2023 | Year in Review

SCALING FOR SUCCESS IN 2023:

RWA TOKENIZATION MOVES FROM POC TO PRODUCTION WHILE CRYPTO POSITIONS FOR GREATER ADOPTION

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Chair's Foreword

Lawrence Wintermeyer
Executive Co-Chair of the Board
GDF

2023 was one of the most challenging years in global financial services since the 2008 Great Financial Crisis with the failure of Silicon Valley Bank and Credit Suisse and the banking sector shedding almost half the number of jobs lost in 2008.

This, against a backdrop of falling inflation and a softer landing than many predicted, and a strong performance of the S&P led by the Magnificent Seven tech stocks outperforming the market, aided by the breakout of ChatGPT and the bullish sentiment towards Generative AI.

The size of the market opportunity for real-world asset (RWA) tokenization and the institutional projects underway were prominent in the finance media, and the long-awaited SEC approval of bitcoin ETFs in early January 2024 buoyed the crypto markets.

Crypto markets drew a line under the FTX bankruptcy and its contagion with the prosecution of Sam Bankman-Freid while new crypto regulation was introduced in 2023 in Europe (MiCA), the UK (FSMA Bill), Dubai (VARA Regulatory Framework), Hong Kong (Crypto Licensing), and over 20 countries reported to have implemented crypto frameworks.

These milestones have signaled that the mass adoption of digital assets has arrived as Tech remains positioned to globally dominate the next market cycle.

The 2023 headline for many in the GDF community was the tokenization of RWA projects - "moving from POC to production" - and the number of emerging production use cases across debt, commodities, money markets, repo, and ETFs impressed many.

The key messages coming from industry leaders delivering RWA tokenization production use cases also made an impression on many of us:

- It is all about liquidity: delivering better, faster, cheaper products to clients enabling greater and more liquid markets.
- Private protocols and networks will lead for institutional RWA, public protocols may not stand up to scrutiny of the many jurisdictional laws and regulations.
- The "new rails" usher in an era of new digital financial market infrastructure (dFMI), but don't expect the "old rails" to disappear quickly.
- T0 (T Zero), also referred to as "atomic settlement", is a bit of a misnomer, the new tech can do it but there are concerns about both its use case and its legal viability.
- Pay attention to the (emerging) institutional token landscape for on-off-ramps to distributed ledger technology (DLT)-based infrastructure for many of these new RWA-tokenized products – cash on ledger is the killer app.

The delivery capacity of GDF members was greatly tested in 2023, with many members working hard to address challenging market and trading conditions, major delivery commitments for production use cases and features, and, the seeming deluge of agency consultations requiring well-constructed, considered and often very technical, responses.

We are grateful to our members for their dedication to delivering the big three GDF 2023 member priorities:

1. Institutional Adoption
2. Decentralized Finance, and
3. Digital Asset Custody.

#1 Institutional Adoption – The Global Cryptoasset Standards are Global FX Code-like standards for financial institutions engaging in intermediation activities such as brokerage, custody, and settlement of cryptoassets like bitcoin and Ethereum. The standards were delivered in June following an open public consultation and regulatory purview, and have been mapped to the new IOSCO Cryptpo and Digital Asset principles.

#2 Decentralized Finance (DeFi) – GDF is an IOSCO Affiliate Member and the GDF community put its energy into two IOSCO consultations in 2023: Crypto and Digital Assets (CDA) and DeFi. The DeFi consultation response laid down the foundation for a definition of credibly neutral and decentralized network protocol, versus a DeFi arrangement as a distinct financial services product or service interfacing with a protocol.

#3 Digital Asset Custody (DAC) – In partnership with the International Securities Services Association (ISSA), and 20 of our collective members ranging from traditional custodians to new digital assets custodians, the DAC report was delivered in Q3 and received very positive feedback from the industry and regulatory community.

A very big thank you to all our member Working Group co-chairs who led this work, and the number of member and community firms in the Working Groups to deliver these priority outcomes through roundtables, consultations, forums, Working Groups, reports – a truly outstanding effort by all involved.

In addition to the big three GDF 2023 member priorities, members supported the responses to 16 major agency consultations and or requests for responses in 2023 including to the International Organization of Securities Commissions (IOSCO), the Financial Stability Board (FSB), the White House, the US Senate, the US Securities and Exchange Commission (SEC), the UK House of Lords, the UK Financial Conduct Authority (FCA), HM Treasury, the Bank of England, the European Commission and European Supervisory Authorities, and the HK Monetary Authority.

GDF policy outreach focused in Washington, London, Brussels, Dubai, Tokyo, Thailand, and Singapore. Much of our regulatory consultation and policy outreach work is for GDF member community engagement, though it is made available for public community consumption.

Our GDF regulator and policy outreach work is critical to further strengthening the “soft influence” GDF holds with policymakers and regulators, and we are grateful for our GDF Advisory Council members leadership and support in this area.

The GDF Regulator (Only) Forum, chaired by GDF Board Member and former CFTC Commissioner Dawn Stump, held quarterly forums in 2023 with presentations from the US Department of Treasury, Autorité des marchés financiers (AMF) France, and the Financial Stability Board (FSB).

The top 3 Regulator Forum engagement priorities in 2023 included DAC, anti-money laundering (AML), and DeFi, with a continuing GDF engagement in all these areas into 2024. Following regulator purview of the Global Cryptoasset Standards, GDF and the Working Group chairs have engaged with jurisdictional regulators with consideration for the industry implementation of the standard in 2024.

A very big thank you to Dawn and the regulator community delegates for a successful 2023 Programme. Discretionary invites go out to over 160 delegates in 60 agencies around the world and the forum is regularly attended by delegates from a quorum of G7-20 jurisdictional and global agencies, along with smaller jurisdictional agencies who often have scope for (greater) agile innovate approaches to regulation.

Trade and industry associations had their own challenges in 2023, especially those in the digital asset and blockchain spaces. We are delighted that GDF finished the year with a retention and renewal rate of over 90% of our Advisory Council, comprised of our largest funding members, and an 80% talent retention rate across the GDF board, executive branch, and advisory talent bench.

These are two key indicators to us that we are doing our job for GDF members.

GDF finished 2023 agreeing to separate from GBBC, announcing to the membership in early January 2024. Following the merger in May 2022 and in difficult market conditions, issues remained surrounding the alignment of the strategy, branding, and member proposition. Both boards agreed it is in their respective members' best interests to separate amicably. We wish the GBBC team the best for the future.

The GDF team remains, as always, dedicated to our members, partners, community, and our mission to serve the global financial services sector:

"To promote and underpin the greater adoption of market standards for the use of crypto and digital assets, through the development of best practices and governance standards in a shared engagement forum with industry, policymakers, and regulators."

Looking ahead to 2024, it appears macro geopolitical conditions will remain volatile, and inflation is still proving a challenge to many economies. 2024 is the election year of all years, with half of the world's population going to the polls in over 60 countries.

Following our annual survey for 2024 priorities, and with input from GDF Advisory Council members over discussions across Q4, the 2024 programme of member-led priorities is taking shape:

1. RWA Tokenization
2. DAC
3. dFMI
4. Exchanges and Platforms, and
5. Interoperability.

GDF's geographical priorities remain the Europe, the US, and the UK, followed by the Middle East and APAC. All 2024 priorities will be further moderated in the January Advisory Council meeting and (further) aligned to a commissioned external quantitative global research survey scheduled for February, to further inform the 2024 member-led programme.

We are also hoping to engage the community's attention with AI in regulated financial services, a topic outside of member's 2024 main priorities, and help to move beyond the hype of GenerativeAI with meaningful use cases for AI with digital assets and dFMI.

I must extend my heartfelt thanks to each and every one of you on the GDF team in 2023 for your resolute conviction to our mission, our member and community priorities, and our ways of working - an outstanding contribution to the 2023 Programme – job done!

I am looking forward to taking up the role of Executive Co-Chair in 2024 and working closer with the GDF executive branch and our members. I am also delighted, that Greg Medcraft will take on the role of GDF Co-Chair in 2024.

Following a distinguished career at Société Générale where he spent a decade in New York running the global securitization business (and co-established the American Securitization Forum), Greg was the second longest serving Chair at the Australian Securities and Investments Commission (ASIC), Chair of IOSCO, and held roles with the FSB, the IMF, the World Economic Forum (WEF) and latterly with the Organisation for Economic Co-operation and Development (OECD).

