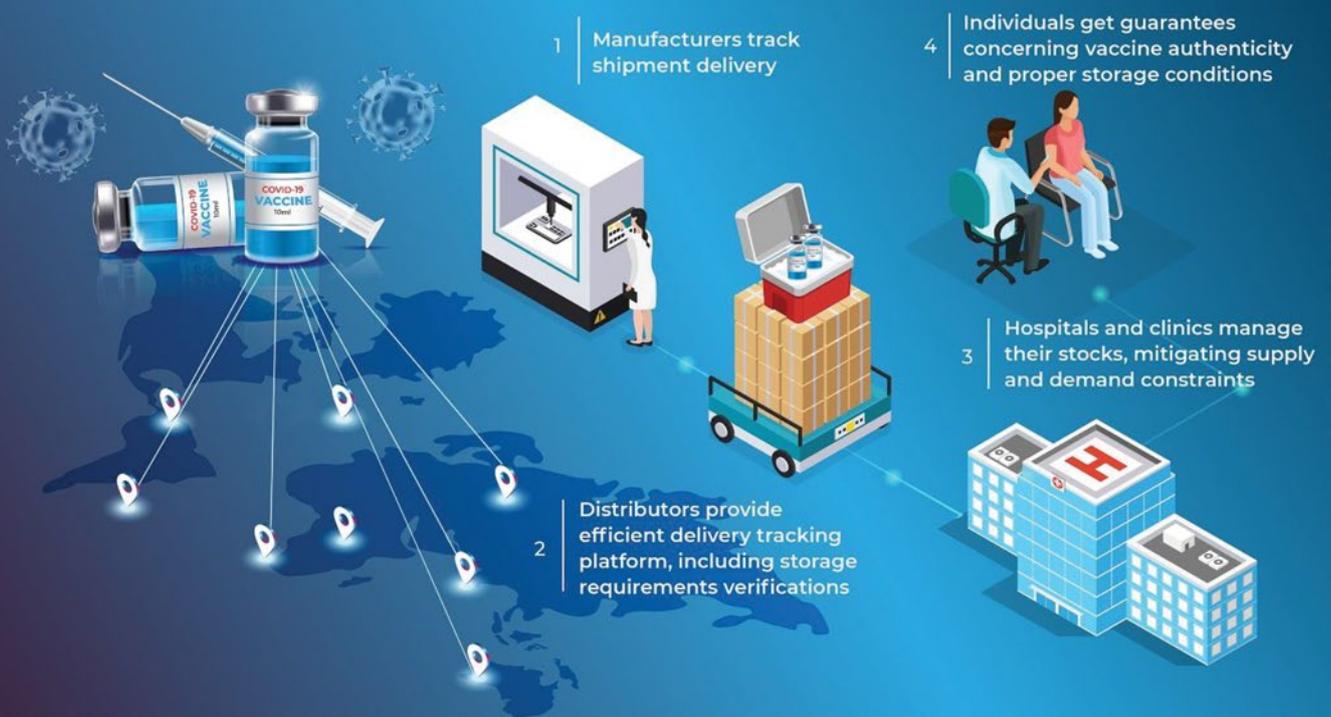


Orbs is building a public blockchain infrastructure designed for businesses looking at trust as a competitive strategy. In supply chain management, Orbs has been working with a Fortune 500 company on a blockchain solution to identify counterfeit goods. This experience enabled us to see not only the value add, but also the critical need for blockchain in solving the global challenge of COVID-19 vaccine distribution.

In November, Pfizer and Moderna announced breakthroughs in their COVID-19 vaccine clinical trials.¹ The results are highly impressive, yet both vaccines require extreme storage conditions that directly affect their efficacy and could mean the difference between global recovery or continued spread of the virus.

In the U.S., Operation Warp Speed, spearheaded by General Gus Perna, aims to inoculate 300 million

COVID VACCINE SUPPLY CHAIN



Americans against the virus. Globally, it is an even greater undertaking. How can recipients of the vaccine rest assured that their doses have not been compromised by faulty storage handling, putting them and their surrounding environment at risk? Is it possible to monitor and verify proper vaccine storage? We believe the answer lies in blockchain technology.

Blockchain technology allows multiple parties to manage and share a decentralized and immutable database. This makes it the perfect infrastructure for supply chain management platforms, as it is not owned by any one entity and creates a greater level of accountability than traditional supply chain management platforms. Using blockchain, multiple parties can create a shared, transparent, mutually

agreed upon source of truth, what we call Digital Trust.

Blockchain would solve most challenges of standard supply chain management, including the greatest concern for COVID-19 vaccines: storage condition tracking. Given the vital importance of the storage temperature, vaccine distributors would be required not only to make sure the conditions are met, but also to unequivocally prove that they were met, with the immutable data as proof.

The global disruption caused by COVID-19 can begin to be unwound with the rollout of properly stored and administered vaccinations. Consequently, proof of proper storage recorded on blockchain is not only necessary, it is priceless.

ADAPTING KYC TECHNOLOGIES TO COMBAT COVID-19



At the beginning of 2020, BLOK realized that the platform we had been building to support a global Know Your Customer (KYC) solution could be adapted to become an invaluable tool in the fight against COVID-19. Our solution, BLOK Pass, was released last year and is already in use here in the UK and is being put forward for approval as the national solution in several other countries. What makes our solution unique is the uncompromising approach we took towards self-sovereignty — each individual is the only possessor of their data. Not only does this provide an unparalleled level of privacy, but it also means that enterprises and governments do not have to worry about the risks of a security breach or the costs of data compliance.

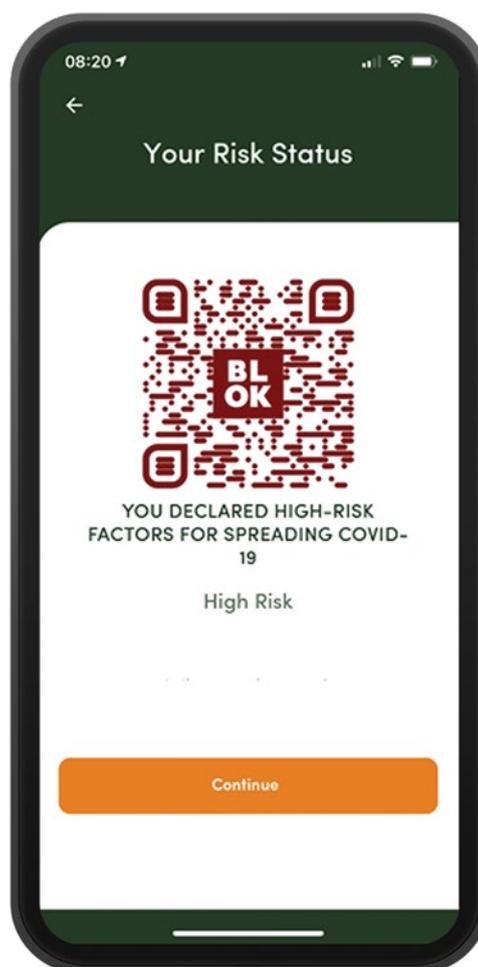
Our entire license agreement consists of only four terms, shown here:

1. Your data is yours and yours alone; we don't have a copy, and never will.

2. Your data is never shared; this app has been designed to make it impossible.
3. Any time someone wants to use your data to answer a question, like "is it safe to let you into a building," they have to get your permission first.
4. You hold the only copy of your data. If you ever want to delete it for any reason, you don't need to ask anyone else's permission. Simply delete the app.

A key innovation of the solution is called an Anonymous Handshake®, for which BLOK has a patent pending. This innovation enables individuals using BLOK Pass to retain sole ownership of their personal identifying information (PII) and health data, such as vaccination status, test results, etc., while also enabling an organisation to create their own COVID-19 protocols to query the attested evidence residing on individuals' mobile devices

to assess whether an individual meets the organisation's safety criteria — all without taking a copy of an individuals' PII or private health data. Governments, employers, transportation providers, retail service providers, etc. need a solution that preserves individual privacy and civil liberties to gain the trust of the public, aid in opening economies, and protect private data from theft or misuse. BLOK Solutions' BLOK Pass platform is the only health pass globally to achieve the gold-standard ID2020 self-sovereign identity certification.



WHAT'S NEXT FOR FINANCIAL SERVICES

THE ROARING TWENTIES: DIGITAL ASSETS, ESCAPING THE DOMINANT LOGIC OF THE 20TH CENTURY AND ENTERING A 21ST CENTURY MINDSET

TIM GRANT, CEO, SIX DIGITAL EXCHANGE

I remember saying at the end of 2019 that I was excited to be entering the roaring twenties. And that I could see a world of promise and significant advances during the coming decade to positively impact the way we do things for years to come.

Well, COVID-19 kind of took the edge off that one. However, coming into 2021 I hold firm on my assertion from one year ago. Transformation is upon us.

Our motto at SIX Digital Exchange is **“Grand Ambition. Big Impact. Small Steps.”** Our Grand Ambition and strategic intent is to build a global liquidity network for institutional digital assets - true next generation digital market infrastructure. If we get this right, the Big Impact that we can generate will materially affect how corporations, governments and individuals engage with institutional capital markets, democratize access to new financial products and services, and redefine how capital and liquidity are formed. We also know that in order to achieve our Grand Ambition and Big Impact we need to deliver value to the industry in Small Steps, rather than try to boil the ocean.

So far, so good. After 2020, I am delighted to confirm that we are well on track towards our ambitious goals. Having been in the institutional blockchain/DLT and digital asset space now for over five years, I would rate the industry reasonably highly for driving towards change. Technology maturity, regulation, investment, commitment, commercial models, standards, and stated strategic intent have all progressed to the point where all the pieces of the puzzle are coming together. This bodes exceptionally well for a decade that really should be roaring.

There is one critical ingredient that, in my opinion, needs to be addressed in order for us to have a chance of creating the evolutionary outcomes that are possible. And that ingredient is mindset. In crude terms what I am talking about here is “getting out of our own way.” The major impediment to progress is not being in the right frame of mind as an industry to allow progress to happen. The dominant logic that came from the latter part of the 20th century was driven by the social, political, economic, regulatory, and, crucially, technology choices that we collectively made and that were available at the time. As we get close to entering the



second quarter of the 21st century, many of these 20th century dominant views are no longer relevant, no longer fit for purpose, and often fly in the face of progress.

Every one of us must understand what it means to move into a 21st century mindset and leave our 20th century mental models where they belong, as

relics of the past. This is our greatest challenge, and if we can conquer it then it will lead to truly roaring twenties and the achievement of our Grand Ambitions.

I am looking forward to engaging with all of you in 2021 as we shift up a gear and drive transformation together.

PROOF OF CONCEPT: FOUR USE CASES INVESTIGATED

Issuance of wholesale CBDC

Redemption of wholesale CBDC

Delivery versus payment settlement of tokenised assets against wholesale CBDC

Transfer of wholesale CBDC or wholesale CBDC payment

SIX DIGITAL EXCHANGE (SDX) PUBLISHES FIRST REPORT ON SETTLING TOKENISED ASSETS IN CENTRAL BANK MONEY

SIX Digital Exchange, the Swiss National Bank (SNB), and the Bank for International Settlements' Innovation Hub (BISIH) Swiss Centre published the Helvetia report, a two proofs-of-concepts experiment using “near-live” systems to settle digital assets on a distributed ledger with central bank money.

The initiative demonstrated the feasibility and legal robustness of issuing a wholesale central bank digital currency (CBDC) onto a distributed digital asset platform and linking the digital asset platform to the existing wholesale payment system. The collaboration sets the stage for further joint experimentation and policy work to assess the impact of digital innovation on the future of the financial system.

Project Helvetia | Phase I completed

The project was carried out in the test environments of the traditional Swiss real-time gross settlement (RTGS) Swiss Interbank Clearing (SIC) system, and the near-live SDX platform. Two options to settle tokenised assets in central bank money were investigated: in a first proof of concept (PoC), the SNB issued Swiss franc wholesale CBDC (w-CBDC) on the SDX platform for the settlement of tokenised assets; in a second PoC, the SDX platform was linked to the SIC system, to allow for the settlement of

tokenised assets against payments in SIC balances with the central bank. The functional feasibility of both PoCs was successfully shown in the production-grade operational test environments. Also, it was demonstrated that the transfer of w-CBDC and tokenised assets can be designed in a way to allow settlement on a legally robust basis.

Continuation of Project Helvetia | Phase II

The successful collaboration led to deep insights and to a commitment to continue the project. The next step is to seek a deeper understanding of the practical complexities and policy implications of issuing w-CBDC.

This project is a tangible example of the value of cooperation as change gathers pace across the globe. Private system operators such as SIX Digital Exchange and central banks alike have an incentive to preserve the use of safe money.

