
2021 | Year in Review

# DIGITAL MONEY AND NEXTGEN MARKET INFRASTRUCTURE

## Macro and Regulatory Headwinds Prevail

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## VOICE OF THE COMMUNITY

# Co-Chairs' Foreword

**Lawrence Wintermeyer**
Executive Co-Chair and Guarantor

**Simon Taylor**
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In the early days of January 2022, we are just out the starting gates and are already witnessing an avalanche of communications from policymakers and regulators on the impending regulation and increasing calls for bans in the global crypto and digital assets sector. Cryptocurrency platforms, stablecoins, DeFi, NFTs, and crypto mining are all in their sights.

The GDF annual member survey cited "lack of regulatory clarity" as a top challenge for the industry in 2022 for the third year running. This supports the call from some agencies for the development of a global crypto and digital assets framework in 2022, calling for greater cross-border coordination of policy and regulation for the sector.

The priority is now greater than it has ever been for a measured approach, in accordance with regulators' priorities and objectives, to global policy and regulations. We call on policymakers and agencies to further engage with the industry through the GDF co-regulation model where:

- GDF supports right-size regulation of the crypto and digital assets sector through a global framework that will deliver meaningful compliance
- GDF calls on regulators, agencies, and policymakers to further engage in our co-regulation model, a stewardship platform that sits in between the industry and regulators
- GDF calls for greater support from regulators in further building out the Code of Conduct, to better meet requirements for conduct standards, in absence of regulations or in support of developing policy frameworks
- GDF supports high standards of conduct for the protection of customers and investors
- GDF supports the development of fair, transparent and competitive global markets
- GDF members are committed to demonstrating to customers, employees, stakeholders, shareholders, policymakers, and regulators that they adhere to high standards of conduct and meaningful compliance.

During the 2017 initial coin offering (ICO) run, GDF convened the global crypto and digital assets sector in the development of taxonomies and codes of conduct. Since 2018, 10 GDF codes have been developed by global industry practitioners and have been scrutinised in a rigorous process of peer review, open to global public consultation, in full purview of agencies and regulators in the GDF Regulator Only Forum, a quarterly forum with the attendance of over 25 conduct regulators and agencies.

Over 140 GDF member firms are in the Code program and attest to the Overarching Principles Code, before choosing to attest to further codes by industry vertical, asset class, or compliance category. More than 100 global firms, many of today's market leaders, have attested to one or more of the Codes, and the program is growing to new regions outside of the U.S., Europe and South-East Asia, to Latin America, Sub-Saharan Africa, and the greater Asia Pacific region in 2022.

2021 saw the extension of the GDF Regulator Only Forum to include a DeFi Knowledge Series break-out from the regular quarterly fixtures. In response to specific questions posed by regulators and policymakers, the series hosted DeFi industry leaders and specialists who presented to participants of the Forum on the business lifecycle, the user journey, and regulatory touchpoints within DeFi projects.

Though some outside of the crypto and digital asset sector promote the narrative of the "lawlessness" image of crypto, much of the global community has shown itself to be aligned with the key regulatory mandates, and published financial crime rates often appear lower than in the traditional financial system.

Those who attest to the GDF Codes publicly attest to the legislation and regulation that applies to them in the relevant jurisdiction. The global crypto and digital assets sector comprises many professionals who have come from banking, capital markets, conduct regulators, and other agencies, and are fully aware of their ethical and fiduciary obligations.

In addition to GDF Codes, the industry response to the Financial Action Task Force's (FATF) Travel Rule

guidelines has been to actively develop solutions the InterVASP messaging standard (IVMS 101), developed by industry in response to the FATF Travel Rule requirement, with the collaboration of a number of regional associations. The private sector response is often quicker than the jurisdictional movements in the crypto and digital assets sector, where only 58 jurisdictions have implemented guidelines for virtual asset service providers.

GDF has recently mobilized a working group to focus on global shared market surveillance, engaging many of the world's largest crypto exchanges. The group is developing a framework to include best practices for conducting market surveillance within an exchange; means for sharing insights from market surveillance amongst exchanges; and a proof-of-concept for enabling shared market surveillance.

This is another excellent example of how the industry has demonstrated that it is self-starting and collaborates across the sector to establish best practices – in this instance, across the global crypto spot and derivatives market. It does not come as a surprise for many within the GDF community, who are dedicated to and focused on building the next generation of financial services, seeking to improve greater inclusion, diversity, and competition.

Beyond codes and standards, GDF has established a governance node for FinP2P, an open source decentralized private-market digital securities network, which is leading the way in this space following a pilot engaging many of the world's top financial institutions. This is a healthy indication of the trust engendered in GDF by the community to fulfil this important role for financial institutions. Technology that moves private-market securities onto smart contracts will open up an estimated $1 trillion market for primary and secondary funding to all investment segments and bring the access and transparency of public markets to private markets, in an already regulated segment of the industry.

GDF has continued to respond to the needs of the community. The Stablecoins Refresh group started the process of reviewing and updating the Stablecoins Code. After the NFT Conference in May, we created the NFT Hub to gather the standards and legal perspectives surrounding the treatment of non-fungible tokens. In time for COP26, the GDF ESG Report convened members' insights on the great debate around crypto's role in the race to net zero, impact investing, and sustainable finance.

2021 was truly the year crypto and digital assets went mainstream with a global market cap exceeding $2 trillion. NFT is in the Collins Dictionary and sports stadiums bear the name of crypto exchanges. Inflation has risen to levels not seen in the West for more than 30 years, and many real stock earning yields are in negative territory alongside double price digit growth.

The search for yield has driven many investors, including corporates, institutions, and pension funds, to allocate to crypto. Even with increasing regulatory headwinds and prices pulling back, the crypto genie is out of the bottle and is not going back in.

Being digitally native, cryptoassets are borderless. This is as true with the emergence of cryptocurrencies and digital tokens and is as or even more pertinent to activity in the DeFi industry. Divergent regulatory approaches are in danger of stifling innovation in home jurisdictions while incentivizing activities to move off-shore, further complicating conduct regulation, making compliance ineffective, and promoting regulatory arbitrage.

GDF believes that the best way to achieve a global, coordinated approach to the development of standards and regulation for the crypto and digital assets sector is through a co-regulatory model that places the onus on the sector to demonstrate it is adhering to high standards, aligned to policymakers and regulators, while relevant global policies and regulations are fully considered to meet both the jurisdictional requirements regimes and the requirements for global stability.

Through further industry engagement in a co-regulation model and cross-border collaboration with policymakers, agencies, and regulators, we can all make the most of the innovation that this sector offers and continue to develop a better emerging landscape to engender meaningful industry compliance for the benefit of consumers and stakeholders globally. ■

# PATRON INSIGHTS

# Meeting Crypto's Environmental Questions Head-On

**Alexander Höptner**
CEO
**BitMEX**

*As published in the GDF ESG Report*

Sustainability is the challenge of our time. Bitcoin - and cryptocurrency in general - is the transformative technology of our time. So it's only natural that this industry faces tough questions about the environmental impact of the technology that enables our work. And we as industry leaders need to embrace this challenge head-on.

Crypto has not been lacking in creating waves, but its environmental impact is perhaps the issue that has caused the most controversy and consternation, and certainly in the last year. There are a couple of reasons behind this. We think understanding, and acknowledging them, is crucial to galvanizing the industry to respond positively.

First, we should be mindful that the debate about the utility of crypto is still raging, and those who are skeptics of the technology use its environmental impact as an opposing talking point. This criticism is usually ill-founded, verging on outright disingenuous. We work in this industry because we are confident about the fundamental utility of crypto. But not everyone feels this way, so we should engage constructively with those willing to do so in good faith.

Second, a key tenet of Bitcoin (and other cryptos) is decentralization. The fact that no one person, or group of people, controls the Bitcoin protocol is the key to its resilience and utility. This makes Bitcoin indestructible and radically inclusive at the same time. Yet, many of the proposed solutions to Bitcoin's environmental impact emanate from perceived centralized, or exclusive, groups like Michael Saylor and Elon Musk's Bitcoin Mining Council. Community members know that if they give power and influence to centralized actors, they could end up regretting it. Just look at the crypto world's love affair - then breakup - with Elon Musk earlier this year.

That being said, as leaders in the industry, it is up to us to make a strong commitment to invest in a future where crypto is ever more responsible. That's why BitMEX has recently committed to becoming carbon neutral, starting by offsetting the carbon caused by withdrawals from the platform. This is important because it allows us to mitigate the environmental impact of our current activity while we make more structural, long-lasting plans. We were glad to announce that we've invested $100,000 in reforestation, REDD+, and forest management projects around the world to offset carbon consumption not only for our Bitcoin transactions, but also the servers we run to power BitMEX. We'll continue to be vocal about challenging others in the industry to do the same.

But mitigating the environmental impact of our current activity is only a first step. As an innovative industry, we can and should do more than just offsetting carbon emissions. I see two ways to move forward from here.

First, we need to invest in education about the true environmental impact of Bitcoin and other cryptocurrencies, increasing access to reputable sources of information. Estimates of the size and severity of Bitcoin's carbon footprint vary widely, but we are in a position to lend our expertise to help settle the debate. As part of our education efforts, we should also broaden people's understanding of the true utility of Bitcoin and other crypto as revolutionary technologies that will improve lives. The more time we spend communicating about the macro benefits of crypto - economic empowerment, trustless transactions, DeFi, and Web 3.0 - the more people will see the true power of the technology, rather than thinking it's all about CryptoKitties.

Second, we should work with - and invest in - people and organizations who are committed to using innovation to lower cryptocurrency's structural environmental impact, but who will do so in a way that respects the fundamental utility of the technology and its highly decentralized nature. We will find our breakthrough by creating incentives for research and development, but also by letting blockchain technology be part of the solution.

Finally, it should be acknowledged that many of these solutions are in very early or theoretical stages. Our industry is still relatively nascent - and certainly when compared to the structures of traditional finance. But as responsible innovators, we need to move quickly, and be held accountable for what we say we will do.

There's a lot at stake here, and we owe it to ourselves, each other, and the coming generations to make progress. ■

coinbase

# Self-Custody Wallets and the Crypto Economy


**Paul Grewal**
Chief Legal Officer
**Coinbase**

**Claire Wells**
Associate General Counsel
**Coinbase**


Coinbase is building the crypto economy – a more fair, accessible, efficient and transparent financial system than any that has come before it. Developments in crypto represent a new fundamental layer in the internet's infrastructure and have far reaching implications for financial services, Web 3.0 and beyond. Self-custody wallets (as opposed to wallets controlled by centralized third-parties) will increasingly serve as the gateway to this emerging ecosystem.

At their core, self-custody wallets ensure that individual users are in control of their cryptoassets. As a result, they provide users with:

- Individual autonomy to securely store, transact, and manage their own cryptoassets
- Increased security by eliminating centralized "honeypots" of private keys
- Access to new products and services that are not accessible via custodied solutions
- Instantaneous peer-to-peer transactions without the need for costly intermediaries

All of this represents a true paradigm shift in how digital transactions occur.

With Web 3.0 comes the promise of the "tokenization of everything". In the near future, both individuals and businesses will be empowered to tokenize and store anything of value on the blockchain and exchange these assets on a disintermediated, open and incorruptible ledger that transcends borders. Beyond speculation on cryptoassets, this has huge potential to alter the way we live, impacting financial inclusion, digital identity, art, record keeping – the list is endless.

Policymakers are right to press pause and take stock. Policy and regulation has traditionally been developed to capture the benefits and address the risks of intermediated systems. Some policymakers have raised concerns that lack of intermediaries will give rise to greater illicit finance risk. However, evidence shows that unhosted wallets pose minimal or limited illicit finance risks and are a healthy part of the virtual asset ecosystem. In addition, these technologies provide exciting opportunities to help regulators achieve their core policy aims. The Financial Action Task Force's (FATF) recent guidance highlighted the fact that P2P transactions can actually "support financial analysis and law enforcement investigations". Blockchain analytics and the transparency afforded by cryptoassets give law enforcement a detailed view into transactions that has no equivalent in traditional finance. Innovation is already happening in the decentralized identity and on-chain KYC attestation service sphere which will play key roles in connecting users' real identity with self-custody wallets.

When analyzing self-custody wallets, we have identified three areas for policymakers to consider:

1. **Recognize self-custody wallets as the catalyst for healthy innovation** (not as a means to facilitate illicit transactions): The open nature of crypto is what makes it a powerful tool for innovation and has the potential to reduce the cost of financial services and improve accessibility for all.
2. **A phased approach to policy development while ensuring flexibility in future regulatory frameworks is prudent:** Banning or creating overly onerous requirements e.g. capturing self-custody wallets under Travel Rule obligations is not a proportionate response to the risks.
3. **Engage with the industry:** Given the complex and evolving nature of the market, industry engagement is key. Market players can provide insight into the specific concerns and how these could be addressed.

As we enter a period of justifiably heightened regulatory scrutiny and increased pace of innovation, these considerations are essential for developing proportionate, appropriate policy and ensuring that the benefits of the crypto economy can be realized by all. ■

# NFTs: Hype or the Future of Asset Ownership?

**Martin Bartlam**
Partner and Global Co-Chair Fintech
**DLA Piper**

In the area of technology innovation in market instruments, each step forward in market and regulatory acceptance is hard won.

2021 has seen a greater acceptance of the new products emerging from the implementation of blockchain and innovation in tokenization technology. Central banks across the globe are developing digital currencies that could significantly speed up the workings of the financial system. Regulators are developing rules for digital market infrastructure. Private businesses are issuing stablecoins and developing decentralized finance (DeFi) in ways that could revolutionize financial products and processes. Perhaps the most significant commercial tokenization product of this year however is the non-fungible token (NFT).

## What is an NFT?

You may have been lucky enough to receive some NFTs in your 2021 Christmas stocking, but what are they? An NFT is a type of cryptographic record relating to a unique digital or real-world asset. It is an individual digital item, typically associated with being held through a blockchain. At the point of creation or sale of an NFT, the ID of the creator or buyer is coded into the smart contract of the token, making it clear who owns it.

It might consist of a file containing the digital artwork linked to a unique identifier that resides as a record on the relevant blockchain. As the record is held across the blockchain it gives a high degree of certainty that that particular file (and therefore the digital art, in this example) is held solely by the owner of the relevant token.

## Why have NFTs been so popular in 2021?

NFTs provide a simple and efficient mechanism for recording ownership of assets on a global basis. This global digital registration system is quicker, cheaper and more accessible than anything we have in place in today's marketplace.

In many ways the NFT simply provides a modern take on a traditional tried-and-tested form of identification of ownership. For many important or high-value assets, such as property, shares or autos, we have developed a registration requirement to enable an owner to be able to establish a formal record of ownership that could be referred to in the event of any dispute as to who actually owned the relevant asset.

These traditional registers are highly inefficient, usually taking days or even weeks for the registration process to be formalized and often involve specific formalities to be provided. This can result in uncertainty during the registration process, and the danger that intermediate interests in an asset are created while the process is ongoing. The process is further limited by domestic borders as the system will apply to assets within a particular jurisdiction and the rules will be different from country to country.

Using blockchain technology to associate an asset with a unique identification address and then being able to establish that on a distributed global register is an ideal way of addressing some of the issues related to localized registration requirements. The speed, ease, and efficiency of this approach is generating significant interest.

## Opportunities for NFTs

NFTs have so far provided an opportunity for significant growth in a number of markets, and particular interest has already been identified in areas such as digital collectables (e.g. sports trading cards), music, and artwork. Individual rights have traded for tens or even hundreds of thousands of dollars.

However, creative content or celebrity personalized products are likely to be core beneficiaries where the narrative behind the product is as important in the tokenized representation as the product itself. On December 14, a digital replica of a cardigan worn by Harry Styles that is "accurate right down to the thread count", according to the designer of the original, was sold for two Ether (roughly $7,500).

SameYou teamed up with the NFT platform Seva.Love to auction off an NFT of the chain mail Atelier Versace dress that Emilia Clarke wore to the 2016 Emmys as

*NFT Conference – NFT Protocols Panel*

*The NFT Hub: Further Thoughts on NFTs*

well as the dress itself as part of efforts to raise funding for brain injuries and strokes. An unreleased Whitney Houston song demo made when she was 17 sold as an NFT in December through music-focused marketplace OneOf for nearly $1 million. For some businesses, a move to digital may open up new revenue streams or even replace the entire existing market.

## What should buyers and sellers be looking out for when assessing NFTs?

Anyone can be a buyer or a seller of a commercial NFT. However, care needs to be taken in relation to exactly what is being sold.

As a starting point it should be checked that the NFT is a commercial NFT and not a regulated financial instrument in digital format. The rights or nature of the asset should not, for example, be in the nature of a security (such as equity or debt rights) or interests in a derivative or managed scheme that would constitute a regulated collective investment, unless the entity making the offering is authorized to offer that type of financial instrument.

The wide drafting of the definition of cryptoassets brought in through the 5th Anti-Money Laundering Directive is wide enough to capture NFTs. Care will need to be taken in relation to registration obligations on those providing an exchange or custody function for the NFTs.

Any marketing material needs to be considered not only in the context of financial regulation and ensure compliance with advertising standards and guidelines applicable to the seller.

Buyers should always be careful to assess the authenticity of what is actually being sold, just as in the case of any traditional purchase and sale arrangement, to assess that the seller really does hold the relevant asset and has capacity to sell the NFT in the manner intended.

The practical and legal issues are further complicated by the fact that an NFT and the digital asset it represents may be located in different places and linked by the technology embedded in the NFT. In some cases, the terms on which the assets associated with an NFT can be exploited will be governed by the terms of the licence issued by the NFT creator or platform, or the


content owner. The terms may dictate whether the NFT holder is assigned copyright in the underlying work, or (more typically) whether they are merely granted a limited licence to use it. In the event that the NFT's terms are silent on these issues, these rights will be reserved to the owner of copyright in the underlying digital asset and so will not be available to the NFT holder.

## Outlook for NFTs

Over the longer term there are certainly benefits which will likely lead to a wider range of asset profiles moving to an NFT format. It is probable that we will see even more calls for NFTs in new areas of digital creative development and particularly online products, from the arts to sports-related activities such as digital collectibles, or fan engagement and ticketing.

Success in building out this asset sector will, to a large extent, depend on building trust in the products and those participating in the process. There is still a large degree of mistrust in relation to digitalized or cryptographic or tokenized assets. Some of this is lack of understanding, but it also relates to earlier abuses by some participants. The direction of travel is clearly toward greater efficiency, transparency, and reduced cost accessible through digitalization and distributed ledgers, but the speed of adoption will depend on how quickly trust in these systems can be built.

If the NFT product can also expand into real-world assets and achieve legislative recognition as a provider of quicker, cheaper and more efficient registration systems then there is good cause for a move to the more modern system. This will require changes in law, particularly relating to assets such as real estate, equities, and registered chattels such as vehicles, in order to recognize the benefits of the new system.

It is hoped that regulators and providers of regulated registry systems will have the foresight and understanding to adapt to the evolving digital environment quickly enough to allow for these to be developed whilst being appropriately and adequately monitored. This would be the ideal in order to provide the undoubted benefits in speed, efficiency and costs that these new models can bring. ■

Explore the NFT Hub here

# Institutional Adoption of Digital Assets in 2021

**Andrew Eldon**
Interim CEO
**EQONEX**

2021 has been a year of unprecedented growth in the digital assets industry, with a notable rise in adoption from institutional investors. While the price of bitcoin (BTC) and other leading cryptocurrencies remains volatile, this year saw a new all-time high in BTC's price of nearly $70,000.

When BTC reached its last major all-time high in December 2017, just shy of $20,000, the frenzied trading was driven almost exclusively by retail investors.

Fast forward four years and, in 2021, we saw banks, hedge funds, endowments, family offices, and even pension funds investing in cryptocurrency. Many asset managers now see it as a fiduciary duty to allocate at least a small percentage of their clients' portfolios into digital assets. With the total cryptocurrency market cap hitting $3 trillion in 2021, this growing asset class has become impossible to ignore.

## Leading institutional adoption

With the strengthening fundamentals of cryptocurrency, its growing band of supporters, and a shifting economic outlook, institutional adoption looks set to continue.

As the first digital asset exchange to be publicly listed on the Nasdaq, EQONEX is ready to serve the needs of this class of investors with industry-leading tools for portfolio, risk management, and custodial solutions.

In 2021, EQONEX formed strategic partnerships with reputable market makers on our Exchange, such as GSR, Parallel, and Kronos. We also launched Access with Itiviti, bridging the gap between traditional and digital assets trading for a growing institutional investor base.

In addition, we expanded our product range, with BTC and Ethereum (ETH) perpetuals introduced on our platform and dated futures announced for Q1 2022. New tokens MATIC, GRT, LINK, DOT, and XLM were listed on the EQONEX Exchange, and a mobile app will launch in 2022.

Digivault, our in-house custodian, raised security standards further by receiving Cyber Essentials Plus accreditation, Financial Conduct Authority (FCA) registration, and ISO 27001 certification. The partnership with Asset Reality to support law enforcement with cryptoasset seizures and the collaboration with Treasury Management International to support corporates looking to interact with the crypto ecosystem, highlighted our growing reputation with governments and corporates.

Our asset management business continues to produce stellar portfolio returns for its qualified investors, consistently recording little to no losses in months where the entire crypto market observed double-digit percentage losses. We also launched our lending

platform, which provides direct access to a broad range of carefully vetted institutional borrowers and lenders.

The environmental impact of the crypto industry was a hot topic closely monitored by institutional investors as they strived to meet Environmental, Social, and Governance (ESG) goals. To further educate the market on the matter, we engaged Intelligence Squared, a global media company, to robustly explore the critical issues faced by the industry in a series of events that analyzed Bitcoin's impact on the environment.

The series was hosted by Anne McElvoy, senior editor and head of podcasts at The Economist, who was joined by acclaimed macroeconomist Lyn Alden and researcher Max de Vries. Lyn presented the case for digital assets, leveraging her extensive research into the energy usage trends of the Bitcoin network. In doing this, she highlighted the findings of the Bitcoin Mining Council and the fact that BTC mining uses a high ratio of sustainable energy, given the propensity of miners to seek out the cheapest and often untapped energy sources.

While energy consumption remains a contentious topic, we are committed to embracing the debate openly and will continue to ensure we align with the ESG goals of our institutional investors and partners.

## Increasingly uncertain economic outlook benefits crypto

The rapid growth of the cryptocurrency sector has been fuelled by an increasingly uncertain macroeconomic outlook. After further quantitative easing by global governments in response to the COVID-19 pandemic, rising inflation combined with dwindling yield and negative or near-negative interest rates are forcing investors to look for alternative assets.

Digital assets become increasingly more attractive as a store of value against a mushrooming money supply and fast-debasing global reserve currency – especially when corporate treasurers must provide investors with returns.

As institutional interest in crypto continues to grow, EQONEX is looking forward to another solid year of expansion in digital assets in 2022. ■

# The Evolution of Decentralized Autonomous Organizations


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Decentralized finance (DeFi) has emerged as one of the most significant trends in the digital asset economy. DeFi is the general term given to a new form of open-source, internet-based financial protocols built upon public blockchains. The smart contracts powering these protocols allow individuals to interact or conduct financial transactions, such as borrowing, lending, insuring, sending, or exchanging digital assets without the need for an intermediary.

The largest current DeFi protocols by total value locked (TVL) facilitate the borrowing and lending of digital assets, which are operationally managed and executed by the smart contracts. No single entity or individual possesses the right to unilaterally change or update the protocol; instead, a community of users, investors and developers work together to govern the protocol in a transparent and open manner.

Decentralization, which is typically measured on a scale, becomes increasingly challenging as protocols push to become as decentralized as possible. At the blockchain layer, decentralization is driven by a consensus mechanism and competition between nodes on the network to receive a fee or reward. At the protocol layer or smart contract layer, there is not currently an incentive, so decentralization is measured by voting power.

The challenge with decentralized governance is that organizing, prioritizing, communicating, and developing long-term strategies amongst community members can be very difficult. This may pose significant headwinds to innovation and growth if not properly conducted. As a result, most protocol founders and teams have opted to gradually decentralize over time instead of fully decentralizing control upon initial deployment.

## DAO adoption

A key step to achieving decentralization has been the adoption of decentralized autonomous organizations (DAOs). DAOs are coordination vehicles used to organize the use of a protocol through a group of participants or a community in an open and transparent manner. Most DAOs include on-chain components (smart contracts), which record decisions and are viewable to everyone on the network, and off-chain components (communication or voting forums), which allow participants to communicate openly and reach agreement.

In this new market opportunity, companies such as Aragon, Orca, and Utopia Labs have begun to offer DAO infrastructure products to help manage and facilitate the governance process. Messari, a cryptocurrency market intelligence platform, also launched a new governance aggregator to help communities understand and access governance information all in one place. As DeFi protocols continue to grow and gain adoption, DAO infrastructures will continue to evolve to maintain decentralization and transparency.