Greg is a mentor of mine and his guidance to the GDF board, executive branch, and our members, has been invaluable. Greg was one of the first agency supporters of GDF in 2018 while he was the Director of Financial and Enterprise Affairs at the OECD, and in many ways, is almost uniquely positioned with his global career experience, to help guide our community through the tokenization of financial products and markets. Greg took on the chair role at the ASX listed Australian Finance Group (AFG) last year, one of Australia's largest mortgage originator, as well as the role of Director of Digital Finance at the Co-Operative Reaserch centre. We are very grateful for his time and dedication to GDF.

Bitcoin, cryptoassets, tokenization, and DLT technologies have been with us for 15 years.

Most seasoned veterans in the GDF community are approaching 2024 with their heads down, in delivery mode, while keeping an eye out for the green shoots of growth and the opportunities that arise from the signals of the greater scale adoption of digital assets across both wholesale and retail financial markets.

As you our members, partners, and community, focus on further building the foundations for the next generation of digital assets products, services and infrastructure into 2024 and beyond, the GDF team is your trusted global digital finance platform partner for open innovation: standards, education, and advocacy. We are right here with you. ■

GDF Membership and Community in 2023

Madeleine Boys
Head of Programmes and Innovation
GDF

Throughout 2023, GDF navigated the ever-evolving landscape of the digital asset industry, aligning its efforts with the priorities set by our dynamic and engaged membership. Against the backdrop of significant milestones in the digital asset space, our membership and community placed a strategic focus on three key areas: digital asset custody (DAC), institutional adoption, and decentralized finance (DeFi).

In response to the community's call for action on **digital asset custody**, a pivotal aspect in the industry's maturation, GDF collaborated with the International Securities Services Association (ISSA) and published "Digital Asset Custody Deciphered" in Q3 of this year.

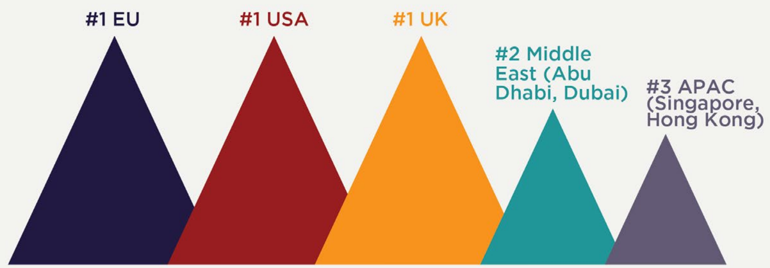
"Digital Asset Custody Deciphered" is a primer that sets out to provide financial services professionals, investors, and policymakers of all experience and levels with a starting point, covering nine factors across three domains:

- *Legal, Regulation, and Financial Crime*
- *Settlement & Finality, and Asset Segregation*
- *DLT Governance, Staking, Key Management, and Interoperability.*

This insightful report, drawing on the collective expertise within the GDF and ISSA community, has become a leading resource. It not only addresses the intricate challenges surrounding the custody of digital assets but also offers actionable recommendations. In a market gearing up for increased institutional involvement, effective custody solutions are paramount, and we believe this report contributes significantly to driving awareness and knowledge sharing as to how to overcome hurdles in this domain.

We are grateful for the ISSA collaboration, to Glen Fernandes, Co-Chair ISSA DLT and Digital Assets Working Group and Colin Parry, CEO, ISSA. The joint member Working Group was co-chaired by, John Sienna, Associate General Counsel at Brown Brothers Harriman, Seamus Donaghue, Chief Growth Officer at Metaco, and Swen Werner, former Head of Digital Assets at State Street, supported by the secretariat firm, Deloitte, led by Ed Moorby, Partner, and team, with the dedication of the 20 member firms that contributed to this working group.

Priority jurisdictions for GDF members in 2024:



Biggest challenges to the global digital assets industry in 2024:

Priority forums and working groups for GDF members in 2024:

#1 RWA Tokenization

#2 Digital Asset Custody

#3 dFMI

#4 Exchanges and platforms

#5 Interoperability

It was truly an outstanding effort by all involved. Thank you.

In July 2023, recognizing the growing importance of **institutional adoption**, GDF introduced the Global Cryptoasset Standards following an open public consultation and regulatory purview with the GDF Reg-Only Forum. As a comprehensive code of conduct comprising 63 principles, this standard sets the bar for financial institutions engaging in cryptoasset intermediation activities, covering aspects like brokerage, custody, and settlement.

> *The Standards consist of a set of global principles that are intended to promote a robust, fair, liquid, open, and appropriately transparent market in which a diverse set of market participants, supported by resilient infrastructure, are able to confidently and effectively transact at competitive prices that reflect available market information, and in a manner that conforms to acceptable standards of behaviour.*

The Standards were delivered by the GDF Global Financial Institutions Crypto (GFIC) Working Group, comprised of regulated financial institutions, crypto exchanges, brokerages, and services firms, and professional services providers, and included several traditional industry association observers.

The presentation of this Working Group's Standards by Greg Medcraft, GDF Board Member, at IOSCO's 48th Annual Meeting in Thailand provided an opportunity to ensure the Standards were aligned with IOSCO's Consultation Report: Policy Recommendations for Crypto and Digital Asset Markets - demonstrating our commitment to fostering industry-wide best practices.

GDF and the co-chairs of the GFIC Working Group also engaged the UK Financial Conduct Authority (FCA) to discuss the applicability of the FCA Code Recognition Programme, to the GDF Global Cryptoassets Standards and its value as a 'living standard' that can keep up with the pace of the rapid developments of this very dynamic digital industry.

The FCA and the GFIC Working Group agreed to a series of calls to conduct a "deep dive" on the Standards and work through the detail of each of the principles to identify areas which could be enhanced or built upon for future consideration of supplementing the principles in the Standards. GDF and the members of the GFIC Working Group were greatly encouraged by the FCA's insights and willingness to engage

Lavan Tharasathakumar speaking at CYFERIUM Digital Assets Conference in Warsaw

in this collaborative process and look forward to continued engagement with the FCA in 2024.

The working group is led by co-chairs René Michau, Global Head of Digital Assets, Standard Chartered and Karl Mohan, GM APAC & ME and Global Head of Banking Partnerships, Crypto.com, and secretariat Seha Islam, Senior Manager, EY Consulting.

A big GDF thank you to the co-chairs, secretariat, and the members of this working group for over 18 months of hard work and dedication to the delivery of these standards.

As **DeFi** continued to shape the future of the digital asset landscape, GDF, responding to

Elise Soucie speaking at the Open Banking Expo in London

community feedback, actively engaged in advancing the conversation. In October, Elise Soucie, our newly appointed Director of Global Policy and Regulation, led GDF's response to the IOSCO Consultation on DeFi. Leveraging our role on the IOSCO Affiliate Member Conultative Committee (AMCC), we collaborated with the Global Financial Markets Association (GFMA), presenting a joint industry response, with a focus on the key principles:

- ***A DeFi Arrangement** is a distinct financial product or service built on or interfacing with a DeFi Protocol, facilitated through technology infrastructure designed to enable end-users or investors to engage in financial transactions communicated or recorded through the DeFi Protocol.*
- *A **Decentralized Protocol** (DeFi Protocol) is a Credibly Neutral Decentralized Network on top of which financial products and services are created.*
    - ***Credibly Neutral:** A verifiable and transparent system that aligns incentives with its users.*
    - ***Decentralized Network:** A distributed, permissionless, and jurisdiction-neutral infrastructure. Its architecture inherently facilitates user autonomy, value management, and an open-source ecosystem.*

Many of the GDF consultation comments were captured by IOSCO in their feedback summary in December with the most substantiative changes related to recommendation 2 on responsible persons.

This collaborative effort underscores the importance of a cross-border and cross-industry approach to navigating the complexities of DeFi. The consultation response also demonstrates that we are getting closer to "one voice" in the community for material consultation responses! Thank you to Elise and the GDF team, and all our member, community, and association contributors to this milestone consultation.

Looking ahead to 2024, the digital asset industry stands at a crucial juncture. Market conditions suggest a continued influx of institutional players, regulatory developments, and advancements in technology. Against this backdrop, GDF remains committed to providing leadership and expertise. For example, across multiple jurisdictions we continue to work with both industry and regulators such as DLT Pilot Regime in the EU and Digital Securities Sandbox in the UK.

We measure success not only against industry priorities but also in our ability to guide the community on issues we deem essential. Two notable achievements underscore this commitment.

- The publication of the GDF Virtual Asset Due Diligence Questionnaire for virtual asset service providers (VASPs), a culmination of approximately two years of meticulous work led by GDF APAC Advisor Malcolm Wright under the GDF KYC/AML Working Group. This questionnaire, well-received across the industry, offers a comprehensive overview of VASP's AML policies and practices. It supports due diligence and risk management, and may be used by VASPs onboarding counterparty VASPs, or financial institutions onboarding VASPs.