THE REITBZ CASE: HIGHLIGHTS OF A BANK BACKED STO

ReitBZ was the world's first security token issued by a bank. It was conceived with the objective of validating in practice the use of blockchain technology, popularized by cryptocurrencies and ICOs, for the issuance of securities.

Due to the regulatory gray area in Brazil, BTG decided to carry out the issuance of the ReitBZ token in the Cayman Islands (where BTG Pactual already had a subsidiary and was aware of the general aspects of the applicable regulation, such as KYC and AML) and not sell the token to residents of countries where there is no regulation on the subject, such as Brazil, the United States, China, Algeria, Bolivia, Ecuador, Morocco, and Pakistan, among others.

ReitBZ and the tokenization process, in general, were promising not only for validating and experimenting with the technology, but also in terms of harvesting all the benefits this kind of financial instrument offers: global and dispersed distribution, transparency, ease of auditing, and cost efficiency.

Moving forward, the project serves as a use case for regulators to have a real offer model to help them

tailor regulation that not only protects the investor, but also does not hinder innovation and fosters the market.

The token represents a share of a portfolio of distressed real estate assets managed by Enforce, a company specializing in credit recovery that is part of the BTG Pactual Group, located in São Paulo and Rio de Janeiro. ReitBZ had a low entry minimum (USD\$500) and its offer raised approximately USD\$10 million, reaching dozens of investors (individuals and institutions) from four continents (Americas, Europe, Africa, and Asia). Since then, it has already distributed dividends on two occasions, totaling USD\$220,000.

The project enabled the learning and validation of several points related to technology and its use applied in the capital market, being the starting point for the bank to develop new products in the near future.

More on the project can be found on our [website](#) and in our [white paper](#).



J.P. MORGAN

Onyx by J.P. MorganSM

Onyx by J.P. Morgan is at the forefront of a major shift in the financial services industry. This new business unit reflects J.P. Morgan's commitment to innovation with cutting-edge technology that delivers a better, faster, and more inclusive financial system.

Liink by J.P. MorganSM

Liink by J.P. Morgan is the first bank-led, production-grade, scalable, and peer-to-peer blockchain-based network. It serves to address the longstanding challenges of sharing payments related information across institutions. More than half of the world's largest banks have signed up to join the new paradigm, using shared ledgers to simplify information exchange around how money moves.

The initial applications that are available or being developed demonstrate the power of Liink:

- **Confirm** allows participants to validate account information prior to payment initiation across a wide range of geographies and payment types. It is designed to be the ubiquitous, automated global account validation solution. Its peer-to-peer account validation enables more intelligent payment decisions with the intent of reducing payment related exceptions.
- **Resolve** streamlines payment related compliance inquiries by allowing participants to exchange such information through Liink. Institutions can send a verification request to other participants on the network to obtain select payment-related data elements. As a result, institutions can reduce the burden of a resource-intensive compliance process.

The pipeline for Liink includes an application under development that routes check transactions to lockbox providers through digital means. The check payment industry still has billions of checks written each year. This application has the potential to



significantly reduce the number of paper checks printed.

Onyx Digital Assets & Intraday Repos

At the end of 2020, J.P. Morgan launched Onyx Digital Assets, along with its first live application for the execution of intraday repurchase transactions or 'repos', which allowed for the simultaneous exchange of cash for securities on a blockchain, without physical movement of securities. Onyx Digital Assets is a new network for the exchange of digital assets and platform for digital asset use cases.

J.P. Morgan recognized an opportunity to offer a financial technology with the initial goal of significantly enhancing active intraday liquidity management and reducing reliance on unsecured funding. By more efficiently securing a portion of liquidity provision to J.P. Morgan clients with intraday collateral, J.P. Morgan aims to reduce market risk by reducing exposure to counterparty credit risk. J.P. Morgan's solution was to create a scalable intraday repo product that materially alleviates the challenges and costs currently associated with managing intraday liquidity for clients.

Coin Systems

In 2019, J.P. Morgan became the first global bank to design a network to facilitate instantaneous payments using blockchain technology — enabling 24/7, business-to-business money movement. JPM Coin seeks to address the complex challenges of cross-border payments and simplify its clients' money moving needs through next generation corporate treasury services.

JPM Coin is a permissioned system that serves as a payment rail and deposit account ledger, and allows participating J.P. Morgan clients to transfer U.S. Dollars held on deposit with J.P. Morgan to each other, facilitating movement of these payments in real time and solving common hurdles of traditional cross-border payments such as region-specific holidays or local bank branch hours.

In parallel, J.P. Morgan is working with DBS Bank and Temasek to expand upon and commercialize the efforts of Project Ubin — a multi-year, multi-phase project led by the Monetary Authority of Singapore (MAS) aimed at solving pressing challenges faced by the financial industry using blockchain technology. The three parties plan to collectively leverage this work to build blockchain-based clearing and settlement systems for commercial payments. Multi-currency payments via traditional

correspondent banking is a model which has been around for many years. J.P. Morgan, DBS Bank, and Temasek are exploring ways to address the pain-points arising from the complexities of payments flowing through several intermediaries via traditional channels, enhancing transparency, traceability, and immediacy of cross-border wholesale banking transactions with the application of blockchain technology.

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GET READY FOR A NEW PAYMENTS ERA



Blockchain technology can bring trust to an otherwise untrusted system, which can provide many industries with more efficient, scalable, secure, and frictionless models.

One area that will define the future of finance is payment services for consumers, businesses, governments, and financial markets. The complex systems underpinning these sectors present both challenges and opportunities: businesses need to view records and calculate figures easily, consumers expect instant transaction settlement, and regulators need to offer compliance measures.

Blockchains provide the highest degree of security through programmable consumer controls to protect users and secure a decentralized network. To be truly scalable, secure, and support billions of users, a foundational blockchain protocol needs to enable all forms of exchange running at the full speed of the network. This is critical for global payments as well as the creation of complex financial products. To make this possible, the Layer-1, or core technology (rather than something built on top of it), must be designed to do just that.

Algorand enables the development of a wide range of scalable, secure, and compliant applications to power frictionless financial exchange.

Algorand's advanced smart contracts enable programmable money by automatically executing transactions using code stored on the blockchain when agreement terms are met. This new way of handling payments and sophisticated transactions paves the way for truly peer-to-peer transactions and more financial inclusion. It removes friction from financial exchange, providing more efficient and accessible ways of transacting between parties.

Going beyond elegant and efficient technology, programmable money is brought to life with programs that open the doors for developers to easily create simplified financial programming. Lowering the barriers to entry to development of new products, tools and services will represent a major tipping point in the future of payments and financial services.

Blockchain offers a completely different way to organize and manage payment systems. It provides

real-time, cross-border payments worldwide — and new ways to store value. A platform like Algorand, paired with fintech's latest developments and

developer toolkits, has the potential to take the lead in the race for payments innovation.



INTRODUCTION TO DEFI AND THE KEY LEGAL CONSIDERATIONS

CHARLOTTE ROWLANDSON, ASSOCIATE, NORTON ROSE FULBRIGHT

What is DeFi?

Decentralised finance (or DeFi) is one of the most exciting developments in the blockchain sector because of its potential to “democratize” financial products, create liquidity for cryptoassets, and further expand the potential use cases for blockchain technology.

DeFi is a broad term referring to decentralised applications (dApps), operated through smart contracts on a blockchain, that provide cryptoasset-related financial services, solutions or products. DeFi dApp use cases include lending and borrowing, insurance, trading in synthetic assets, prediction markets, and beyond.

Key legal considerations

Given the borderless nature of blockchain technology, the jurisdictional scope of applicable laws in relation to dApps is potentially global. However, it may be possible to implement technical functionality within dApps to impose jurisdictional restrictions to block, for example, access by IP addresses from certain countries. The effectiveness of such measures (particularly in relation to regulatory/securities issues) is likely to depend on the specific local legislation in question. In addition, due to the nascent and innovative nature of DeFi (and smart contracts and blockchains more broadly), applications and products will rarely fall neatly within existing legal and regulatory frameworks.

The following key legal risk areas are likely to be relevant for all DeFi projects:

- **Legal classification and enforceability** | understanding the legal nature of cryptoassets, legal enforceability of smart contracts, and the parties to which legal liability will attach, in order

to ensure adequate legal protection is sought and liabilities mitigated.

- **Data privacy** | identifying responsibility for data protection compliance in relation to the collection and storage of personal data and (to the extent possible in light of the challenges introduced due to the nature of blockchain technology) ensuring compliance with applicable data privacy laws.
- **Intellectual property** | ensuring that dApps being developed do not infringe intellectual property rights of others and potentially taking steps to entrench value in dApps developed through the protection of intellectual property rights in them.
- **Dispute resolution** | appreciating the complexities involved with the potential multi-jurisdictional issues associated with resolving disputes that may arise between users and/or developers of a DeFi dApp.
- **Consumer protection** | consideration as to the implications of the potential application of consumer rights laws, the scope of which will vary depending on the jurisdiction of the relevant user of the dApp.
- **Regulatory frameworks and securities laws** | analysis as to the applicable regulatory frameworks and securities laws that may apply to any digital tokens issued as part the operation of a dApp, transactions taking place in relation to cryptoassets via a dApp, and the nature of activities being undertaken through the dApp will need to be fully understood.
- **AML** | understanding the application of relevant anti-money laundering (AML) and know-your-

customer (KYC) regimes, whether in order to meet requirements imposed as a matter of law or as a means to manage regulatory and commercial risk

- **Tax** | consideration as to whether any tax is payable in respect of the issuance of any digitized

tokens, such as VAT or any other indirect tax, and if there is, who is responsible for it. Users of DeFi dApps may also want to consider the personal tax implications of any gains made as a result of activities on DeFi dApps, for example, through yield farming.



REFORMING CRYPTO'S REPUTATION: HOW DIGINEX'S CRYPTO EXCHANGE EQUOS IS CHALLENGING OLD IDEAS

Hacks, scams, and market manipulation: these headlines have plagued the digital asset industry for years. The reputational risk of dealing in crypto assets is the largest barrier for institutional adoption and the maturation of the asset class.

Diginex created an ecosystem that mitigates these risks, one that is regulated within a credible jurisdiction, meets FATF standards of KYC/AML, and has a deep focus on security. In July 2020, Diginex launched EQUOS, a regulatory focused, fiat to crypto, spot and derivatives exchange.

Operating out of the financial hub of Singapore with a Nasdaq-listed parent Diginex [Nasdaq: EQOS], EQUOS adheres to the highest standards of governance. In a first for the industry, the listing process saw EQUOS governance controls and policy framework submitted for approvals with the U.S. Securities and Exchange Commission and Nasdaq.

Along with governance and compliance, security of client assets is paramount. EQUOS is gearing up to offer a multi-custodian solution for clients with

the integration of Digivault. This is the group's own segregated, certified, and bank-grade custodian, offering warm and cold custody. All employees with access to private keys are subject to regular background screening, and EQUOS employs multiple market surveillance tools to ensure the integrity of the exchange. Incoming cryptoassets are also checked using independent blockchain surveillance tools to ensure assets are not tainted.

EQUOS is also one of only a few crypto exchanges globally that does not make markets on its exchange, avoiding the conflict of essentially trading against its own clients, nor does it sell users' data so that others may seek advantage.

The crypto industry is entering a new paradigm as institutional investors begin to enter; these investors are demanding higher standards. This shift is likely to disrupt many incumbent players who are unfamiliar with this operating environment. For EQUOS, this is not new, as many members of the leadership team have spent their whole careers dealing with institutions and regulators.

“Some companies are already moving towards this new reality, seeking to replicate many of the controls and processes that EQUOS has in place. Indeed a few are looking for the governance standard that comes with being a listed entity as it is now a race against time to evolve before regulators come knocking.”

- Richard Byworth, CEO, Diginex

THE TOKENIZATION OF EVERYTHING

Lykke's goal is to contribute to a sustainable economic system by developing an environment where any type of asset or legal right can become a currency. This is a key project for us because a foundational requirement for a resilient economic system is a mechanism that provides adaptability and elasticity at all levels. Currencies are tools to achieve elasticity and adaptability in an economic system. The key benefit of currencies is that they are a means of payment and are used as a denominator for assets and liabilities. If there is an adverse price move in the market, the impact is mitigated if assets and liabilities are denominated in the same currency, as there is an offsetting effect insulating the economic agent from the immediate impact.

Ideally, every project should have its own currency for both assets and liabilities, which would add resilience. However, in today's economic system this is not possible as many regulatory hurdles stand in the way of using any arbitrary asset or legal right as a currency for payment or as a tool of denomination. In response, the Swiss regulator, the Financial Market Supervisory Authority (FINMA), has created a legal framework where this obstacle can

be overcome. The Organized Trading Facility license, combined with Lykke's open-source technology, allows for issuance and tokenization of any type of asset or legal right by any issuer. Importantly, these tokens are freely transferable outside the exchange across the globe, and are naturally subject to the constraints and compliance requirements of any traditional financial asset.