Most major DeFi protocols today leverage some form of a DAO or multiple sub-DAOs to manage governance of the protocol. The assets under management (AUM) by a listing of the top 186 DAOs was approximately $12 billion as of December 2021, a 3,900% increase compared with the $300 million AUM as of February 1, 2021. The growth and success of the DeFi ecosystem reinforce the importance of understanding how these DAOs operate. There are several design variations amongst existing DAO structures, each presenting unique merits, drawbacks, and degrees of complexity.

DAO organizational structures are being used increasingly for non-financial projects to organize

people and capital. Notable examples include the heavily reported ConstitutionDAO, which attempted to purchase a copy of the U.S. Constitution and LinksDAO which is attempting to purchase a golf course and create a democratized country club experience. There is much speculation that DAO organizational structures could become a major tool in the future for organizing people and capital beyond financial services.

## Challenges

Significant improvements are still required for the full potential of decentralized governance to be realized. A recent blog post from Vitalik Buterin, Ethereum co-founder, posed the question, "How can we get the benefits of decentralized governance, while minimizing the risks?" The complete answer to this question is still unresolved; however, Buterin argues that a key part of the answer is moving beyond coin voting as it exists in its present form.
Among a myriad of risks associated with coin-based voting systems, two stand out:

- Inequality and misalignment of incentives, even in the absence of attackers
- Outright attacks through various form of (often obfuscated) buying votes

Mitigating efforts have been proposed and even implemented, such as voting delegation, time locks or other "limited governance" solutions. However, these may still not be sufficient.

A more comprehensive solution relies on non-coin voting mechanisms such as proof of personhood or proof of participation, which are even more nascent and do not have proven track records. A third, more radical solution expands on the idea of skin-in-the-game strategies that penalize those in the network who vote for proposals that result in negative outcomes for the protocol. This idea would create individual accountability for governance decisions.

## Conclusion

DAOs in their current form are a foundational building block of DeFi and have the potential to become the predominant form of organizing people and capital more broadly. As this organizational structure is still nascent, market participants should be aware of the evolving infrastructure and operating models of DAOs that they participate in or transact with. ■

# Industry Adoption of Crypto and Digital Assets

**John Salmon**
Technology Partner
**Hogan Lovells**

## Diverse perspectives

On 23 November 2021, Hogan Lovells and Global Digital Finance convened a series of panels on the future of crypto and digital assets. Panellists who contributed to the conversation included representatives from regulators such as the UK Financial Conduct Authority, the Commodity Futures Trading Commission, the Bank of Spain, the German Central Bank and the Italian Ministry of Finance, as well as a range of industry participants from established financial institutions to emerging start-ups.

The event reflected a diverse range of perspectives, but a number of common themes permeated the discussions. For instance, ESG and stablecoins are increasingly pressing concerns for regulators and the wider digital asset community, while decentralized finance (DeFi) remains an enigma that is challenging to define and even more challenging to regulate. A co-ordinated global approach to these issues might be desirable, but is perhaps far from feasible. Such issues raise important questions about what regulators, policymakers and industry can achieve over the next few years.

## Challenges and opportunities

Cryptoassets are steadily becoming more mainstream — no longer associated solely with illicit activities, large institutional investors are demonstrating a growing interest, and even traditionally conservative institutions such as pension funds have begun making their first moves in the space.

One outcome of crypto's growing popularity is the potential increase in systemic risk, particularly around stablecoins. Stablecoins was identified as a key priority due to their potential to displace traditional forms of payment on a large scale, and it was suggested that authorities may be more inclined to focus on regulations specific to stablecoins before considering a more ambitious and comprehensive regime covering all digital assets.

Beyond the financial markets, attention was given to the impact of cryptoassets from an ESG perspective, particularly with respect to the environmental cost of crypto mining activities — as such, reporting requirements, and accounting standards are likely to become a key focus for regulators.

The traditional matters of fraud, anti-money laundering, and transparency will continue to be a significant issue. Blockchain analytics firms have revealed that fraudulent activity is ongoing within the blockchain space, and the ability to make anonymous transactions means that bad actors are difficult to trace. On the flip side, the need for privacy is highlighted in connection with central bank digital currencies (CBDCs), given the potential for central authorities to surveil the financial activities of its citizens through the use of CBDCs.

*The conference breakout sessions in Hogan Lovells' office in Rome*

*The London breakout session*

*The Madrid breakout session*

*A hybrid global session*

## Difficulties in regulating DeFi

DeFi is difficult to define, and those attempting to do so should be wary of over-generalizing the concept. It was noted that not all DeFi operations are completely decentralized, and that it may be more helpful to view the various implementations of DeFi as falling within a spectrum between "decentralized" and "traditional" financial activity.

On the one hand, there is a need to develop new regulatory approaches to organizations that appear to have no central point of control (and thus no entity to hold accountable) and to applications of DeFi that do not fit within traditional categories of financial services. On the other, it is not necessarily the case that every instance of DeFi is beyond the scope of existing financial regulation.

Further, there is the question of who should be regulating DeFi — in other words, who should be responsible for ensuring that the technology provider is operating within an appropriate framework?

In circumstances where there are no financial intermediaries to carry out the fundamental anti-money laundering due diligence checks on customers and transactions, regulators may need additional resources in order to undertake such activities themselves—yet such regulators currently may not be equipped to oversee the variety of technologies that underpin such DeFi activities.

## The future of regulation

For many in the industry, a global, bespoke regime covering cryptoasset activities is highly desirable. A global regime would make it easier to conduct business internationally, while a bespoke regime would better address risks that are specific to crypto.

However, such a regime may be a nirvana that will likely never be attained. Instead, the general consensus from panellists is that increasing divergence between different jurisdictions is more likely. National regulators have varying powers, mandates and attitudes. Some will favor a principles-based approach focused on outcomes; others will prefer a more prescriptive rules-based approach emphasizing investor or retail protection. Some jurisdictions seek to fit cryptoassets into the existing regulatory framework, while others have embraced crypto's unique qualities and opportunities. In any case, a uniform global system of regulation may create its own dangers. An advantage of having different approaches across the world is that some jurisdictions will experiment with more unique approaches, which will provide valuable lessons to others.

Whatever the next few years hold, the complexity, variety and speed of activities taking place in the cryptoasset space makes engagement between regulators and industry more crucial than ever. Organisations such as GDF will have a key role to play in channelling industry members' varied perspectives and concerns into a unified voice, to enable constructive discussions and to allow regulators a better chance of pinpointing where policy changes are required while mitigating the potential for unintended adverse consequences. ■

# Financial Services and Virtual Assets in an Increasingly Regulated Industry

**Simon Wu**
Chief Executive Officer
**Huobi Technology Holdings Limited**

In 2021, institutional players started to enter crypto territory, as the scale of assets invested in virtual assets grew exponentially. We are still in the industry's early stages, however, and there may be a long way to go before it fully matures.

Through the ages, technology has always propelled mankind, but what drives technology has always been the impetus of capital.

Finance is an industry with a long history, but now it is in need of modernization. Current financial services focus on the present and plan for the future. Investing in virtual assets has rapidly gained wide adoption and media attention, with the development of the Metaverse, non-fungible tokens (NFTs), DeFi 2.0, and Web 3.0. Huobi Technology Holdings Limited (Huobi Tech), as a pioneer in the virtual asset industry, sees many opportunities and challenges, and here we analyze them from four different angles: compliance, security, risk management, and value discovery.

## Growing institutional demand to promote standardization of regulated services

With compliant growth as its priority, Huobi Tech believes that the development of compliance in the virtual assets industry will not only be driven by regulatory agencies, but also be shaped by the internal demands of the leading industry players. Growing demand from institutional investors will play a more important role in promoting the adoption of higher security and compliance standards in the virtual asset industry. These compliance standards represent the efforts of the virtual asset industry to cater to the world of traditional financial services. As one of the earliest leading institutions to commit to a compliant crypto industry, Huobi Tech promotes the establishment of high standards through its own endeavors, so as to build a gateway between traditional financial services and the world of virtual assets.

Although concerns remain about the risks that can arise in a less regulated environment, Huobi Tech hopes to become the leading one-stop compliant virtual assets service platform in Asia.

As of now, one of Huobi Tech's subsidiaries has successfully obtained licenses from Hong Kong's Securities and Futures Commission (SFC) to conduct Type 4 (advising on securities) and Type 9 (asset management) regulated activities. Another of Huobi Tech's subsidiaries is registered as a Trust Company with a Trust or Company Service Provider License. In Nevada, U.S., one of Huobi Tech's subsidiaries has a Retail Trust Company License. All of this means that we can provide a secure way to store and trade large quantities of virtual assets under a specified risk management framework for institutional clients.

## Third-party custody of virtual assets to usher in opportunities

Recently, large investment banks have been opening virtual assets desks, and private banking clients are looking to invest in digital assets. Virtual assets are becoming an alternative investment and even a new asset class for many investors. Long-term holders of these assets may include banks, family offices, asset managers, brokers, or retail investors.

These players focus on their core business and do not want to deal with the new, complex operations involved with securing their virtual assets. It takes time and money to establish good operational and technological environments that can enable custody of such assets. This is where third-party custodians come into play.

For those who invest on behalf of their clients, an independent third-party custodian is required to reassure their clients and regulators that their assets are protected by a neutral party. A compliant and licensed virtual assets custodian would be audited regularly by a governing body or certified public accountant firm, and subject to rules and regulations such as anti-money laundering, in order to ensure financial transparency.

## Regulated exchanges are the main choice for institutions to control transaction risks

Virtual assets exchanges are required to apply the same stringent standards as licensed banks or financial institutions, so that all related policies and procedures are fully audited. While this could prolong a client's onboarding process, the benefit is that every participant on the platform can be sure that whoever they are transacting with is legitimate. This process can also protect the platform from being affected by suspicious client accounts or transactions.

One of the primary requirements that investors have is that their assets are protected on the platform. Similar to any other financial institutions, regulated exchanges are required to segregate clients' and firms' assets. Clients' assets, including virtual assets, are stored on separate accounts and wallets under an associated entity that is owned by the exchange. If the platform itself runs into financial problems, the clients' assets are not affected.

Regulated exchanges have an obligation to maintain fair and orderly markets, similar to established stock exchanges. Trading activity is monitored closely by the financial industry's standard market surveillance tools. Malicious trading patterns such as spoofing or layering will be also flagged. If this occurs, exchange operators can investigate and remove the accounts from operating.

Virtual assets are still considered as a new asset class, but with anything novel, can introduce factors that may seem risky to investors. However, with tighter regulations being introduced by industry bodies, central exchanges that initiate these new regulations, will in turn provide investors with a safer environment to trade and invest, which will ultimately increase adoption rates in the months and years to come.

## The value of adding virtual assets into the asset allocation mix

The cumulative impact of virtual asset investments should complement a broader asset portfolio, which are key factors for retail and institutional investors. Virtual assets such as bitcoin have very low correlation to other traditional asset classes, and therefore provide clear diversification benefits. RIA Digital Asset Council reports, 1% of bitcoin exposure will not reduce the fixed return of the overall return on investment (ROI), but can provide a higher risk-adjusted return. In other words, virtual assets are rapidly becoming important mainstream investments.

Huobi Asset Management (Hong Kong) Limited (Huobi AM) manages a variety of asset management products and services for professional investors, including a multi-asset fund, a BTC tracker fund, an ETH tracker fund, a blockchain mining fund, and the first active multi-strategy virtual asset fund in Hong Kong. As one of the very first asset managers who has obtained the SFC approval to manage portfolio investing 10% or more of the gross asset value (GAV) in virtual assets, Huobi AM is the asset manager in emerging assets, shouldering expectations from both markets and regulators.

## Bridging traditional financial services with virtual asset industry

Faced with enormous opportunities introduced by the rise of virtual assets, Huobi Tech hopes to become a bridge between the traditional financial services world and the virtual asset industry. This bridge will be based on its third-party custodian services, positioning it as the safest underlying foundation for the guarantee of customers' asset security. The structural design and construction of this bridge will reflect an evolving compliance framework, indicating better protection for investors. Finally, the best practices we deploy to meet the trading needs of investors, and the products and services we use to offer the best investment returns will complement this bridge well. ■

# Digital Transformation in Financial Markets

**Ami Ben-David**
Co-Founder & CEO
**Ownera**

The global financial ecosystem is built on accounts. Users have billions of accounts with financial institutions to manage their assets, currencies, and all other financial instruments – hundreds of trillions of dollars in total account value. Transacting between these accounts is what makes up our financial ecosystem – paying, investing, trading, transferring, lending, borrowing, and so on.

If we look under the hood, it is a 50-year-old spaghetti of incompatible accounts, trying to trade across thousands of financial institutions, manual processes, different systems and networks, competing infrastructure providers, various asset classes, currencies, and jurisdictions. Most of these platforms were designed not only before the digital age, but also before the mobile or even the internet age. And talking about age, SWIFT, one of the major financial infrastructure pieces, is 48 years old, FIX is 30 years old, and VISA is 63.

As we have seen in every other information based industry, digital transformation is not about "fixing" old systems – it is a switch to a new paradigm which changes everything. Netflix didn't fix cinema and television – it offered the market a new paradigm, which incumbents had to copy.

## The unified theory of digital financial markets: Every account will become a digital wallet

How is a digital wallet different from a traditional financial account?

- It has a global address (much like an internet IP) which ledgers can assign value to
- It has a private key letting users and custodians sign transactions to prove intent
- It allows direct and instant trading between wallets

Therefore, when all accounts are digital – all transactions can be direct and instant, making everything in the middle redundant. Turning accounts into digital wallets will remove massive layers of intermediary complexity, manual processes, reconciliations, margins, delays, errors, risks, and costs.

This financial digital transformation is also driven by another unique capability of digital infrastructure:

> "If we look under the hood, it is a 50-year-old spaghetti of incompatible account trading across thousands of financial institutions"

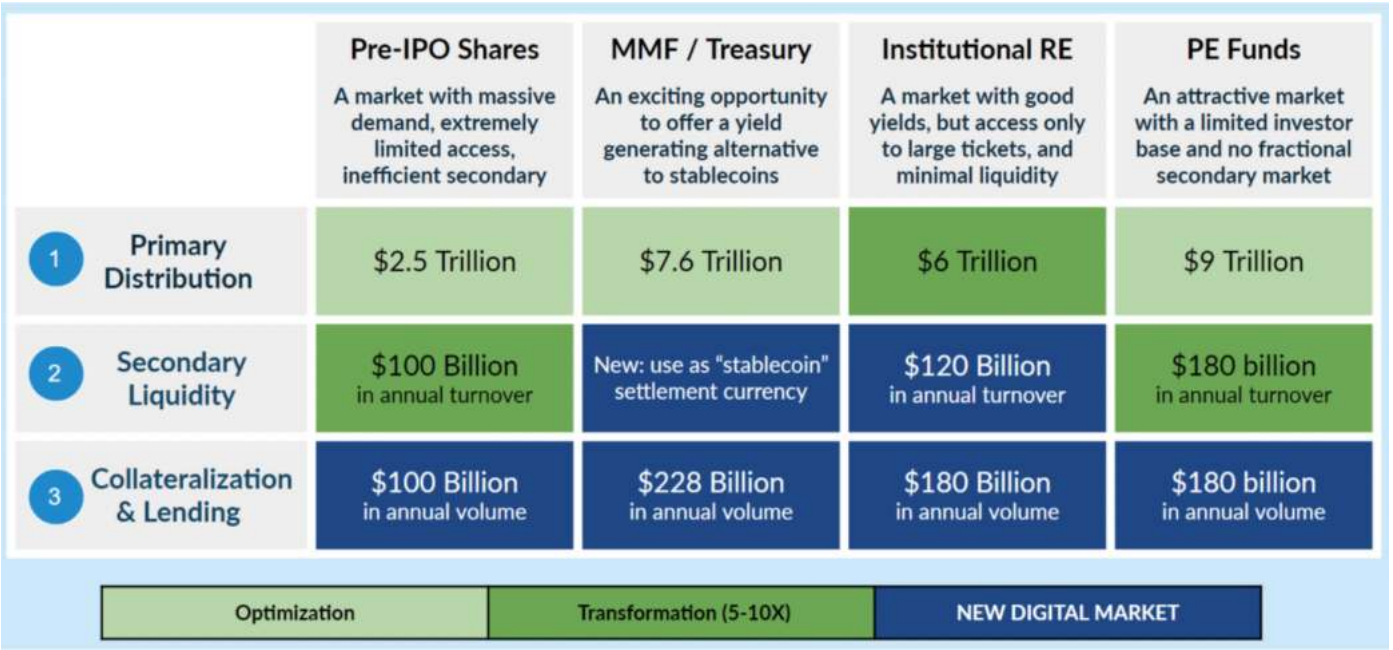
wallets can interact with smart contracts, enabling automated execution of agreements.

With instant, direct transactions, and agreement automation, the real impact of this digital transformation goes well beyond optimization and cost cutting. Digital wallets enable new services and business models that will completely change the dynamics of entire markets.
Lastly, and perhaps most importantly, the unified theory of digital financial markets has a key advantage: it can be deployed gradually.

Digital wallet-based services will be deployed over time in every financial submarket. Once they are deployed in a particular submarket, competitors in the space will be compelled to follow suit, given the better products, services, cost structure, distribution, liquidity, and business models enabled by digitization.

## The implication of digitization for financial institutions

Digitization, enabling direct transactions between users and assets, does not spell doom for financial institutions. Rather, this is an opportunity not only for digital-native newcomers but also for the incumbents with their resources, reach, and regulatory coverage – provided that they can see the strategic tectonic shift and mobilize their troops.




*An analysis of four asset classes, and the potential of digitization for transforming them*

The vast majority of digital wallets are and will continue to be managed professionally for users by financial institutions, and in the traditional financial markets, exclusively by regulated financial institutions. However, it is important for financial institutions to read the map of the new digital battleground, which will be decided on three main fronts:

- Who can digitize the best assets and offerings and bring them online?
- Who can deploy secure digital wallet-based accounts with the best clients?
- Who can best utilize distribution, technology, and data to connect the two?

## Starting with private markets

Digital financial technology was born in the crypto space, and therefore the market assumed that the first implementation of digital wallets in financial institutions will be around crypto.

Crypto is still a regulatory landmine for financial institutions and most have not yet deployed it. I believe they will, but it really depends more on regulators than the financial institutions themselves. Regulators are not paid to be early adopters.

Instead, the majority of financial institutions are deploying digital securities first. Yet, with smart planning, those same wallets deployed today with the best clients will tomorrow be used to trade any digital asset – from digitally-native assets, to public assets, derivatives, and any other asset class.

Years ago, **when the world's communication market switched from landline to mobile, some markets didn't have landlines. Countries jumped straight to mobile. The same thing is happening now in the private markets.**

Unlike public markets, which are already automated, private markets are stuck in the manual phase. There is almost no technology infrastructure, no "spaghetti" to replace. This makes private markets ideal for the deployment of the new digital solutions. When you can turn a manual investment process that takes two months into a one-second click, you clearly have a winner.


Not only that, private markets are growing at an unrepentant rate. In September 2021, Blackrock said, that "we believe that the allocation to private markets in wealth portfolios should increase from 5% today to 20%."

In addition, in private markets, digital ledgers are replacing Excel sheets and papers. When it comes to existing regulation, digitization clearly delivers better services and transparency.

## The GDF Private Market Digitization Steering Group

Over the last year and a half, a group of some 70 major banks, asset managers, exchanges, fintechs, and legal experts have been working together under the leadership of GDF, to develop an open source protocol to interconnect all the various components of the new digital private markets. The protocol is called FinP2P.

FinP2P is not a blockchain in itself, it is a routing network, a trading pipeline, allowing financial institutions to connect assets from any source, and on the other side give clients a digital wallet that connects them to all suitable assets, as well as other wallets.

The protocol then acts as a pipeline that allows everyone to trade with everyone (within regulation and permissions) – thereby enabling the core promises of the unified theory of digital financial markets.

## Conclusion

Financial accounts will become digital over time and enable direct and instant transactions between wallets and assets. This vision is materializing in front of our eyes as financial institutions all over the world are starting to digitize assets, deploy digital wallets, and the FinP2P pipeline will connect them all.

While these digital wallets will initially be deployed for private-market applications, they will in time support crypto assets, public equities, derivatives, and any other financial asset. The race to digital market leadership is on. ■

# Unlocking Next Generation Financial Market Infrastructure

**Todd McDonald**
CPO
**R3**

2021 was the year distributed ledger technology (DLT) moved out of the sandbox and into real-world deployment in financial markets. The sheer numbers paint the picture: corporations spent $6.6 billion on DLT solutions in 2021, with the International Data Corporation (IDC) predicting a compound annual growth rate (CAGR) of 48.0% between 2020 and 2024. Regulators are very much aware of the potential too, with new approaches to governance rapidly iterating from theory to regulatory models, and in some cases, to enforcement in under a year.

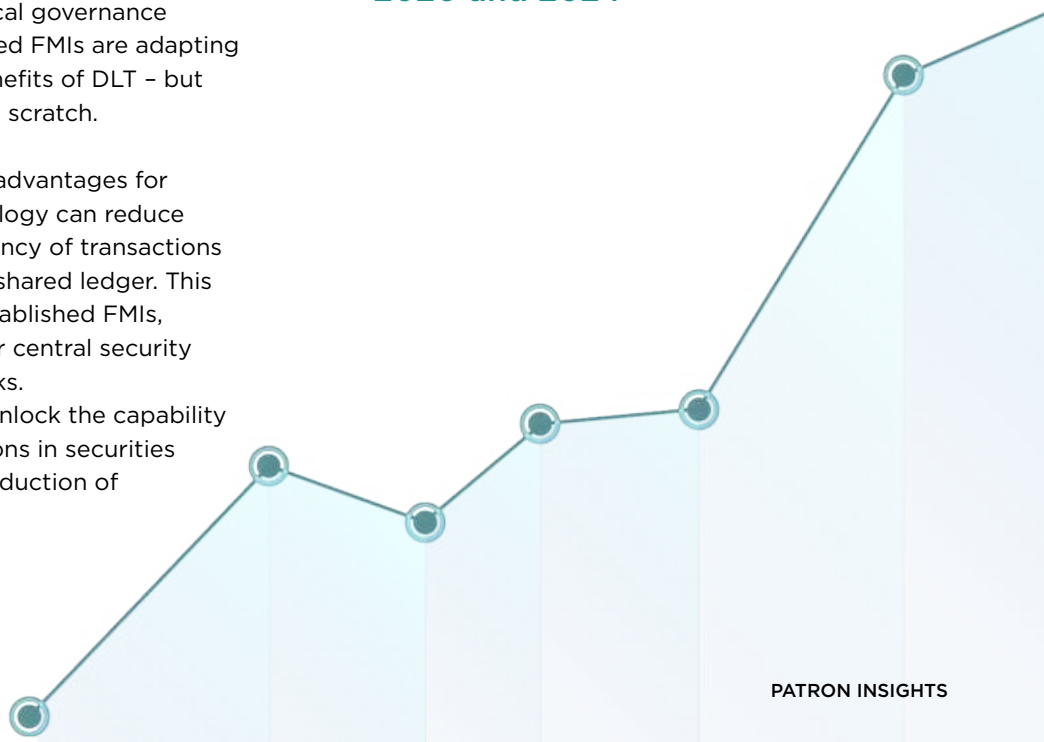
Against this backdrop, no part of the industry better exemplifies the move from concept to reality than the complex and highly regulated financial market infrastructure (FMI) sector. A pertinent example in this space is the SIX Digital Exchange (SDX), launched this year following approval from the Swiss Financial Market Supervisory Authority (FINMA) in September 2021. We are now only a policy decision away from seeing a wholesale central bank digital currency (CBDC) operating on the platform as early as January 2022. This follows the successful completion of Project Jura, in which R3, the Banque de France, Swiss National Bank, Bank for International Settlements (BIS), Accenture, SDX, Natixis, UBS and Credit Suisse conducted a series of live transactions in November 2021. Further testament to the progress in this space is Deutsche Börse's recent announcement that it is launching a digital post-trade platform by mid-2022, providing a DLT-based system that enables same-day issuance and paperless, automated straight-through processing for over 80% of German securities.

## Embracing DLT

So why are FMIs leading the charge on DLT adoption? Partly because debates around governance have already been settled. Unlike in crypto, where "code is law", there exists a well-established set of principles for FMIs set by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO), all underpinned by regional and local governance stemming back decades. Established FMIs are adapting their governance to exploit the benefits of DLT – but they have not needed to start from scratch.

Embracing DLT delivers countless advantages for FMIs. We already know this technology can reduce duplication and increase the efficiency of transactions by synchronizing siloed data via a shared ledger. This can have a profound impact on established FMIs, whether payment systems, trade or central security depositories, and even central banks. Permissioned distributed ledgers unlock the capability of atomic or near atomic transactions in securities settlements, with the associated reduction of

> "Corporations spent $6.6 billion on DLT solutions in 2021. The International Data Corporation predicts a compound annual growth rate of 48% between 2020 and 2024"



> “Permissioned distributed ledgers unlock the capability of atomic or near atomic transactions in securities settlements”

settlement risk. They also provide central securities and trade depositories with the ability to operate one record with a shared lifecycle and asset servicing, improving efficiency even further. Above all, DLT represents a rare example where efficiency, innovation and cost control can take a step forward in tandem with strengthened governance.