- GDF has sponsored the launch of an All-Party Parliamentary Group (APPG) on Digital Finance in response to the evolving dynamics between government policy and parliamentary awareness. This group serves as an educational tool for parliamentarians to deepen their knowledge of digital finance. Our industry launch in November 2023 at London's Digital Asset Week set the stage for a formal launch at the Houses of Commons on 8th January.

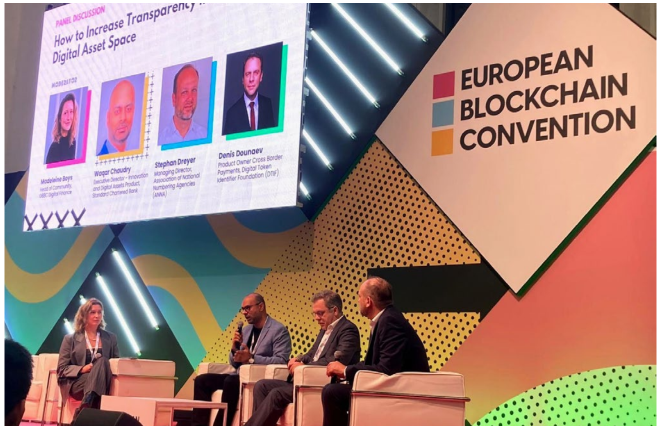
The APPG will convene industry evidence sessions in Parliament throughout the year, providing industry guidance on how the UK can capitalize on digital finance to enhance productivity, products, and global competitiveness. The culmination of these efforts will result in a report slated for publication in July 2024.

Supported by influential figures within Parliament, including Sir Stephen Timms and Lord Hammond, Lord Holmes, and Martin Doherty Hughes, the APPG represents an important cross-party and

Lawrence Wintermeyer hosts a fireside chat with Lord Holmes at London Digital Assets Week

Officers and Chair of the Digital Finance APPG with the GDF team at London Digital Assets Week

Anthony Day opening the GDF and DLA Piper Global Digital Forum



Madeleine Boys speaking at the European Blockchain Convention in Barcelona

GDF and Hogan Lovells Digital Assets Summit closing fireside with Sharon Lewis, Lord Holmes and Lawrence Wintermeyer

cross-house initiative to shape the narrative for digital finance within the legislative assebly in the UK.

GDF continued to foster thought leadership in our digital asset community at industry events, as well as our own fixtures in London. In September, we hosted Global Digital Forum in partnership with DLA Piper. Bringing together leaders from government, international business, and regulatory bodies, the Forum was dedicated to exploring the implications of operating in the evolving digital landscape and its impact on global businesses and capital markets.

Later in Q4, the GDF and Hogan Lovells Digital Assets Summit convened industry leaders, global regulators and policymakers, and financial institutions with the aim of sharing insights on the importance of fostering trust in the context of institutional digital asset adoption. Amongst key takeaways of the Summit was that fostering trust is a critical component of to the adoption and scale of digital assets, and all market participants have a role to play in this process as we build together towards a digital future.

2023 also brought us to Washington, Brussels, Paris, New York, Dubai and Singapore for regulatory and institutional engagement, some highlights of which are featured in the Mid-Year Global Policy Update. In 2024, we look forward to our continued engagement with the Juliet Media team at their Digital Assets Week fixtures in Hong Kong, California, Singapore and London.

As GDF looks forward to the challenges and opportunities that 2024 holds, we express sincere gratitude to our co-chairs and members, and the wider community for the ongoing support and contributions to our shared mission:

"To promote and underpin the greater adoption of market standards for the use of crypto and digital assets, through the development of best practices and governance standards in a shared engagement forum with industry, policymakers, and regulators."

Madeleine speaking at Finance Magnates London Summit

Elise Soucie speaking at CCData's Digital Asset Summit in London

The Hogan Lovells team at the GDF / TPN Brussels Roundtable in June with the European Commission and DG Connect talking about RWA Tokenization

Stepping into 2024, the financial services sector is showing resilience with strong capital and liquidity ratios. However, the challenges of 2023 underscored the fragility of the banking sector, emphasizing the critical need for robust and balanced governance frameworks, regulation, and standards. Short- and medium-term pressures – characterized by rising geopolitical tensions and the impending elections across multiple G20 jurisdictions – will only continue to challenge the global financial services sector this year.

In this macroeconomic context, our members, partners, and community continue to usher us into the next era of financial services, and GDF is poised to serve its membership and community to deliver on this year's member-led priority areas:

1. RWA Tokenization
2. DAC
3. dFMI
4. Exchanges and Platforms, and
5. Interoperability.

The January Advisory Council meeting will serve as a platform for refining all 2024 priorities, and these will be further harmonized with the results of an external quantitative global research survey commissioned Q1. This strategic alignment aims to enhance insights and better inform the development of our 2024 member-led programme.

Guided by our members' 2024 priorities, GDF is off to a strong start. In the coming months, we look forward to convening our community in our new Tokenization Forum. From 2024, GDF will administer the entity register for the FinP2P router network, now in production, delivering a peer-to-peer digital assets interoperability platform to regulated firms. Our DAC Programme is expected to continue starting with robust and thorough roundtable discussions hosted in partnership with our members. As ever, we are grateful to our members and wider community for committing to leading these initiatives through our open innovation platform. ■

GDF ADVOCACY AND OUTREACH

Promising Steps Towards Future US Digital Leadership

Dawn Stump
Board Member and Reg-Only Forum Co-Chair
GDF

Andrew Smith
US Policy Advisor
GDF

While 2022 witnessed a tumultuous ride in US digital asset regulation, 2023 showcased promising developments indicating a potential resurgence of the US within the space. Notable advancements occurred within the broader context of AI and blockchain technology promotion and specific non-financial use cases. There was significant attention given to counter-terrorism financing and anti-money laundering crypto proposals embedded in Senate and House bills linked to geopolitical events.

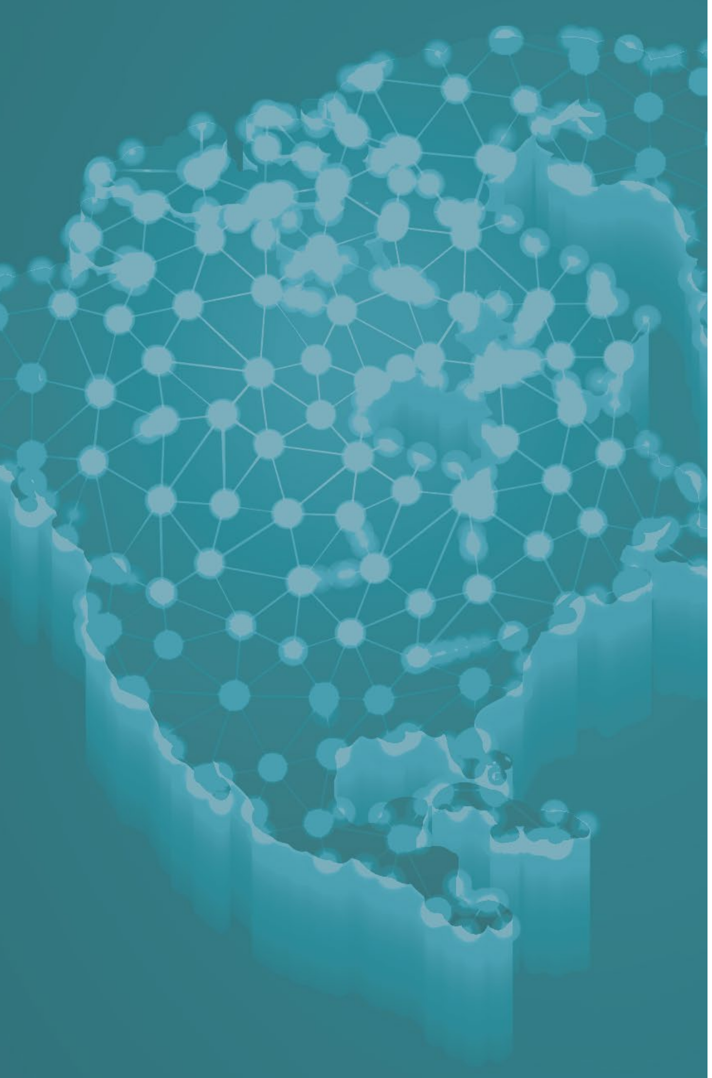
The US took strides toward comprehensive digital asset regulation through key regulatory and legislative milestones. The IRS and Treasury unveiled tax proposals addressing the complexities of crypto transactions and brokerage. The Consumer Financial Protection Bureau stepped into the regulatory landscape, signaling increased federal oversight. Essential state-level updates, particularly in influential states like New York and California, further evidenced the extent of regulatory advancement.