Lykke is in the advanced stages of a license application with FINMA to launch an organized trading facility (OTF). As is the case with any other project, we are now focusing on capital raising, which will then be followed by a rolling out of the exchange as an open issuance platform for new currencies. The OTF is not only an issuance platform, but also a secondary market, where one market maker has the mandate to provide liquidity for any particular token. This is an essential aspect because new tokens require a minimum degree of liquidity before a healthy market environment with diverse market participants can develop, thereby providing the necessary stability to ensure orderly market moves in a broad array of different economic circumstances.

THE TOKENIZATION OF EVERYTHING



PROVIDING DIGITAL ASSET MARKET TRANSPARENCY

The vast diversity of digital investment products has opened the door to new financial market participants, and with it, the need for data transparency in order to protect investors and promote informed decision making. Market comprehension is difficult due to the vast amounts of data available across hundreds of exchanges, thousands of digital assets, and tens of thousands of trading pairs. Ultimately, the success of blockchain technology in transforming capital markets depends on the ease in which this information can be made accessible to new and existing investors.

Data providers like Kaiko exist to relieve the inherent information asymmetries that have emerged because of these numerous and complex financial markets. By connecting to hundreds of exchanges, normalizing data into a single format, and redistributing this data through proprietary APIs and platforms, we enable investors to seamlessly understand and absorb market movements.

Over the years, digital asset markets have become increasingly efficient, in large part due to improvements in the availability of high-quality market data. This trend can best be observed by analyzing the discrepancy in prices across exchanges, which has lessened considerably over the years. By comparing bitcoin's two bull runs, we can observe that today digital asset markets are far more interconnected and efficient than they were three years ago.

Ultimately, accessible data infrastructure promotes more efficient and healthy financial markets, which strengthens the value proposition of blockchain-based digital assets. The transformation of capital markets is only possible by leveling information asymmetries, which is why data providers play a crucial role in the digital assets industry.

BITCOIN MARKET EFFICIENCY: 2017 VS. 2020



Source: Kaiko Price Data

BRAZIL'S LARGEST CRYPTO-FOCUSED HOLDING COMPANY

QR Capital is the largest regulated crypto-focused holding company in Brazil. The company offers a variety of services and solutions by creating, developing, and investing in various businesses that help to build a healthy ecosystem for the blockchain industry in Latin America.

The leading venture under the holding's belt is QR Asset Management, Brazil's first and largest 100 percent cryptocurrency asset management company. Being one of the earliest regulated crypto-focused companies in the country, the firm embodies the mission of connecting the traditional Brazilian financial market with the new crypto assets industry.

While engaged in developing the future of money, QR Capital is establishing an innovative non-security digital asset exchange, the Brazilian Legal Receivables and Precatory Bonds Exchange, or BBPR. This line of business's main goal is to facilitate the access of legal receivables for specialized funds, family offices, and high-net-worth individuals using blockchain innovations.

QR Capital's portfolio also includes a lending platform Rispar, the first Brazilian regulated crypto company to offer loans in Brazilian reais (BRL) with bitcoin as collateral. Rispar aims to reshape the struggling Brazilian credit market through blockchain technology.

QR Capital also created a blockchain-specialized communication vehicle, called BlockTrends. Born as a forum to connect traditional financial market professionals with crypto enthusiasts, the portal has become a relevant local blockchain news outlet.

QR Capital thinks globally and acts locally by introducing worldwide crypto ideas and solutions to the Brazilian market in accordance with local regulation. QR Capital has become one of the most influential companies within the Brazilian crypto industry by funneling these disruptive blockchain trends to the local market.

“We embrace blockchain technology because we understand that it is inseparable from the future of money in Brazil and in the world.”

- Fernando Carvalho, CEO, QR Capital



THE FUTURE OF MONEY AND PAYMENTS

Digital Asset

FOUR PRINCIPLES OF INTEROPERABILITY

Over the past year, CBDCs have emerged as the holy grail of cross-border payments, making payments faster and more cost-effective for wholesale and retail markets. While CBDCs promise to deliver significant value, there are several hurdles central banks need to clear. Top among the challenges is deciding which technology to use — DLT, a centralized database, or existing payment rails. Central banks need to consider whether the CBDC is compatible with other CBDCs and platforms. If not, the CBDC runs a great risk of hitting a dead end.

The reality is that central banks are not all going to use the same technology. There is not going to be one ledger to rule them all. For CBDCs to realize their full potential, seamless, built-in interoperability is the way forward, which brings us to another discussion point: what is interoperability? If you were to ask five people to define interoperability in the context of DLT, you would get five different answers. For us, true interoperability includes four key components: multi-ledger technology, cross-ledger atomicity, data privacy, and composable extensibility.

- **Multi-ledger technology** | The ability to deploy and connect digital currency systems across disparate networks regardless of the underlying IT infrastructure.

- **Cross-ledger atomicity** | If one leg of a transaction fails, all sides fail. By ensuring atomicity, systems can achieve payment versus payment and delivery versus payment without the risk of handing over the goods when the payment leg fails and without the need for a central authority acting as an escrow.
- **Data privacy** | Almost all non-DAML blockchains lack the basic properties of privacy, leaking all transaction information to the world. Some chains have addressed some privacy concerns but lack the ability to guarantee their privacy mechanisms when transacting across chains. Any CBDC solution must feature privacy on the main ledger and guarantee privacy across ledgers.
- **Composable extensibility** | The ability to dynamically add new applications and connect to other networks on the fly. Without it, companies will end up reinventing the wheel when future technologies come along.

As central banks move from experimenting with permissionless public blockchains towards production on networks designed for enterprise, the importance of interoperability only increases. With

these four interoperability components in play, we will realize the full potential of DLT and new solutions, like CBDCs. Many groups are working on

interoperability, Digital Asset included, and 2021 is shaping up to be a breakthrough year.



COWRIE INTEGRATED SYSTEMS & TEMPO: TOKENIZED CROSS-BORDER PAYMENT CORRIDORS BETWEEN NIGERIA AND EUROPE

Cowrie Integrated Systems is a financial technology company that provides value added services over electronic payment networks. Cowrie issues NGNT tokens, pegged to the Nigerian Naira, allowing users to trade and redeem these tokens in a global market. Tempo is an electronic payment institution and the principal EU anchor for Stellar blockchain payments. Tempo acts quickly to ensure pricing, foreign exchange rates, agent opportunities, and customer service remain highly competitive in regard to local markets.

The Challenge

Traditional remittance flows can be slow and cumbersome, constricted by how legacy systems currently operate. Money Transfer Operators (MTOs) charge senders high fees to make up for increased operating costs and technical

inefficiencies. Receivers end up losing value due to the many times their money passes through unfavorable exchange rates before it arrives at the end destination.

Over the years, Tempo has seen customers struggle to make international payments as global regulations become stricter and financial systems fail to streamline operations. Tempo needed a solution that would remove the friction from the remittance flow while being easy, fast, and transparent for customers.

International payments are also difficult to conduct if they involve less globally traded currencies, putting people who want to exchange those currencies in a tight spot. This is the problem Cowrie Exchange identified with their customers, who wanted to

exchange Nigerian Naira but had no cost-effective way to do so.

Their Solution

Recognizing the possibilities of blockchain technology, Cowrie and Tempo decided to build their solution on the Stellar network. On Stellar, it is possible to issue digital tokens that are backed 1:1 by fiat currency. Cowrie set up the NGNT token, pegged directly to the Nigerian Naira, and Tempo issued the EURT. Together, they built a bi-directional NGNT-EURT corridor so that customers were able to start redeeming and trading these tokens right away.

The Results

The cost-savings of building on Stellar apply not just to capital, but to time as well. Not only have Cowrie

and Tempo been able to eliminate the need for pre-funding through this corridor, but payments on Stellar have averaged under 10 seconds per transaction, compared to five business days with an MTO. By offering a cost-effective and rapid solution, the Cowrie and Tempo partnership empowers customers of all backgrounds — large enterprises, small-medium size businesses, and individuals — to easily send and receive money across borders.

Metrics

- <10s per transaction time to Nigeria
- 5X growth in daily payment volume over the last year
- € 1.5M sent from Europe to Nigeria and € 1M sent from Nigeria to Europe per week

PROJECT BAKONG: BUILDING THE NEXT GENERATION OF PAYMENTS



Soramitsu is a boutique fintech company with a diverse and highly skilled staff of over 90 employees located all over the world. We build innovative payment, asset management, and identity management systems that support the secure exchange of information across multiple decentralized networks. While we work with several blockchains, our platform of choice is Hyperledger Iroha, an open-source permissioned blockchain that we designed for the Linux Foundation.

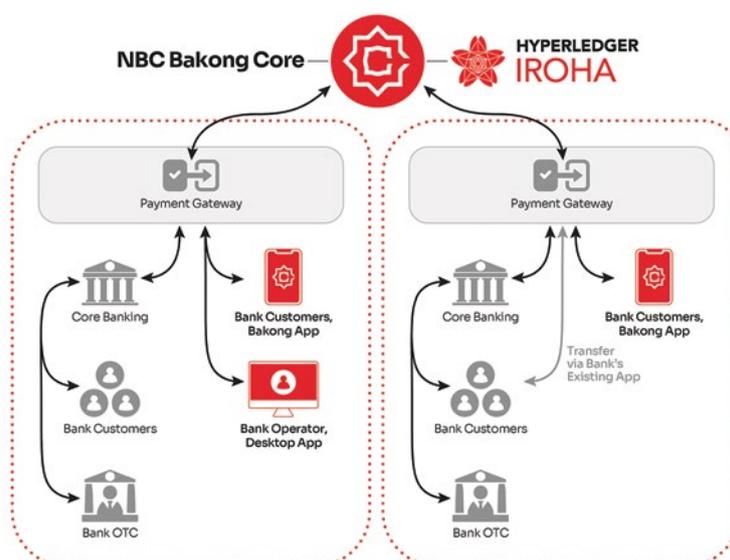
Hyperledger Iroha's security, scalability, and robust permissions system lend it to use in systemically important payment systems, such as Project Bakong, an integrated payment system built by Soramitsu in cooperation with the National Bank of Cambodia. Bakong is the first blockchain-based retail payment system to be launched by a central bank, and has processed tens of millions of dollars of transactions by tens of thousands of users across 20 financial institutions; its user base is growing daily.

Using Bakong, anyone with a Cambodian phone number and smartphone can send and receive instant digital payments in Khmer Riel or USD. Its launch marks a new stage in the modernization and democratization of the Cambodian financial system, and will create new opportunities for citizens, especially those who are currently unbanked or underbanked. These citizens' entrance into the financial system will engender new opportunities for Cambodian businesses. For Soramitsu, Project Bakong is an important milestone on the path toward our end goal of improving the efficiency, security, and accessibility of financial systems worldwide. Our work on Bakong was recognized by the Central Banking journal with its inaugural award for Central Bank Digital Currency Partner, presented at the 2020 FinTech & RegTech Global Awards.

Another use case for which Hyperledger Iroha is uniquely suited is decentralized finance, or DeFi. In 2020, we were awarded a Web3 Foundation grant to build Polkaswap, a decentralized exchange

for Polkadot, a high-profile blockchain project and central player in the DeFi landscape. We are also the Web3 Foundation subcontractor for the C++ implementation of Polkadot Host and the Protocol Labs subcontractor for the C++ implementation of the Filecoin platform. While DeFi has a reputation for complexity, we believe that access to democratized liquidity can benefit a broad audience; this belief drives another 2020 innovation, the Fearless Wallet, a cryptocurrency mobile app tailor-made for the Kusama and Polkadot ecosystems.

Soramitsu views its enterprise and decentralized finance solutions as interlocking parts of a future economy characterized by diverse, secure, and resilient payment instruments. Our solutions are modular and can be adapted to new use cases and integrated efficiently with existing infrastructure. Soramitsu was founded with the aim of leveraging distributed ledger technology to enhance human flourishing; we look forward to working with a range of partners and communities in 2021.



IMPROVING THE USER EXPERIENCE FOR DIGITAL ASSET SELF-CUSTODY

[In July of 2019, Gartner put out a headline](#) suggesting blockchain technology, its close relatives, and related applications were “sliding into the trough of disillusionment.” Their timing seems to have been accurate. We are now witnessing the steady progress of the “BUIDL” phase, in which infrastructure companies in the space have been working quietly and together to build great solutions. Tangem is happy to have been a part of

bringing better self-custody UX solutions to market, pushing across “the plateau of productivity.”