The technical capacity for settlement acceleration, for example, was demonstrated by R3’s work on the Depository Trust & Clearing Corporation’s (DTCC) Project Ion. In the words of DTCC’s Head of Clearing Agency Services Murray Pozmanter: “Project Ion has demonstrated that settlements in a T+1 or T+0 environment are effective use cases for DLT, and we look forward to working with our clients and the industry to launch the new platform.” While atomic transactions are possible, the real focus has been on increasing the speed of transactions from T+2 to T+1, preserving the protections and certainty provided by an established FMI, driving efficiencies and cutting cost and risk. These iterative yet transformational changes can be achieved alongside regulators in the context of DTCC’s existing governance structure, reducing the transformation required to achieve the necessary approvals.

## Driving adoption

As we head into 2022, we expect to see regulators increasing their focus on DLT, both to encourage innovation and promote fair and effective markets. The EU’s recent progress on agreeing the terms of a DLT pilot scheme, for example, means it could go live as soon as next year. The regulatory flexibility intrinsic to the pilot provides further incentive for organizations to trial the technology and realize its potential sooner, while also seizing the opportunity to shape the market and its future regulation. This carefully considered, forward-looking approach will, once launched, encourage more institutions to get involved and drive adoption across Europe.

With more specific guidance emerging from entities such as the CPMI, IOSCO, and individual jurisdictions, greater regulatory certainty will serve as the foundation of this large-scale transition away from experimentation to implementation both in the EU and globally.

Combined with continued collaboration amongst FMIs, regulators, financial institutions, fintechs and industry bodies, this will drive wide-scale DLT adoption across global financial markets in 2022, unlocking the next generation of financial market infrastructure. ■

# Money is Mercenary: The Gravitational Pull of DeFi

**Dr Peter T. Golder**
Chief Commercial Officer
**SDX**

Decentralized finance (DeFi) has well and truly arrived on the global finance stage and is here to stay. DeFi growth over the last 18 months has been impressive: the total number of users increased 14-fold and global total value locked (TVL) in DeFi-embedded smart contracts exceeded $170 billion in September 2021, up from $6 billion in the previous year.

DeFi creates new opportunities and enables innovative and novel market structure models through the introduction of decentralized exchanges (DEX) and automated market makers (AMM). Against this backdrop, it is time for traditional finance (TradFi) to consider the future implications and opportunities arising from DeFi and to begin developing options and strategies for adapting to this new emerging world.

## From CEX to DEX

DEXs have evolved considerably and are now capable of providing an alternative to traditional centralized exchanges (CEX). Unlike CEXs, which have a central operator and technology platform, DEXs enable direct peer-to-peer transactions. The utilization of smart contracts encoded on blockchains enables users to retain their private keys, reducing the counterparty risk that is inherent with CEXs. In so doing, DEXs eliminate intermediaries and allow users to trade directly from their non-custodial wallets.

DEXs have become a platform of innovation through product experimentation, which has led to the development of novel DeFi primitives such as flash loans, AMMs, algorithmic stablecoins, synthetic assets, liquidity mining, decentralized pricing oracles, and many more. DEXs also allow for greater interoperability between different DeFi building blocks, whether applications or protocols, unlocking entirely new commercial opportunities. In addition, DEXs can provide access to the long tail of digital assets that may be lacking sufficient liquidity or lack initial regulatory clarity for admission on a conventional CEX.

Furthermore, DEXs enable us to rethink traditional trade execution models. We can move away from conventional central limit order books (CLOBs) toward AMM models.

## From theory to reality/action

A key difference between AMMs and CLOBs is the price formation mechanism. The theory behind AMMs is based on game theory and behavioral economics. Unlike a CLOB model that collates and centrally displays prices at which buyers and sellers wish to trade, an AMM aggregates liquidity for both sides of a trading pair – demand and supply – into a single pool, and determines a single market price according to a deterministic algorithm with the pricing formula based on the current liquidity of the pool or the availability of an asset in the common liquidity pool. Hence, AMMs

do not require market makers. Instead, they rely on liquidity providers to join the pool and expand their size to ensure that the transactions are executed at a fair price.

DeFi is creating notable economic opportunities for borrowers, lenders, buyers and sellers in the financial ecosystem. However, there are significant challenges before institutional DeFi adoption takes place, especially concerning regulatory uncertainty; a lack of transparency around governance and operating models; and risks associated with smart contracts (including their potential lack of legal certainty and recourse). DeFi regulation is on the rise globally, and we expect to see further developments in this space into 2022.

Accordingly, market participants need to undertake their own due diligence and risk analysis to determine which DeFi protocols are likely to comply with, or be in breach of, respective local securities and payments regulations.

Even in the face of greater regulatory clarity, there are other hurdles to overcome before institutional adoption becomes widespread. Technical challenges include a lack of scalability and asset interoperability. Furthermore, overcollateralized loans and a lack of price discovery on smart-contract controlled liquidity pools present significant risks for financial institutions seeking to participate on DeFi systems.

However, temporary complexity across the DeFi landscape can also offer commercial opportunities for organizations that can provide advice and act as a gateway into the emerging DeFi finance space.

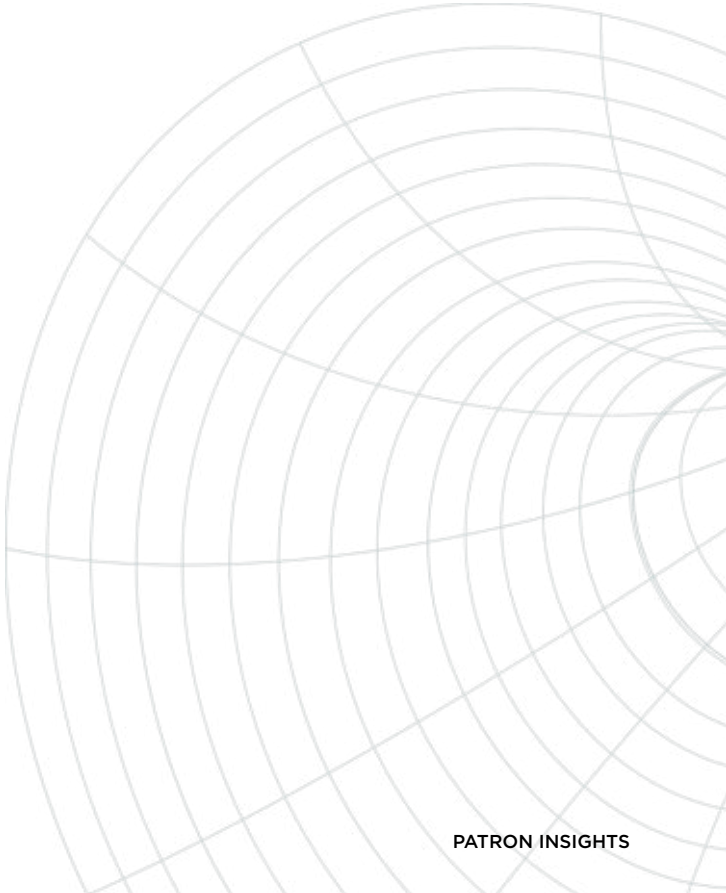
## Ready for prime time?

We see a number of key drivers for greater institutional adoption of DeFi. First, the chase for yield. Investors are always on the hunt for yield or searching for an 'edge' that will enable them to generate Alpha. The strong historical performance of crypto means funds focused on digital assets have returned as much as 145% year to date (YTD). However, returns ought to be commensurate with risks incurred.

Second, DeFi investment opportunities are plentiful and cover a range of risk/return constellations. Thus, they provide a plethora of investment and yield opportunities across a broad spectrum of risk appetite combinations. This should be attractive to a wide investor base, particularly while low interest rates prevail.

Third, crypto can bring diversification to traditional investment portfolios since cryptocurrencies and DeFi investments are largely uncorrelated from equity and fixed income, and offer a better risk/reward profile.

More than this, DeFi may provide the building blocks for true innovation in business models. It provides a platform for net new revenue generation beyond the traditional domain of 'faster, better, cheaper'. ■



# The Bridge Between Traditional Finance and Digital Assets

**Rene Michau**
Global Head, Digital Assets
**Standard Chartered**

Digital asset infrastructure is an immediate disruption threat to traditional finance business models, but it also presents significant opportunities. 2021 will be considered a watershed year for digital assets with the mainstream adoption of non fungible tokens (NFTs), the proliferation of central bank digital currency (CBDC) projects and the shift to institutional adoption of digital assets.

Institutional adoption is not only focussed on the use of blockchain to improve market efficiency and offer different structures for assets but there is pervasive interest in cryptocurrencies and in finding safe and appropriate paths to diversify into this asset class. Digital assets remain an important part of currency and infrastructure reforms with significant progress being made by central banks on their CBDC initiatives. Digital assets are becoming increasingly important in the fight against climate change, particularly as they relate to scaling large geographically dispersed solutions to meet this challenge.

## Traditional finance embraces digital assets

Several major U.S. and European banks have established digital assets units, appointed senior leaders to lead the strategy, and some have announced cryptocurrency investment offerings, predominantly focussed on bitcoin and ethereum. This represents a market shift in the institutional approach to digital assets.

This is also supported by ongoing investment by banks into digital asset companies: according to Blockdata in August 2021, 13 of the world's largest banks have invested approximately $3 billion in digital asset companies to date, with Standard Chartered leading the list in terms of valuation of funding rounds. We consider digital assets to be an important and permanent part of the future of financial services and we are working with our clients to provide safe and well managed access to digital assets. There is considerable work to do to ensure that the market infrastructure is in place to meet the demands of institutional investors.

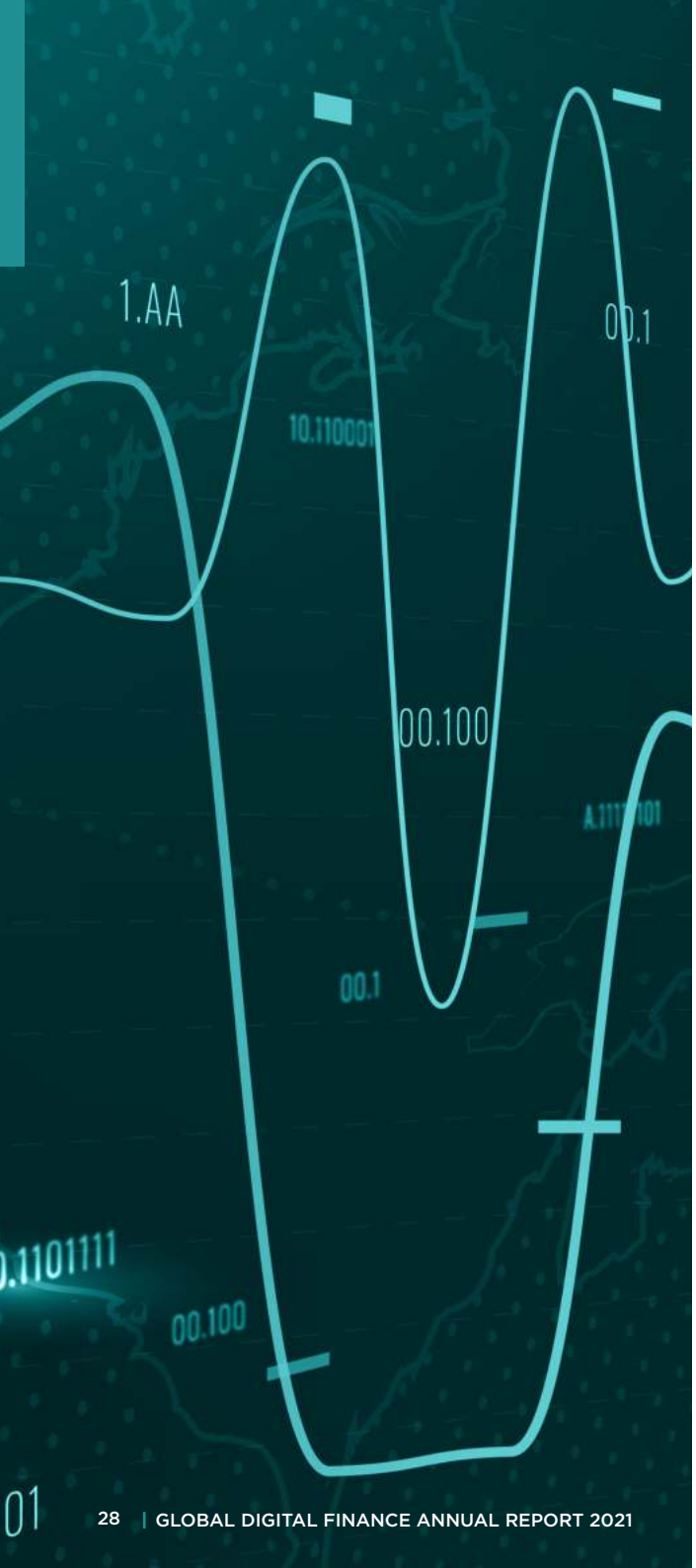
In collaboration with GDF and its members, we are mobilising the global financial institutions (FIs) Cryptoasset Working Group to develop an industry-led case for the development of the world's first global FI cryptoasset code which aims to establish best practices for the wholesale crypto market, focused on brokerage, settlement, custody, and derivatives. This working group will draw on the experience of traditional financial institutions and established firms in the cryptocurrency ecosystem to leverage the best approaches and solutions.

> "The questions of whether or not digital assets will disrupt traditional finance are now distant echoes"

## Industry collaboration and partnerships are crucial to the transformation of financial services infrastructure

Collaboration across the industry between regulators, central banks, commercial banks, fintechs, other ecosystem participants is important to ensure financial stability, tap the potential of digital assets and build the bridge between traditional finance and the emerging digital asset economy. This is also true in the transformation of financial services infrastructure.

The fact that multiple central banks have announced they are investigating or developing CBDCs is a testament to the integration of blockchain technology in the wider global financial ecosystem. The 2021 Bank of International Settlements (BIS) survey of central banks found that 86% are actively researching the potential for CBDCs, 60% were experimenting with the technology and 14% were deploying pilot projects. In 2021, 27 Central Banks announced research, proof-of-concepts, and pilots for CBDCs. Standard Chartered continues to collaborate with the central banks across our footprint in the development of CBDC solutions and with other industry participants on initiatives to improve the financial services infrastructure.




## Digital assets in the race to net zero: beyond the basics

Many new applications of digital asset infrastructure are emerging, but perhaps none is more important than the fight against climate change. A key focus of the UN Climate Change Conference (COP 26) this year was verified carbon measurement and credentialing. Several industry initiatives showcased digital asset solutions to address these challenges, many utilizing the same underlying technologies as NFTs. Digital assets are already enabling decarbonization through efficiency, traceability, and transparency – bringing a single source of truth from carbon project initiation to retirement of the carbon credits. This supports the effectiveness of voluntary carbon markets which in turn is supporting the acceleration of industries moving to net zero.

At Standard Chartered, we created Climate Impact X (CIX), a global carbon exchange that allows participants to buy and sell carbon credits, in a joint venture with DBS Bank, Singapore Exchange, and Temasek. We are committed to reaching net zero at Standard Chartered by 2050 and will work with our clients to achieve this.

## Parting thoughts

The questions of whether or not digital assets will disrupt traditional finance are now distant echoes. 2021 has set the stage for institutional participation and for banks to be experimenting with new business models to support clients with safe and specific access to digital assets. Work has commenced on developing best practices for an open and effective market and central banks are building new infrastructure which will assist this.

As we look forward to 2022 we will need to work together to tackle the biggest challenges and to make the most of the digital asset-enabled opportunities to tackle climate change by reaching net zero, to improve financial services infrastructure and improve transparency and efficiency. ■

# GLOBAL POLICY AND AGENCY INSIGHTS

# Fear, Uncertainty, and Doubt

**Hester M. Peirce**
Commissioner
**U.S. Securities and Exchange Commission**

*The views expressed are the author's own and not necessarily those of the Commission or her fellow Commissioners.*

Fear, uncertainty, and doubt are the hallmarks of the regulatory approach to crypto. Fear of crypto's potential effects on the legacy financial system and limitations on the ability to regulate. Uncertainty about how crypto and applications built on top of it work. Doubt about crypto's potential to benefit society. The government's response to crypto is similar to its response to past innovations, as illustrated by Matt Ridley in *How Innovation Works*. Ridley describes, for example, the fear, uncertainty, and doubt that swirled around 17th century coffee, including the purported link between coffee – the drinking of which took place in coffee houses that brought lots of people together – and the spread of political discontent. While understandable, fear, uncertainty, and doubt have clouded regulators' ability to set reasonable rules around crypto.

> **"Regulators should be reluctant to stand in the way of technologies people find valuable and enjoyable. What we need is well-grounded, fact-based policies"**

2022 offers a fresh opportunity to rethink the regulatory approach. My prescription for that rethink is three-fold:

1. Seek to understand why the people you serve value crypto
2. Learn how the technology works or hire people who already understand it
3. Focus on flexibly achieving worthy regulatory objectives

First, understanding why people care about crypto can help to overcome regulatory fear, uncertainty, and doubt. After all, regulators serve the people, not the other way around. Regulators should be reluctant to stand in the way of technologies people find valuable and enjoyable. What we need is well-grounded, fact-based policies that benefited from a transparent rulemaking process. Some of crypto's draw is undoubtedly a desire (often not realized) to get rich quickly and effortlessly. But crypto opens up a range of new possibilities that could transform our society: the ability to transact without intermediary institutions on terms that are transparent and uniformly applied; seamless, quick, and inexpensive value transfers; new ways for artists and other creators to monetize their work; alternative ways to store value; and new, less centralized structures for coordinating human activity. These benefits matter to people so they should also matter to regulators.

Second, understanding the technology can help regulators appropriately think about its risks and opportunities. Learning about crypto and hiring people who know the technology can help regulators to objectively assess crypto's societal costs and benefits. Educated regulators will not get distracted by unwarranted fears, but will be able to focus on identifying and addressing any real risks with the new technology.

Third, in devising solutions to problems they identify, regulators should strive to achieve regulatory objectives without insisting on traditional mechanisms for doing so. Regulatory mechanisms that work in traditional finance may not further regulatory objectives when applied to crypto or could undercut the advantages crypto offers. Crypto – given its disintermediation, transparency, and agnosticism to the identity of the user – inherently addresses some of the problems that regulators have tried to solve in traditional finance. Government regulators may be able to rely on the technology itself to achieve certain regulatory objectives. Achieving other regulatory objectives, such as eliminating information asymmetries at the time of the initial token sale or ensuring safe custody of client assets, might require adding flexibility to existing rules or offering safe harbors designed with the technology in mind.

Regulators got over their aversion to coffee and one day may likewise learn to appreciate crypto. Whether it is coffee or crypto, the government's approach should embody an openness to innovation, a clear-eyed assessment of risks, and a willingness to adapt regulatory mechanisms to ensure that regulatory objectives are achieved sensibly. ■


*Global Leaders Webinar with SEC Commissioner Hester Peirce*

# The First Ever EU-Wide Regulatory Sandbox

**Eva Kaili**
Vice President
**European Parliament**

*Europe will be the first jurisdiction running an EU-wide regulatory sandbox to test DLT financial instruments and DLT market infrastructures*

2021 is over; a year full of multifaceted challenges for Europe, like all jurisdictions worldwide. It was a milestone year for Europe's transformative policymaking agenda, having welcomed the interinstitutional agreement on the Pilot Regime Regulation (PRR) for market infrastructures using distributed ledger technology (DLT); the first of four proposals included in the European Commission's digital finance package, which covers a pilot regime for DLT market infrastructures in the form of regulation.

In practice, the importance of the agreement on the DLT PRR translates to the implementation of the first ever EU-wide regulatory sandbox that will allow licensed DLT market infrastructures to test asset tokenization, in the form of the envisaged eligible DLT financial instruments. This sandbox, which is expected to have unique benefits to the European Digital Single Market, will support responsible innovation while guaranteeing legal certainty, consumer and investor protection, market integrity, and financial stability.

What is unique is the unprecedented consensus between the Parliament, the Commission, and the Council that it is time for Europe to transform its financial services market to make it more digital and technology friendly, less fragmented, and promote the competition between financial service providers in the European Union, both incumbents and new entrants.

## Uniform framework

Some member states have already successfully tested a number of DLT-bond pilot projects under their custom national legal framework. As the 27 member states possess a different level of digital maturity and technology savviness, the agreement to adopt a uniform European legal framework that will eventually replace their national ones, supporting a strong European Digital Single Market, was a bold one.

With regards to the negotiation procedure, it proved to be a challenge. We assessed the dossier as manageable in volume, compared to other pieces of legislation. However, we quickly realized its technical specificities and complexities, as well as the challenges presented by the envisaged exemptions from the MiFID II/R and the Central Securities Depositories Regulation (CSDR). These exemptions, envisaged to be granted during the licensing procedure to both incumbents and new entrants, were linked to all the other elements of the dossier at multiple levels.

The key challenges included determining the eligible DLT financial instruments; thresholds; type and size of risk assumed by DLT market infrastructures; safeguards for each exemption provided; combined financial

> **"The unprecedented consensus between the Parliament, the Commission, and the Council that it is time for Europe to transform its financial services market to make it more digital and technology friendly"**

services where they used to be unbundled in traditional financial markets; enhanced level of consumer and investor protection needed; role of the European Securities and Markets Authority (ESMA) and the cooperation of the 27 National Supervisory Authorities (NSAs) and ESMA in the licensing; and the supervision and enforcement of the DLT PRR critical to ensure supervisory convergence and homogeneity in a market that knows no borders.

## Golden ratio

However, this is unique. We eventually achieved the golden ratio that will allow this pilot to operate within a framework guaranteeing legal certainty and transparency, respecting incumbents and new entrants without exclusions and protectionism, and with the freedom to operate within the EU under the envisaged "passport".

But there is more to it. One of the most significant outcomes of the DLT PRR is the positive effect on the cost-efficient financing of start-ups and SMEs. The cost savings achieved by DLT technology are of particular value for these entities, as many facing funding difficulties cannot resort to bank lending, nor raise capital through the traditional capital markets due to the high costs entailed. The DLT sandbox will offer them a less costly solution, while providing them with the benefit to be financed by an EU-wide pool of investors, beyond the limits of their national market.

Turning to the big picture for Europe, the legal certainty of the DLT PRR is expected to bring many benefits to the Digital Single Market, for example, by attracting innovative companies with a global presence who are looking for regulatory clarity and to avoid the risks of "enforcement surprises". These companies, beyond moving their headquarters to the EU, are expected to transfer their valuable know-how in asset tokenization and the deployment of DLT in financial services. This allows the NSAs and ESMA to gain experience that will translate into the creation and development of state-of-the-art primary and secondary markets for tokenized assets, new business models and jobs, and the adoption of SupTech in the exercise of supervisory work.

In conclusion, the DLT PRR will push Europe in the right direction, into what it has witnessed happening in other jurisdictions' financial sectors but did not want to adopt without providing for legal certainty. ■

# Virtual Assets: Risks and Regulation

**Vincent Schmoll**
Acting Executive Secretary
**Financial Action Task Force (FATF)**

In 2021, virtual assets continued to grow and increase in popularity. But many of the features of virtual assets that make them attractive to individuals and businesses – like their potential for anonymity, transaction speed and global reach – also make them attractive to criminals and terrorists. To address these risks, it is critical that countries effectively implement the Financial Action Task Force's (FATF) global anti-money laundering Standards.

Effective regulation is key to mitigating risks, enabling growth and facilitating mainstream adoption of financial innovations. The FATF has been one of the leaders in regulating virtual assets, issuing the first binding global standards in 2019. Since then, we have continued to focus on the rapidly-changing virtual assets sector. Unfortunately, criminals and terrorists have continued to use virtual assets. As set out in the FATF's second 12-month review report, 2021 saw a large increase in the use of virtual assets for ransomware payments and in online fraud. The rise in ransomware attacks is particularly concerning, as such attacks can target governments, schools, hospitals, and critical infrastructure providers.

A key step toward stopping criminals and terrorists from being able to misuse virtual assets is the implementation of strong anti-money laundering controls. In the two years since the FATF introduced its Standards on virtual assets, we have seen progress in implementation. In our second 12-month review, 58 out of 128 jurisdictions reported having the necessary legislation in place for virtual assets and their service providers. However, the review also showed that there is still a long way to go before we have an effective global regulatory regime. All countries need to effectively implement the FATF Standards. This goes beyond just passing legislation. Countries need to ensure that their authorities have the skills, resources and technology to regulate virtual assets in practice, rather than just on paper. Importantly, virtual assets service providers also need to understand the risks they face and take action to mitigate them.


*Watch the FATF guidance webinar here*

A key measure in the FATF's regulatory framework for virtual assets is the Travel Rule. This rule calls on regulated businesses to collect and share customer data for certain transactions. This essential control against terrorism financing is one that other regulated financial institutions are already expected to comply with. Implementation of the Travel Rule has required the development of technical solutions to enable the safe and secure transfer of this data. All countries need to introduce Travel Rule requirements as soon as possible to foster and hasten development of these solutions. Clear action from countries will provide the incentive for businesses to comply and to invest.