Popular market structure legislation was re-introduced, and notably, a key piece of legislation successfully emerged from the House Financial Services Committee (HFSC), indicating a maturing legislative landscape. Undoubtedly, the bills introduced last year will serve as the foundation for future legislation given the bipartisan work that has already been invested.

Continuing the trend from 2022, 2023 saw a slew of enforcement actions, especially from the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC). Notable cases shed light on evolving regulatory approaches, with emphasis on the landmark resolution with global crypto exchange Binance and the Department of Treasury, Department of Justice, and CFTC (notably, the SEC has also sued Binance with no settlement to date).

At the start of 2023, reports arose of federal banking regulators pressuring banks to avoid doing business with crypto firms, a so-called Operation Choke Point 2.0. This has prompted Senate action and pushback. As a top issue to Senate Banking leadership, expect the issue to become a negotiating vehicle for digital asset-related topics, as well as increased political pressure.

Stablecoins and CBDCs continued to be politically divisive. Last summer the HFSC overwhelmingly passed a stablecoin proposal, however Democrat leadership has opposed over disagreement in how much authority federal regulators should have over state-chartered issuers. Until a compromise is reached on that issue, it appears unlikely that legislation will advance. Likewise, proposals limiting federal authority to issue CBDCs were introduced. Since the topic implicates core financial privacy concerns, expect debate around whether the US should pursue a CBDC to remain a topic for political discourse in 2024.



GDF Chair of the Board, Lawrence Wintermeyer, and Vincent Molinari from FINTECH.TV at the NYSE

Anticipate more positive changes and incremental steps in 2024, buoyed by a favorable House Majority Whip and the dynamics of an election year that could usher in the introduction of a more comprehensive federal legislative framework, furthering regulatory development.

The rollercoaster of 2023 has paved the way for more clarity in US regulation going forward. The start of 2024 has not fallen short on this promise. The SEC's recent approval of US Bitcoin ETF applications has marked a pivotal moment in the evolution of cryptocurrency regulation. Institutional and individual investors now have a regulated avenue for exposure to Bitcoin, beyond the futures market, enhancing portfolio diversification. The approval not only legitimizes spot Bitcoin ETPs as registered securities but also paves the way for broader integration of digital assets into conventional investment strategies. The SEC's endorsement is poised to attract significant institutional capital, propelling this new asset class into the financial mainstream.

The strategic strides in 2023 reflect a renewed commitment to asserting the US as the key jurisdiction, with legislative landmarks, enforcement actions, and state-level contributions shaping a robust regulatory landscape. As political winds favor progressive change, the year ahead holds promise for pivotal legislative developments and further regulatory clarity and advancements. ■

Navigating the Regulatory Landscape:

A Comprehensive Review of Digital Asset Regulations in the EU and UK in 2023 and Beyond

Lavan Thasarathakumar
Board Member
GDF

2023 was a pivotal year for digital asset regulation and much of that is thanks to the eagerly anticipated Markets in Crypto Asset Regulation (MiCA) entering into the Official Journal in June. Whilst there is still a long way to go until it is fully over the line and in effect, there is a sense of the tides turning as firms can now see the regulatory clarity that they have been yearning for. However, 2023 also showed that the EU was not the only game in town with the UK setting out its own comprehensive plans for digital asset regulation, looking to make use of so-called late mover advantage to establish a competitive advantage.

In the EU, rapid progress has been made to meet the deadlines for getting the Level 2 text finalized. The timings were always going to be difficult. First of all, from the perspective that if MiFID was anything to go by, the Level 2 text was going to be far larger and far more complicated than the Level 1 text. Second of all, with it being an election year and thus Parliamentarians out campaigning from the end of April, timings for getting the level 2 text approved in time would have to be fast-tracked. However, thousands of pages of consultation have now been published by the European Banking Authority (EBA) and the European Securities and Markets Authority (ESMA) and we look set to seeing a market leading regulatory regime come into force from the end of this year.

Meanwhile, in the UK, years of consultation and discussion on the topic is slowly turning into a regulatory framework. Whilst it may not be the big bang regime that many people wanted, it is a sure foot forward in ensuring that whatever approach is cognisant of the importance of financial services to the UK and that it does not disrupt the incumbents of its reputation as a leading jurisdiction for financial services. Taking a phased approach, the UK seeks to bring digital assets within the remit of existing financial services legislation and address the most significant and established areas first before moving on. However, the timer is on and there is pressure on the UK to compress the phases and seek to provide clarity for an industry which has a tendency for housing multiple activities, which spread over these phases, under one roof.

In the EU, whilst progress has been made and the finishing line is in sight, there are other concerns. Whilst the regime creates a single rulebook across the European Economic Area (EEA), having national competent authorities always runs the risk of the same regime being applied inconsistently or with slight variances. It will take time for the European Supervisory Authorities (ESAs) to ensure that there is consistent application and the speed at which National Competent Authorities (NCAs) will have to transition from having the final requirements to applying it will be short. This is particularly acute when considering the battle across Europe to become a MiCA hub. Furthermore, there will also be concern around the 18-month grandfathering provisions. With Member States allowed to apply domestic legislation for 18 months after MiCA comes into effect, there is still some way to go until a uniform approach across the EU.

The UK has a slightly different hurdle to overcome. Whilst there is not the concern of inconsistent application or two regimes being run out of the same regulator, there is the concern of how the UK will compete with the EU in terms of attracting business. With a single regime across

the EU proving enticing, the UK has to weigh up how it is that it will attract business to the UK. Divergence comes at a cost, firms will want to know whether the additional cost of complying with another regime is worth it. As we see the roll out of the UK's position, it is clear that the general approach is relatively similar. It is not so drastically different that it will lead to firms needing to choose one or another. However, what the UK is leveraging is its position that it does not need to find a compromise between 27 EU member states. The result of this is seen in the recently live Digital Securities Sandbox, which has more ambitious thresholds and wide ranging products which the EU are limited on when having to consider the risk appetite of varying member states' financial markets.

Across Europe it is clear that purposeful regulatory action is needed to keep pace with the fast-moving industry. The EU, UK and other jurisdictions will need to overcome the lack of maturity and fragmentation of digital assets markets and need to foster public private relationships with the industry to work towards improved outcomes for the digital sector. This is imperative to ensure policymakers are abreast of industry developments but also from the perspective of upskilling policymakers and regulators.

Putting aside the differences and the potential for competitive advantage, global cooperation, and cooperation between the UK and the EU remains imperative.

For a jurisdiction to act in isolation will be a futile endeavour, global technologies and global businesses need global approaches and it will be vital for regulators to work with their global counterparts to share information, their understanding and lessons learned, so we have safe, well-functioning markets.

As we look to 2024 progress is sure to continue, and as we now head down the path to implementation, cooperation across jurisdictions, market participants, and sectors will be crucial to the success of the industry. ■

Navigating the Blockchain Horizon in APAC: A Comprehensive Overview of Blockchain Finance Regulation

Greg Medcraft
Co-Chair of the Board
GDF

Steve Vallas
APAC Advisor
GDF

Malcolm Wright
MENA and APAC Advisor
GDF

The Asia-Pacific (APAC) region has emerged as a global leader in blockchain technology adoption, with significant development and investment in blockchain-powered finance applications. However, the regulatory landscape for blockchain finance in APAC remains fragmented and diverse, with each jurisdiction adopting a distinct approach. This overview aims to provide a comprehensive analysis of the current state of blockchain finance regulation and policy in APAC, highlighting key trends and challenges.

Current State of Regulation

The regulatory landscape for blockchain finance in APAC is characterized by a mix of approaches, ranging from comprehensive frameworks to more limited guidance. Certain jurisdictions, like Singapore, have established dedicated regulatory bodies and frameworks specifically for blockchain-based financial services. Others, like Australia and Japan, are still in the early stages of developing their regulatory frameworks, relying on existing laws and regulations to address blockchain-related activities.

Key Regulatory Trends

Several key trends are shaping the regulatory landscape for blockchain finance in APAC:

1. **Increased Regulatory Scrutiny:** Regulatory bodies across the region are paying closer attention to the potential risks and opportunities associated with blockchain finance. This has led to increased scrutiny of blockchain projects and businesses, with stricter licensing requirements and compliance obligations being imposed.

2. **Regulatory Sandbox Initiatives:** Many APAC governments are establishing regulatory sandbox initiatives to facilitate the development and testing of new blockchain-based financial products and services in a controlled environment, like the Monetary Authority of Singapore (MAS) FinTech Regulatory Sandbox. This allows regulators to observe and assess the potential risks and benefits of these technologies before implementing broader regulations.