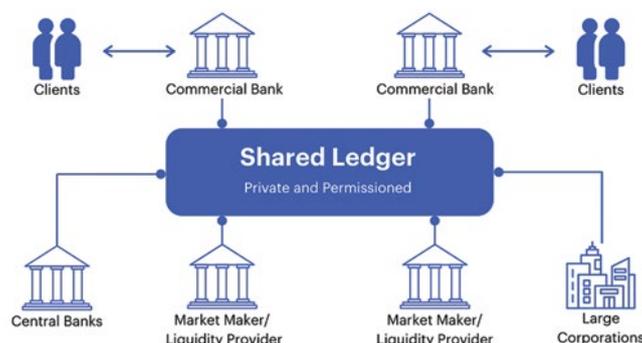
One of the biggest improvements in self-custody UX is the solution to the “what if I lose my keys?” conundrum that has historically plagued hard wallets. To address this problem, Tangem created [TWIN](#), a set of two cards, each programmed to access the same Bitcoin wallet using a blockchain-

native multi signatory feature. Tangem also collaborated with XUMM to create a [non-custodial XRP wallet](#), with keys encrypted and stored on your iOS/Android device. Finally, Tangem partnered with LOBSTR Vault to create the [Stellar Signer Card](#), a physical device designed to be used as an additional signer for your main Stellar account. These developments have taken us all closer to mainstream proliferation of digital assets utilizing asymmetric cryptography.

Self-custody solutions are in harmony with the values of a peer-to-peer enabled payment network, made possible by the innovation and implementation of asymmetric cryptography. Tangem seeks to further that mission and hopefully further the goals of an open, fair, and just financial system.



WHAT DO CONSENSYS' RECENT CBDC PILOTS REVEAL ABOUT HOW CENTRAL BANKS ARE APPROACHING DIGITAL CURRENCIES ON ETHEREUM?



Hong Kong Monetary Authority

ConsenSys is [working](#)¹ on a second implementation phase of a Hong Kong-Thailand cross-border CBDC project. For the first phase, the Hong Kong Monetary Authority (HKMA) and the Bank of Thailand (BOT) initiated [Project Inthanon-LionRock](#)² to study the application of a CBDC for cross-border payments. The second phase will further study the use of CBDC to solve issues such as high costs, inefficiencies, and delays in cross-border payments.

Bank of Thailand

ConsenSys [joined](#)³ the [Bank of Thailand](#)⁴ on a retail CBDC project, alongside Siam Cement Group and Digital Ventures. Unlike the HKMA wholesale CBDC proof of concept, a retail CBDC is a currency that can be used by the general public.

Société Générale — Forge

Société Générale — [Forge](#)⁵ selected [ConsenSys](#)⁶ to provide technology and services as part of its ongoing CBDC pilot activities. ConsenSys will provide technology and expertise, focusing on CBDC issuance and management, delivery vs. payment, and cross-ledger interoperability. Delivery vs. payment describes the lengthy process of reconciling deposits and trades between central banks and financial institutions, which typically takes two days.

Reserve Bank of Australia

[The Reserve Bank of Australia](#)⁷ announced a collaborative project to explore a wholesale CBDC in collaboration with [Commonwealth Bank of Australia](#),⁸ [National Australia Bank](#),⁹ Perpetual, and

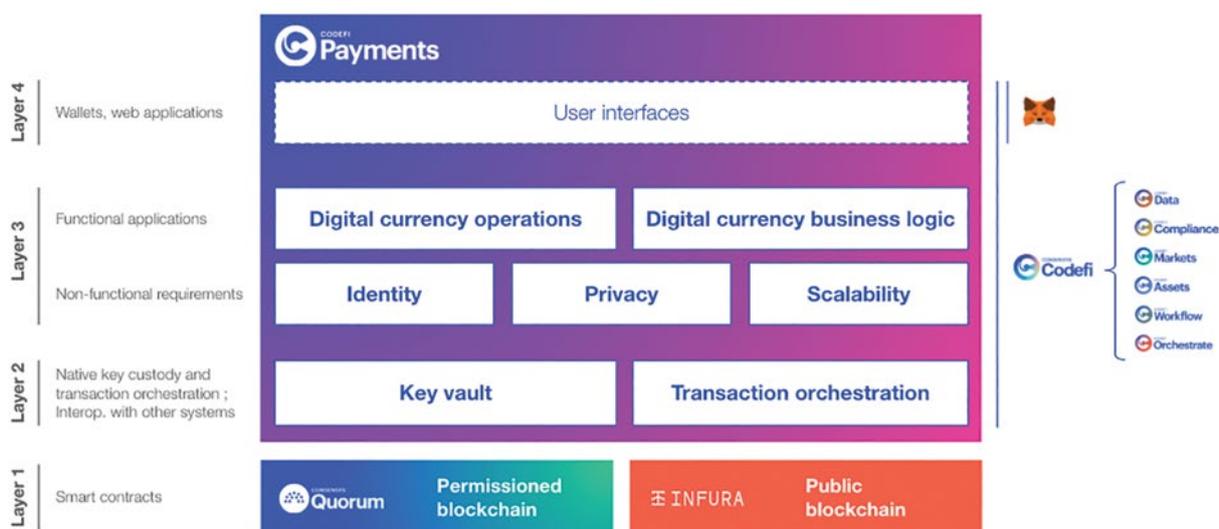
[ConsenSys](#).¹⁰ The collaborators will develop a POC for the issuance of a tokenized form of CBDC that can be used by wholesale market participants for the funding, settlement, and repayment of a tokenized syndicated loan on Ethereum using [ConsenSys Quorum](#),¹¹ [Codefi Assets](#),¹² and [Codefi Orchestrate](#).¹³

ConsenSys' CBDC Approach

These proofs of concept show that central banks are interested in receiving support from the private sector. ConsenSys' CBDC offering is based on [ConsenSys Quorum](#),¹⁴ which is an open-source Ethereum client optimized for institutions needing permissioning capabilities, instant finality, privacy,

monitoring capabilities, and enterprise support. Enterprise Ethereum is proving to be the most adopted and battle-tested blockchain platform and has organically attracted a large developer community.

Each of these pilots are learning journeys for the central banks and the private sector. Currently, most central banks just want to be ready to issue a CBDC. Most plan to share their findings with other central banks, payment service providers, and technology companies. This will help the CBDC research community and technologists to improve upon what others have done.





ENVIRONMENTAL SUSTAINABILITY AND POWERING TOMORROW



50L HOME

P&G is constructively disrupting with in-home technologies that measure, track, and adjust autonomously to create irresistible consumer experiences that are sustainable and planet friendly.

At P&G, our goal has always been simple: to lead the charge in doing what's right, and to use every opportunity we have to set change in motion. We see technology as a critical enabler of our ability to do good around the world — to evolve our efforts to become more sustainable, to serve a broader range of consumers, and to improve everyday life.

Consumers are relying on companies to do and to stand up for what's right and responsible as they innovate. They are looking to companies to step forward and support those in need: communities impacted by the pandemic, historically marginalized populations, families and businesses devastated by natural disaster, and more. We take this role seriously in every avenue of innovation.

Our brands reach five billion people around the world, and with this scale comes a responsibility to continue innovating our products to help save energy, water, and natural resources, as well as mitigating challenges such as climate change. Major cities around the world face the prospect of a water crisis, with 14 of the world's largest 20

cities' demand outpacing their supply, and water quality being a recurring issue. What if we were able to re-invent water recycling in the home? Or make products more effective with less water? Or even track and reward a consumer's efficiency with water? These are the areas that we are exploring through system-wide innovations.

We initiated the 50L Home concept, which brings together companies, policymakers, and communities to develop and scale innovations to address two of our most pressing global challenges: water security and climate change. The current founding members of the Coalition are Arcadis, Electrolux, Engie, Kohler, Procter & Gamble, and Suez; it is convened by the 2030 Water Resources Group, World Business Council for Sustainable Development, and the World Economic Forum.

We aren't just inventing the next cool gadget. Our leadership brands aim to create value for the consumer while having a measurable positive impact on society and our environment. Through the 50L Home initiative we are developing products and systems that are connected: smart technologies that track, measure, and adjust to cooperate with other systems to help people easily conserve water.

P&G products touch every stream of water in the home — i.e. the shower streams with shampoos and body soaps, the bathroom sink with grooming and oral care products, the kitchen sink with dishwashing products. We are using our existing in-home water footprint, water chemistry expertise, and innovations in waterless and energy-efficient products to reinvent the in-home water experience. This includes sensor-enhanced products to analyze the water and AI and blockchain to transform experiences and make them ‘smart’, adaptable, and safe.

We continue to focus on groundbreaking science, developing innovations and products that make responsible consumption not only possible but irresistible. Our mission is to bring companies, civil society organizations, intergovernmental organizations, local governments, and knowledge leaders together to develop, scale, and implement innovations for system-level change in domestic urban water management and responsible water usage in the home. With deep consumer knowledge we will raise the bar on performance and tackle these challenges together.

Join us on the journey at 50Lhome.org

BUILDING A BLOCKCHAIN PLATFORM TO TRACK SUPPLY CHAIN EMISSIONS



Climate change is a global challenge: unless we can slow the pace of change, rising temperatures will have a catastrophic impact on our planet. The coronavirus pandemic has led to a dramatic fall in greenhouse gas (GHG) emissions in 2020; the challenge now is to maintain this positive momentum. As we rebuild from the pandemic, we have the unprecedented opportunity to build back better.

As a result of this global imperative, pressure on businesses to decarbonise is building — from regulators, investors, and consumers. Thus, the need to track carbon and have reliable reporting tools is also gaining traction. Scope 1 and 2 emissions are easier to track as they are directly generated or relate to purchased energy; however, Scope 3 emissions, those which fall outside of an organization’s direct ownership or control but still impact its value chain, are much more difficult to track, as they require full visibility of embedded supply chains, which are often fragmented and dynamic. Few companies have this visibility. Scope 3 emissions tracking is becoming a game-changer — for both downstream and upstream actors.

Pioneering downstream actors — Original Equipment Manufacturers (OEMs) such as Volvo and

Polestar — have begun mapping the wider battery supply chain to understand the embedded carbon footprint relating to the actual flow of raw materials that go into their products. This is part of the “Battery Passport” initiative — a global digital battery information disclosure system.

Building on its ability to digitally trace materials and their properties along supply chains using blockchain and other technologies, Circular is working with Volvo, Polestar, and other downstream actors to accurately account for their product carbon footprint using accumulative tracking, as well as accounting for and reporting on carbon offsetting.

Circular is also working on a ground-breaking project with one of the largest global upstream actors to track CO₂ emissions from the upstream end of their nickel supply chain. This is to ensure any sustainability benefits from their “green” and low CO₂ products are not lost in the midstream.

By engaging with all suppliers in the supply chain, Circular’s solution delivers a dynamic view of carbon emissions and provides insights and reporting on key problem areas to enable better procurement decisions and reduce overall CO₂ in the supply chain.

LEVERAGING EMERGING TECHNOLOGY TO CREATE THE NEXT GENERATION OF UTILITIES

JERA, established as a joint venture by two major Japanese utilities, owns assets in the field of energy worth more than \$35 billion. To optimize the use of its assets, JERA leverages cutting edge technologies and innovation with real boldness. JERA has a unique opportunity to ride the wave of digitalization, as it did not inherit the burden of legacy systems and complex business relationships from its parent companies. JERA has already moved most of its compute workload to the cloud. In fact, JERA is the first power/utilities company in Japan to move toward the full cloud for mission critical systems.

JERA has also launched the Digital Power Plant Project and is investing in emerging technologies, including AI for predictive defect detection and maintenance, as well as a decision support system based on a digital knowledge database. In addition to maintenance, the platform measuring and predicting of the useful lifetime of an asset. JERA is also moving from TBM (Time Based Maintenance) and CBM (Condition Based Maintenance) to RCM (Reliability Based Maintenance).

Owing to JERA's unprecedented expertise in the energy sector, it was recently awarded a project of designing and installing an ecosystem of power and energy in a small village, which was heavily damaged by an earthquake in 2018. JERA will create an ecosystem featuring solar parks, industrial battery storage, a biomass power generation plant, and a micro-grid connecting all these together. Interestingly, JERA will use trees fallen during the earthquake as fuel for biomass power generation. Additionally, a data platform will be built to provide a balancing group for the entire settings, operation, and maintenance AI application, as well as the peer-to-peer power exchange and a blockchain-based CO₂ certification system.

JERA will manage and develop all these structures and platforms from design to execution and operation. Succeeding in this effort will allow JERA to lead the deployment of economically viable energy ecosystems across Japan and other Asian countries. JERA's knowledge of both renewable and traditional power generation can cover the entire value chain, from fuel buying to electricity producing.