In October 2021, the FATF released updated guidance outlining how governments and companies can implement the FATF Standards relating to virtual assets. The guidance clarifies which businesses are regulated under the FATF Standards, details how to register and license virtual asset service providers and gives direction on how to implement the Travel Rule in practice. It also sets out the FATF's views on how to mitigate the money laundering and terrorist financing risks associated with some of the biggest recent developments in the virtual assets ecosystem, including decentralized finance (DeFi), non-fungible tokens, stablecoins, peer-to-peer transactions, and initial coin offerings.

The growth of DeFi has been a particularly important trend over the past couple of years. Governments need to engage with their DeFi communities and understand the money laundering and terrorist financing risks they face. Virtual assets service providers in DeFi arrangements also need to understand their risks and implement effective controls. This can be a challenge in DeFi arrangements, where there may not be a clear central intermediary. Nonetheless, authorities should not regulate based on terminology alone. They should seek to understand who is behind DeFi arrangements and identify the individuals with control or sufficient influence over DeFi protocols who could be responsible for implementing anti-money laundering controls.

2021 has been another big year in the world of virtual assets, for governments, businesses and individual users. As this sector continues to mature and become more mainstream, governments and the private sector need to take the risks seriously and ensure they have effective anti-money laundering controls. Because of rapid change in the virtual assets area, continued dialog between the public and private sectors is critical. In the year ahead, the FATF will remain vigilant to how virtual asset systems evolve, identify any emerging risks, and take action as necessary. ■

# Cryptoassets and Enhancing Cross-Border Payments

**Rupert Thorne**
Deputy Secretary-General
**Financial Stability Board (FSB)**

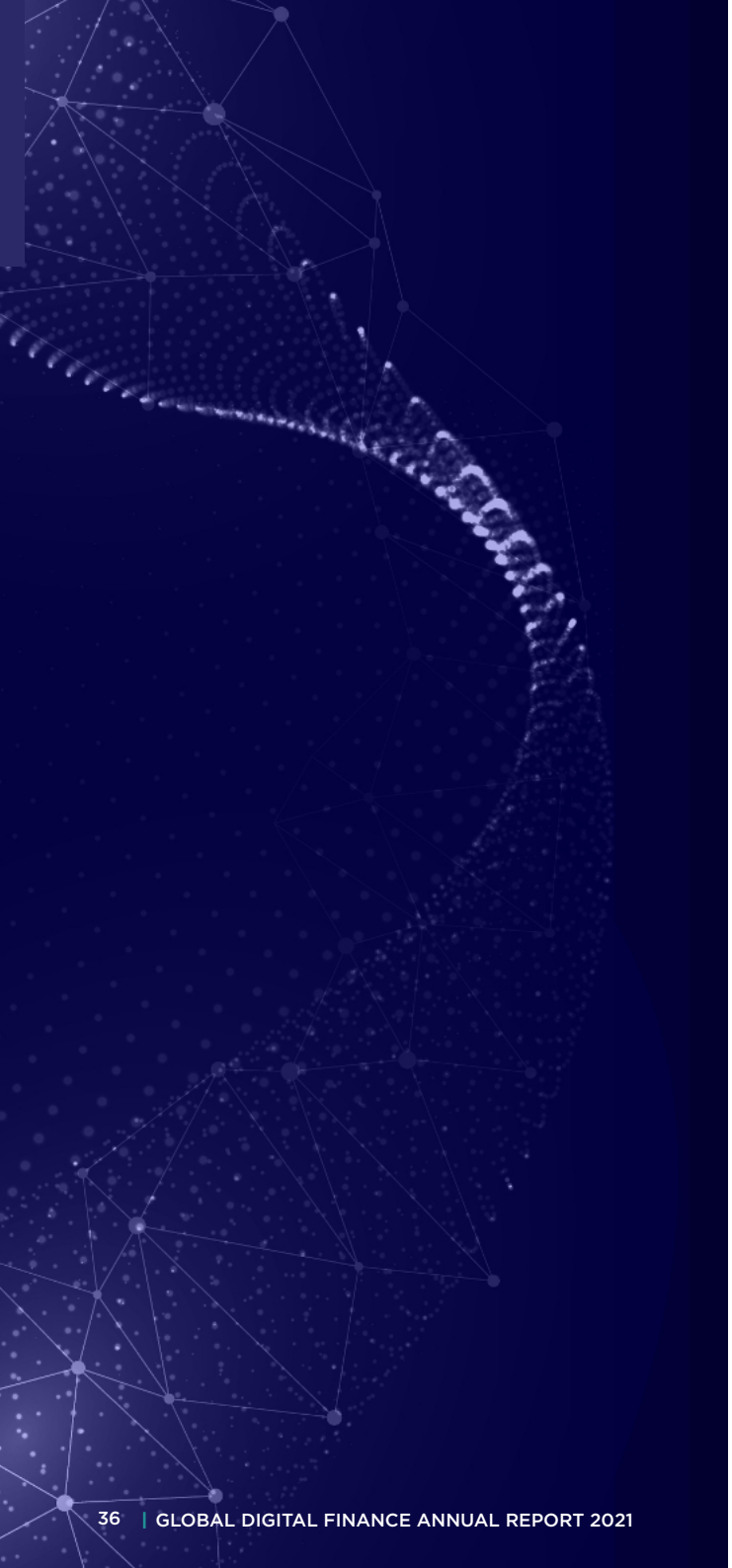
Recent advances in technology and innovation, and the growth in the use of digital financial services and payments during COVID-19, have reinforced the need to assess the financial stability implications of financial innovation. These advances have also created the potential for new payment infrastructures and arrangements, which are a key focus area of the FSB's G20 Roadmap for enhancing cross-border payments published in October 2020, shortly before the global pandemic began.

Cryptoassets in their various forms present challenges for regulatory, supervisory, oversight, and enforcement authorities. Cryptoassets generally fall into two categories: unbacked cryptoassets and stablecoins. Unbacked cryptoassets currently represent a small proportion of total financial assets and are not widely used in the real economy. However, interconnections between cryptoasset markets and traditional financial services are growing, the total market value of cryptoassets has increased dramatically over the past year, and price volatility continues to be high. For reasons such as these, FSB members have emphasized the growing vulnerabilities for the financial system from the use of cryptoassets. The FSB will provide an updated assessment of the financial stability implications of cryptoassets to the G20 in February this year.

So called stablecoins are an attempt to address the high volatility of unbacked cryptoassets by tying the stablecoin's value to one or more assets, such as sovereign currencies. They have the potential to enhance the efficiency of payments and other financial services and to promote financial inclusion, but may also pose risks to financial stability, particularly if they are adopted at a significant scale.

A widely adopted stablecoin with a potential reach and use across multiple jurisdictions (a "global stablecoin") could become systemically important in and across jurisdictions, including as a means of making payments. Yet, despite a recent increase in the use of existing stablecoin arrangements, the functions they perform remain limited. They are typically a by-product of demand for, and investments in, speculative cryptoassets, and are not yet being used for mainstream payments on a significant scale. However, it is possible that one or more stablecoins may evolve over time and could have the potential to expand reach and adoption across multiple jurisdictions, posing greater risks to financial stability than existing stablecoins and challenging the comprehensiveness and effectiveness of existing regulatory and supervisory oversight approaches.

The FSB has been tracking progress on the implementation of its 10 high-level recommendations that seek to promote coordinated and effective regulation, supervision and oversight of global stablecoin arrangements to address the financial



stability risks they pose, both at the domestic and international level, while supporting responsible innovation and providing sufficient flexibility for jurisdictions to implement domestic approaches. In October 2021, we published a progress report which identifies several issues relating to the implementation of the recommendations that may warrant further consideration and where further work at international level could be useful. These include: conditions for qualifying a stablecoin as a "global stablecoin", prudential, investor protection and other requirements for issuers, custodians and providers of other global stablecoin functions (e.g. wallet providers); redemption rights; cross-border and cross-sectoral cooperation and coordination; and mutual recognition and deference.

The FSB will undertake a review of its stablecoin recommendations, in consultation with other standard-setting bodies and international organizations. The review, which will be completed in July 2023, will identify how any gaps could be addressed by existing frameworks and will lead to the update of the FSB's recommendations if needed.

The work to foster the soundness of "global stablecoins" is one of the building blocks of the FSB's Roadmap for enhancing cross-border payments, endorsed by the G20. So far, the FSB has primarily focused on laying the foundational elements of future Roadmap actions, including the publication of specific global quantitative targets that address the challenges of cost, speed, transparency, and access that cross-border payments face. Progress toward meeting these targets will be monitored and publicly reported over time.

The Roadmap is designed to allow for flexibility and adaptation in the path to get there as the work progresses and the cross-border payment landscape evolves. It therefore encompasses a variety of approaches and time horizons, in order to achieve practical improvements in the shorter term while acknowledging that other initiatives will need to be implemented over longer time periods. It seeks both to enhance the existing payments ecosystem, and to explore emerging payment infrastructures and arrangements. Making these practical improvements and taking advantage of new developments will require global coordination and sustained political support. It will also require investment in systems, processes and technologies.

The success of this work will depend heavily on the commitment of public authorities and the private sector, working together to implement the agreed changes in the coming years and to achieve the targets that have been set for the Roadmap. ■

# Digital Money and the International Monetary System

**Dong He**
Deputy Director, Monetary and Capital Markets Department
**International Monetary Fund**

*This article represents the views of the author, not those of the IMF.*

International Monetary Fund (IMF) staff picked up speed in analyzing the implications of digital money for the international monetary system (IMS) in 2021. Questions include:

- Is the impact of digital money on the IMS more likely to be evolutionary or revolutionary?
- How can we foster greater integration and efficiency of international payments, and avoid fragmentation?
- What are the macro-financial risks of using digital money across borders? How can we ensure that the IMS will remain stable as the adoption of digital money becomes widespread?

The impact of digital money is likely to be significant. It could be disruptive and revolutionary for certain parts of the financial system and for certain countries. However, for the financial system and the IMS as a whole, the impact would likely be more evolutionary than revolutionary. For example, for countries that have a large unbanked population, adoption of digital money could prove to be revolutionary, in the sense that those citizens will likely be able to benefit from payments and other financial services unavailable to them in the past.

Cross-border payments could be another area where fundamental changes are likely to take place. Because digital money can be transferred over a peer-to-peer system operating around the clock, their use flattens the multi-layered correspondent banking structure, shortens the payment chains, reduces transaction time, and facilitates increased competition amongst service providers.

That said, international use of currencies is determined by a host of factors. Traditionally, safety, liquidity, trade links, financial connections, and geopolitical factors explain why some currencies are used disproportionately as reserve currencies. On their own central bank digital currencies (CBDCs) are not likely to fundamentally change the current international monetary landscape. Technology is only one of the factors in shaping the IMS, although it could be an increasingly important one.

## At a crossroads

As the speed and degree of adoption of CBDCs and other private digital money will likely differ across different parts of the world, the risk of a global digital divide and fragmentation is significant. Indeed, the IMS stands at a crossroads between integration and fragmentation.

A global digital divide is not just technological: some countries have access to infrastructure and are at the cutting edge of developments, while others are left behind. It is also about countries not having the capacity to regulate digital money properly.

Regional settlement arrangements could proliferate, driven by countries' desire for autonomous and direct settlement. But these arrangements and choice of technologies could limit currency convertibility internationally.

> **"A more multipolar IMS could ultimately be safer and more efficient, yet more unstable in the transition"**

Moreover, as digital money is traded across borders, so is information. As a result, privacy protection also becomes an important policy issue. To protect that information and build trust in cross-border payment systems we will need international cooperation.

## Currency substitutes

Nevertheless, opportunities exist. Digital money could be leveraged to foster integration. Interoperability of digital forms of money is desirable for a multilateral IMS, though it is not straightforward. While there seem to be important efficiency gains from using CBDCs and other forms of digital money for cross-border payments, there will be side effects to their use on an international level.

Digital money could lead to currency substitution, especially in countries with high inflation and volatile exchange rates. Currency substitution could be exacerbated by the lower costs of obtaining, storing, and spending digital money. Indeed, this is not a potential or remote risk – some countries are already seeing signs of currency substitution by cryptoassets.

As we know from decades of experience, the best defense against currency substitution is to strengthen domestic monetary policy frameworks and credibility. But countries are already asking what additional measures they can adopt. Questions also touch on the policy desirability and appropriateness of imposing restrictions on cross-border transactions in digital money.

More broadly, multiple aspects of the IMS are likely to be impacted by the widespread adoption of digital money, including the structure of financial intermediation, volume and volatility of capital flows, and the global safety net. For example, the digitalization of money may accelerate changes to the configuration of reserve currencies. Regional patterns, where geopolitical forces are stronger or payment arrangements more binding, may evolve more rapidly than at the global level. A more multipolar IMS could ultimately be safer and more efficient, yet more unstable in the transition as investors rebalance official foreign reserve portfolios.

The IMF was established to promote global monetary and financial stability through international cooperation. To serve the needs and interests of member countries in the area of digital money, the Fund would need to adapt and strengthen its main activities. Ultimately, the Fund would aim to be an objective and constructive advisor in surveillance, and a trusted partner in capacity development. In support of that, the Fund would strive to be a thought leader in policy development. ■

# Navigating Decentralized Finance Regulation

**Iota Nassr**
Policy Analyst, Directorate for Financial and Enterprise Affairs
**Organization for Economic Co-operation and Development (OECD)**

Decentralized finance or 'DeFi' is the latest development in the cryptoasset space, and looks to replicate traditional finance in an open, decentralized, permissionless, and autonomous way. The DeFi market started making headlines in the summer of 2020, otherwise called 'the DeFi summer' and has since grown 50-fold, albeit from a very low base. The total value of cryptoassets locked in DeFi applications built on the Ethereum blockchain reached $100 billion as of November 2021.

There are two significant misconceptions when it comes to DeFi: first, not all distributed ledger technology (DLT)-based financial applications are DeFi. Key defining features of DeFi projects include composability, a non-custodial nature, community-driven governance, absence of admin keys and, of course, their operation in public permissionless chains. Second, not all self-proclaimed DeFi projects are truly decentralized. Given the recent hype around DeFi, many start-ups and projects arbitrarily market themselves as DeFi without being truly "decentralized". The degree of decentralization of DLT-based applications varies from one project to another and may depend on the stage of development of the application: centralized projects at the inception/software development phase can become increasingly decentralized as these are being deployed and shared with the community of users.

Having done extensive work around tokenization, it was natural for the OECD Committee on Financial Markets and its Experts Group on Finance and Digitalization to delve into the DeFi market early on, when it started making headlines about a year ago. Why did we think that this market is interesting, despite its relatively small size?

First, because of the speed of its development and the feedback loops with the wider cryptoasset market, a highly volatile space that reached $3 trillion in market cap in November 2021. DeFi has been attracting an increasing number of retail and institutional investors in an environment that lacks any of the traditional safeguards for investor protection and market integrity, giving rise to risks that call for policy consideration and potential action.

The risk of money laundering given the pseudonymity prevailing in DeFi, new forms of concentration risks, but also the provision of financial services in a non-compliant manner for parts of the DeFi market exposes participants and the markets to risks related to market integrity and consumer protection. The increasing use of leverage – one of the most significant drivers of this market – and the extreme volatility of these crypto assets intensify vulnerabilities related to these markets.

At the same time, increasing institutional investor interest in, and adoption of, digital assets, and the mainstreaming of cryptoassets is making the boundaries between DeFi and CeFi more porous. Increased interconnectedness between the two environments may give rise to potential risks of spillovers to major financial markets and the real economy. The widespread use of stablecoins within DeFi protocols further increases interconnectedness between the market for such protocols and the traditional financial markets and could constitute one of the greatest points of vulnerability of the DeFi market and a potential channel of risk transmission to the traditional financial markets.

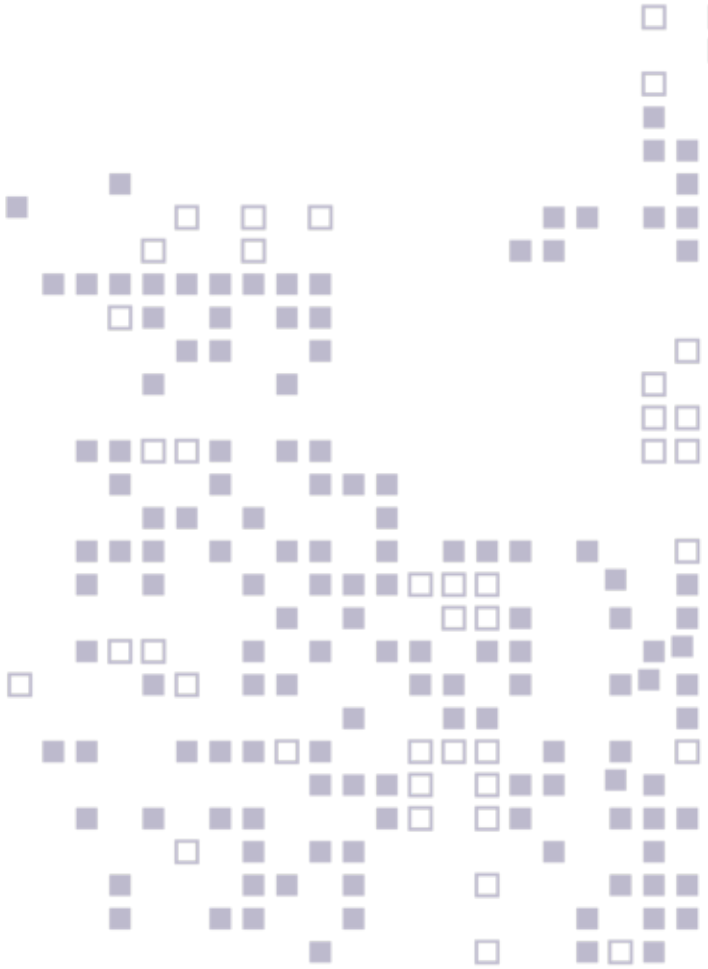
> **“Despite the long list of risks involved in DeFi, the level of innovation is tremendous”**

One of the biggest puzzles for policymakers is the absence of a single regulatory/supervisory access point in decentralized networks. The global reach and operation of DeFi networks further obstructs oversight and regulatory compliance as protocols have no defined jurisdiction or geographical location for their operations. This calls for greater international policy collaboration in order to prevent regulatory arbitrage and overcome such challenges at the cross-border level. What is equally important is to promote, more than ever, an interdisciplinary dialog that includes all stakeholders involved in the DeFi ecosystem, including software developers and/or engineers.

Nevertheless, despite the long list of risks involved in DeFi, the level of innovation is tremendous, and it is remarkable that DeFi protocols stood the test of recent cryptoasset market downturns without any failings. DeFi pushes the boundaries of finance and impels us to consider what value decentralization or the use of DLTs can bring to investors, consumers, traditional financial market infrastructure and the existing processes of delivering financial products and services.

Notwithstanding its shortcomings, DeFi is fuelling innovation and leading us to rethink traditional finance and explore ways to improve the current construct. Through its Blockchain Policy Centre and its Committee on Financial Markets, the OECD is committed to promoting international cooperation and collaboration around this area, ensuring DLT develops in a way that supports fair and efficient financial markets and, by extension, better lives. ■

*Read the OECD’s report on DeFi and Policy Implications here*



# Embracing Technology for Better Supervision of Digital Assets

**Emmanuel Givanakis**
CEO of FSRA
**Abu Dhabi Global Market (ADGM)**

As a technology-inclusive regulator, the Financial Services Regulatory Authority (FSRA) of Abu Dhabi Global Market (ADGM) supports financial institutions' undertaking of innovative channels for delivering financial services. These channels can improve financial outcomes for customers, but also pose a greater variety and complexity of risks due to their reliance on newer types of enabling technologies. In this regard, the FSRA regularly explores new technology and capabilities, so that it can ensure effective supervision of the industry as it continues to evolve.

Digital assets are a key example of these innovative channels. ADGM believes that by improving the efficiency of capital allocation and economic transactions, digital assets can help speed the UAE's transformation to a digital economy. To further this goal, in 2018, ADGM introduced a comprehensive regulatory framework for digital assets, including virtual assets, digital securities, and stablecoins. The framework sets out stringent requirements for digital asset firms in areas including anti-money laundering (AML) / counter terrorism financing (CTF), consumer protection, safe custody of client assets, technology governance, and market integrity. The regulatory certainty provided by this framework has fostered a budding digital asset ecosystem, with more firms receiving financial services permissions to provide trading, custody, and other digital asset-related services.

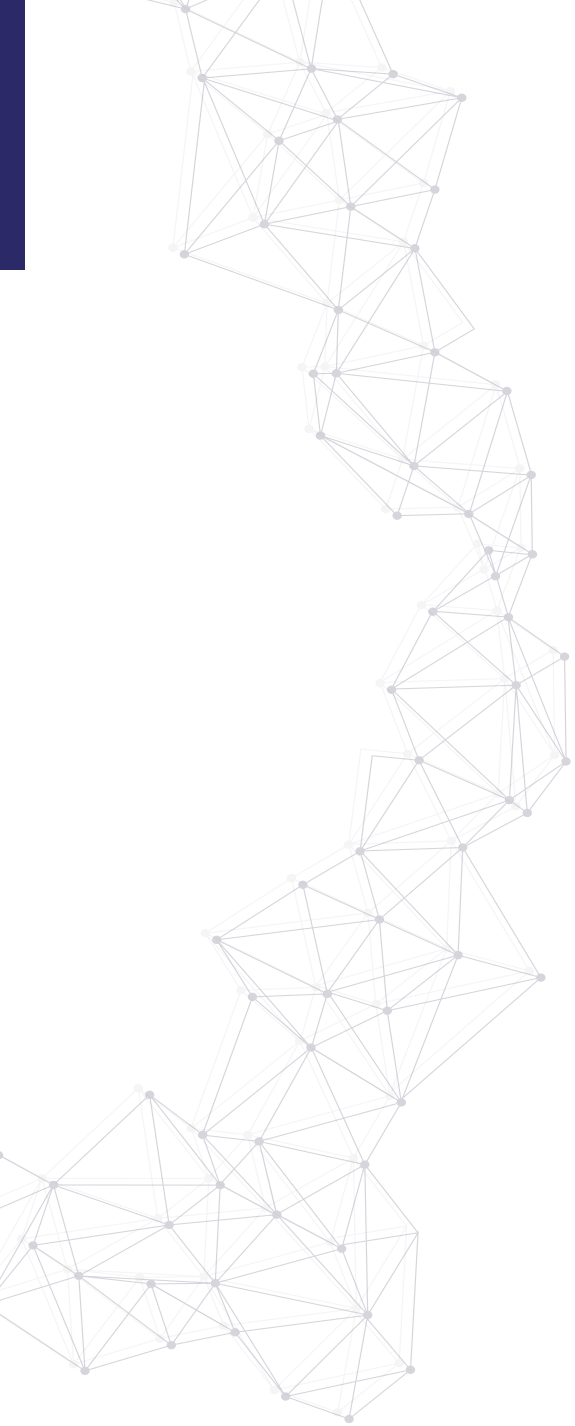
## The Travel Rule

Thanks to this comprehensive digital asset framework, FSRA-regulated firms have been resilient to changes in global regulation. For example, the Financial Action Task Force's (FATF) application of the Travel Rule to virtual assets has not posed a significant challenge within ADGM, as firms are already required to conduct customer due diligence on all persons they do business with. However, FSRA-regulated firms may face challenges in transacting with firms in other jurisdictions where such requirements are new and still evolving.

To this end, we have explored using technical infrastructure to help FSRA-regulated firms comply with the Travel Rule for cross-border transactions. In August 2021, FSRA collaborated with a technology firm focusing on digital asset compliance to conduct a testnet between firms in ADGM and Singapore. Firms executed simulated transfers of virtual assets under different scenarios using the testnet, verifying their compliance processes in a low-risk environment. Learning points from this exercise have helped firms better understand what steps they would need to take to improve compliance.

## Cross-border securities issuance

When raising capital for operations and expansion, companies tend to seek both domestic and international investors. However, cross-border securities



issuance can be prohibitively expensive because each jurisdiction will have different requirements for who is eligible to access these securities. The cost of ensuring compliance with each jurisdiction creates inefficiencies as companies cannot access willing international investors.

FSRA has therefore explored the possibility of using digital assets to unlock these pools of trapped investor capital. Working with a blockchain technology firm, FSRA conducted a proof-of-concept on the use of smart contracts that automatically assess investors' eligibility to participate in securities offerings based on their jurisdiction. The proof-of-concept simulated a concurrent private offering of a security to institutional buyers in both the U.S. and ADGM. Based on this experiment, FSRA believes that digital assets can be appropriately structured to be compliant by design.

## Great promise

There is great promise in the use of technology for regulatory purposes. Digital financial services need digital compliance and supervision to be effective. To that end, in November 2021 we published a report, *Powering The Future of Regulation*, which outlines a number of key use cases on technology enabling better compliance and supervision. As always, FSRA will continue to embrace technology to supervise digital assets more effectively.