3. **Focus on Consumer Protection:** Regulatory bodies are prioritizing consumer protection measures, particularly regarding the risks associated with digital asset trading and custody. This includes requirements for customer due diligence, anti-money laundering, and know-your-customer (KYC) compliance. For instance, MAS has implemented stringent regulations requiring digital asset exchanges to adhere to robust customer due diligence (CDD) procedures. MAS emphasizes the importance of thorough AML checks and strict KYC compliance for all users on these platforms.

4. **Collaboration and Harmonization:** Recognizing the need for regional cooperation, regulators across APAC are collaborating on developing harmonized regulatory frameworks for blockchain finance. This aims to promote innovation and cross-border trade while ensuring financial stability and consumer protection.

Challenges and Opportunities

Despite the progress made, several challenges remain in regulating blockchain finance in APAC:

1. **Regulatory Fragmentation:** The fragmented regulatory landscape across the region creates uncertainty for businesses seeking to operate in multiple jurisdictions. This can hinder innovation and limit the growth of blockchain-powered financial services.

2. **Lack of Regulatory Clarity:** Regulatory frameworks in many APAC jurisdictions are still evolving, leading to uncertainty and ambiguity for businesses seeking to comply with the rules. Clearer guidelines and regulations are needed to facilitate responsible innovation.

3. **Technological Complexity:** The rapid pace of technological development in the blockchain space can make it difficult for regulators to keep pace. This requires ongoing collaboration between regulators and industry stakeholders to ensure that regulations are effective and adaptable.

4. **Talent Gap:** The blockchain industry faces a shortage of skilled professionals, particularly in regulatory compliance roles. Addressing this talent gap is crucial for ensuring that businesses can comply with regulations and operate effectively.

Despite these challenges, significant opportunities exist for blockchain finance in APAC. With the right regulatory framework and supportive policies in place, the region can continue to be a global leader in this transformative technology.

Looking Ahead

The future of blockchain finance regulation in APAC is likely to see continued evolution and development. As the technology matures and its applications become more widespread, regulators will need to adapt their frameworks to ensure both innovation and financial stability. Key areas to watch in the coming years include:

- **Developments in regulatory sandboxes:** Sandbox initiatives offer a valuable platform for testing and refining regulatory approaches to blockchain finance.
- **Collaboration among regulators:** Regional and international cooperation will be essential for developing harmonized regulatory frameworks.
- **Technological advancements:** Regulators will need to remain agile and adaptable to keep pace with the ever-evolving blockchain landscape.
- **Focus on specific use cases:** Regulatory frameworks may become more tailored to specific use cases, such as digital asset trading, payments, and supply chain management.

The APAC region has the potential to be a global leader in blockchain finance, but achieving this vision will require a supportive regulatory environment. By addressing the current challenges and embracing the opportunities presented by this transformative technology, APAC can position itself as a hub for innovation and growth in the blockchain finance space. ■

Global Policy Perspective

The Digital Space Race – The Evolution of Global Policy & Regulatory Frameworks

Elise Soucie
Director of Global Policy and Regulation
GDF

2023 saw more publications and developments in global policy and regulation for digital finance than any previous era in financial regulation. Jurisdictions are racing to build their frameworks to attract new capital, talent, regulated firms, and innovative business models.

Distributed ledger technology (DLT) and blockchain regulation has been a high priority in many jurisdictions. Industry participants around the world called for legal clarity and regulatory certainty, and governments as well as standard setters have been working hard to implement guardrails for the now teenaged digital assets market. Yet like any teenager, the rules put in place by their regulatory parents have been met with varying levels of success and acceptance.

There have been welcome regulatory developments such as the multi-faceted approach to stablecoins in the UK, the continued progress of MiCA's Level 2 measures, and APAC's mature experimentation with Central Bank Digital Currencies (CBDCs), and Dubai's Virtual Assets Regulatory Authority (VARA) which in 2023 set out a comprehensive Virtual Assets (VA) Framework in the Emirate of Dubai. VARA has licensed over 20 firms across VA activities to date.

Yet there are still some areas where DLT policy and regulation has met roadblocks. In order to continue to progress and support an adult, mature market the frameworks must address them, and continue to evolve.

First, jurisdictions should consider how to achieve genuine technological neutrality in DLT regulation. It is a principle frequently discussed and supported, yet sometimes not reflected. 2022 exposed bad actors within the digital assets market, reaping mistrust for any product or function touching DLT. The legacy of 'crypto' tainted the rest of the digital assets market. Subsequent regulation and guidance, in aiming to mitigate the risk of consumer harm, prevented broader institutional adoption. Technology neutral regulation should be grounded in a comprehensive understanding of the benefits and the risks, by undertaking an appropriate risk weighting and assessment of where the risk truly lies, as well as a setting out a balanced approach to leveraging new technology for its efficiencies.

GDF Chair of the Board, Lawrence Wintermeyer, at Abu Dhabi Finance Week with CFTC Commissioner Pham, and Vincent Molinari from FINTECH.TV

GDF engagement during VARA's first closed-door symposium 'The Future of Virtual Assets'

Second, there was welcome work undertaken this year on decentralized finance (DeFi) through both jurisdictional publications such as those by the Autorité des marchés financiers (AMF) and French Prudential Supervision and Resolution Authority (ACPR) in France, as well as globally by the International Organization of Securities Commissions (IOSCO). The Basel Committee has also noted permissionless technology as an area that they are continuing to monitor and review. These initial steps are welcome, yet it is evident that there is still work needed to achieve clear and appropriate policy and regulation for permissionless DLT and DeFi. One way to approach these still evolving areas of the market, is through bottom-up collaboration between the public sector and industry. This could support the development of clearer definitions across the market and emerging policy, as well as enable jurisdictions to gain early and meaningful insights to refine untested laws and improve their implementation.

Finally, as frameworks are implemented, it is important to continue to monitor what co-regulatory models may still be needed. Sandboxes have been met with global success, yet for areas where regulation is still untested, for firms who may previously have had little to no experience with financial regulation, or for new and innovative products that may need a unique approach, Safe Harbour Sandboxes will be crucial.

The next era of digital finance offers the opportunity to boost growth, create new jobs, promote greater social inclusion, and deliver greater prosperity. The jurisdiction that can both solve for the regulatory roadblocks above, but also lead and support other countries in working together to promote greater cross-border equivalence and harmonization will likely find itself shifting into pole position in the digital space race.

From Proof-of-Concept to Production:

The Growth of Digital Assets and Tokenization in 2023

Simon Taylor
Board Member
GDF

Without question, 2023 has been a counter-intuitive year. We've gone from no-landing to soft-landing to the potential of rates falling early in 2024. Digital assets and tokenization, too, have bucked a trend many expected.

As we witness the high-profile court cases of FTX and the regulatory actions against Binance, we also see that, quietly, the path to production has been carved by an industry that is tirelessly working to build a better financial system. The headline-grabbing moves of Blackrock and Fidelity filling for a Bitcoin exchange-traded fund (ETF) disguise a much more important trend.

In 2017, the criticism of our industry was that it is all public relations and proof-of-concepts (PoCs).

Not anymore.

The tokenization of real world assets is a technology whose time has come.

We are in production.

I've also seen a convergence of mindsets around a sensible middle ground. No more is it "crypto vs digital assets. It is now " How do we use these public or private networks to create efficient, fair, and transparent markets?"

Regulated financial institutions (FIs) are moving towards the market, yes, using private networks but also public. Digital native businesses are also moving towards FIs and regulation.

Regulated FIs are innovating with private networks for wholesale use cases. There are almost too many production projects to name. Ownera, Archax, Digital Asset's Canton Network, TomNext, LRC, Consello Digital, HQLAx, Arta, LRC, Tokeny, Invenium and Fnality are all moving production volume, often without fanfare or the headlines from the mainstream media.

Regulated FIs are also starting to use public networks, like J.P. Morgan's ongoing efforts with Project Guardian on Ethereum and Société Générale, creating a Euro-backed Stablecoin tradable on Bitstamp.

Innovators, too, are increasingly licensed, audited, and trustworthy. Companies like Visa, WorldPay, and Nuevi continue their work with Stablecoins as Nubank begins to roll out Stablecoins to its bank users in Brazil.

Europe, the United Kingdom, Singapore, and numerous jurisdictions in the Gulf Cooperation Council (GCC) now have comprehensive regulatory frameworks for digital assets.

None of this would be possible without the patient work of the industry and the GDF membership. It is the working groups, consultations, and consistent effort that have gotten us this far.

But there is still work to do.