Digital Power Plant Overview



SOLVING THE VARIABILITY OF RENEWABLE ENERGY: AN AGILE MARKET-LED APPROACH, USING BLOCKCHAIN TECHNOLOGY

As we all know, solar panels, once paid for, are free energy. But not so obvious is that this low cost is deceptive.

Industry experts are all too familiar with the cost pressures Variable Renewable Energy Sources (VRE) place on the public, given their fluctuating nature. Thus, we are in a situation where doing the right thing for the planet comes with a hefty premium. This is not a very good or sustainable place to be, politically, technically, or economically.

At Power Ledger, we are working in partnership with major electrical players to develop a solution to this problem. How can we manage the variability of some renewable energy sources by enhancing the stabilizing potential of the distributed network?

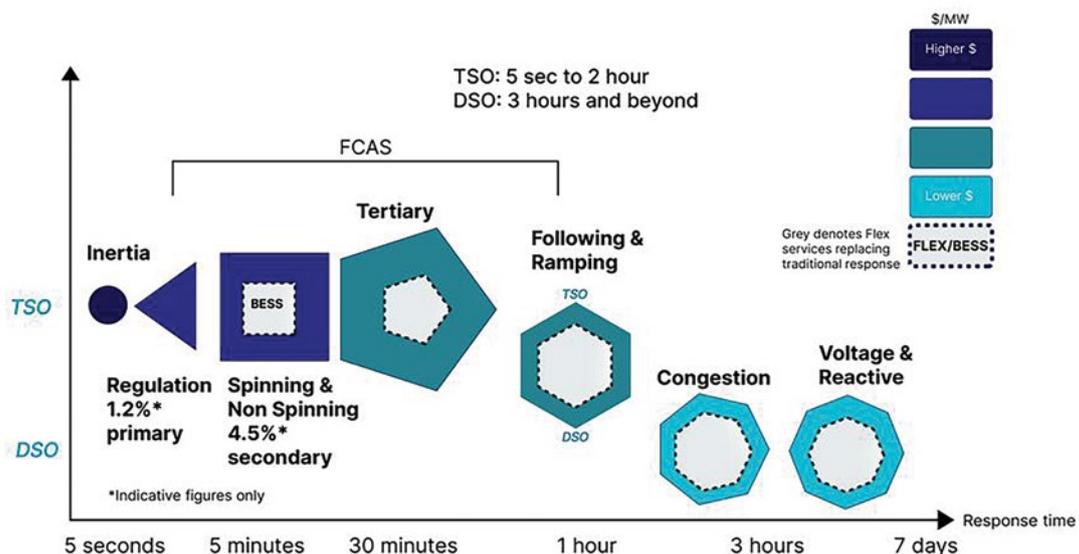
The diagram below shows how some of the variability was managed five years ago and today. This variability shows response times for different situations of grid imbalance for anything between five seconds and five days, but each form of stabilization is important, and has its place in the scheme of things.

The premise we are working on is that an ever-growing market can expand the stabilizing capacity of these elements if they are incentivized properly, so that they counter the variability of the VRE sources.

That is what Power Ledger's technology does. Working in partnership with electrical players, we are combining blockchain and electrical engineering to create an ever more responsive, efficient, and secure market that can stabilize the grid faster to help combat the variability that is growing year-over-year.

Perhaps the most exciting part of this is that it will help defer the need for billions of dollars of grid reinforcement that would otherwise have had dramatic effects on the cost of electricity delivery.

Ultimately, Power Ledger is working to transform the energy grid into one that is truly green and economic for end-users.



BLOCKCHAIN AND SUSTAINABILITY: MADE FOR EACH OTHER

Awareness of corporate sustainability has improved considerably in the last decade. Companies are becoming more transparent regarding their environmental impact, as is evident from the trend of [Carbon Disclosure Project](#)¹⁵ reporting.

While the chart below is impressive, the [2020 KPMG Survey of Sustainability Reporting](#)¹⁶ found that 80 percent of top 100 companies in the 52 countries surveyed are now reporting their sustainability performance. This means that 20 percent of the largest companies in these countries still lack sustainability reporting. The situation is even worse for smaller companies, many of which form integral parts of the supply chains of larger companies.

The exemplary collaboration that is happening within industries and supply chains through the formation of blockchain consortia can contribute tremendously to the wider adoption of sustainability practices and reporting, especially among smaller companies.

This needs to happen in two dimensions:

- Embedding sustainability into new and efficient business ecosystems that these consortia are focusing on.
- Sharing sustainability best practices and frameworks with peers and other stakeholders, including suppliers and customers, to create sustainability networks that benefit everyone.

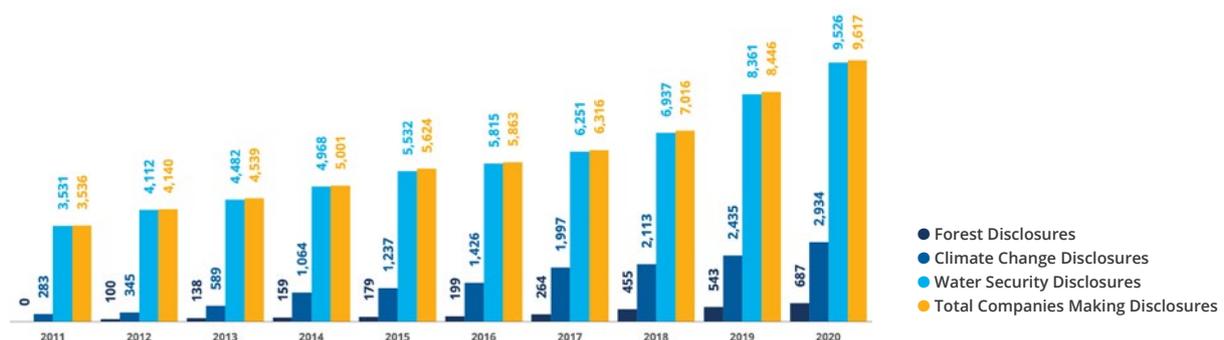
For progress to happen in these dimensions, the role of sustainability leaders at companies is critical. These leaders, as well as external sustainability consultants, must join blockchain consortia to collaborate with peers, suppliers, investors, customers, regulators, and NGOs, to drive the sustainability agenda at these consortia.

However, the participation of sustainability leaders in blockchain consortia is extremely low. Sifting through the designations of 2400+ senior executives that are participating in 370+ consortia that we track, shows that executives related to sustainability roles are less than 0.5 percent.

Companies that are already investing time and resources in blockchain consortia must realize the potential and urgency of sustainable business ecosystems. An incremental allocation of their sustainability-focused resources towards these consortia can amplify the sustainability returns for entire industries or supply chains. Such collaboration can also allow them to distribute the cost of sustainability compliance, especially when [formal sustainability reporting standards are in the works](#).¹⁷

In 2021 and beyond, ESG Intelligence plans to utilize its experience of ESG assessment of corporations and Enterprise Blockchain Intelligence to write focused reports on how various industries and sectors can improve their sustainability performance by forming blockchain consortia or joining existing consortia, so stay tuned.

A DECADE OF IMPROVED ENVIRONMENTAL REPORTING





BLOCKCHAIN-BACKED RECYCLING TO REDUCE OCEAN PLASTICS

In a year of extraordinary challenges, RecycleGO continued to make an impact and build on its vision of using blockchain technology to create a more sustainable future. The global pandemic exposed weaknesses in the world's supply chains, and blockchain solutions became increasingly relevant as consumers demanded more information about where and how the products they purchase were made. In many industries, this type of transparency has become a requirement, with consumers actively rewarding companies that provide visibility into their supply chains and punishing companies that do not.

Importantly, creating transparency requires companies to not only determine what information to disclose to consumers, but also to gain visibility into their supply chains. RecycleGO deployed its enterprise recycling logistics solution in 2020, with the integration of the user-app for customers to schedule pick-ups on demand. RecycleGO also completed the creation of its initial Hyperledger-based recycling blockchain to create transparency in the recycling supply chain.

With the alarming levels of ocean plastics and 90 percent of the leakage occurring in ten rivers in Asia and Africa, there is a need for a scalable decentralized solution suited for developing

countries that lack centralized municipal waste collection systems. RecycleGO is using distributed ledger technology to promote a decentralized waste removal system while also creating a more equitable world. The blockchain system has the potential for a compensation mechanism to incentivize individuals to collect and remove post-consumer plastic from waste streams, at which point the material can be aggregated and incorporated into recycled plastic supply chains.

Using this blockchain-backed chain of custody tracking, plastics manufacturers can utilize post-consumer feedstock in a mass-balanced production process to produce recycled plastic, marketable at a pricing premium above virgin plastic prices. In terms of environmental impact, by creating recapture value for recycled plastics, the system facilitates the removal of recyclable materials from waste streams that contribute to ocean plastics and environmental pollution.

2020 saw the deployment of RecycleGO's enterprise recycling logistics solution with Nigerian recycling company Wecyclers, among others, and in 2021, RecycleGO will continue that partnership, implementing its recycling blockchain to provide transparency to the local recycling supply chain.



UPGRADING PLATFORMS AND INFRASTRUCTURE

THE BASELINE PROTOCOL: FOR NETWORKS, BY NETWORKS



Public blockchains, such as Bitcoin and Ethereum, sparked a technology revolution, but their early versions did not support transaction privacy. As a result, centrally controlled private blockchains were developed, achieving privacy through a central authority to manage network governance. This allowed companies to dip their toes in the world of blockchain but missed the technology's main value proposition: decentralization. Accordingly, we have been working hard to enable private, secure transactions on public blockchains, namely Ethereum.

In 2019, we introduced Nightfall — which uses advanced cryptographic techniques to allow for token transfers under complete privacy — to the public domain. Building on this work, in early 2020 we jointly released (with ConsenSys and Microsoft) the Baseline Protocol to the public domain. The Baseline Protocol is an Oasis open-source initiative that combines groundbreaking developments in cryptography, smart contract development, and private messaging to execute business processes via the public Ethereum mainnet under rigorous security and privacy standards. The protocol

enables close collaboration in complex business environments while avoiding the need to publish sensitive data on-chain. By supporting process-specific smart contracts as well as more common Ethereum tokenization standards, the aim is to empower a large ecosystem of services and use cases.

The early 2020 release was built to enable “Baselining” for an enterprise procurement use case, focused on standard procure-to-pay workflows, such as signing and amending contracts, issuing purchase orders, and processing invoices. Since then, a new and diverse group of companies have begun to leverage and support the Baseline Protocol for their own purposes: supply chain management, traceability, and transaction processing with Enterprise Resource Planning (ERP) integrations, among others.

Our view is that as privacy and security solutions on public blockchains mature, the level of enterprise adoption will follow closely. Until then, it is only fitting that advancements in blockchain do not happen in a silo: built for networks, by networks.



DECENTRALIZING THE WEB

Today's web is riddled with vulnerabilities. In 2020 alone, there was a massive Russian hack of U.S. businesses and government agencies, as well as an Amazon Web Services outage that took down a significant portion of the internet, including Netflix, Slack, and Spotify. Perhaps more concerning, the centralized nature of today's internet means that we have no choice but to trust intermediaries with our data.

Web3, the next generation of the web, is a decentralized alternative aimed at building a more open, resilient, and trustworthy internet. Users own and control their data, rather than cede it to central authorities or companies that share the data to advertisers, data brokers, and (involuntarily) hackers. Tools like Filecoin, built on Web3, let users harness the collective power of the web to store and share data.

Filecoin is a peer-to-peer network to store data. Its mission is to create a decentralized, efficient, and robust foundation for humanity's information. Developers are already building dozens of useful

tools on the Filecoin network, including a video conferencing platform, gaming tools, and archival storage.

The Filecoin project has two related foundations designed to foster its ecosystem, steward its governance, and promote its mission of supporting the decentralized web. The Filecoin Foundation is responsible for the overall governance of Filecoin and supports the growth and development of the community and ecosystem. The Filecoin Foundation for the Decentralized Web is a charitable sister organization designed to ensure the preservation of humanity's most important information by stewarding the development of open-source software and open protocols.

It's time to put the power of the web back into the hands of those whose data is being monetized. Filecoin is on a mission to help developers build and expand the Filecoin ecosystem. Decentralizing the web will empower users, enhance security, and ensure that data can be stored reliably over time.

SUPPORTING THE NEXT GENERATION OF THE INTERNET

Over the last three decades, the web has evolved from a series of static webpages connected by hyperlinks to a virtual town square supported by web platforms, social media, and user-generated content. Its original intent has held constant: to share information.

Sharing information creates huge troves of data. Globally, we produce [2.5 quintillion bytes](#)¹⁸ of data every day. And as more data is generated, we need to think critically about who owns that data and who can monetize it.