In particular, we are building a private blockchain environment utilizing smart contracts within the Digital Lab (FSRA's digital sandbox). Given the evolving technology of smart contracts, the blockchain environment will enable FSRA to explore the risks and issues associated with the deployment and maintenance of smart contracts within the world of decentralized finance (DeFi). This will in turn help FSRA formulate regulatory policies that will enhance its digital asset frameworks further. ■

# GDF ADVOCACY AND OUTREACH

# Hold Your Horses: Crypto Crossing – a Regulatory Outlook

**Jeff Bandman**
Board Member
**GDF**

In July 1922, the City of New York, seeking to balance legacy technology against disruptive innovation, conceived a brilliant compromise. It prohibited motor traffic on the Brooklyn Bridge, which was dedicated to horse-drawn vehicles and pedestrians. Meanwhile, cars could use the newer Manhattan Bridge, which was designated off-limits to the horses.

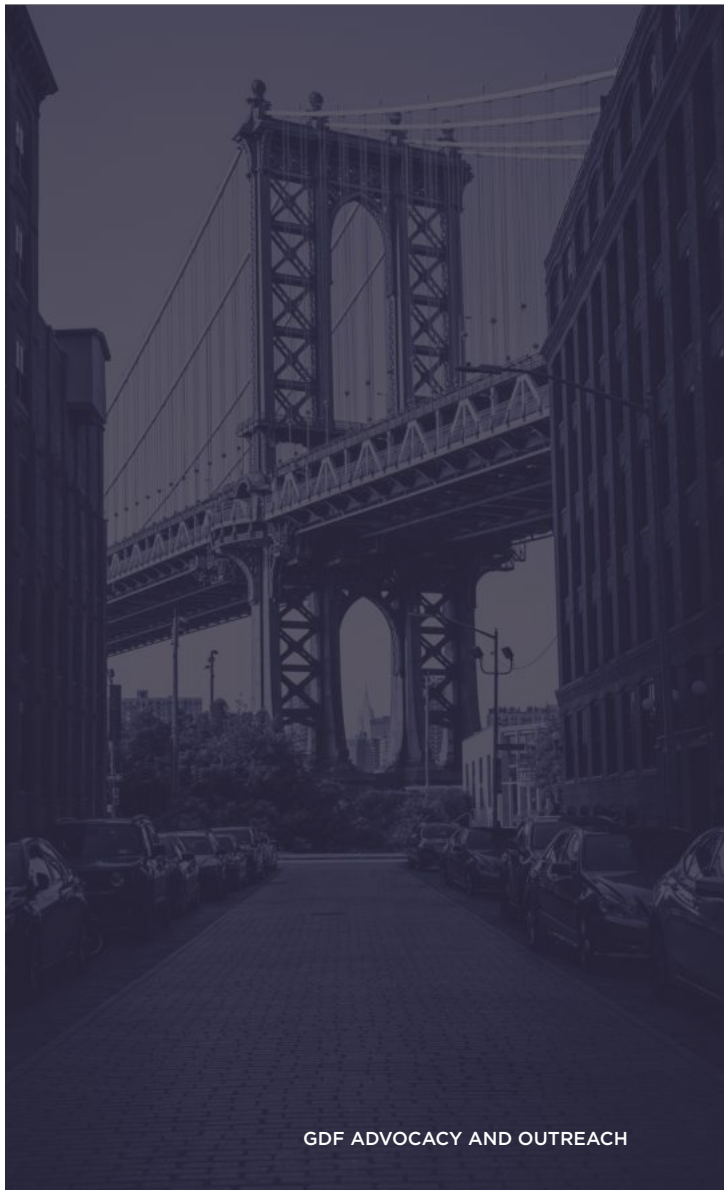
A century later, how are we balancing legacy technology against disruptive innovation? Crypto's road to regulatory certainty took major steps forward in 2021, while 2022 promises to be just as eventful. Europe should see enactment of two major pieces of legislation, stablecoins will stay in the spotlight internationally, and new prudential risk weightings for banks should emerge by midyear. This may be the year we find out if a court agrees with the Securities and Exchange Commission (SEC) that XRP is an offer or sale of a security. Perhaps the most important challenge will be how and whether Web 3.0 can advance alongside U.S. securities regulation and the "Howey Test" toward an open metaverse.

## 2022: The road ahead

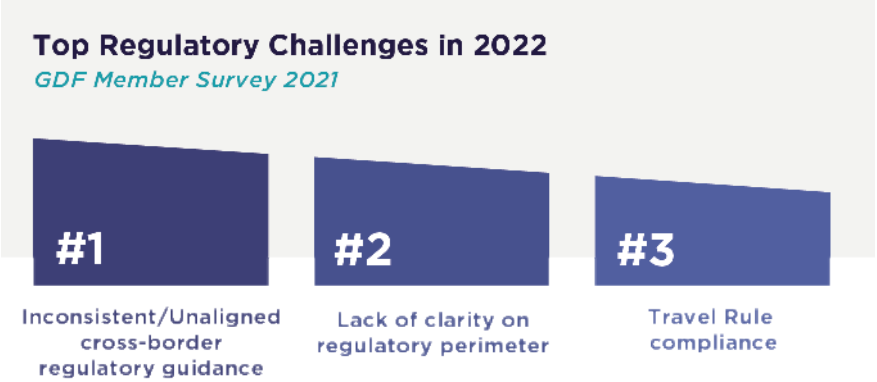
### Europe

In Europe, two major pieces of legislation are on the brink of adoption. Final agreement on MiCAR (the Markets in Crypto Asset Regulation) appears near at hand, and will establish regulatory certainty in the form of licensing and registration of cryptoasset services providers, passporting across the EU, as well as a regulatory framework for varying types of stablecoins, including significant stablecoin arrangements. Even assuming this is enacted in the first half of 2022 under the French presidency, the devil will be in the details of the regulatory technical standards that also need to be established before cryptoasset service providers can start to avail themselves of this framework.

Meanwhile, the DLT Pilot Regime, which had been understood to be lagging behind MiCAR, suddenly accelerated with a political agreement in late 2021 and is expected to enter into force in 2023. The DLT Pilot Regime provides an EU-wide regulatory sandbox for market infrastructures deploying blockchain to operate for a three-year trial period if they meet a set of conditions and oversight, somewhat parallel to a no-action letter in the U.S. This included significant improvements, most importantly that availability of the pilot is not limited to incumbent infrastructures, as had been the case in the initial proposal, and is now available to disruptors. The biggest impact may be in turbocharging tokenization of securities, if central securities depositories (CSDs) supporting blockchain-based digital securities come online. Although the final legislative text is still being agreed, the European Securities and Markets Authority (ESMA) has already launched a call for evidence in support of technical standards it would be responsible for developing.



GDF ADVOCACY AND OUTREACH


## US

Stablecoins have been the subject of intense focus internationally, as well as in the U.S., as the market cap of stablecoins exploded in 2021. GDF's regulator community has indicated that it sees stablecoins as top priority in 2022, while it had been on par with DeFi in 2021. The President's Working Group, comprising independent financial regulatory agencies, issued a report and recommendations in late 2021. Highlights included a requirement that payment stablecoins be issued by regulated and insured depository institutions, and that commercial companies issuing stablecoins through affiliates should be regulated as bank holding companies. The Biden Administration has yet to indicate its position, and we can expect further attention from Congress building on the December 2021 Senate hearings. Meanwhile, Federal Reserve (Fed) Chair Jerome Powell has indicated that stablecoins can coexist with a central bank digital currency (CBDC; though one may wonder whether this will be on separate bridges or rails). The Fed's long awaited report on CBDCs and crypto, made public just as GDF's Annual Report is published, poses many questions for consultation but few answers, and appears to critique the credit and liquidity of stablecoins without taking a definitive position on such coexistence.

The Commodity Futures Trading Commission (CFTC) kicked off 2022 with an enforcement action against a DeFi event contract market known as Blockratize or Polymarket, which it found to be in fact centralized. The SEC should remain in the spotlight. A court decision in the SEC's enforcement action regarding issuance and sale of XRP could be imminent, though highly likely to be appealed regardless of the outcome. Will the SEC find a way to balance the evolution of Web3, where users participate in economics and governance, with the Howey Test in a way that promotes a fundamental challenge to BigTech? Will this be the year the SEC approves a physical bitcoin exchange-traded fund (ETF)?

And will this be the year that Congress enacts legislation designating a federal supervisor of spot (not securities) crypto markets?

## International landscape

At an international level, we can expect to see renewed

Basel Committee on Banking Supervision (BCBS) prudential risk weightings of cryptoassets for banks, promised for June 2022, after these were promulgated in a BCBS consultation and then withdrawn in 2021. On the anti-money laundering (AML) front, perhaps this will be a quieter year from the Financial Action Task Force (FATF), which issued new guidance in late 2021 and may be more focused on the implementation of the 2019 and 2021 guidance rather than promulgate further new guidance in 2022.

## 2021 highlights

China made news by banning crypto mining, as had long been feared. The market impact was surprisingly uneventful, as mining capacity relocated and those who previously feared China's potential outsized impact could breathe more easily.

El Salvador unexpectedly became the first country to make bitcoin an official currency (while announcing a Bitcoin city to be established at the base of a volcano, and backed by bitcoin bonds). Recognition of bitcoin as legal tender played havoc with statutory, legal, and regulatory definitions of payment tokens around the world, as these definitions typically rest on the distinction that payment tokens are not a legal tender or official currency of a country. Parsing this logic, failure to update the legacy definition could put bitcoin outside the statutory, legal or regulatory scope of payment tokens.

A provision on crypto tax reporting in the U.S. Senate Infrastructure Bill, which was enacted in 2021, drew bipartisan attention as vague and overbroad, and was nearly removed with bipartisan majority support but for a procedural technicality. Optimists could point to both this bipartisan support and the projections of $28 billion in tax revenues from the crypto industry over 10 years, suggesting that the U.S. government may now be effectively in partnership with the crypto industry and far less likely to shut it down.

Expectations that the SEC under Chair Gary Gensler might finally approve a physical bitcoin ETF once again came to nought, although the SEC did approve a bitcoin futures-based ETF. The SEC's Commission "no-action" letter providing for a five-year safe harbor for digital asset custody by specialized digital asset broker dealers, issued in December 2020, took effect in spring 2021. This safe harbor seeks to avoid contagion from digital asset broker dealers to the traditional securities sphere, and reminds stakeholders that such digital assets are not eligible for Securities Investor Protection Corporation (SIPC) insurance protection. Such safeguards clearly seek to balance innovation and customer protection.

In the early days of the internet, businesses conceived of their web businesses and their brick-and-mortar businesses as separate and distinct – one memorable example being United Airlines establishing an airline called Ted that you could only book online. Nowadays, of course, businesses view their web presence as integrated with their brick-and-mortar businesses (if they even have one). Eventual adoption and safeguards should likewise promote the breakdown of such digital asset barriers.

Oh, and now you can drive your car across the Brooklyn Bridge. ■

# Mainstreaming of Crypto and Digital Assets: The Next Frontier

**Greg Medcraft**
Board Member
**GDF**

I believe the three major drivers for regulators and policymakers in the next few years will be environmental, social, and governance criteria (ESG), recovery and building resilience from the COVID-19 pandemic, and digitalization.

## ESG

In early November 2021, the International Sustainability Standards Board (ISSB) was established. The first standard will be on climate-related disclosures, a prototype of which has already been released. As these develop, we may see an impact on institutional investment in crypto and digital assets, depending on the relevant investor mandate, and how the crypto and digital asset authentication mechanism works in terms of carbon usage. We will also see further development of standards rolled out beyond carbon, surrounding other E, S, and G factors.

Regulators will be increasingly focused on the management of climate transition risk, which again could affect regulated institutions in the space, particularly when considering capital charges. In China, one of the stated reasons for banning crypto mining was to help it achieve its carbon reduction goals. Policy makers could ban cryptocurrency mining or impose carbon taxes which would increase transaction costs.

## Recovery and building resilience from COVID-19

That said, as we look to build further resilience from COVID-19, regulators and policy makers will be more open to new ideas in the space. This includes the digital tools that would assist building resilience such as digital ID, central bank digital currencies (CBDCs), supply chain finance, and stablecoins.

## On digitalization

Regulators will be focused on the centralized finance (CeFi) and decentralized finance (DeFi) space, in particular in regards to payments regulation, and market integrity.

Concerning stablecoins, many major jurisdictions are racing to keep up with developments, motivated by factors such as the potential systemic risks. The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) issued a consultation in October 2021 on the Application of Principles of Financial Market Infrastructures to Stablecoin Arrangements, including standards for payment, clearing, and settlement.

According to the Bank of International Settlements (BIS), more than 60 countries had experimented with, or were implementing, wholesale or retail CBDCs by the start of 2021. This was up from 40 countries a year earlier. The drivers are varied: improving financial inclusion; tracking tax evasion; enabling faster and cheaper transaction settlement; having the data enable and effect more targeted monetary policy; or simply as an alternative to other cryptocurrencies. The challenges include risks to privacy and financial stability.

The existing regulation for centralized cryptocurrency exchanges has broadly been focused on anti-money laundering (AML), security of custody, or access. The attention is growing for regulating trading for issues like market manipulation and insider trading.

Over $150 billion is currently locked in DeFi. A large part of this value is locked in lending platforms like Aave and decentralized exchanges like Uniswap, but this figure also includes applications in other areas such as derivatives, asset management, payments, and insurance. Given how DeFi operates, one of the key challenges is the absence of a single regulatory access point, making it difficult to identify decision making nodes that can be held to account. Another challenge is that they are global in operation, and therefore need global regulatory coordination.

Other policy issues will continue to be in the areas of investor protection, competition, AML, and taxation. Equally, creating an enabling environment to harvest the opportunity and mitigate the risks from the space, innovation will depend on whether the jurisdiction's environment creates barriers or encouragement through the use of regulatory tools like sandboxes.

As crypto and digital assets come into the mainstream, the space not only will bring greater regulatory clarity and consistency, but also unintended consequences. GDF's role will therefore be more important than ever, in terms of advocacy, standard setting, and education on behalf of its members. ■

# Plugging the Regulatory Gap

**Lavan Thasarathakumar**
Director of Regulatory Affairs – EMEA
**GDF**

2021 was a bumper year for crypto regulation. Whether it was the HM Treasury in the UK putting out a consultation paper on stablecoins or the Dubai Financial Services Authority (DFSA) enacting legislation on security tokens in the Dubai International Financial Centre, jurisdictions across Europe, the Middle East, and Africa started consolidating their positions and put out proposals, consultations, or enacted legislation on various activities.

One topic that has been in the spotlight is anti-money laundering (AML) legislation. With EU member states and the UK having to implement the 5th anti-money laundering Directive (5AMLD) by 10 January 2020, national competent authorities (NCAs) now must hold and maintain a list of all crypto asset firms within its regulatory perimeter. Many NCAs have had difficulties registering some of these firms. There has been a slow uptake of registrations across Europe as regulators adjust to the new types of firms that they are dealing with, and crypto firms struggle to ensure they are providing regulators with the correct data. An NCA that obtained particular scrutiny was the UK's Financial Conduct Authority (FCA), that, having already extended its deadline once, had to extend it once more as it brought in external contractors to deal with the sheer volume and backlog of cryptoasset firms.

On top of this, there is a wider concern. As a minimum harmonization directive, 5AMLD sets the minimum standards that NCAs must meet whilst allowing them to retain or adopt more stringent AML measures. This allowed an implementation period for NCAs to enact or enable legislation that would incorporate these standards. This created two issues.

First, the inconsistent application of the legislation. The European Commission took out enforcement action against 17 member states for either the incomplete transposition or non-adoption of the Directive. Second, many jurisdictions gold plated 5AMLD, which led to crypto firms having to apply for registrations in each member state that they were operating in. These states varied in requirements, making the process costly and time consuming.

In an attempt to address some of these concerns on 20 July 2021, focussing on the measures set out in the AML/counter financing of terrorism (CFT) action plan, the Commission published its AML/CFT legislative package which consisted of four proposals:

- The AMLR proposal which puts in place a single AML rulebook, utilizing much of the existing framework but upgrading it to a regulation so as to address the concerns of inconsistent / non-application, as well as gold plating;

- The AMLA proposal which will create a new pan-European authority that will be the main coordinator of AML policy across the EU;

- The 6th Directive on AML/CFT (6AMLD) which focuses on bringing greater clarity to NCAs as to how they should be applying the AMLR; and

- The crypto transfer of funds, which brings cryptoassets within the scope of the AML framework and seeks to implement the recommendations from the Financial Action Task Force (FATF) Guidance.

These four proposals seek to strengthen Europe's rules on combating money laundering and terrorist financing. They have now been sent over to the Council and Parliament so that they can deliberate over their positions. This package is significant. It will form the bedrock for crypto regulation in the EU and set the agenda for how crypto firms will be treated in the Union.

The GDF AML Working Group will continue to follow the developments of this package and engage with the European institutions to represent the views of the industry. ■

# VOICE OF THE COMMUNITY

# Institutional Interest in DeFi: A 2021 Review


**Simran Jagdev**
Content Marketing Manager
**ConsenSys**

**Nicole Adarme**
Head of Institutional Marketing
**ConsenSys**


While non-fungible tokens (NFTs) ruled the retail investor's mind in 2021, it was decentralized finance (DeFi) that was at the forefront of institutional interest last year. Institutional investors have now come to recognize the growth of Web 3 and its related financial instruments powered by DeFi. They may not yet fully understand the drivers behind DeFi or Web 3, but learned that the asset class cannot be ignored.

As a result, institutions dominated DeFi transactions in the second quarter of 2021, according to data from Chainalysis. Large institutional transactions, which are above $10 million, accounted for over 60% of all DeFi transactions over this period.

Part of the attraction of DeFi for institutions are the high yields offered across the sector, when compared with returns from traditional finance (TradFi) instruments. These higher yields become even more lucrative as increasing inflation cuts into gains from TradFi instruments.

Whether it was the Office of the Comptroller of the Currency allowing U.S. banks to settle payments using stablecoins, or payments processor Visa settling the first crypto transaction, 2021 was a year of many firsts in institutional DeFi.

## Investment firms

Investment banks and managers have had a push-and-pull relationship with DeFi. While the high yields offered an attractive opportunity for these banks, the regulatory and technology uncertainty involved kept them away from the ecosystem. 2021 changed that. Many investment banks – including Blackrock, BNY Mellon, and Goldman Sachs – either revived their crypto desks, or entered the space.

The year began with the news that Blackrock had filed with the SEC to add bitcoin exposure to two of its investment funds. The world's largest asset manager also invested $384 million in bitcoin mining companies last year, its regulatory filings showed. In a push toward greater acceptance of crypto as an investment, BNY Mellon, the oldest bank in the U.S., formed a new digital assets unit, to provide services around bitcoin and other digital currencies.

Both Morgan Stanley and Goldman Sachs decided to offer their wealth management clients access to bitcoin exposure. Meanwhile, the European Investment Bank, the investment arm of the European Union, issued its first ever digital bond, worth €100 million, on public blockchain. Société Générale, France's third-largest bank, also proposed to borrow $20 million in Dai from MakerDAO, one of the largest DeFi protocols.

## Retail banks

From calling digital currencies a "fraud", to offering custodial services for their digital assets to clients, retail banks have come full circle in their relationship with digital currencies. In 2021, many retail banks either started offering bitcoin exposure, or considering such exposure for clients. JPMorgan Chase said in January 2021 that it may offer some clients the opportunity to invest in bitcoin funds. Similarly, Citi was said to be weighing in on offering crypto investment services amid increasing interest from its clients.

JPMorgan did not just stop at bitcoin funds. Later in the year, it partnered with Wells Fargo and NYDIG to offer bitcoin exposure to their respective clients. In addition, JPMorgan launched an in-house bitcoin fund for its private banking clients. Bank of America launched a research unit to look into digital assets, while U.S. Bank launched cryptocurrency custody services.

## DeFi projects

In 2021, the walls between the DeFi and the TradFi worlds became increasingly porous. While institutions tested crypto waters, DeFi companies welcomed both venture capital, and human resources from the TradFi world.


Crypto exchange FTX brought in Brett Harrison as its first president. Harrison joined FTX from Citadel Securities, a leading global market maker. The company also hit $25 billion in valuation, when it raised $900 million in July 2021.

In another vote of trust for DeFi, crypto custodian Anchorage's proposal to become a digital bank was approved by the U.S. finance regulator in January. Anchorage ended the year at a $3 billion valuation after it raised $350 million in December.

2021 was also a blockbuster year for ConsenSys. ConsenSys ended the year with a $3.2 billion valuation. The company's famous crypto wallet, MetaMask, continued on its growth trajectory, reaching over 21 million users as of November. MetaMask Institutional (MMI) partnered with three leading custodians: BitGo, Qredo, and Cactus Custody to support institutional firms engaging with on-chain protocols.

In another first for DeFi, Swiss digital bank Sygnum said it would allow its customers to stake their ETH through its institutional banking platform. Crypto trading platform Bullish and Circle announced plans to go public via SPACs, while USDC backer Circle also planned to become a full-reserve digital bank.

## The time for DeFi has come

In 2021, many leading institutions shifted away from skepticism and took meaningful steps into the DeFi and Web 3 ecosystem with business model pivots and capital deployment.

A whopping 90% of crypto's largest deals happened last year, according to a Messari report. And this 90% did not even include Coinbase's direct listing, which valued the crypto exchange at nearly $86 billion.

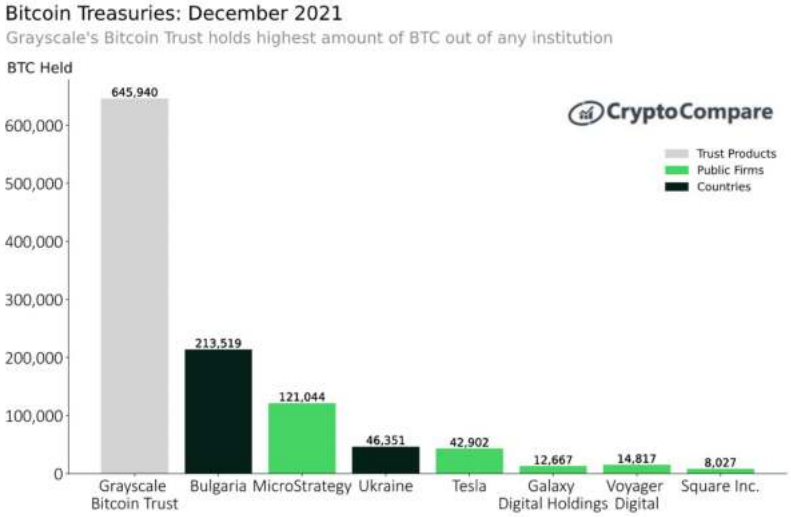
These strides are strong indicators of the upward journey of institutional interest in 2022. According to an Intertrust survey, hedge funds plan to hold an average of 7% of their holdings in cryptocurrencies by 2026. The long-term growth opportunity for DeFi can be gauged from the fact that the market cap of all DeFi protocols ($149 billion at the end of December 2021) is less than 1% of that of global banks – highlighting enormous room for growth.

Organizations can embark on their journey into DeFi with MMI, a DeFi wallet and Web 3 gateway built for institutions. MMI offers unrivalled access to the DeFi ecosystem, without compromising on institution-required security, operational efficiency, or compliance requirements. It enables crypto funds, market makers, and trading desks to trade, stake, borrow, lend, invest, and interact with over 17,000 DeFi protocols and applications. ■

*Learn more about MetaMask Institutional*

# Digital Asset Markets in Review: 2021

**Alissa Ostrove**
Chief of Staff
**CryptoCompare**


It has been a ground-breaking year for digital asset markets. From the rise of decentralized finance (DeFi) and non-fungible tokens (NFTs) to regulatory debates, increased adoption and the arrival of institutions like VISA and MicroStrategy – the industry has come a long way since the initial coin offering (ICO) retail frenzied days of 2017.

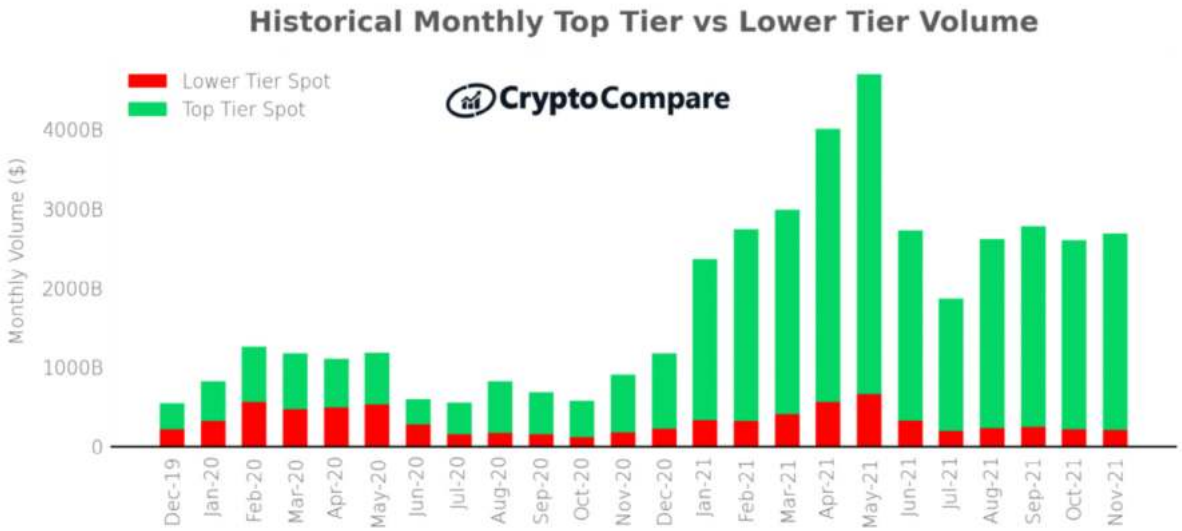
In 2021 we saw Bitcoin and Ethereum break all-time high after all-time high, increasing 146% and 543% respectively, following increased institutional and retail demand. U.S. government officials and the Biden Administration have also started to pay more attention to cryptocurrencies, proposing the widely debated infrastructure bill which brings strict implications to the digital asset industry.