In 2024, I am hopeful for a world where digital assets, tokenization, and, yes, "cryptoassets" no longer need an asterisk. At the frontier, there are unquestionably still bad actors. Still, recent regulator and law enforcement activities show that there is no place in the world for those who cannot deliver services that benefit society and the wider economy. ■

GLOBAL AGENCY INSIGHTS

Delivering effective international policy measures for cryptoassets and driving consistent implementation across the IOSCO membership

Martin Moloney
Secretary General
International Organization of Securities Commission

The International Organization of Securities Commission (IOSCO) has delivered on the ambitions outlined in the 2022/2023 Crypto-Asset Roadmap. Driven by our Board-level Fintech Task Force, chaired by the Monetary Authority of Singapore (MAS) with the UK Financial Conduction Authority (FCA) and US Securities and Exchange Commission (SEC) stepping up as workstream leads.

In less than 18 months, policy measures have been delivered with unanimous support from the IOSCO Board. This work was delivered with a real sense of urgency and a real collaborative spirit.

Regulatory authorities agree on the need to respond in a market where severe investor harm and fraudulent practices persist. These policy measures provide a principles based, outcomes-focused framework to assist regulatory authorities as they develop a framework to tackle the risks posed by cryptoasset markets.

These measures form part of wider efforts at a global level – with the Financial Stability Board (FSB), International Monetary Fund (IMF), and Financial Action Task Force (FATF) amongst others. We look forward to further fostering these linkages within the regulatory community to deliver a holistic, all-encompassing regulatory framework.

IOSCO published a set of Crypto and Digital Asset (CDA) Recommendations in November. These are aimed at centralized activities performed by cryptoasset service providers (CASPs).

The decentralized finance (DeFi) Recommendations, published in December, are more high-level and dynamic in nature taking into account the nature of the market. The DeFi Recommendations apply where a particular arrangement is identified to be “decentralized” either by itself or by a regulator.

Regardless of the identification, should a regulator determine that centralized services are being performed, the CDA Recommendations will apply. At the end of the day, the important thing is to focus on the substance of the activity. Where presented with the same activity and risk, we should pursue the same regulatory outcome.

We are now moving forward to ensure consistent implementation of the policy measures across our membership. There are different approaches – whether it be through existing or new, more bespoke frameworks. Either way, our expectation is that the Recommendations are built-in with a focus on outcomes rather than a letter of the law approach. We must ensure that investors are protected and market integrity preserved irrespective of the regulatory approach adopted.

Now that we have published both sets of Recommendations, our attention will be on effective implementation among IOSCO’s global membership. IOSCO will support its members to implement the Recommendations through technical assistance or capacity building. We will also continue to monitor market developments in this very fast-moving space.

Beyond cryptoassets and DeFi, at IOSCO we are also looking closely at other developments in FinTech to see if policy measures or guidance may be needed. Two important areas are asset tokenization and the use of artificial intelligence in financial markets. ■

Finalizing the global regulatory framework for cryptoassets

Rupert Thorne
Deputy Secretary-General
Financial Stability Board

Cryptoassets still represent a small portion of global financial system assets. However, recent events continue to highlight the intrinsic volatility and structural vulnerabilities of cryptoassets and related market participants. The borderless nature of cryptoassets, and their potential to pose threat to financial stability, emphasize the need for a global regulatory framework. In that context, the Financial Stability Board (FSB) published in July 2023 its finalized global regulatory framework consisting of two sets of high-level recommendations, covering cryptoasset markets and activities as well as "global stablecoin" (GSC) arrangements.

The finalised framework reflects three main regulatory principles. The first is **'same activity, same risk, same regulation'**. Cryptoasset activities seeking to perform an economic function equivalent to one in the traditional financial system should be subject to the same or equivalent regulation. The second principle is **'high-level and flexible'**. The FSB recommendations are high-level so that authorities will have sufficient flexibility in implementation. The third principle is **'technology neutral'**. Regulation of cryptoasset activities should be based on their economic functions, irrespective of the underlying technologies.

Stablecoins that could be widely used as a means of payment and/or store of value across multiple jurisdictions – so-called global stablecoin arrangements (GSCs) – could pose particular financial stability risks and should be subject to heightened regulatory and supervisory requirements. Separate and complementary recommendations for GSCs were published to serve this purpose. The recommendations require GSC arrangements to be subject to robust redemption rights, an effective stabilisation method, and prudential requirements to maintain a stable value and to mitigate the risk of runs.

One important enhancement in the final versions of these recommendations is the strengthening in three areas in response to the lessons learned from the crypto market turmoil, especially the failure of large cryptoasset trading platforms such as FTX. These market failures exposed vulnerabilities that may arise from: the vertical integration of business, often operating with a lack of transparency of corporate structure; misappropriation of clients' funds; and interconnectedness with affiliated entities. The enhancements consist of expectations for authorities to require cryptoasset service providers to maintain adequate safeguarding of customer assets and protect ownership rights, including in insolvency, and to address the risks associated with conflicts of interest by ensuring transparency about their governance structures. Expectations for cross-border cooperation and information sharing between authorities were also strengthened.

The FSB continues to monitor the cryptoasset markets and published in November a report on *The Financial Stability Implications of Multifunction Crypto-asset Intermediaries*. Often combining a broad range of functions and structured with groups of affiliated firms in several countries, multifunction cryptoasset intermediaries are generally not transparent regarding their corporate structure and control, financial accounts, product and service descriptions, and dependencies and linkages.

This may lead to amplified vulnerabilities associated with higher leverage and liquidity mismatches, especially through certain combinations of functions without effective controls. The targeted enhancements of the FSB recommendations mentioned above will help address such amplified vulnerabilities.

Following the publication of the framework, the FSB has turned its focus to promoting the implementation of the FSB's cryptoasset regulatory framework globally, including initiatives to engage jurisdictions beyond the FSB membership. The FSB and the International Monetary Fund (IMF) published a joint synthesis report that presents in a single document policy responses combining macro-financial and financial stability perspectives. It also sets out a roadmap that was adopted in October 2023 as a G20 Roadmap. The Roadmap will facilitate the implementation of the FSB's framework and the standards developed by the sectoral standard-setting bodies (SSBs), consisting of four blocks of actions:

- **Implementation of policy frameworks**
  The FSB will promote implementation of its recommendations and conduct a review of the status of the implementation at the jurisdictional level by end-2025. The FSB and the SSBs will continue to coordinate work to promote the development of a comprehensive and coherent global regulatory framework, and the SSBs will examine how their standards apply to cryptoasset activities, make revisions, or provide detailed guidance as needed.

- **Outreach beyond FSB members**
  While FSB members are expected to lead by example to implement the framework, the FSB will take steps to promote implementation beyond the FSB's membership by engaging with a wider set of jurisdictions, recognizing that many activities are taking place in jurisdictions that are not FSB members.

- **Global coordination, cooperation, and information sharing**
  The FSB will continue to act as a hub for information sharing and coordination for regulatory and supervisory issues on cryptoasset activities. Specifically, the FSB will explore cross-border risks specific to emerging markets and developing economies and consider ways to address them by enhancing regulatory cooperation and capacity building.

- **Addressing data gaps**
  In response to challenges for data collection due to potential growing use of crypto-assets as a means of payment, a recommendation in the IMF new Data Gaps Initiative-3 (DGI-3) sets out a common framework to collect "test data" on digital money and cryptoassets used as a means of payment. The IMF leads the implementation of the recommendation with the Bank for International Settlements (BIS), European Central Bank (ECB), and the Financial Stability Board (FSB). It aims at the proper coverage of monetary aggregates and international capital flows while offering inputs for financial stability analysis. ■

Navigating the Opportunities and Challenges of New Technologies in AML/CFT

Violaine Clerc
Executive Secretary
Financial Action Task Force

From the Financial Action Task Force (FATF)'s perspective, new technologies present both opportunities and challenges. Innovative solutions have the potential to help us analyze vast amounts of data, detect anomalies, and identify trends. New technologies such as digital ID and digital payment options can help those that have no access to traditional banking. New technologies can also help us better detect complex cross-border crimes, such as cyber-enabled fraud. However, innovative solutions must be developed and implemented responsibly to avoid opening new vulnerabilities that criminals and terrorist financiers can exploit.

As the global anti-money laundering/combating the financing of terrorism (AML/CFT) policymaker and standard setter, the FATF plays an important role in building the safeguards needed for safe innovation. The challenge is to stop criminals misusing new technologies to their advantage, to increase their profits and evade detection by authorities, while also enabling and supporting the transition to cheaper, faster, more accessible, and safer financial services.