Data is the world's [most valuable asset](#).¹⁹ But internet users themselves see almost none of that value. Instead, today's internet economy mostly benefits a few tech titans.

Protocol Labs works to challenge this. We believe the internet is humanity's most important technology. Our mission: to improve the internet by working from the protocol layer up to building the next generation fabric for human knowledge. By collaborating with other leaders in the open-source community, we are working to upgrade the internet, making everyone less reliant on big tech and more reliant on each other.

Our projects include InterPlanetary File System (IPFS), a content addressing system for finding and sharing files, and Filecoin, a decentralized storage network backed by a cryptocurrency. Filecoin's mission is to store humanity's most important information — whether it's scientific datasets, historical records, or catalogs of literature on a decentralized, immutable ledger.

The Filecoin network, launched in October 2020, surpassed more than 1 EiB of storage in its first month, and is adding the equivalent of a Netflix's worth of data to the network every day. And that network includes everything from [online education apps](#)²⁰ to [video-sharing platforms](#)²¹ to [online archives](#).²² The [Filecoin Foundation](#)²³ is helping to grow the network of tools and services built on top of Filecoin and push for more open and robust decentralized systems.

We believe in a vision of the internet as a vast network of computers working together to create something better than the sum of its parts. This is the promise of the decentralized web.

NAMBIKKAI INAIYAM: TAMIL NADU STATEWIDE BLOCKCHAIN BACKBONE

Tamil Nadu is the 10th largest Indian state by size (130,058 sq km) and 6th largest in terms of population (around 8 million). Tamil Nadu has the second highest GDP in Indian states (per capita GDP USD \$3100) and is also one of the most industrialized and urbanized. Manufacturing contributes to more than a third of its GDP. Mobile internet and smartphone penetration (41.6% in rural areas) is also high compared to the rest of India.



This makes the state ripe for blockchain adoption. Blockchain can be leveraged to design, develop, and deploy next-generation applications that can improve the lives of Tamil Nadu's **8 million residents** and ease the challenges faced by the businesses operating in the state. Blockchain technology can help remove workflow redundancies, ease interoperability challenges, secure citizen and business data, and enable truly paperless delivery of services.

To enable this, we are building the **Nambikkai Inaiyam** platform. **Nambikkai Inaiyam** translates to “Trusted Link” in Tamil, the official language of Tamil Nadu. It is envisioned to be a state-wide blockchain infrastructure that can be used by all government departments and agencies, public sector enterprises and others to deliver better, faster, more efficient, and secure e-governance services.

The platform has an **evolving architecture with a modular framework**. Modules are a combination of smart contracts and off chain business logic and can be used for multiple use cases. The platform will be hosted across government servers as well as secure private clouds. Participants unable to host a node can access through an API Gateway. The **Tamil Nadu Blockchain Policy 2020** has also been launched recently to build an ecosystem around the backbone, consisting of enterprises and startups that can further evolve the platform by building applications on top of it.

Some of the use cases which are being implemented with the platform currently are:

1. Securing educations certificates, marksheet, academic records, and training/skills credentials issued by the academic institutes of Tamil Nadu
2. Generating, securing, and verifying certificates, documents and licenses issued by the government, including community certificates, income certificates, fire licenses, pharmaceutical licenses, etc.
3. Securing government websites and portals from defacement
4. Preserving legacy land registration documents and encumbrance data
5. Tamil Nadu Zero-knowledge Proof Identity Wallet for residents
6. Certifying and tracking forest produce such as red sanders, sandalwood, ivory, etc.
7. Certifying and tracking recognized Geographical Indicator (GI) products, such as Nilgiris orthodox tea
8. Certifying and tracking handicrafts indigenous to Tamil Nadu

DIGITAL COLLABORATION AND INNOVATION



THE FUTURE OF DIGITAL COMMUNICATIONS AND ENTERTAINMENT: **SOCIAL VIRTUAL REALITY**

In 2020, virtual reality content revenue reached \$4 billion, while headset sales passed a stunning 20 million units worldwide. These figures differ greatly from the growth seen in previous years, outlining a radical increase in the public's interest in this unique technology.

The COVID-19 pandemic has brought the world to a standstill. Lockdown measures across the world have reshaped the way people communicate, work, learn, and have fun. VR technology, more than ever before, has shown its potential to bring people closer together and access real-life emotions in safe, virtual environments.

At the core of this trend is Sensorium Galaxy — a next-generation social VR platform that connects people through world-class VR entertainment. Despite the big challenges posed by the pandemic, our alternate universe expanded its footprint by signing up exclusive collaborations with some of today's most brilliant artists, producers, and media companies.

Several chart-topping performers have already confirmed their shows in Sensorium Galaxy for 2021. But not all artists on Sensorium Galaxy will be human. Firmly committed to revolutionizing

entertainment at its core, the platform has partnered with leading generative music service Mubert to push the boundaries of digital art and develop JAI:N, the world's first AI-driven DJ.

The music industry is rapidly catching up with the VR wave. Music streaming service TIDAL has become an official partner of Sensorium Galaxy, offering their listed artists the opportunity to distribute content on the platform.

As an all-digital universe that thrives on professional and user-generated content, finding effective mechanisms to regulate ownership and creative rights is of the utmost importance. Sensorium Galaxy leverages state-of-the-art blockchain technologies to make the future of content distribution safe for both the public and artists. SENSO — a blockchain-based in-universe currency — stands out as a fully transparent and reliable mechanism to regulate value transactions and safeguard digital creations of all kinds.

In the year ahead, Sensorium will launch its long-awaited platform, kicking off an intergalactic journey to take digital communications and entertainment to a new dimension.



EXPANDING THE BLOCKCHAIN ECOSYSTEM IN LATIN AMERICA

Summary & Highlights

After a successful 2020, in terms of human lives possibly saved and bettered during COVID-19 pandemic in Latin America (more than USD\$20 million raised and 5,000 lives bettered), we are ready to expand our ecosystem with high acceleration rates across an eclectic landscape: from radical new financial proposals, to inclusive health and cross-discipline scientific development across fields.

Early 2021 highlights:

BITCOIN.COM EXCHANGE

We are majority partners and responsible for the complete operation of a crypto exchange in Latin America, covering everything from regulatory compliance to user interphase design, marketing, and technology development.

BBS

BLOK BioScience is giving us the opportunity to reach new highs in terms of potential to merge public institutions and innovative private companies. This is a chance to put not only COVID-19 in the past, but also to prevent future outbreaks and learn how to collaborate digitally to overcome major health challenges.

Working in constant feedback and partnership with scientific institutions in Brazil, we are building a platform that could benefit 6 million Brazilian users by the second or third quarter of 2021.

VIRALCURE

ViralCure was the golden star of 2020. In 2020, we adapted the project to react to the pandemic outbreak and respond quickly to the humanitarian crisis we were facing.

Now in 2021, we are back on track. ViralCure is ready to unveil its full potential as the ultimate open-source technology created and developed to revitalize the scientific community. ViralCure is a digital toolkit of alt-funding techniques to give the scientific community the chance to break free from the profit-oriented markets and political bias ingrained in traditional funding methods.

Ad-ETERNAL

Ad-ETERNAL is a crypto-friendly portal that connects the offline and online cyber community. We are here to support local artists, independent fashion designers, and organic food developers in a crypto-friendly environment.

Running Programs: The Mother of the Devs (hackathon), Mi Tierra (tech + agroforestral), Art & Technology (crypto art and digital online media hub), Green-Voge (slow fashion and aesthetic consciousness).

COLLABORATING ON 21ST CENTURY SOLUTIONS

Odyssey is an online incubator for multi-stakeholder collaboration that connects governmental, corporate, scientific, and nonprofit partners with anyone who can contribute to building open-source solutions for complex 21st-century challenges. Together, we create an interconnected, multi-stakeholder ecosystem where we discover the future by building it.

Challenges are led by corporations, governments, and NGOs from the U.S., France, Germany, Sweden, and the Netherlands (among them: Vattenfall, KLM Cargo, the Dutch National Police, the International Union for Conservation of Nature, E.On, Engie, VMware, and the Dutch Ministries of Defense and the Interior). All challenges are tied directly to the United Nations Sustainable Development Goals (UN SDGs), have a global societal and economic impact, and cover a variety of domains, such as energy transition, acute healthcare, conflict prevention, conscious cities, critical infrastructure, logistics and supply chain, nature conservation, real estate, and digital identity.

Momentum is Odyssey's online mass collaboration arena: a completely new virtual world where connections, collaborations, and results are achieved in an interconnected multi-stakeholder setting. People and organisations join this global collaboration network in 3D to meet and co-create solutions for complex 21st century challenges.

Momentum combines a unique gaming and meeting design that is completely focused on collaboration in a 3D experience, which takes people on a shared journey into the possibilities of the future. Through this platform, a pathway to meaningful interaction is facilitated between people building solutions, experts, problem owners, users, and stakeholders, as well as board members and investors. The ultimate goal is to achieve maximum results by collaborating in the most efficient way and having a lot of fun while doing it.

Learn more: <http://odyssey.org/>





Proof of Art

CREATING A FAIR ART PLATFORM

The world's largest digital supply chain is found in the entertainment and art industry, complexly layered with content creators, distributors, funding mechanisms, production firms, compensation schemes, rights management firms, etc. In this muddled ecosystem, artists face significant hurdles establishing ownership over what they create, being compensated in a fair, transparent manner, controlling how they promote and engage with their patrons, and growing their business, from fundraising to community building. Lost royalties for musicians alone are estimated in the billions of dollars.

Blockchain technology promises a fairer ecosystem by democratizing distribution, improving revenue and advertising share for the artist, protecting digital content from theft, and ensuring accurate royalty payments.

Proof of Art uses gamification and blockchain tokens, a form of blockchain code representing a diverse range of digital and even physical objects, to provide security and transparency. By assigning tokens to an artist, artists directly engage with patrons, grow their communities,

fundraise and market projects, receive brand advertising, and share and acquire user data. On the Proof of Art platform, the artist posts a campaign, provides patron engagements (i.e. submit lyrics, vote on ideas, bid on events, purchase memorabilia) listing token costs, and selects brand advertisements. Patrons purchase tokens from the artist to participate in the offered engagements. Additionally, the artist micro-rewards patrons with tokens for promoting the artist within their social networks and for voluntarily providing their data. Similarly, brands purchase tokens from the artist to micro-reward patrons for voluntarily providing their data, viewing ads, and sharing ads within their social networks. Additionally, because donations are made in the form of a token, utilization of any money fundraised is more effectively tracked and monitored to reassure donors. In the future, fractionalized ownership of artists' projects, including any profits accrued, may be provided to those patrons in the form of tokens.

Ultimately, tokens provide security and transparency ensuring artists receive just rewards, maintain unfettered control, engage with their patrons, and safely share their art.



MANAGING 21ST CENTURY RISKS



USING SMART CONTRACTS TO UNDERWRITE CLIMATE RISK

Extreme weather events, natural disasters and the failure to mitigate and adapt to the effects of climate change are all included in the top five global risks identified by the [World Economic Forum 2020 Global Risks Report](#).²⁴ Businesses whose revenue models are impacted by weather-related events are systematically underserved by the risk management industry. This is due to the disparity of parties required to transact to deliver efficient risk management products; these parties lack the trust architecture to enable them to work together while protecting their own business interests.

The [Demex Group](#),²⁵ a climate risk insurtech backed by reinsurer Munich Re, solves this problem by employing blockchain and smart contract technology to deliver a commercial platform that enables these parties to transact while maintaining data privacy. To simplify this, Demex partnered with GBBC member [Blockchain Technology Partners \(BTP\)](#)²⁶ to provide the underlying blockchain and smart contract infrastructure, deployed and managed by BTP's management platform, Sextant for DAML.

"We chose [DAML](#)²⁷ as our smart contract language as it enables us to develop multi-party business processes rapidly. As a result we can develop bespoke financial risk solutions for our clients more efficiently and competitively."

- Ed Byrns, President & CEO of The Demex Group.

DAML is the leading enterprise open-source smart contract language created by fellow GBBC member [Digital Asset](#).²⁸ BTP has partnered with Digital Asset to develop Sextant for DAML to provide enterprises with a production-grade platform that enables them to focus on multi-party application development.

The value of implementing DAML smart contracts on a distributed ledger is that the agreed upon business logic is enforced programmatically on the blockchain (in this case Hyperledger Sawtooth), which means that the rules are stored immutably

and validated via the consensus algorithm. This creates the trust architecture for highly automated business transactions, which means less costly due diligence and more timely payouts for policyholders.