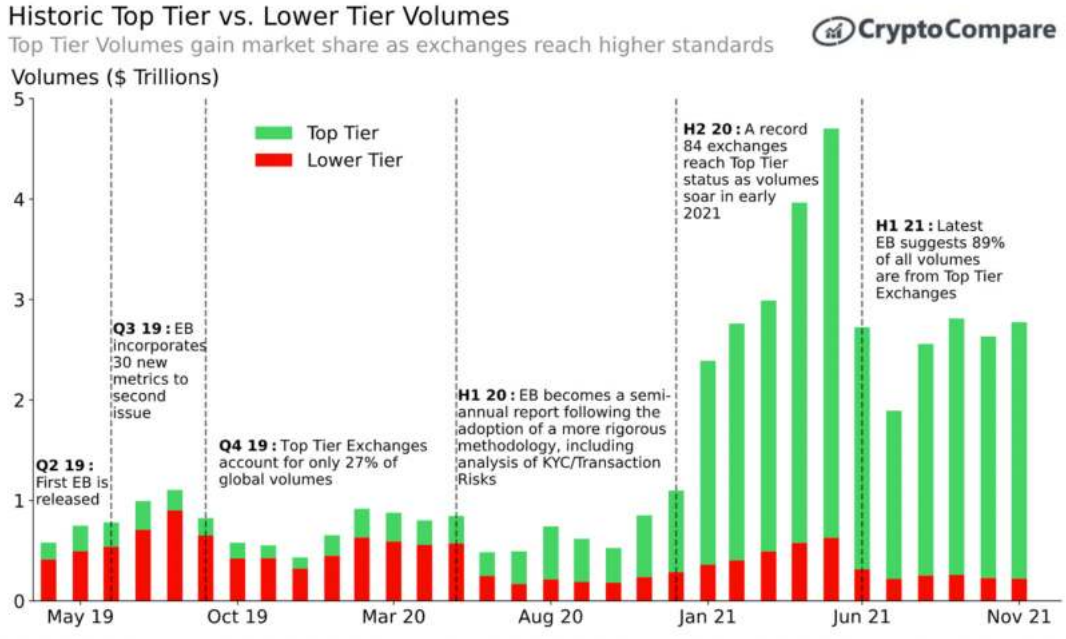
The increased interest from regulators can be attributed, partly, to the emerging institutional demand for digital assets. Compared to 2017, when the crypto community was proclaiming that "the institutions are coming," we can now confidently say that they have now arrived – with various globally recognized institutional investors, such as MicroStrategy, Tesla, Galaxy Digital and Square, dipping into their corporate treasuries to gain exposure to the flagship cryptocurrency.

Institutions aside, Bitcoin has also seen increased adoption from regulatory and governmental bodies in 2021 – with the launch of the first bitcoin ETF in the U.S. by ProShares and El Salvador's adoption of Bitcoin as legal tender – both of which, in 2017, would have seemed an almost impossible feat.

Both regulated and non-regulated exchanges have rapidly expanded their offerings, making it easier for retail and institutional investors alike to gain exposure to cryptocurrencies, whilst adhering to stricter regulatory standards.

For example, Top-Tier Exchanges (as defined by our Exchange Benchmark) accounted for just 27% of the total crypto spot market in 2019. Fast forward two years and Top-Tier Exchanges now account for 92.1% of total spot volume – showcasing not only the growth of the digital asset exchange landscape (in regards to exchange quality and legitimate markets), but also the




increased willingness by investors to seek out reputable trading venues.

CryptoCompare's Exchange Benchmark was pioneered in 2019 to bring transparency and accountability to the digital asset exchange landscape by providing a framework for assessing risk, from the acknowledgement that volumes and liquidity can be easily manipulated, and that any exchange can provide data.

Currently, more than 150 global spot exchanges are ranked and assigned an AA - F grade – helping users identify the lowest risk venues in the industry. In our most recent benchmark (August 2021) 87 exchanges met the threshold for Top-Tier status (vs 84 in February 2021 and 68 in July 2020).

To help bring greater transparency to the cryptocurrency landscape, we have also launched two new reports to accompany our suite of industry-leading research: *The Asset Report* provides professionals in the financial services space, particularly the investment management industry, with a summarized analysis of the latest movements in cryptocurrency markets. *The Liquidity Report*, a first of its kind and created in collaboration with Bitstamp, examines the intricacies of digital asset liquidity and compares it across Top-Tier Exchanges to find the true liquidity of digital asset exchanges.

After what has been an extremely volatile year for cryptocurrencies, it is hard to imagine what lies in store in 2022. Going forward, we will strive to ensure that users have access to the most granular, reliable, and highest quality market data, whilst expanding our data offerings, research and suite of leading indices. We will also continue to monitor the movements of exchanges, ensuring investors have access to the most legitimate trading venues.

# Programmable Money: Enabling Next Generation of Web

**Marta Belcher**
Chair
**Filecoin Foundation**

One of the most important benefits of cryptocurrency is that you can program your money. In other words, you can write computer code that automatically transfers value upon a condition being met. You could write a computer program that says, for every second of a song that I play, automatically transfer the equivalent of a millionth of a cent from me to the songwriter. This can happen instantly and automatically, with no intermediary between us, even across borders. This kind of transaction would be untenable using traditional payment systems.

The Filecoin protocol uses that same programmable money concept to create a decentralized file storage network. If you have extra storage space on your computer hardware, you can "rent it out" to others who will pay you to store their files (or pieces of their files, so that only the file owner can put the pieces back together). A computer program will regularly check that the files are still being stored on your computer and, if so, automatically compensate you with cryptocurrency.

## Decentralized internet

Filecoin may sound like a niche use case, but we believe this could be a foundational technology for the next generation of the internet.

Today's internet is centralized. The vast majority of data making up the many websites Americans use every day sits in data warehouses owned by just three companies: Amazon Web Services (AWS), Microsoft Azure, and Google Cloud.

We have repeatedly seen these companies suffer blackouts, and vast swaths of the Web go down for hours, including websites that are massive contributors to the U.S. economy. AWS's most recent outage in December 2021 is a prime example. That's the problem with having a single point of failure.

We believe you can create a better version of the Web if you combine the storage capacity and computing power on all of our individual devices into a supercomputer-like network, and store multiple copies of data across those devices.

On this decentralized version of the internet, websites will stay up even if some nodes fail, and the availability of information is not dependent on any one server or company. This provides a more robust platform for humanity's most important information. Filecoin provides the incentive for people to contribute storage to that decentralized internet. And these incentives work.

Today, more than 3,600 Filecoin storage providers are contributing more than 14 exbibytes of storage capacity. To put that in perspective, that could store all of the written works of mankind in all languages from the beginning of recorded history to today more than 10 times over.

That storage space is being used to preserve humanity's most important information. As just one example, the Starling Lab – a project of Stanford and University of Southern California (USC) – uses the Filecoin network to permanently preserve the USC Shoah Foundation's archive of 55,000 video testimonies of genocide survivors.

Filecoin is just one use case for cryptocurrency, but it demonstrates how being able to program money – to instantly, automatically send microtransactions across the world – can create economic incentives that enable entirely new technologies.

Cryptocurrency can be the foundation for a better internet – an alternative to BigTech that puts people in control of their own data, protects user privacy and security, and permanently preserves humanity's most important information. ■

# AI: Responsible Innovation and Regulation

**Melissa Netram**
Partner
**FS Vector**

**Riley Hayes**
Associate
**FS Vector**

Artificial Intelligence (AI) is essentially the ability for a computer to perform functions that a human may typically undertake. As we think of digital finance, AI is the cornerstone for the future of financial services. We are seeing financial services companies – both traditional and fintechs – utilizing AI to create more cost-efficient and effective products. AI promises life-changing benefits in everything from financial management, algorithmic trading, and fraud detection.

## How are global regulators addressing AI?

As AI becomes more ubiquitous in society – and in this case more ingrained in financial services – regulators must acknowledge the role this new innovation plays in the industry and define how they will regulate it. Some countries have already taken action and developed comprehensive proposals or initiatives to balance and administer consumer protections while ensuring responsible innovation.

In April 2021, the European Commission (EC) proposed a coordinated plan for addressing AI. In its proposal, the EC presents a way in which the European Union (EU) can advance AI both in the public and private sectors, while ensuring the concerns of consumer protection, privacy, and data are addressed. Within its plan, the EC also proposed regulation that is needed to ensure the development, commodification, and use of AI within the EU. The EC identifies risks and ways to address them but also recognizes the value of ensuring innovation is not hampered. The proposal is a product of years of discussions with fellow regulators and industry players. It acknowledges the important role of innovators in this ecosystem and recommends sandboxes specifically for AI developers.

The UK followed suit in September 2021 with the releasing of their National AI Strategy. The 10-year strategy includes three main pillars: 1) investing and planning for the long-term requirements of the UK's AI ecosystem; 2) supporting the transition to an AI-enabled economy across all sectors and regions of the UK; and 3) ensuring that the UK gets the national and international governance of AI "right". A focal point for the UK's AI strategy is ensuring the regulatory regimes can keep pace with the fast-changing demands of AI while protecting the safety, choices, and rights of UK citizens. The strategy praises pro-innovation governance and encourages private-public partnerships.

The Monetary Authority of Singapore (MAS) created AI principles that encourage innovation and promote transparency. In 2018, MAS released a set of foundational principles on the responsible use of AI within the financial sector. MAS consulted the financial sector to develop principles that promote fairness, ethics, accountability, and transparency. These principles are intended to accompany the

Infocomm Media Development Authority's (IMDA) AI governance framework, which provides detailed and readily implementable guidance for private sector organizations. MAS also took this one step further with the Veritas initiative, recognizing that setting out principles wasn't enough especially for those start-ups that don't have the resources to check against these principles. Within the initiative, MAS worked closely with the private sector to release specific code that start-ups and financial companies can embed within their products.

In the U.S., while there is no comprehensive AI regulation, a number of regulatory agencies have begun to highlight how they think about AI. The Federal Trade Commission, for example, in a blog post in April 2021, identifies how it views AI and how companies can comply with existing regulations, and encourages the use of AI "truthfully, fairly, and equitably". LabCFTC, the innovation office at the U.S. Commodity Futures Trading Commission, also created a primer for industry on AI as a way to educate both internally and externally on the use of AI in the derivatives industry.

## How should industry work with regulators as they create regulatory frameworks for AI?

**Educate.** Ensure the experts are at the table to share their knowledge of the technology with regulators. Innovation offices play a critical role and avenue into a government agency for this platform. Another vehicle to educate may be participation in regulatory sandboxes which serve a mutual benefit to both the innovators and regulators.

**Partner with government.** Governments often have limited resources or are restrained by political pressures. Public-private partnerships are mutually beneficial for regulators and innovators, enabling regulators, despite their limited resources, to rely on the private sector expertise and resources to move the regulatory agenda.

**Advocate for principles-based regulations.** Principles-based regulations enable responsible innovation while ensuring the necessary consumer and investor protections are in place. Creating regulation around technology is not beneficial or sustainable due to the ever-changing nature of the technology.

**Develop AI principles.** In the absence of regulation, create your own AI principles that ensure AI is used responsibly. Apply these principles throughout your own products. Work with organizations like GDF to bring these principles to the industry. ■

# The Global Standards Mapping Initiative 2.0

**Sandra Ro**
CEO, **Global Blockchain Business Council**
Board Member, **GDF**

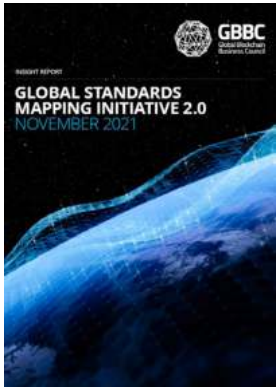
Following up on the release of the Global Standards Mapping Initiative (GSMI) last year, the Global Blockchain Business Council (GBBC) spearheaded GSMI 2.0 this year. To cover more ground, GSMI 2.0 included nine working groups: taxonomy, digital and crypto asset regulation, policy, digital identity, technical, green economy, global taxation, derivatives, and a country spotlight on South Korea. Comprising over 131 organizations, including government agencies, private sector companies, and non-profits, these working groups conducted in-depth research to produce high-quality analyses.

The Taxonomy working group examined a variety of blockchain and crypto-related definitions – as well as digital ID and green economy terms – to put together a list of terms. The GBBC believes these efforts are crucial; one of the fundamental problems holding back the space is a lack of standardization and agreed-upon definitions. This work must be constantly updated to reflect the changes in a rapidly moving space, and the GBBC requests that anyone who has feedback or proposed additions reach out and get involved.

The Digital and Crypto Asset Regulation working group, led by GDF and Steptoe & Johnson, examined pressing issues, including decentralized finance, the Travel Rule, consumer protection, regulatory sandboxes, institutional participation, and taxation of digital assets. This analysis produced several insights on the overall landscape of the regulation of digital assets across the G20 countries. The Policy working group examined two cross-border issues: AML/KYC and central bank digital currencies (CBDCs). This working group stressed the importance of countries working together to address thorny issues and reduce regulatory arbitrage.

The Digital ID working group surveyed ongoing digital ID projects and assessed their pros and cons. This working group, too, found that a lack of standards has limited scaling of blockchain solutions; this is especially apparent in the large number digital ID solutions related to COVID-19. In this vein, the Technical working group mapped 37 technical standards related to blockchain, from the Institute of Electrical and Electronics Engineers to the Digital Container Shipping Association. As the industry matures, it will be important for these organizations to communicate with one another to ensure interoperability.

The Green Economy working group looked at a variety of green marketplace initiatives, including the various stakeholders and types of markets. This working group also identified different, siloed standards and methodologies as a major barrier to increased adoption of blockchain-based (as well as




Read the report here

non-blockchain-based) carbon markets. The group recommended that companies invest people and funds into voluntary markets.

The Global Taxation working group considered the potential for blockchain to significantly improve tax administration, thus improving the relationship between governments and citizens. The group noted that blockchain gives tax authorities the ability to join trust networks and see taxable events in real time, allowing tax to "just happen".

The Derivatives working group explored the fast-maturing industry of crypto-derivatives, which includes futures, options, perpetual contracts or swaps, exchange-traded funds (ETFs), and more. It noted the massive growth in a novel contract type: perpetual futures, which first came into the mainstream in 2016. The group speculated that this product area will continue to expand and diversify, including with regulated offerings.

Finally, the South Korea working group looked at the government's support of blockchain-related projects, as well as government experiments with blockchain. The group hypothesized that the country's tradition of industrialization means that its blockchain innovation will likely be tied to real world assets such as logistics, real estate, and personal data.

The GBBC plans to build on these areas and more in 2022, focusing on new and emerging areas like the metaverse, decentralized autonomous organizations (DAOs), and non-fungible tokens (NFTs). We urge all those who are interested to reach out and join us in this important effort. ■

*GDF X GBBC: How can digital finance drive sustainable innovation?*

# Robust Foundations for the Crypto Derivatives Market

**Ciarán McGonagle**
Assistant General
**International Swaps and Derivatives Association (ISDA)**

This has been a significant year for crypto derivatives. Trading volumes have continued to grow significantly, with monthly volumes in crypto derivatives now regularly surpassing those in spot cryptoassets. Daily trading volumes in Bitcoin and Ether futures listed by CME Group now frequently exceed $1 billion, and these products are increasingly being used as a reference for many crypto-linked products, including exchange-traded funds (ETFs) and over-the-counter (OTC) derivatives. As with other markets, derivatives play a crucial role in the digital assets market by facilitating price discovery, increasing liquidity and allowing market participants to hedge risk. To ensure that future market growth and product evolution are built on robust foundations, the development of contractual standards will be crucial.

ISDA is uniquely placed to play a central role in the development of these standards. For over 35 years, ISDA has worked with a broad and diverse range of market participants to establish global standards for the derivatives markets. The development of these standards has contributed significantly to the growth of a safe, efficient and liquid derivatives market. Standardized documentation has allowed market participants to transact in confidence by facilitating more efficient negotiation, minimizing basis risk across otherwise similar products and reducing counterparty risk by providing the ability to net transaction exposures.

ISDA recently published a paper, *Contractual Standards for Digital Asset Derivatives,* which explores how contractual standards for crypto derivatives can be developed. There are various novel issues to consider, many of which arise as a result of the novel technological features of digital assets. For example, a fork in an underlying blockchain's protocol could result in the creation of two different asset classes, each with different values. In this scenario, market participants and infrastructure providers would need to consider which path(s) to support or follow. ISDA's paper identifies these issues and establishes a practical framework for determining how transactions might be adjusted to take account of such events.

The nature of the broader digital assets ecosystem also presents some novel challenges. For example, how can market participants obtain values and collateralized trades if there is no primary trading venue for a specific digital asset, and the value of that asset can fluctuate (potentially significantly) 24 hours a day? Again, ISDA has identified the relevant issues and has established principles that market participants can consider when developing appropriate valuation methodologies. There are other broader issues to consider. For example, many contracts use terms such as 'local business days' to express concepts that, while easily understood in more traditional markets, may be more challenging to interpret in the context of crypto assets, which typically have no fixed location. As such, ISDA will work to

ensure contractual standards for crypto assets can be integrated within the broader ISDA documentation architecture.

To enable broad-based adoption of these standards, it is vital that they are produced in a form that reflects the unique characteristics of this market. ISDA will therefore structure the templates and definitions for this market in a way that facilitates greater digitization and automation. These standards will be designed to integrate seamlessly within the infrastructure being developed to support this market and in a manner that promotes interoperability amongst different technological platforms.

Again, ISDA is well placed to lead the charge on this work. Since 2017, ISDA has produced a number of papers and studies assessing how novel technologies such as distributed ledger, smart contracts and digital assets can be integrated within ISDA's contractual framework. ISDA has considerable recent practical experience in developing standardized, digital forms of documentation through initiatives like the ISDA Clause Library and making that documentation available through online platforms, such as ISDA Create.

ISDA has also worked to better connect contracts with the operational processes designed to implement those contracts through the Common Domain Model (CDM). The CDM will play an important role in ensuring interoperability across different platforms, by providing a shared, standardized representation of data for the operational functions and events expressed within these contracts. This will allow contractual standards for crypto derivatives to be implemented in a common, consistent way throughout the industry.

In 2022, ISDA will commence work on these standards with members of the Digital Asset Legal Working Group. We expect them to develop and grow organically, in line with market evolution and expansion. ISDA's focus will be on identifying issues that are relevant to the market today and producing the templates and definitions necessary to promote safe, robust growth. Success will rely heavily on collaboration amongst traditional market participants, the crypto community, infrastructure providers, and other key stakeholders. This collaboration will ensure we produce mutualized contractual solutions that serve all participants and contribute to the development of a safe and efficient crypto derivatives market. ■

# The Cryptocurrency Derivatives Market Structure

**Clara Medalie**
Strategic Initiatives and Research Lead
**Kaiko**

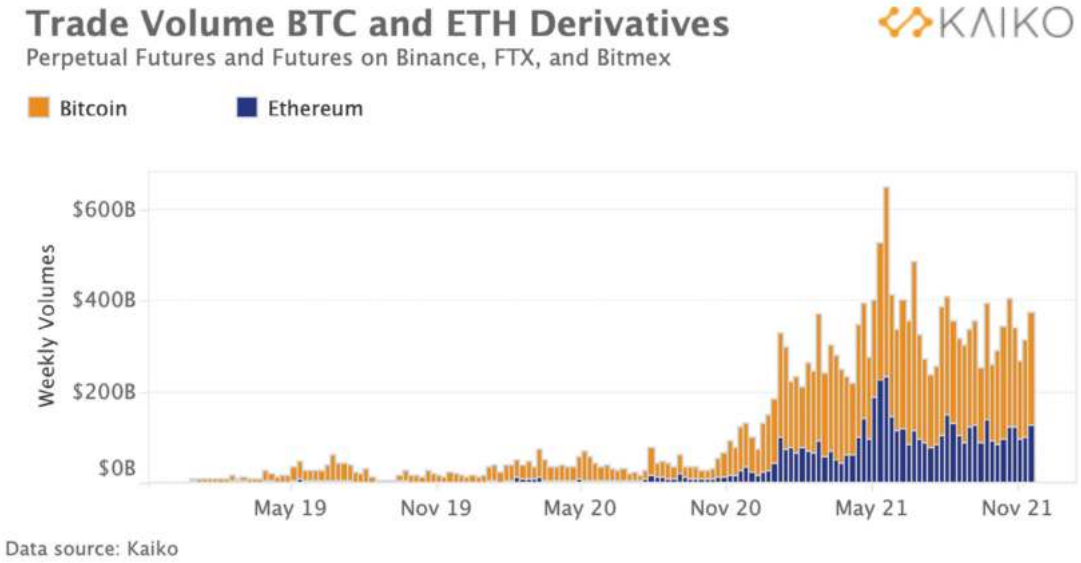
In a few short years, cryptocurrency derivatives have transformed into a critical component of liquidity and market structure. Every day, hundreds of billions in trade volume is executed across the leading derivatives platforms for more than 100 cryptoassets, far surpassing spot markets.

Cryptocurrency derivatives have a variety of use cases, including hedging, speculation, risk management, and arbitrage. They also enable investors to trade with leverage and gain exposure to crypto without the risks of custody – benefits which help explain the rapid growth of these markets since 2017.

Today, the majority of trade volume occurs on unregulated derivatives exchanges such as Binance, Bybit, Deribit, Okex, and FTX. While there are more than 80 unregulated exchanges globally, the vast majority of volume is consolidated on the top five platforms. However, regulated exchanges are slowly gaining market share, dominated by the Chicago Mercantile Exchange, which offers futures on Bitcoin and Ethereum.

There are three types of cryptocurrency derivatives contracts available today: futures, perpetual futures, and options. Futures include standard expiries at weekly, monthly, and quarterly intervals. Perpetual futures do not have an expiration date and are by far the most popular and liquid financial instruments in crypto. Options markets are still relatively small, covering just Bitcoin and Ethereum, with over 90% of volume dominated by Deribit.

In terms of coverage, more than 100 cryptoassets are covered by derivatives contracts. While Bitcoin and Ethereum remain the most popular traded assets, altcoins are gaining more investor interest. More than $50 billion in volume is executed every day for derivatives on Bitcoin, but over the past year altcoins have slowly gained market share.