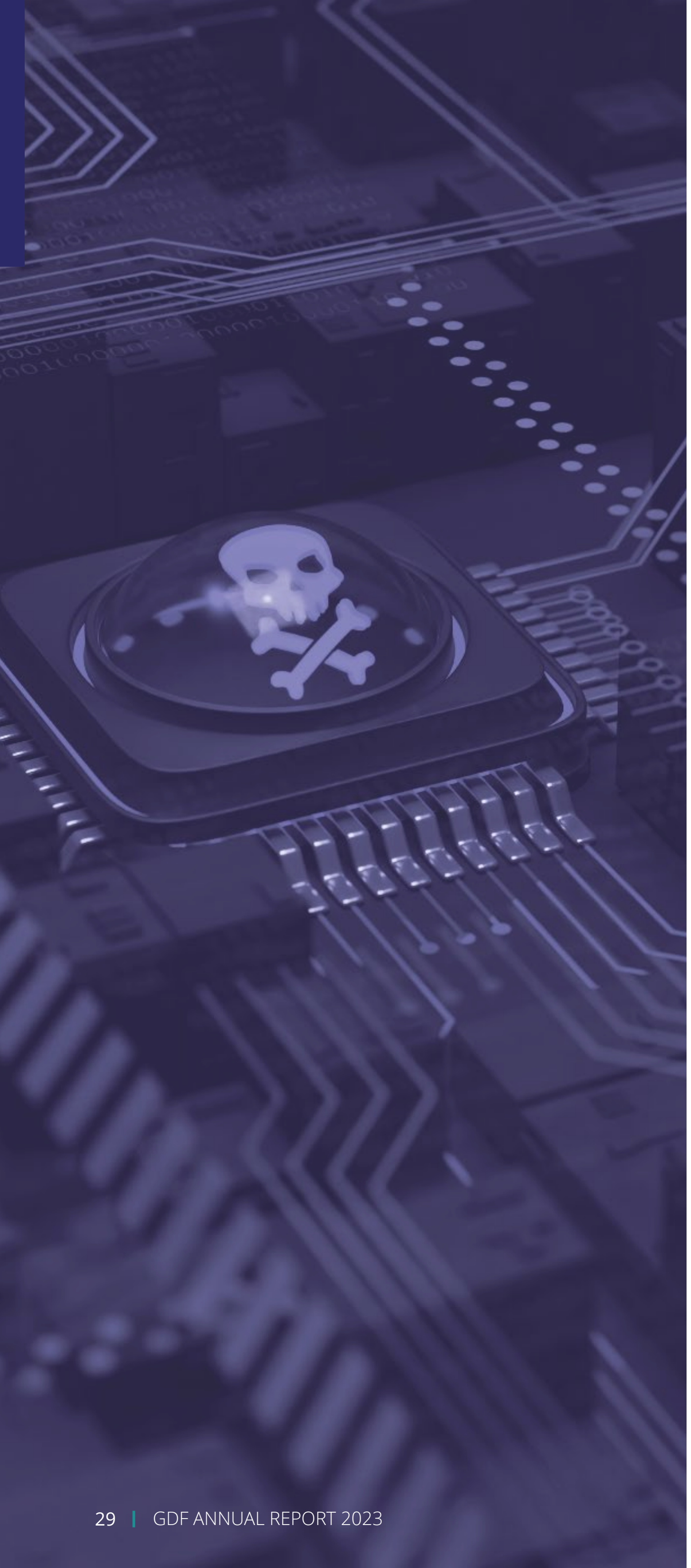
In 2023, the FATF has published a number of important reports studying digital criminal threats:

- **Countering ransomware financing -** Ransomware is both a proceeds-generating crime and a national security risk. Ransomware attacks have increased significantly in recent years, targeting individuals, businesses, and government agencies, across the world. The impact, including on critical infrastructure, can be devastating. Payments are almost exclusively demanded in virtual assets, which makes the effective implementation of controls on virtual assets even more critical.

- **Crowdfunding for terrorism financing -** While most crowdfunding activity is legitimate, we have seen that it can also be exploited for illegal purposes, including as fundraising platforms for terrorism purposes. Unless we understand and address these risks, they will only continue to grow as the crowdfunding landscape evolves and new payment methods are introduced.

- **Illicit financial flows from cyber-enabled fraud -** This is another large-scale form of transnational organized crime that continues to grow exponentially, both in number and their global spread. Our research shows that funds are being laundered faster than ever across multiple jurisdictions and sectors. Left unchecked, this threat will only grow further. FATF's recent report, conducted jointly with INTERPOL and the Egmont Group, identifies priority areas and ways in which we can tackle this global threat.

The **speed**, **global reach** and **anonymity** of virtual assets - and the fact that they remain largely unregulated - have created significant opportunities for criminals and terrorists. The FATF Standards for virtual assets were adopted in 2019, but implementation continues to be a major challenge. Among the most advanced economies, about 70% are largely compliant with the revised Standards. However, globally, about 73% of countries are still non-compliant or only partially compliant, and many have not even begun work to regulate this sector. Some technical elements are progressing even



slower, and most countries still have not fully implemented the 'Travel Rule'.

To deal with the slow pace of introducing virtual asset regulation, the FATF adopted a roadmap in February 2023 to accelerate implementation of AML/CFT controls and supervision in the virtual asset sector. This roadmap focuses on targeting those countries with materially important cryptoasset activity, so that they can receive technical assistance and support from more experienced countries, to help them quickly establish supervision of virtual asset service providers (VASPs). The roadmap will also make sure that those countries know that they are the materially important jurisdictions for the global virtual asset sector, and will face more scrutiny than countries where virtual assets are less well established. To identify these jurisdictions, we use two criteria: the size of the VASP sector in the country, measured by trading volume, and the number of virtual asset users in the country. In spring 2024, the FATF will publish a table detailing the steps these jurisdictions have taken to implement Recommendation 15.

Virtual assets do not just bring implementation challenges: regulators also have to keep up with fast moving and technical developments that can raise new challenges to the way we regulate – for example the growth in peer-to-peer transactions, where transactions do not pass through an intermediary; and in decentralized finance (DeFi) when the intermediary is replaced by software. Both of these pose a structural challenge to the regulatory model we follow at the FATF and other bodies which regulate the intermediaries.

Because criminals will always turn to these unregulated methods, which lack the safeguards we are building in the regulated sector, the FATF is also taking steps to mitigate this. We require countries to understand these emerging risks at the domestic level and to take steps to mitigate them. We are closely monitoring the risks associated with peer-to-peer transactions and DeFi, as well as other market developments, through our Virtual Assets Contact Group (VACG), which works in partnership with the industry, to advance FATF's work in this area, and find ways to mitigate the risks while still encouraging innovation. ■

Comprehensive, Consistent and Coordinated Policies for Cryptos

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

The global push for clearer policies on cryptoassets gained momentum in 2023. At the request of the Indian Presidency of the G20, the International Monetary Fund (IMF) and the Financial Stability Board (FSB) published a joint paper in September 2023 to synthesize the IMF's and the FSB's policy recommendations and standards. The collective recommendations provide comprehensive guidance to help authorities address the macroeconomic and financial stability risks posed by cryptoasset activities and markets.

Cryptoassets have implications for macroeconomic and financial stability that are mutually interactive and reinforcing. Widespread adoption of cryptoassets could undermine the effectiveness of monetary policy, circumvent capital flow management measures, exacerbate fiscal risks, and threaten global financial stability. These risks could reinforce each other, as financial instability can make maintaining price stability more difficult and vice versa, cause destabilizing financial flows and strain fiscal resources.

Maintaining robust domestic institutions is the first line of defense against crypto substituting sovereign currencies. Transparent and credible monetary policy frameworks are crucial for an effective response to the challenges posed by cryptoassets.

To protect monetary sovereignty, it is important not to grant cryptoassets official currency or legal tender status. Doing so would require accepting them in many jurisdictions for tax payments, fines, and debt settlements, and could generate fiscal risks for government finances.

To address the volatility of capital flows associated with crypto, policymakers should integrate them within existing regimes and rules that manage capital flows. This will help ensure stability and minimize potential disruptions.

Finally, tax policies should ensure unambiguous treatment of cryptoassets, and administrators should strengthen compliance efforts. Specific regulations are needed to clarify the tax treatment of crypto, including value-added taxes or levies on income or wealth.

Building on a sound macro-policy foundation, clear legal treatment of cryptoassets and granular rules are crucial. A comprehensive legal foundation is essential to effectively regulate crypto, addressing both private law and financial law aspects. This includes ensuring predictability and enforceability of rights while appropriately classifying cryptoassets.

Strong anti-money laundering and combating the financing of terrorism (AML/CFT), prudential, and conduct rules should be implemented to cover all entities and activities related to the issuance, trading, custody, or transfer of crypto.