PROVIDING CRYPTOASSET INSURANCE

Evertas, the world's first cryptoasset insurance company, is a pioneer in the cryptoasset and insurance spaces, helping companies reduce their exposure to cryptoasset-related risks to fill a critical gap in the blockchain and cryptoasset industry. We have created the only comprehensive underwriting tools and frameworks for cryptoasset holdings and blockchain systems, the only end-to-end insurance product for cryptoassets (including claims handling), and comprehensive risk management processes to underwrite and scale the insurance products urgently needed for the growth and maturation of the cryptoasset and blockchain space. Our world-

leading team brings together unrivaled cryptoasset and technology expertise, and pragmatic and practical insurance industry experience, to deliver best-in-class insurance products for the industry. Evertas is led by a seasoned group of executives, who are among the world leaders in blockchain, insurance, intelligence, and investigations.

2020 has been a year of immense progress for Evertas, which began generating revenue in Q3 2020. Evertas also completed a major upgrade to our underwriting framework, underwriting tools, and policy form.



HERE'S TO 2021 AND THE LAUNCH OF OUR DIGITAL FORTRESS

Given recent cyber and cloud security hacks and supply chain vulnerabilities, the timing for our Digital Fortress coming to market could not be better. Estimates suggest the cost of global cybercrime damage will reach \$11.4 million per minute in 2021.

Dragonchain is uniquely positioned to help secure and improve network security and functionality for companies. Our technology provides self-reporting real-time audits with an audit trail proof and chain of custody and connects disparate systems and siloed networks from healthcare to FinTech.

With our partners, we have combined quantum computing resistant cybersecurity, cloud, AI, IoT, predictive/behavioral analytics, supply chain, data integration, network interoperability database management, and blockchain into a Digital Fortress.

The Digital Fortress is designed to provide secure cyber solutions for an entire system. This will bring quantum-computing-proof cyber protection to businesses, supply chains, healthcare, and blockchains.

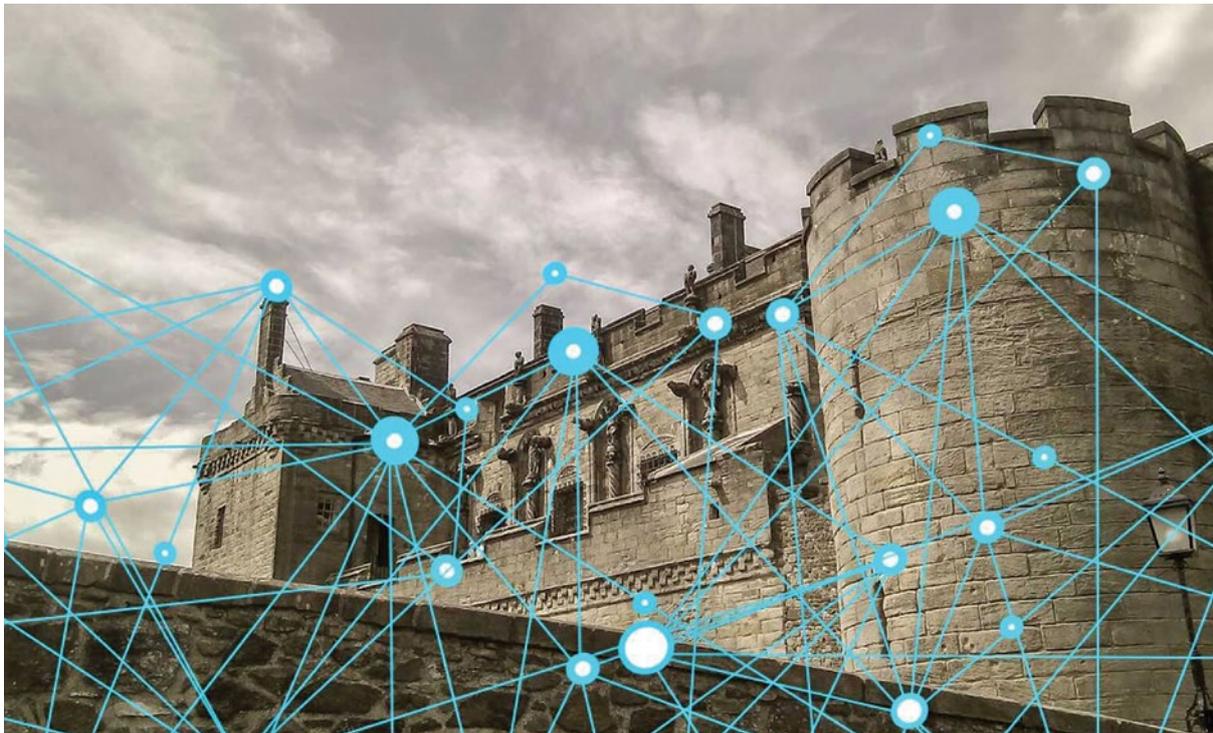


“I have found that the supply chain is traditionally the most vulnerable link in cybersecurity. It is also the most disparate and siloed. So, when I took a deeper look at Dragonchain’s architecture and then met with its team, I was both thrilled and relieved. Now, I was finally able to connect disparate/siloed networks and supply chains in a quantum secure manner.”

- Phil Abraham, member of Dragonchain’s Executive Board of Directors.

We are going beyond cyber protection to solving the compression issues of 4G to 5G and data/network camouflage challenges. We also work with the only person to have designed practical polymorphic cipher engines, which is the best and strongest polymorphic cipher that exists.

By combining these multiple disciplines as one inside a quantum computing resistant ecosystem, our end-to-end infrastructure as a service is ready for the new year ahead.



TRACEABILITY AND VERIFICATION

IMPROVING FUND TRACEABILITY IN SUPPORT OF SMALLHOLDER FARMERS

The International Fund for Agricultural Development (IFAD) disburses over \$1 billion a year in support of smallholder farmers. The challenge has been maintaining full traceability of funds and results reporting from donor contributions, through multiple partners, to the farmer. IFAD has at its disposal state-of-the-art systems, which include a decentralised Oracle Enterprise Resource Planning (ERP) financial system layered with an internet banking solution that is used in over 100 locations worldwide by 94% of our recipient stakeholders. However, these traditional means of data capture miss key opportunities.

Traceability of funds from donor contributions, to government partners, to subcontractors, and ultimately to the beneficiary farmer, requires a tracing mechanism throughout the entire life cycle of the funds. IFAD's TRACE Blockchain project creates this full traceability. By having visibility of all actors, IFAD can perform compliance checks, such as anti-money laundering and know-your-customer checks on all actors, automate currently manual processes of cash disbursement by use of risk-based business rules through smart contracts, and most importantly, ensure development results have been achieved for farmers.



IFAD's TRACE Blockchain, built on Ethereum, is connected to all actors in the process regardless of their individual systems, through a simple App or API connectors. There is no cost burden on existing partners in the process, and there is the possibility for faster payment for delivery of service. Additionally, there is a reporting suite in the App showing the full visibility of funds in different confidential views by partners, as well as the ability for electronically captured data collection of results of the development objectives. It also increases transparency for donors of IFAD Member Governments who are accountable to their taxpayers for effective use of development aid dollars.

IFAD is working with Ernst & Young LLP to design and implement this blockchain solution and is currently piloting the solution with three live projects, with the aim of scaling up the solution to improve transparency, compliance, and results for IFAD's development objectives, further supporting smallholder farmers and reliability between the parties.



FRICTIONLESS TRADE, EFFORTLESS TAX

NICK DAVIES, INNOVATION LEAD, HMRC

Imagine a world in which all the data needed for all parties — commercial, logistic, regulatory, fiscal — interested in a cross-border transaction is generated when the commercial contract is struck. All parties have access to that data through nodes calibrated precisely to their commercial permissions or statutory rights and are enabled to make decisions at any point during the contract's execution *without the traders or transactors at either end having to do anything but trade and finance their way out of the current COVID-19 situation.*

That is the world that recent work has taken a step towards in two small, but potentially significant, proofs of concept; one focusing on financial tax events, the other on cross-border supply chains.

In the first, a group of financial actors (banks and tax authorities) collaborated to show how blockchain technology can enable confirmation of the correct operation of Withholding Tax provisions of Tax Treaties, potentially reducing the time cost and friction involved in making cross-border investments and delivering outcomes more speedily and demonstrably in line with policy intent.

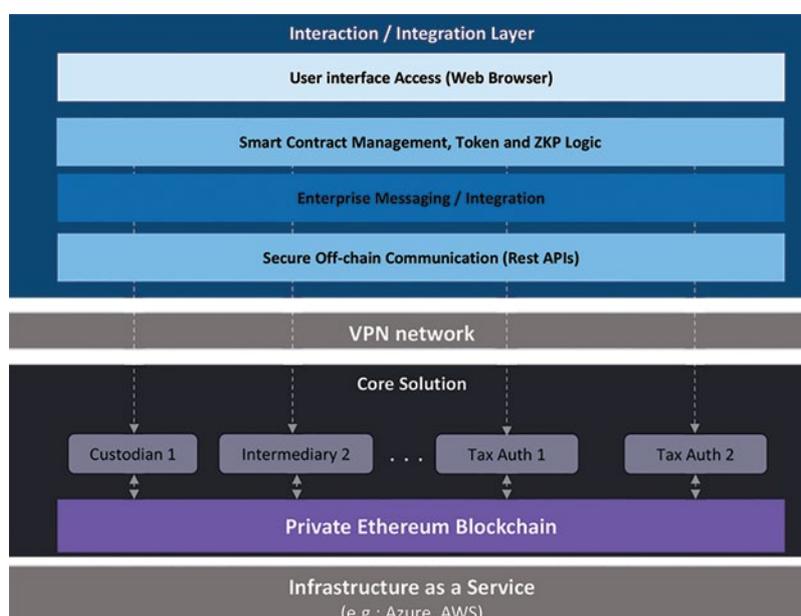
In the second, a group of regulators and commercial participants in the wine trade between the UK and Australia worked together to show how a blockchain platform can enable the formation of a “supply web,” in which a single source of data can be reused time and time again with demonstrable and quantifiable benefits for commercial participants (see Fig 1).

Each experiment is limited in scope and ambition but (in the view of the author) presages a future in which this approach becomes the norm, where the replication of data is made unnecessary and where the establishment of single one-to-one trust relationships with a variety of institutions is avoided; a future in which technology facilitates ecosystems of trust to develop, with potential transformative effects for trade and tax processes across the board.

But this is just the start, and with the GBBC's support I hope that 2021 will see us take this work forward in both areas and leverage its effectiveness by more of the collaboration that has got us to this stage.

The views expressed in this article are those of the author and do not necessarily represent those of HMRC.

Fig 1



CREATING TRANSPARENCY IN THE COFFEE SUPPLY CHAIN

Attorneys at Covington & Burling LLP advised J.M. Smucker in the launch of a blockchain technology platform to trace the origin and transport of Colombian coffee beans used for its 1850 Coffee brand. The underlying blockchain technology is provided by IBM in partnership with a technology application provider, Farmer Connect, which specializes in the use of digital identity and blockchain to promote fair and transparent agriculture. The IBM solution makes use of the same technology platform as the IBM Food Trust Network, powered by Hyperledger Fabric.

A consumer is able to scan the QR-code printed on select bags of 1850 Coffee with a smart device and trace the beans in the bag to the originating

farm. The consumer can then view information about the location where the beans were grown, processed, and exported, and can contribute funds to community programs associated with the farmers in the supply chain.

J.M. Smucker's use of blockchain technology to provide this level of transparency in the coffee supply chain is an example of the innovative power of blockchain to transform agriculture by giving consumers greater insights and empowering them to make a difference. Covington attorneys worked with J.M. Smucker in negotiating the underlying technology agreements and evaluating regulatory requirements applicable to the technology.

CERTIFICATE VERIFICATION FOR REMOTE COLLEGE ADMISSION PROCESS



- **Implemented in Tamil Nadu, India**
- **Automated verification of demographic data and academic scores**
- **More than 200,000 users every week**
- **36 applicants verified every second, with up to four certificates per applicant**
- **Up to USD\$200 and three days saved for parents and students**

Every year, the Indian state of Tamil Nadu sees students from all over India apply for admissions to its prestigious academic institutions. The admission process typically involves two steps: online registration and in-person verification of the candidate's certificates and other relevant documents. Typically, the candidate presents certificates and supporting documents for their academic scores and any demographic data (such as nativity, community, parent's income etc.),

based on which the applicant might get certain concessions. After successful verification of documents, the candidate is granted admission to an academic institute. The document verification is done by setting up verification centers where designated officers review relevant documents.

However, the COVID-19 pandemic has made it risky for students and parents to be present for the verification process. Even without the pandemic, in-person verification was an expensive and time-consuming affair, and parents and candidates could spend up to USD\$200 and three days travelling to the centers for document verification. Additionally, the government or academic institutes had to rent space and compensate officers. Blockchain technology enabled us to take this entire process online, saving time and money, and keeping the process safe.