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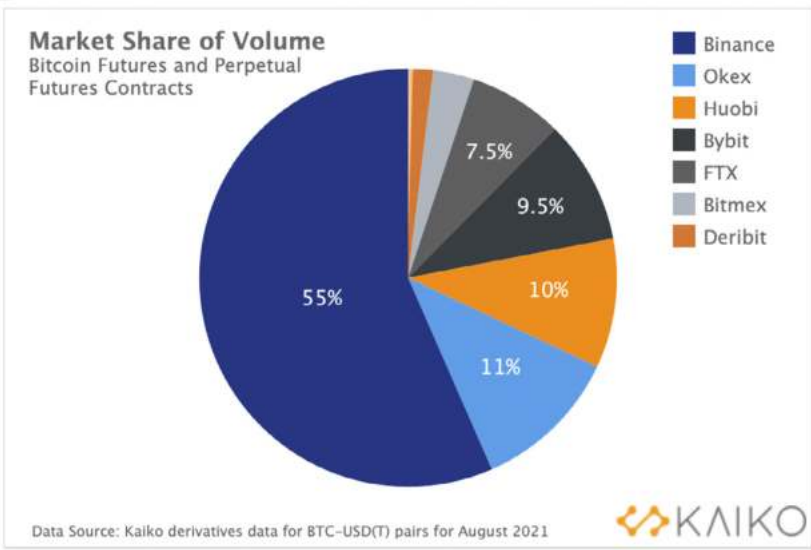
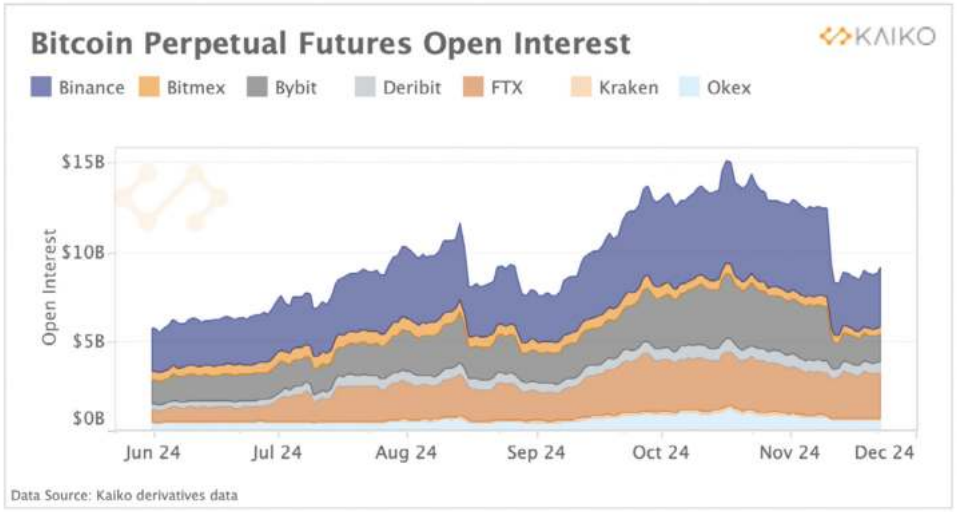
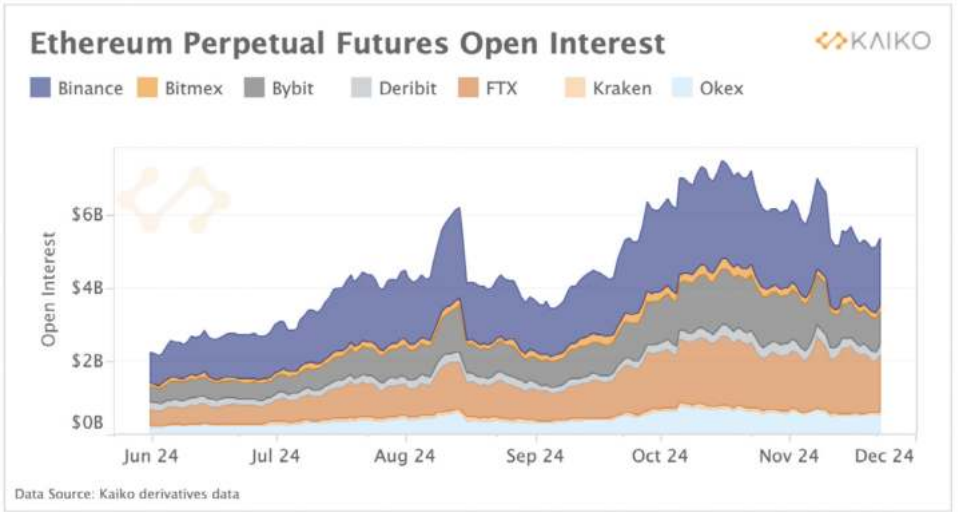





Overall, Binance dominates derivatives markets, accounting for more than 50% of total volume. Bybit and Okex each account for approximately 10% of total volume. While FTX remains comparatively small, the exchange has experienced the most rapid growth and today ranks fourth out of all unregulated platforms.

Derivatives markets are constantly evolving and innovating and over the next year, we can expect a growing diversity and complexity of contracts. There is also an emerging shift toward decentralized derivatives platforms, although these types of markets still lack the liquidity of their centralized counterparts.

Regulatory oversight is also becoming an increasingly important industry issue. In 2021, regulators cracked down hard on derivatives exchanges, forcing several to close down in certain jurisdictions or reduce the amount of leverage offered. Unregulated platforms have begun applying for regulatory approval and making strategic acquisitions, with FTX recently acquiring regulated derivatives platform LedgerX. We can expect unregulated platforms to take an increasingly regulatory-friendly approach in the future.

While there are still a lot of pain points in the crypto derivatives markets, particularly when it comes to regulatory oversight and standardization, the sector has been one of the top drivers in financial innovation and will likely continue to be so. The Global Blockchain Business Council's GSMI 2.0 Derivatives working group identified many of the trends described above and is continuously mapping out the current and future state of derivatives markets. ■

# Regulatory Touchpoints in DeFi

**Steven Becker**
CEO
**UDHC**

Financial intermediaries are the foundation of financial services and the primary touchpoints for regulators, with activity-based regulation close behind. Decentralized finance, or DeFi, has seemingly turned this on its head. If financial services are decentralized, with no intermediaries, will the traditional regulatory toolbox still work? The answer is yes.

DeFi is more about creating efficiency than disintermediation. Historically, the more technology develops, the more the incumbent intermediated architecture needs to change. However, intermediation does not disappear; it just shifts its resources around. Efficiency brings lower costs and an expanded user base, which also applies to DeFi.

> "Blockchain and DeFi technology are about choices that previously were not available"

Realistically, DeFi is still a technology, a set of tools. Users care more about convenience and financial incentives than technology. For example, paying wages to a struggling single parent continuously instead of every two weeks or monthly – which DeFi can do – could remove reliance on expensive and extractive payday loans. This still means working with a financial intermediary, requiring a front-end providing that service while abstracting back-end integrations into DeFi.

Most users will want the benefits of DeFi but will also choose to use regulated front-ends where consumer and investor protections are in place. But blockchain and DeFi technology are about choices that previously were not available: self-sovereignty, agency, and the ability to essentially opt out.

The choice to opt out is not universally applicable. As a citizen, you cannot simply opt out of the legal system. In the case of financial services, "opting out" is to choose against having the benefits of protection afforded to you, whether consumer or investor. It does not mean anti-money laundering (AML), counter terrorism financing (CTF), or counter proliferation financing (CPF) compliance does not apply to you.

A user can express their self-sovereignty by the way they engage with DeFi. On the one hand, if a user engages with a regulated front-end, they are opting in. On the other hand, if a user engages directly through, for example, a command-line interface (CLI), they are opting out of the benefits of the regulated front-end. They may be doing so for several reasons, ranging from privacy and trust to a believed misalignment of values with incumbent financial services providers.

The entry point into DeFi is the first and most crucial regulatory touchpoint, and it is not binary but rather a spectrum. Between the regulated financial services front-end and the CLI exists several possibilities that require a different approach. The result is the need for a range of light-touch to full-on regulation depending on how, why, and who made the entry point. Suppose a development community created a front-end and deployed it to a decentralized server. In that case, it is a public good, and the light-touch regulatory ask would be to add a 'warning label'. If the community chooses not to, it creates a red flag for users.

The second crucial regulatory touchpoint is DeFi itself, specifically, the underlying DeFi tools. Assuming the DeFi tools are decentralized, how do we know they are safe and will work? Do we all need to become blockchain and development experts? The answer is no.

Users need confidence that a DeFi tool is secure and will perform within reasonable expectations. Therefore, security is paramount, and security audits would be required, both initial and ongoing, and made publicly available. In addition, ensuring the tool performs as expected may require formal verification (mathematical audit), which is also an additional security step. Lastly, economic audits help to understand the dynamics of the tool and how it would perform under various market scenarios. The industry could implement a certification process. A certificate issued by a regulator or self-regulated organization (SRO) would indicate the level and number of audits performed to give the user the requisite confidence to engage with the tool.

> "DeFi is about creating value through efficiency, not just disintermediation"

There are quite a few more touchpoints than the two presented. But the aim here is to introduce them in a more apparent context of DeFi.

DeFi is about creating value through efficiency, not just disintermediation, and through the choice to opt out of protections of a third party, but not out of your responsibilities as a citizen. DeFi is inclusive. It aims to serve all people, including those who need or want the benefit of DeFi without knowing or caring about it – because that's their choice. And at the end of the day, the ability to choose is what DeFi is all about. ■

# Digital Identity and DeFi

**Justin Wright**
COO & CFO
**YieldApp**

As the world becomes ever more digital, ensuring we can interact and transact seamlessly and safely online is becoming increasingly important. From social media to the burgeoning world of decentralized finance (DeFi), being able to verify who we are is a crucial part of participation in the modern social and economic ecosystem.

Perhaps more importantly, digital identities are becoming a cornerstone of governmental and regulatory policy. The United Nations, for example, set a "global identity for all by 2030" as one of its Sustainable Development Goals in 2015. This is in recognition of the huge potential that the digitization of identity has for developing countries.

Without the ability to prove one's identity, obtaining a passport, going to school and work, or opening a bank account is usually impossible. An identity allows us to work, save, and better our lives. Yet 1.1 billion people around the world have no proof of identity, with 45% of those amongst the world's poorest. Around 1.7 billion people worldwide remain unbanked, negatively impacting their ability to participate in the modern economic system.

What is encouraging, however, is that 60% of these have access to a mobile phone. This opens the possibility of expanding the reach of digital identity technology to increase participation in the global economy, and make it a safer place for everyone.

## Regulators and digital identity

Safety is the chief concern of global regulators, particularly financial regulators and institutions that are increasingly demanding that digital financial service providers collect and verify the identities of all customers to ever higher standards.

In order to prevent digital money laundering and fraud, these bodies are applying increasingly stringent Know Your Customer/Business (KYC/KYB) requirements. In the cryptocurrency space, most centralized providers operating in developed countries are now required to provide proof of residence, as well as proof of identity, in the form of a passport or driver's license.

In 2019, the Financial Action Task Force (FATF) also recommended that its members apply the organization's anti-money laundering Travel Rule to Virtual Asset Providers (VASPs). This requires cryptocurrency platforms to pass customer details between each other for transactions valued above $1000, just as regulated financial institutions are required to do.

## Barriers to digital identity growth

Since the FATF's recommendation was issued, however, just 58 out of 128 reporting jurisdictions have said that they have now implemented the revised FATF Standards, with low adoption rates blamed on different interpretations and data sets at a country and regional level.

Indeed, alongside the issue of accessibility, one of the biggest barriers to the evolution and adoption of digital identities is a dearth of alignment on how data is stored, managed, regulated, and shared.

Our most important identity data is stored on large, centralized systems that contain the personally identifiable information of millions of users – a haven for hackers. Meanwhile, in the digital asset space, users must juggle various identities across numerous platforms, leaving them vulnerable to identity leaks that pave the way for fraud of all kinds.

## DeFi and evolving digital identities

While often criticized for its insecurity, the cryptocurrency and blockchain space presents some of the most promising opportunities for the evolution and harmonization of digital identities. DeFi, for example, is frequently maligned for its ability to allow users to transact anonymously, yet it is fostering one of the most interesting innovations in digital identities to date – the decentralized identifier (DID).

Similar to most entities on a blockchain, according to ConsenSys, DID is a pseudo-anonymous identifier for an individual or company that is secured by a private key. Only the private key owner can prove that they own or control their identity and one entity can have many DIDs. This limits the extent to which the DID owner can be tracked across different platforms, which reduces the potential for identity theft and fraud.

Each DID is often associated with a series of verifiable credentials issued by other DIDs that attest to specific characteristics of that DID (e.g. location, age, qualifications, payslips). These credentials are cryptographically signed by their issuers, which allows DID owners to store these credentials themselves instead of relying on centralized profile providers like Google or Facebook.

In addition, non-attested data such as browsing histories or social media posts can also be associated with DIDs by the owner or controllers of that data, allowing them to take control of and profit from the use of their own data. This is currently the case with Brave, a popular web browser with cryptocurrency users that allows full control and monetization of personal data.

Other DeFi digital identity providers include Blockpass, which offers shared regulatory compliance services for individuals, companies, objects, and devices. SelfKey is another that is building a blockchain-based identity system that allows identity owners to truly own, control and manage their digital identity. The tech giants are fast catching on though, as highlighted by Microsoft's Azure Active Directory, which enables the use of DIDs and verifiable credentials to validate and share information digitally.

## The future of digital identity

Who will lead in the race toward a more uniform and integrated digital identity landscape is uncertain. What is clear is the growing need for innovative digital identity solutions like DID that can bridge the gap between the offline and online worlds and make the digital landscape a safer, more secure place. Only once we have achieved this, will we be able to increase the adoption of digital identity solutions by those that could benefit most from them.

This is one of the driving forces behind YieldApp's work with Global Digital Finance, in particular its participation in the DeFi and anti-money laundering working groups. We believe it is essential for the industry to embrace the security innovations available in blockchain and DeFi to increase regulatory compliance that will help to build a better blockchain and digital wealth ecosystem for all. ■

# Driving CBDC Adoption for Everyone, Everywhere

**Catherine Gu**
Head of CBDC
**Visa**

2021 has marked a remarkable year of growth for CBDCs, or central bank digital currencies. CBDCs represents a significant step in the evolution of money as a new form of currency with the long-term potential to:

- **Create a more inclusive economy, allowing everyone to participate in digital financial markets and commerce**
- **Be better prepared in critical situations where funds must be disbursed to individuals safely, transparently, and efficiently**

CBDCs will provide the general public access to central bank money the same way cash does today but through an entirely digital experience. This would be particularly valuable in countries where the infrastructure for distributing cash is undeveloped or limited. A user-centric approach is therefore critical to ensuring that people and businesses can use CBDCs easily and intuitively. If not, unfamiliarity with new technologies or a lack of access may pose barriers to adoption for some. Over time, the role and utility of CBDCs should evolve to include more and diverse use cases, to realize the longer-term potential of monetary evolution and to support national agendas.

## Early adoption

As with any new solution, driving early adoption is going to be one of the most important and challenging tasks that CBDCs will face. Visa has conducted user-centric research, with a preliminary consumer study on digital currencies showing that people place the highest value on security, universal access, speed of transaction, and anonymity. On the flip side, people worry about not being able to use CBDCs for payments. In other words, consumers worry that the places they shop won't accept CBDCs. Experiences with CBDCs to date, such as an early pilot in Ecuador, show that people expect a similar best in-class experience from CBDCs as they have today using fiat currencies – an experience that is ultimately convenient, familiar, and trustworthy.

To incentivize retail banks, payment providers, fintechs and other institutions to accept CBDC from day one – and to ensure business continuity – the cost of transitioning must be low. Here, when launching CBDCs, central banks should leverage existing infrastructure and services to the extent possible. From an engineering perspective, prioritization of CBDC adoption from the start requires any new CBDC system to be backward compatible with existing payment rails.

Some of the key principles that we therefore think are crucial to deliver the future success of CBDCs as a consumer product are therefore going to be:

- Commercial bank readiness
- A developer-friendly ecosystem
- Merchant acceptance

As more central banks are moving from exploration to experimentation with CBDCs, introducing new forms of money and innovative retail solutions to drive a real, positive impact for everyone will require the involvement of a wide range of stakeholders across society.

This kind of cross-sector collaboration is fundamental for creating a ubiquitous, accessible, and robust CBDC solution, as we explore and introduce new features that drive responsible innovation in the global payment space. In doing so, we can allow transactions to begin in one network and end in another.

## Adding value

But supporting CBDC solutions does not stop there: we also offer value-added capabilities to multiple networks in areas such as data, privacy, risk, and security. In the wake of COVID-19, more individuals are going digital for everyday needs, adopting touchless payments such as tapping to pay and relying more on eCommerce. With a growing number of ways to move money, standards and interoperability are critical to enable participation, security, and efficiency of money movement across all types of flows.

In addition, Visa has developed a CBDC Payments Module that is available for central banks, retail banks, and fintechs to more easily integrate with a particular country's specific solutions for CBDC more easily. The CBDC Payments Module is designed with future – and still conceptual – use cases in mind, including programmable government benefits, streaming payroll, and worker on-demand payouts. We also envision several future CBDC capabilities to complement the CBDC Payments Module.

In order for CBDCs to be successful, they must be a secure, instant, ubiquitous, and familiar choice for everyone, everywhere. By evolving the current payment infrastructure, and ensuring common standards, Visa can help governments, consumers, small businesses, and companies all over the world send and receive money securely, easily, and efficiently. We strive to lead responsible innovation and deliver exponential benefits to society at large. ■

# GDF EXECUTIVE REPORT

# GDF 2021 in Review

**Emma Joyce**
Global Ecosystem Director
& Board Member
**GDF**

Very much like 2020, 2021 was a year of ups and downs for the whole world. We started the year with lockdowns in many countries, enjoyed a relatively "normal" summer and then closed out the year facing renewed uncertainty due to the spread of another COVID-19 variant.

However, despite this backdrop, our industry once again proved resilient as 2021 saw pivotal milestones for digital assets, such as the Coinbase IPO and the launch of Bitcoin ETFs.

## Our community continued to grow

Our membership has continued to grow and we now have over 140 GDF Code Members and 500 community members, many of whom regularly participate in our working groups and events, contribute to GDF consultations, and attend roundtables.

We welcomed Standard Chartered and Ownera to our Patron Board, and Greg Medcraft, former Organisation for Economic Co-operation and Development (OECD) director, joined the GDF Board.

We started 2021 focused on our members' priorities, which were DeFi, stablecoins and custody. To serve those objectives, we launched our DeFi Working Group, Stablecoins Code Refresh, and our Custody Working Group continued collectively working on a custody regulatory roadmap, while keeping up to date with the various initiatives on the adoption of the Financial Action Task Force (FATF) Travel Rule.

We also welcomed two additional working groups: the GDF Market Surveillance Working Group and the LatAm Working Group.

The GDF Market Surveillance Working Group is a follow-on from the Market Integrity Code, and will endeavor to provide the principles for an open reference architecture for voluntary exchange monitoring for jurisdictional regulatory regimes. The LatAm Working Group will focus on key regulatory challenges across the different jurisdictions in the region.

We will kick off 2022 in a strong position, capable of responding to our members' priorities and concerns and continuing to convene industry, regulators, and policymakers.

## Our events kept attracting a global audience

We launched our inaugural *Asia Conference* in March in partnership with Patron Members Huobi, Bitmex and Eqonex. We redesigned the format of the quarterly GDF Summits, making them more interactive and inclusive. We held our first revamped GDF Summit in May which opened with a presentation and discussion on NFTs. Later that month we partnered with DLA Piper to continue our exploration of NFTs as part of a virtual NFT Conference, which was followed by the launch of the NFT Hub, an online library of resources looking at the assets from a legal, standards, and technological perspective.

We continued our Global Leaders series with the Global Blockchain Business Council, and held talks with an exceptional array of leaders, including U.S. SEC Commissioner Hester Peirce and Professor Chris Brummer.


*GDF at the Digital Assets Week conference in London*

## GDF Activities that Can Support our Firm in 2022

*GDF Member Survey 2021*


In time for COP26, GDF produced a report with our members titled *Digital Assets: Laying ESG Foundations*. The report is a response to the great debate around crypto's role in the race to net zero, impact investing, and sustainable finance. We also had a presence at this year's COP26 in Glasgow, participating in member events and Fintech TV reports.

To ensure we provide a platform for a continued conversation, we used our latest GDF Summit as a roundtable event to convene participants from across the crypto and digital assets market to gain perspectives on each part of the value chain in the context of net-zero and the broader sustainability agenda.

In November 2021, we chaired a roundtable discussion on the topic of central bank digital currency (CBDC) and policy considerations for its adoption. Participants included guests from the Bank for International Settlements (BIS) Innovation Hub and the International Monetary Fund (IMF), as well as private sector representatives from the crypto and digital asset community, the traditional financial industry, and professional services firms.

Towards the end of 2021, and in partnership with Hogan Lovells, we held a Crypto and Digital Assets Conference. The conference brought together participants from all parts of the industry, be it crypto and digital assets professionals, finance executives, industry thought leaders, policymakers and regulators to explore institutional adoption and the changing regulatory landscape.

### The GDF Code of Conduct

We further developed our understanding of the role of the GDF Code of Conduct and certification for our members. We found that members are using the Code to demonstrate alignment with customers and investors across the globe. Members also described the Code as a useful education tool, both for industry and

regulators, agreeing that the Code provides concrete guidance for regulators on what the industry needs. Overall, members certify to the Code of Conduct to demonstrate responsibility and best practice to customers, regulators, and the wider value chain.

GDF will continue to develop the Code and certification registry as a toolset for establishing accountability and predictability in the industry, further embedding trust amongst stakeholders.

## Looking forward

As we look to 2022, our members' priorities include stablecoins, DeFi, AML, and the Travel Rule. As institutional adoption of digital assets continues and we gain clarity on regulation, it is only with our members' support and hard work that we will continue to fulfil our role as the leading global members association advocating and accelerating the adoption of best practices for digital assets.

I would like to take this opportunity to thank all of our members, Advisory Council, GDF Board of Directors, and the Executive Team for their incredible commitment, passion, and hard work during 2021, and I look forward to the exciting journey that this industry has ahead of it in 2022. ■

*NFT Conference: NFT Protocols Panel*

*Emma Joyce, Global Ecosystem Director at GDF, with Nick Davies, Technology Lead at HMRC at the Hogan Lovells Conference*

## GDF members on the role of the Code of Conduct

"Regulators don't want to be left outside, they want to know what is going on – and they find it worthwhile talking to us because of the codes produced"

"Regulators are impressed by the codes, it gives us the ability to approach regulators in conversation"

"The codes and association with GDF serve a space for organizations to align themselves with other companies dedicated to best practice"

"We use the codes to demonstrate alignment with our customers. The internal alignment is also important – we can use these codes to ensure that we are all on the same page from a technical and a legal perspective."


GDF Topic or Priority
Events, Roundtables, Videos, Media Output
Working Groups
Output (Reports, Codes, Resources, Programs)
GDF in 2021
Regulatory & Policy Engagement
MiCA Working Group
Consultation Responses
Custody Working Group
Roundtable Discussions
Wolfberg-Style Questionnaire 2022
Hogan Lovells Industry Adoption Conference
AML/KYC Working Group
FATF Panel
GDF Reg ONLY Forum
FATF Engagement
DeFi Report 2022
DeFi Reg Only Knowledge Series
DeFi Working Groups
DeFi
Middle East Financial Centres Programs
Latin American Chapter
Asia Conference
Global Outreach
Stablecoins Code Refresh 2022
Stablecoins Working Group
Stablecoins
Knowledge Sharing Series
Thought Leadership
Global Leaders Townhall
NFT Hub
NFT Conference
NFTs
Digital Assets Report
Institutional Adoption
GBBC GSMI
GDF Global Summits
ESG
Tax
Interoperability
FI Forum 2022
Global Taxation Report
ESG Working Group 2022
PMDS Group
DeFi Tax Report 2022
ESG Report
FinP2P Network

In partnership with

# Global Leaders Townhall of Fame 2021

**Irene Arias Hofman**
IDB Lab

**Andy Baldwin**
Ernst & Young LLP

**Commissioner Sharon Bowen**
Bakkt

**Professor Chris Brummer**
Georgetown Law Center

**Michael Casey**
CoinDesk

**Charlotte Crosswell**
Innovate Finance

**Congressman Warren Davidson**
U.S. House Task Force on Financial Services

**Guillaume Dechaux**
ConsenSys

**Albert Forkner**
Wyoming Division of Banking

**Greg Foss**
Validus Power Corp

**Ronit Ghose**
Citi

**Dr. Jemma Green**
Power Ledger

**Lord Holmes of Richmond MBE**
House of Lords

**Brendon Howe**
VMware

**Catherine Jones**
Creative HQ

**Netta Korin**
Orbs

**Jaime Leverton**
Hut 8 Mining

**Caitlin Long**
Avanti Bank

**Sherry Madera**
London Stock Exchange

**Greg Medcraft**
OECD

**Michael Moro**
Genesis Trading

**Robert Opp**
United Nations Development Programme

**Commissioner Hester Peirce**
U.S. Securities and Exchange Commission

**Joe Roets**
Dragonchain

**Dr Hayat Sindi**
Islamic Development Bank

**Tomicah Tillemann**
New America

# ADVISORY COUNCIL AND WORKING GROUPS

# A Unified Voice for an Evolving Sector:
## A Letter from the Advisory Council Chair and Secretariat

2021 was a busy year for the industry: regulatory requirements developed, crypto firms (including a number of Advisory Council members) went public, and the market swelled to $2 trillion.

Despite our busy schedules, industry collaboration remained a top priority for the community, whether focused on advocacy, standards, or proof-of-concepts. Under the stewardship of Malcolm Wright as Chair and Emma Joyce leading the Secretariat, the Advisory Council continues to set the direction for GDF members.

Our working groups thrived throughout 2021. As we move beyond developing Codes of Conduct, the activities that our groups are leading have evolved: the Custody Working Group brought in speakers to give presentations, the Private Markets Digitization Steering Group moved forward with its pilot, and the DeFi Working Group has worked with the GDF Regulatory team to deliver the DeFi Knowledge Series for the Regulators Only Forum. The sector's needs are evolving, and GDF's output is adapting to meet them.

A milestone for GDF in 2021 was the Stablecoins Code Refresh. Given the pace of development and innovation within this industry, the Code cannot remain in stasis and must be reviewed and updated continuously to be effective. Part VI: Principles for Stablecoins has been the first code to undergo a comprehensive review. Global regulators have made it clear that stablecoins remain a top priority for regulation in 2022, and the code refresh comes at a good time to harmonize GDF's position.

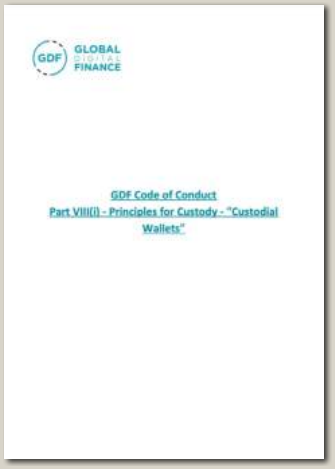
We focused on ensuring that the Advisory Council meetings are a forum for discussion and debate. Members from across the globe bring forward their priorities, different perspectives and opinions are considered before agreeing a unified direction for GDF – whether relating to regulator consultation responses, the cross-industry collaboration, or emerging priorities such as NFTs and crypto promotions.