To build our blockchain certificate verification solution we leveraged Nambikkai Inaiyam, the Tamil Nadu State-wide Blockchain Backbone. This is a blockchain platform developed by the Tamil-Nadu e-Governance Agency (TNeGA) for building and hosting a wide array of e-governance blockchain solutions. A smart contract-based workflow is mapped to the platform to record the candidate's demographic and academic data to the blockchain ledger. This data is obtained from the relevant

certificate and academic databases. Another workflow is created to carry out bulk verification of all applications being submitted to the online admission portal. After verification, an email is sent to relevant authorities, and the result is updated in the admission portal database. An immutable audit log is also stored in the blockchain ledger for the entire verification process and can be referred to in case of legal disputes.

FOOD TRACEABILITY WITH BLOCKCHAIN



Despite the advantages presented by blockchain technology, it can be challenging to clearly understand the technology's benefits and risk for a specific use case. This is an obstacle to innovation for many companies.

To address this challenge, Kruger Corporation developed KBlockchain, which consists of a comprehensive journey from the assessment of the use case, examining how blockchain technology can be used to address the problem in question, all the way through a detailed process review to determine the actors, assets, and interactions between them, finally reaching a minimal viable product which can evolve into a successful project.

The use case in the graphic below shows the traceability of bananas in all its stages — from when it was planted to when it was purchased.

This blockchain-based traceability platform mitigates problems in the management of information in real time by providing a non-alterable and transparent data record. The use of this blockchain-based system improves record-keeping regarding the origin of the products, the date of production, and the producers. This resource can be of value to producers when exporting, as it increases security and reliability between parties.



GOVERNANCE AND REGULATION

Steptoe

INNOVATING WITHIN THE LONG ARM OF U.S. JURISDICTION

The blockchain and cryptocurrency industry has increasingly become part of the fabric of the U.S. economy, and with that growth comes even greater attention from U.S. regulators and enforcement agencies. Navigating the U.S. regulatory environment has always been a challenge for virtual asset service providers (VASPs), with an alphabet soup of agencies taking different approaches, and with too much of an emphasis on “regulation through enforcement,” where innovators and their counsel are forced to read between the lines of enforcement actions, congressional testimony, and even speeches to try to determine the boundaries of compliant conduct.

This regulatory complexity in the U.S. has driven many new ventures overseas and caused many existing companies to stop servicing the U.S. market. For these companies, locating — or relocating — outside the U.S. allows them to grow compliant businesses in more readily navigable regulatory environments. But being out of the U.S. market does not mean being out of reach of U.S. regulatory and enforcement agencies — the long arm of U.S. jurisdiction is very long. Innovators must stay aware of U.S. regulatory requirements, and how innovation interacts with U.S. legal jurisdiction.

U.S. Department of Justice (DOJ)

DOJ has historically been aggressive in attempting to assert jurisdiction over alleged misconduct occurring overseas, based on a claimed U.S. nexus that is sometimes limited at best. That is no less true in the cryptocurrency context. Indeed, in its [2020 Cryptocurrency Enforcement Framework](#),²⁹ DOJ declared that it has “robust authority to prosecute VASPs and other entities and individuals that violate U.S. law even when they are not located inside the United States.” (DOJ Cryptocurrency Enforcement Framework, at 45.) DOJ also identified “jurisdictional arbitrage” — the practice of relocating overseas to avoid legal and compliance obligations — as being a principal area of concern and made clear its determination to collect evidence and seize illicit assets “regardless of where an entity or illicit actor may be operating.” (Id. at 51.) DOJ has indicated that it believes a sufficient U.S. nexus exists to pursue blockchain industry participants not only when products or services are offered to U.S. persons but also when, for example, cryptocurrency transactions involving foreign actors “touch” financial, data storage, or other computer systems in the U.S., or when U.S.-based financial institutions are impacted.

Financial Crimes Enforcement Network (FinCEN)

The Bank Secrecy Act and related regulations apply to individuals or entities engaged in the business of money transmission that operate wholly or “substantially in part” in the U.S., even if they are based overseas. There is no bright-line rule as to how much U.S.-connected activity constitutes doing business “substantially in part” in the U.S. For that reason, any entity in the business of money transmission (including but not limited to buying, selling, or exchanging cryptocurrencies), wherever located, that permits even a small number of U.S. customers, is potentially at risk.

Treasury Office of Foreign Asset Control (OFAC)

Sanctions-related enforcement activity — already a priority for Treasury and DOJ — will be on the rise in the cryptocurrency space in the coming years, as demonstrated by recent enforcement actions, including sanctions and prosecutions for

sanctions violations relating to cryptocurrency. In recent years, OFAC has been aggressive in asserting jurisdiction over non-U.S. entities for either primary or secondary sanctions violations. All blockchain and cryptocurrency industry participants would be well-served to review and potentially update the sanctions-related aspects of their compliance programs, to ensure that they are sufficiently rigorous and that they can withstand the potential for heightened U.S. regulatory scrutiny.

Other U.S. regulatory agencies, including the Securities and Exchange Commission, the Commodity Futures Trading Commission, and a host of other agencies all claim some amount of jurisdiction over activities that take place beyond U.S. borders. As a result, innovators in the blockchain and cryptocurrency space, even those operating completely outside of the U.S., must be mindful of the reach of U.S. legal jurisdiction and requirements that attach when business is done with U.S. persons.

ENHANCED GOVERNANCE BY COLLECTIVE INTELLIGENCE STRUCTURES

RONALD KOGENS LL.M., DR. CATRINA LUCHSINGER-GAEHWILER

Good corporate governance is relevant for any company today and has become even more important in the digital age. Interactions with stakeholders no longer take place only in the physical world, but increasingly in the virtual world. The emerging parallel virtual world has not only changed the way products and services are offered by companies, it also enables the creation of diverse ecosystems on a cross-border level, which directly impact the physical world. Such ecosystems in particular evolved through applications and platforms for social interaction. The implications of the virtual world to the physical world are massive and present new challenges for authorities and companies.

Authorities must deal with violations of jurisdictional laws, such as threats, violence, hate speech,

bullying and harassment, or other illegal activities that happen in the virtual world and on a cross-border level. To do so, they depend on companies' cooperation, as maintainers of the ecosystems and in most cases the only entities equipped to block accounts or provide information about perpetrators. Such a role is demanding for companies, in particular when requests by authorities or ecosystem stakeholders relate to what we call non-hard law jurisdictional interests or soft law (e.g. expectations regarding ethical and good human interaction). Companies have to draw a line between accepting that intervention may harm the appeal of the ecosystems they have created, and understanding that tolerating ethical grey zones, or even being perceived as doing so, poses a threat to the laws in certain jurisdictions that may result in reputational damages or legal actions.

FRORIEP

Against the backdrop of these challenges, governance models must be reexamined. One potential solution is the use of collective intelligence by creating a hybrid corporate/virtual ecosystem. This would focus on creating a secondary layer of decentralized community-enabling governance on top of the corporate layer, which would serve as a consultative opinion poll for critical decisions, but could also provide guidance on further product and services development. Such a structure could allow corporate structures to be embedded in a democratic ecosystem in the virtual world and — although the corporate bodies might cede some power — removes some of the ethical responsibilities from corporations as they rely on these democratic polls in the ecosystem.

In the following we describe a model called #decenGov, which we have successfully implemented in DLT-ecosystems using a Swiss association acting as the collective governance vehicle of the ecosystem.

Defining the Bodies and PCIR-Allocation

An association is operated by its bodies. Swiss association law offers great flexibility in defining bodies and allocating rights and obligations for each body. By law, an association generally must have at least a board, the general assembly, and auditors. These bodies are not enough to allow for a functioning collective-governance vehicle. To manage the responsibility of the ecosystem and balance powers, we recommended creating expert circles as additional bodies (e.g. treasury, membership admission, governance and nominations, ethics, technology, or projects).

Once the bodies have been defined, the rights and responsibilities for each body must be determined. For this, we advise using the proposing, consulting, implementing, and reviewing (PCIR) model. The goal of the PCIR model is to allocate these powers to the different bodies to create effective and functioning checks and balances.

Remote Voting

Appropriate governance requires more than just introducing different bodies. Bodies only make sense if they are appropriately represented when decisions are rendered. The concept of the physical world is to have physical meetings or at most move them to telephone or video conferences. However,

neither really works: Participants in ecosystems are oftentimes located all around the world and in different time zones. Swiss association law has for many decades provided for the possibility of remote voting (Urabstimmung). Basically, this allows the association to define a voting period during which votes can be cast, whether on paper or electronically. However, this also obliges the board to make available the invitations to the members in good time ahead of the voting deadline and to grant them a right to submit counterproposals before the remote voting process opens. These counterproposals must be published by the association and brought to vote. It is key to include this concept of remote voting in the articles of association and also to define the applicable majority requirements. Otherwise, the general assembly can only render decisions by remote voting by unanimity.

Voting Rights Represented by Tokens and Balanced Voting

If voting rights in the general assembly of the association are represented by cryptographic tokens it is easy to ensure that all votes are legitimate. The association will have to decide how votes are counted. Often the one-person, one-vote principle is not appropriate. If multiple tokens allow for multiple votes then the one token, one vote principle carries the risk of excessive vote-buying and marginalizing small token holders. A possible, and in our view highly interesting approach, is the use of quadratic voting. Quadratic voting is a method of collective decision-making that strives to find a middle ground between one-person, one-vote and one-token, one-vote systems by only giving a voting power equaling the square root of the tokens held. In doing so, more voting power is given to smaller token holders.

Majority Requirements for Changes

The flexibility of the Swiss association law allows a lot of flexibility in defining the structures. This also goes for setting the majority requirements for decisions by the association's bodies. The original association members will define in the articles of association how flexible the structure shall be in order to adopt new rules. The higher the thresholds, the more bodies that must be involved, the less likely it becomes that the association will deviate from the original purpose. As these parameters become more rigid, the association structure becomes much like a foundation.

A traditional Swiss association structure based on the #decenGov model is one option to create the governance body for a second layer collective intelligence. It will be interesting to see whether existing companies are willing to move towards allowing the community to have a say on how

the business should behave, as it is possible for companies to ensure sustainable development of the respective company through the ecosystem in a democratically, and well-balanced manner, but also to help companies to act responsibly based on community decisions.



HM Government
of Gibraltar

AMIDST SIGNIFICANT CHALLENGES, INNOVATION IN THE DLT INDUSTRY REIGNS SUPREME

THE HON. ALBERT ISOLA MP, GIBRALTAR'S MINISTER FOR DIGITAL AND FINANCIAL SERVICES

2020 was a challenging year for the world. The COVID-19 pandemic permeated each and every sector; the distributed ledger technology (DLT) and virtual asset service provider (VASP) industry was no different. As we face the year ahead, with the knowledge we now have, it is a good time to reflect. It could be argued that the pandemic taught us of the need and importance of proactively preparing for the future; be it through technological innovation, financial planning, strategic pivoting, or in our case, legislation.

In January of 2018, we introduced our DLT legislation in Gibraltar, which at the time was the world's first purpose-built regulatory framework for businesses using blockchain or DLT to store or transfer value. 2020 saw another milestone moment for Gibraltar's thriving DLT ecosystem as we announced plans to refresh and update our bespoke DLT Guidance Notes. In a fast-moving industry like this, change is always on the horizon, and we are committed to ensuring our regime facilitates and captures the evolution of the space. 2020 was an opportunity to display the agility of our processes and the importance we place on cohesive financial regulation. Indeed, our jurisdiction's agility has been a hallmark of our work to date, which is in no small part due to our cooperative efforts with the DLT industry. Maintaining a progressive and open dialogue with industry figures has helped us

to craft a framework that satisfies natural regulatory prudence while allowing for a sensible amount of regulatory latitude to help projects innovate safely and effectively.

The changes to the Guidance Notes — which included clarity on key areas and updated the risk framework to distinguish between virtual assets and virtual asset denominated instruments — were made to capture the natural evolution of the defined regulatory principles, as well as to ensure their agility in times as uncertain as the COVID-19 pandemic.

We will continue to update our regulatory framework in 2021 in an important and innovative manner; we will introduce a 10th Core Principle to our legislation, which will focus on market integrity. To assist us in arriving at a sensible and pragmatic path forward, we have established a working group to deliver the 10th Core Principle. The group is composed of recognised industry leaders from across the world who will work closely with us to deliver an effective and innovative principle regulating this important area. We continue to strive for the development of a sound and safe regulatory environment that allows for a more secure, equitable, and functional world.

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Thank you for joining us as we continue to carry out our mission in 2021 to further adoption of blockchain technology by engaging and educating regulators, business leaders, and lawmakers on the benefits and applications of this groundbreaking technology.

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APPENDIX

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