2022 is expected to be a year of major developments in the regulatory space. Whether on stablecoins, custody, or DeFi, GDF will engage with regulators and policymakers through the working groups and Regulators Only Forum. As a member-led association, we will continue to use the Advisory Council to unite disparate voices from across the ecosystem, and represent the digital asset community. ■

**Malcolm Wright**
Advisory Council Chair
**GDF**

**Emma Joyce**
Global Ecosystem Director, and Board Member
**GDF**

# Custody
## Working Group




Part IX: Principles for Custody and Custodial Wallets

Throughout 2021, the GDF Custody Working Group built a Travel Rule protocols and solutions inventory, as well as extended the coverage of the custody regulatory landscape with the support of ING and Clifford Chance. The GDF Custody group has consolidated its custodial wallet Code of Conduct issued in 2021.

Various internal and external speakers presented on relevant topics like ISO Digital Token Identifier, central bank digital currencies (CBDCs) and their impact on custody, DeFi and its impact on custody, non-custodial FATF anti-money laundering (AML) requirements, the EU's Markets in Crypto Assets (MiCA) proposal, omnibus accounts (automating transfer of assets and the impact on settlement of the transaction), and different regulatory update across multiple jurisdictions. We have also initiated a training program on the GDF Custody Code of Conduct in collaboration with the ACI Financial Markets Association. Last but not least, the members contributed to various regulatory consultation responses impacting digital asset custodians.

In 2022, the group will continue to monitor Travel Rule implementation and regulatory changes. We will work on extending the working group to new and traditional custodians, extending the self-certification of our Code of Conduct and exploring how firms can meet the expectations of custody providers using the latest technologies. ■

**Hervé François**
Digital Asset Lead, Director
**ING**

**Ben Whitby**
Risk, Compliance, and Regulatory Affairs
**Qredo**

# DeFi
## Working Group

2020 saw extraordinary growth in the decentralized finance (DeFi) space. In the context of a global pandemic, economic uncertainty, and key developments in technology, a new and growing set of composable financial tools that are trust-minimized, transparent, and accessible to anybody on the internet became increasingly popular.

Now with a total value locked (TVL) of $98.82 billion, the DeFi space has continued to evolve at pace throughout 2021. Alongside this, regulatory attention has also grown. The Financial Action Task Force (FATF) has moved from referring to "P2P Lending", to aiming to clarify when a DeFi project may or may not qualify as a virtual asset service provider (VASP).

The DeFi Working Group is working on a report that will map this emerging sector. The focus of the report is to clarify where DeFi activity is or is not similar to the financial activity found in traditional finance. The report will clarify the regulatory touchpoints within DeFi, and set out the policy considerations and recommendations according to the regulatory mandates. This includes consumer protection, market integrity, prevention of illicit activity, and tax considerations.

The objective is to give a holistic view of approaches to the regulation of decentralized entities. The group will also look to work with other GDF working groups as they develop their reports and consultation responses, including the AML/KYC group and the Tax Working Group. ■

**John Salmon**
Technology Partner
**Hogan Lovells**

**Martha Reyes**
Head of Research
**Bequant**

**Justin Wright**
COO & CFO
**YieldApp**

# Global Financial Institutions Cryptoassets Working Group

**In 2022, the GFIC group will seek to:**

1. **Engage major FIs** to confirm industry need and support behind this initiative

2. **Develop a white paper** to define the design of the code, to be presented to the Regulator Only Forum for consultation

3. **Publish a public commitment statement** to formalize industry sponsorship and commitment to conducting their business in line with the standardized code of practice for FIs operating in cryptoassets

The rapid pace of development of the cryptoasset industry has fuelled a positive sentiment and growing demand for cryptoassets from institutional investors. At the same time, regulators are also beginning to seriously scrutinize and discuss cryptoassets.

To enable the global financial ecosystem to participate at scale, meet client demands, and realize the opportunities, we see a need for institutionalization, as well as a lack of harmonized global industry principles for best practices to be addressed.

The Global Financial Institutions Cryptoassets (GFIC) Working Group will develop an industry-led case for the development of the world's first financial institution (FI) cryptoasset code. It aims to become the industry standard for best practices for the wholesale crypto market, focused on brokerage, settlement, custody, and derivatives.

The scope includes cryptoassets, defined as digital representations of assets, or assets which originate in a natively digital format offered as a product or service across brokerage, custody, derivatives, and settlement. The group will also discuss and agree principles related to the following objectives:

1. Enable FIs to scale up institutional crypto adoption and growth
2. Represent the interest of FI industry on cryptoassets by creating a collective voice in dealings with regulators and other stakeholders
3. Establish trust between FIs and regulators globally
4. Promote an efficient and innovative global cryptoasset ecosystem

**Rene Michau**
Global Head, Digital Assets
**Standard Chartered**

**Anthony Woolley**
Head of Business Development
**Ownera**

5. Monitor developments in policy and market structure that affect cryptoasset markets and facilitate regulatory policy views through consultations and responses on regulations involving key market participants
6. Develop industry guidance, market policy or best practices in conjunction with central bank committees on the potential application of market regulation on cryptoassets and platforms
7. Cooperate with and complement other membership-based trade and industry organizations, forums, and working groups in the cryptoassets, FX, securities services, payments and blockchain arena in relation to issues of mutual interest and alignment of emerging whitepapers and standards, so that regulators focus their attention on resolving these issues.

The working group will also collaborate with trade and industry associations such as ISDA, ACI FMA, Asia Securities Industry & Financial Markets Association (ASIFMA), in this initiative and involve them as observers.

# KYC / AML
## Working Group

In 2021 the KYC/AML Working Group worked on the development of a best practice guide for anti-money laundering (AML)/counter financing of terrorism (CFT). The best practice guide aims to provide practical guidance to the sector and compliance practitioners on how to develop and implement good AML/CFT practices that comply with the Financial Action Task Force's (FATF) Recommendations and global best practice. This will be finalized in 2022.

The group also collaborated to provide a response to the FATF's consultation on its updated guidance on applying a risk-based approach to virtual assets and virtual asset service providers (VASPs). The FATF's guidance will undoubtedly have a profound impact on the virtual asset sector and the group's contribution, which was well received by the FATF helped shape the final text.

Work has resumed on the development of a common standard for counter VASP due diligence, based on the Wolfsberg due diligence questionnaire. The FATF's updated guidance reinforces the obligation for VASPs to carry out due diligence on VASPs and other third parties. The group will therefore focus on developing a questionnaire which will be widely accepted as a common standard but that is specifically tailored to the needs and nuances of virtual assets and VASPs.

The working group held a European Union policy workshop in partnership with FTI Consulting and the Digital Currencies Governance Group with a particular focus on the EU's Funds Transfer Regulation. The group presented the main practical concerns of the application of the rule to crypto and digital asset firms to financial attachés at the European Council, and highlighted the measures that firms were already implementing to safeguard against AML risk. Deemed a success, GDF will look to host a similar session with the European Parliament in 2022.

In 2022 the group will be following developments around decentralised finance (DeFi), decentralised autonomous organisations (DAOs), and non-fungible tokens (NFTs) with a view of being at the forefront and helping to bring effective, yet pragmatic measures to manage financial crime risks whilst allowing for the safe development of these products and services. ■

**Malcolm Wright**
Founder, **InnoFi Advisory**
Head of Strategy, **Shyft**

**Nicky Gomez**
Partner
**XReg Consulting**

Read GDF's full response to the FATF guidance here

# Latin American Chapter

2021 marked the launch of the Latin American Chapter of GDF. This chapter is the first regionally-focused endeavor of our community and was launched during Bitcoin Week in El Salvador. The focus of this group is to identify key regulatory issues and priorities of each jurisdiction within the region, and promote a sustainable regulatory climate while preserving the freedom to innovate.

During the kick-off meeting, members expressed their concerns about the lack of specific regulation in this field – a topic that deserves further analysis and discussion. In 2022, the group will continue these discussions, and engage with regulatory developments through consultation responses.

Meanwhile, the group has already made a start on translating the GDF Code of Conduct into Spanish and Portuguese, developing the Code into a truly global set of practices. We believe that, with the support and contribution of the members of our entire community, we will be able to build together an applicable framework that can cover all its particularities without restricting the free trading of cryptoassets. ■

**Mateo Bermeo Motta**
Business Manager
**Reserve**

**Daiana Suk**
Associate
**DLA Piper**

# Private Markets Digitization
## Steering Group

In 2020, the GDF Private Markets Digitization Steering group (PMDS) brought together over 70 leading institutions, including banks, asset managers, exchanges, fintechs and international law firms to digitize private markets.

That year, the group published the specifications for an open-source decentralized routing protocol called FinP2P. FinP2P enables instant trading of any asset between digital wallets across the institutional private markets – across any asset class, any issuance platform, any underlying ledger, any settlement currency and any custody technology. Following an intensive six months, the technology program which involved 30 of the group's members, launched FinP2P at the start of 2021.

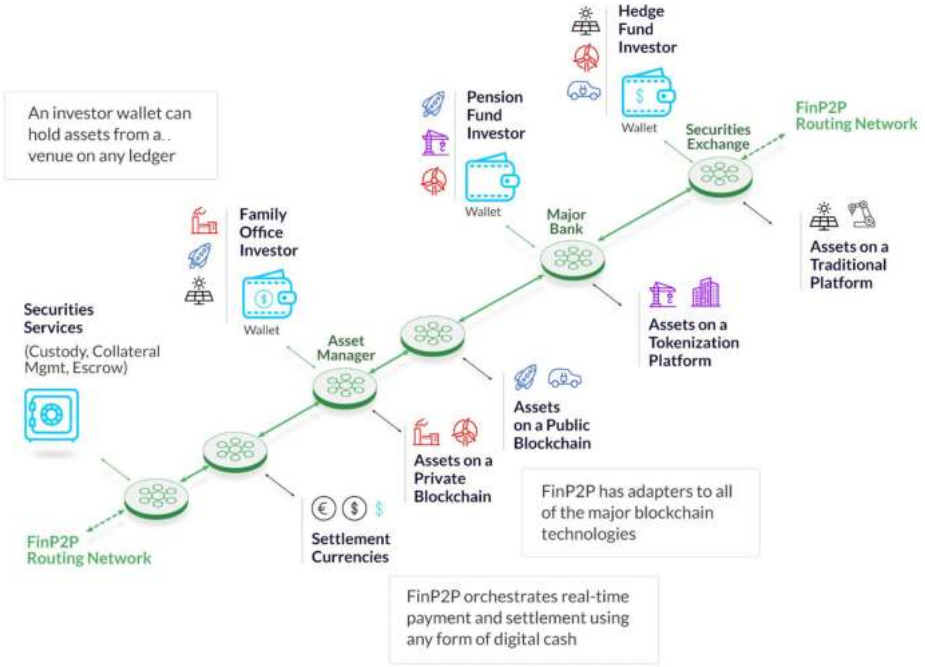
It showed how institutions issuing assets on one ledger platform could reach investors on a completely different venue. Furthermore, FinP2P orchestrates transactions such that assets on one platform can be paid for with digital cash issued elsewhere – all with instant settlement and transfer of ownership.

Through 2021, extensions to the API specifications were published to support secondary trading and collateralization of assets. This unlocks the ability to pledge digital securities as collateral for lending and borrowing, opening up the world of DeFi to regulated institutions at a global scale.

As we start 2022, multiple members of the group are working on projects that will see the FinP2P open source protocol being used in production in the coming months. These projects encompass the issuance of multiple types of assets including pre-IPO companies, money market funds, institutional real-estate companies, and private equity funds. We will also look to develop and consolidate the governance structure of the network in 2022. We will set up a FinP2P Node agreement with GDF, setting out the rights, obligations, and registration of members to the network. ■

**Anthony Woolley**
Head of Business Development
**Ownera**

### How FinP2P works



# Shared Market Surveillance
## Working Group

Building on the GDF Market Integrity Code of Conduct, the Shared Market Surveillance Working Group stood up in October 2021 to promote best practices in market surveillance and establish a framework for shared market surveillance. While a number of responsible digital asset market participants are conducting surveillance and seeking to prevent market abuse, many regulators still point to these markets as the "Wild West" where fraud is rampant.

The working group aims to develop a strong counter to that view by providing a framework to shape future regulation that is most certainly coming. We agree that market integrity is a necessary part of digital asset market growth and greater institutional adoption. In fact, Abu Dhabi and Malta have already established data requirements for licensees in their jurisdictions and U.S. regulators are asserting current law that applies to crypto exchanges.

The working group developed the outline and began drafting the framework to include three levels of market surveillance: best practices for conducting market surveillance within an exchange; means for sharing insights from market surveillance amongst exchanges; and means for enabling shared market surveillance to support a proof-of-concept. The working group has discussed the scope of the effort, including ties to digital identity and the implications posed by DeFi, and issues such as what constitutes market abuse, data protection across jurisdictions, communication with regulators, and governance.

In 2022, the working group will socialize the best practices for conducting market surveillance and build out the framework for shared alerts and shared surveillance. ■

**Kathy Kraninger**
Vice President of Reg Affairs
**Solidus Labs**

**Alissa Ostrove**
Chief of Staff
**CryptoCompare**

**Martin Bartlam**
Partner
**DLA Piper**

# Stablecoins Refresh

The GDF Code of Conduct must be reviewed regularly to ensure that it remains a living document, relevant to the industry as it develops. Since the original Stablecoins Code was written in October 2019, there has been a proliferation in the use of stablecoins in the cryptocurrency ecosystem as a form of payment, wealth storage, and transactive asset. This has led to a swelling in the value of assets held, development of technological know-how, and new parties entering the market.

Multiple governments and regulatory bodies have started to engage with stakeholders in the industry to develop and implement regulatory changes and reports such as the Regulation on Markets in Crypto Assets (MiCA) in the European Union and the President's Working Groups on Financial Markets (PWG) in the U.S. that could have a material impact on the development of the stablecoin sector.

The aim of the Stablecoin Code refresh is to recognize the changing environment that stablecoin issuers are in and to reflect the interest and changes from stakeholders, including governments and regulatory bodies. The working group felt that the first iteration of the Stablecoins Code did not address the matter of 'algorithmic'-backed stablecoins sufficiently. As a result, the group is considering splitting this area into two papers, or having separate sections for 'asset-backed stablecoins' and 'algorithmic stablecoins'.

As has been demonstrated in both GDF community surveys and GDF Regulator Only Forum polls, there is a great deal of interest in stablecoins and the development of code. Whilst we seek to release an update in late February 2022, it is understood that further iterations will be required as the market developers and regulatory bodies release further guidance. And it is our objective to focus on ensuring that the code is adopted by the community in a meaningful and timely way. ■

**Andrew Adcock**
CEO
**Crowd for Angels**

**Bryony Widdup**
Partner
**DLA Piper**

**Claire Wells**
Associate General Counsel
**Coinbase**

**Leo Real**
Chief Compliance Officer
**Tether**


The first version of Part VI: Principles for Stablecoin Issuers

# Tax
## Working Group

### Tax Views and Priorities
GDF Tax Survey 2021

**95%** anticipated a growing trend towards requiring third-party reporting

**86%** think that new tax regimes legitimize the industry

**70%** showed support for consistency in classification with other regulatory agencies

**41%** think that tax regimes would hinder growth

After publishing the industry's first comprehensive review of the tax issues facing the digital assets industry in the *GDF Tax Treatment of Cryptoassets* in July 2020, the Tax Working Group set out to do more targeted, in-depth reviews of particular issues facing the industry.

In February 2021, we conducted a survey of GDF members regarding their views and priorities in the area of tax. Most respondents anticipated a growing trend toward requiring third-party reporting of crypto assets (95%), and all respondents thought we would see new tax laws governing crypto assets within the next two years. A large number of respondents thought that the introduction of new tax regimes for cryptoassets would tend to legitimize the industry (86%), though a significant minority (41%) thought new tax regimes would hinder growth of the industry.

The respondents also expressed support for classifying cryptoassets for tax purposes consistently with other regulatory agencies (70%). Although respondents had generally not experienced challenges by tax authorities (only 14% had), half had engaged with policymakers.

The survey also requested feedback on members' top priority tax issues. The working group took these responses, as well as information from their own experience representing clients, to determine its next project. In addition to decentralized finance (DeFi), other top priority tax issues included the classification of cryptoassets, tax reporting, taxation of staking rewards, taxation of non-fungible tokens (NFTs), which exchanges constitute taxable events, and simplified tax treatment for small or occasional transactions.

**Lisa Zarlenga**
Partner
**Steptoe & Johnson**

**Dennis Post**
Global Leader Blockchain Tax Services
**EY**

Following the survey, we decided to do our first in-depth review on the tax issues raised by DeFi. In 2022, we will release a short paper and engage in a dialog with tax regulators and intergovernmental organizations following our review.

The Tax Working Group also saw a shift in leadership this year. Krystle Gan, then Seconded Counsel at Wells Fargo, stepped down in August, and Dennis Post, Global Leaders Blockchain Tax Services at EY, stepped in to take her place. The group would like to thank Krystle for all her hard work. The group is looking forward to 2022 to address several tax topics that will help drive the maturity of the digital asset space. ■

# TALENT AND GOVERNANCE

# Talent and Governance Update

**Abdul Haseeb Basit**
Board Member & Treasurer
**GDF**

GDF continues to thrive as a remote-first organization. Our team has remained stable throughout 2021 as we've steadily grown our membership, activities, and influence. We remain vigilant and cautious in moving to hybrid events and reevaluating our commitments on an ongoing basis as restrictions allow.

## Board and Executive Team

In 2021 our Board and Executive Team continued to be led by Lawrence Wintermeyer as Executive Co-Chair and Abdul Haseeb Basit as Treasurer and Board Member. Simon Taylor continued in the capacity of Non-Executive Co-Chair alongside Non-Executive Directors Jeff Bandman and Sandra Ro.

In Q4 we welcomed Greg Medcraft to the GDF Board as a Non-Executive Director. Greg is the former Director of the Organisation for Economic Co-operation and Development's (OECD) Directorate for Financial and Enterprise Affairs and previously served as first Commissioner and then as Chairman of the Australian Securities and Investments Commission (ASIC), Chair of the International Organization of Securities Commissions (IOSCO) Board, and a member of the Financial Stability Board from 2013 to 2016. Greg was an early supporter of GDF's mission and brings a wealth of experience in policy and standard-setting work in a number of areas including blockchain and distributed ledger technology (DLT); digital assets, tokenization, securitization, and ESG reporting.

Emma Joyce, Global Ecosystem Director at GDF, also joined the Board as Executive Director in Q4. Emma has led GDF's community building and engagement since 2019. Prior to joining GDF, Emma held strategic marketing positions at Citi, Barclays, and Fidelity International. In addition, Emma previously worked for the Emerging Markets Investors Alliance, a non-profit organization that enables investors to support good governance, promote sustainable development, and improve investment performance in the companies in which they invest.

Our core team in 2021 included Lavan Thasarathakumar, Regulatory Affairs Director for EMEA; Anastasia Kinsky, Head of Programmes and Content; and Melissa Corthorn, Head of Events, and Thomas Peers, Community Analyst. In addition, Madeleine Boys joined us this year as Community Manager, and Tatyana Marsh joined us to focus on communications. We were supported by our core advisors, including John Collins and Melissa Netram as U.S. Policy Directors; Phil Anderson and Taylor Marriott on PR; and Bessie Ng as Executive Advisor.

## Governance

In 2021 we welcomed new Patron Members – Standard Chartered Group and Ownera – to our Patron Board, bringing the total number of Patron members to 12. Alongside the Patron Board we also welcomed new Advisory Council members Filecoin Foundation, MakerDAO, OKLink, and YieldApp. Malcolm Wright continued to chair the Advisory Council in 2021, with Emma Joyce assuming the Advisory Council Secretariat role.

2021 has been another outstanding year for GDF with the continued exceptional work of the team, supported by our membership. We would like to take this opportunity to thank all those who have contributed to growing GDF's reach and influence in 2021. ■

*Some of the team finally meeting in person in October 2021*

# The 2021 Program was delivered by

**Lawrence Wintermeyer**
Executive Co-Chair & Guarantor

**Simon Taylor**
Co-Chair & Guarantor

**Jeff Bandman**
Co-Founder and Board Member

**Abdul Haseeb Basit**
Board Member & Treasurer

**Emma Joyce**
Global Ecosystem
Director & Board Member

**Sandra Ro**
Board Member

**Greg Medcraft**
Board Member

**Lavan Thasarathakumar**
Regulatory Affairs
Director - EMEA

**Anastasia Kinsky**
Head of Programmes
& Content

**Melissa Corthorn**
Head of Events

**Madeleine Boys**
Community Manager

**Tatyana Marsh**
Communications

**John Collins**
US Policy Director

**Melissa Netram**
US Policy Director

**Phil Anderson**
Media & PR

**Taylor Marriott**
Media & PR

**Thomas Peers**
Community Analyst

**Bessie Ng**
Executive Advisor

# With Thanks to Our Code Members and Partners

## Our Patron Members

BitMEX · eqonex · London Stock Exchange Group · Hogan Lovells · standard chartered · DLA PIPER · EY Building a better working world · SDX · r3 · Huobi Tech · OWNERA

## Our Advisory Council Members

11FS · ARCHAX · BANDMAN ADVISORS · BEQUANT · XReg Consulting · CONSENSYS · ELIPSES · ING · Steptoe · MESSARI · METACO · SOLIDUS LABS · YIELD · OKLink · Filecoin Foundation · CryptoCompare · ShapeShift

## Our Partners

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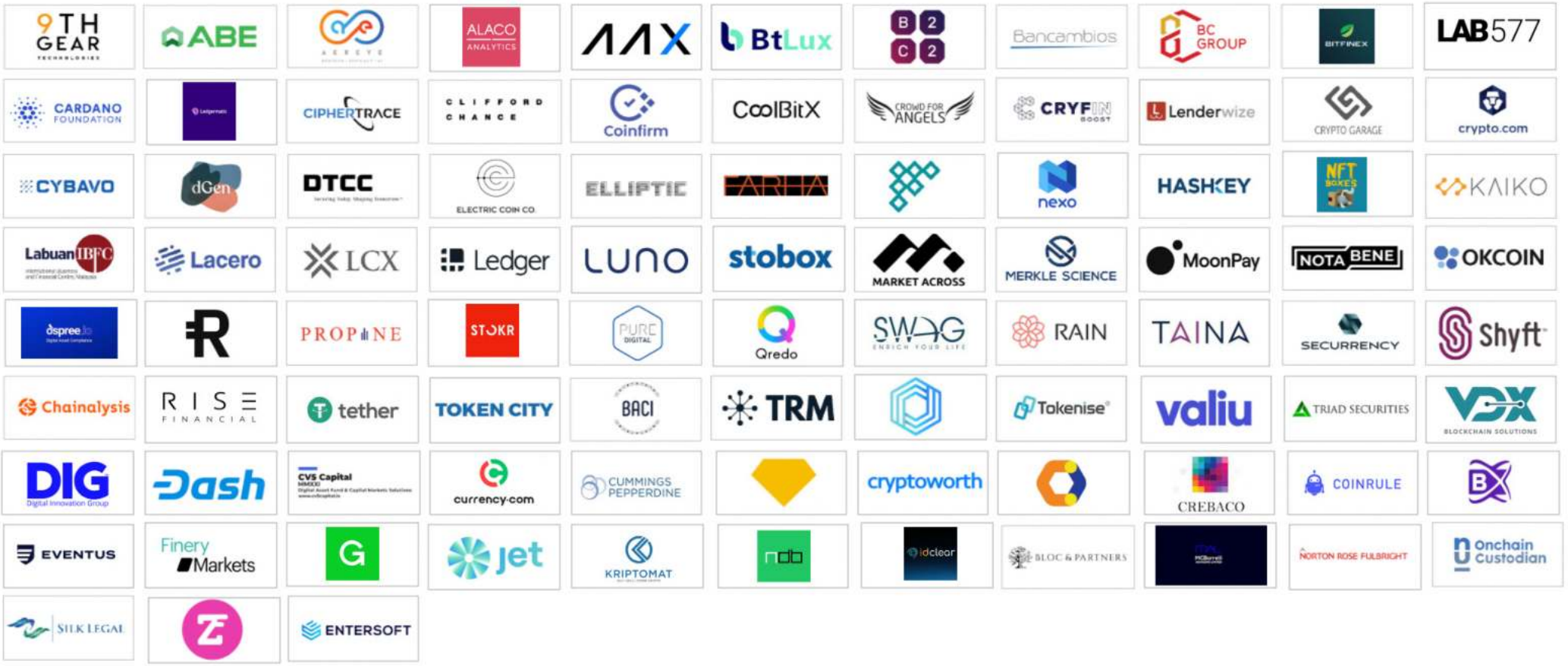
## Our Working Members



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