The principle of "same activity, same risk, same regulations" should guide regulatory efforts. Following this principle, the FSB finalized a set of high-level recommendations for crypto regulation in July 2023. They include ensuring authorities' regulatory powers and sound governance and risk management practices by providers. It also features revised high-level recommendations for effectively addressing financial stability risks associated with "global stablecoin" arrangements.

Comprehensive regulatory and supervisory oversight of cryptoassets should be a baseline to address macroeconomic and financial stability risks. Regulation and supervision of licensed or registered cryptoasset issuers and service providers can support the functioning of capital flow measures, fiscal and tax policies, and financial integrity requirements. For example, licensed, regulated, and supervised cryptoasset service providers (CASPs) and appropriate reporting requirements can reduce data gaps, which are particularly important for capital flow measures that rely on monitoring of cross-border transactions and capital flows.

Some jurisdictions, in particular emerging markets and developing economies, may want to take additional targeted measures that go beyond the global regulatory baseline to address specific risks. These jurisdictions may want to adapt these targeted measures to their country-specific circumstances, especially if they face elevated macrofinancial risks from cryptoassets. The implementation of these measures may vary across countries based on their unique circumstances and capacity constraints.

Finally, ensuring effective policies requires several measures including strong coordination, at the domestic and international level. National authorities must align their frameworks to the emerging guidelines, and standards being developed by standard setting bodies. This alignment is critical to achieve consistent treatment of cryptoassets and may require legislative changes.

Developing strong supervisory capacity is vital for monitoring and enforcing rules effectively. Authorities must have the necessary skills and resources to oversee the evolving cryptoasset landscape. Given the borderless nature of the cryptoassets ecosystem, international collaboration and information sharing are crucial. Cooperation among supervisors and competent authorities will enable the monitoring of CASPs and maintain the efficacy of regulatory policies.

The G20 have also set out a roadmap to ensure effective, flexible, and coordinated implementation of the comprehensive policy response for cryptoassets. The roadmap seeks to:

- Build institutional capacity beyond G20 jurisdictions,
- Enhance global coordination, cooperation, and information sharing, and
- Address data gaps necessary to understand the rapidly changing cryptoasset ecosystem.

To implement this roadmap, the IMF is committed to providing tailored assistance on capacity building to member countries based on the above recommendations and emerging guidelines from standard setters. The IMF's surveillance program will also assess the effectiveness of policy frameworks including crypto.

By embracing a comprehensive approach and implementing these recommendations, policymakers can safeguard monetary sovereignty, protect investor interests, and promote financial stability in the digital age. ■

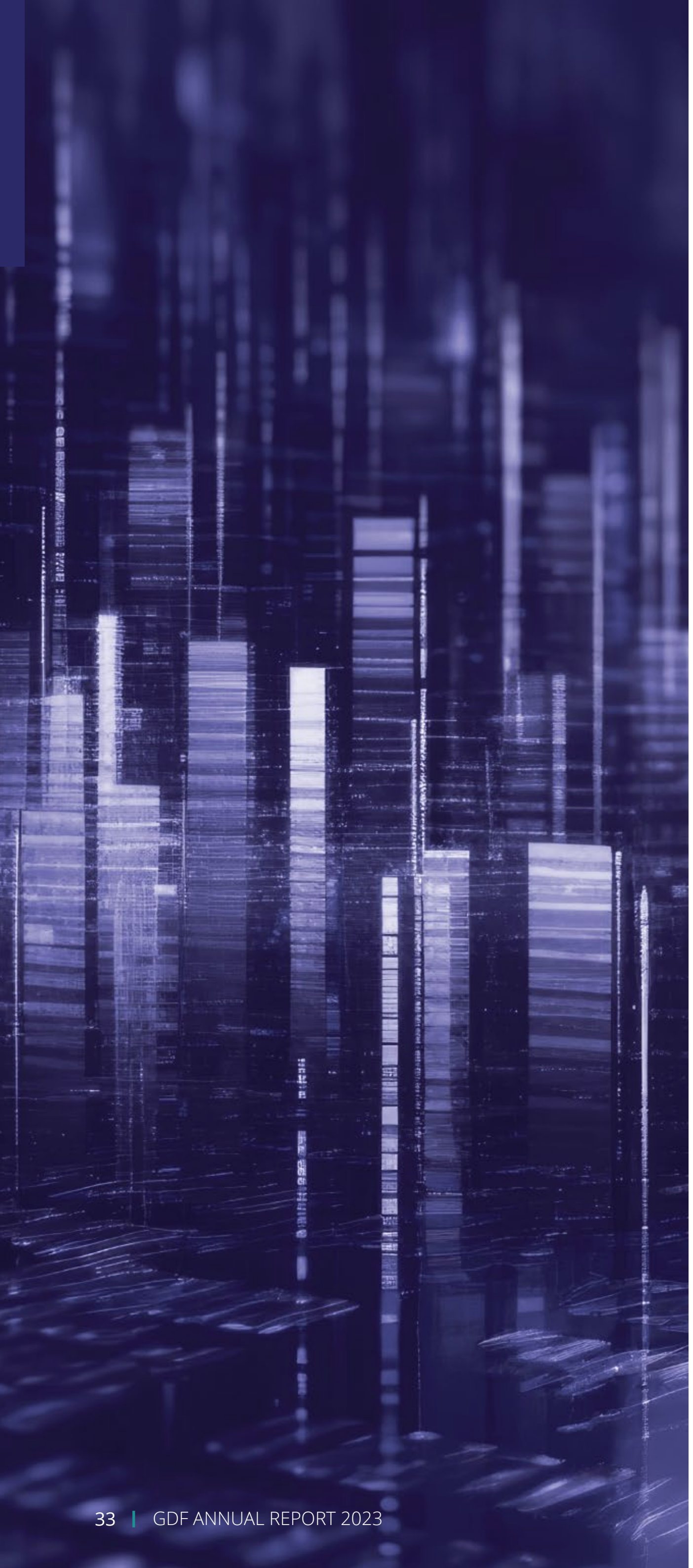
The EU's approach to DLT-supported financial ecosystems

John Berrigan
Director-General Financial Stability, Financial Services and Capital Markets Union
DG FISMA of the European Commission

As part of the EU's digital finance strategy over the past years the European Commission has been an active supporter of the discussion around the use of distributed ledger technology (DLT) and its potential advantages: operational efficiency, cost efficiencies, product innovation, broader market access, and new liquidity pools. This past year has certainly seen continued engagement of the industry with DLT. While the world of crypto has its ups and downs as the industry seeks to mature within the traditional financial markets, we observe increased asset tokenization initiatives and emergence of new DLT-powered platforms to support trading and settlement of financial instruments. The EU's DLT Pilot framework, in application since March 2023, precisely seeks to support the use of DLT by financial markets infrastructures. It allows trading venues and central securities depositories to deploy DLT-based solutions within a flexible regulatory regime and in close cooperation with regulators. It remains early days, but we recognise the potential.

The DLT journey started with the crypto-native industry – which on a technical level demonstrated that value can be efficiently transferred leveraging public blockchains and smart contracts running on them. And I should say, crypto markets must undergo significant transformation if they are to become a responsible part of the EU financial system, and the EU Markets in Crypto Assets (MiCA) Regulation should contribute significantly to this. Nonetheless, this innovative thrust from the crypto-native industry motivated regulated financial intermediaries to work towards bringing DLT efficiency and new functionalities into traditional financial markets. That effort also prompted financial institutions to look into updating the technological backbone supporting their operations, which in many pockets of the industry tends to be quite outdated. Nevertheless, I should note that switching technology and processes that underpin financial services should happen responsibly. In finance, because of its central and sensitive societal role, the industry should certainly not move so quickly as to break things, to loosely paraphrase the famous mantra from the fast-moving tech sector.

We see that market participants in traditional finance and financial markets infrastructures like trading venues and central securities depositories are taking multiple approaches to building DLT enabled platforms to support securities lifecycles. Some are relying on providers of private blockchain infrastructures, building their own DLT infrastructure in-house or leveraging existing public blockchain infrastructures. Working with different blockchain solutions is a net positive, I believe, as the existence of multiple solutions will allow the market to converge around services and infrastructures that provide the best value for them. It is not for regulators or policymakers to pick winners and losers when it comes to technology. However, I would stress the incredible importance of fostering, from early on, interoperability both between DLT platforms and between DLT-based and traditional infrastructures. These efforts should aim to avoid vertical silos and separated puddles of liquidity. The objective should be both to prevent that DLT introduces more fragmentation in the market and to ensure, where possible, that market participants have a choice to either use traditional or DLT platforms while still



being able to trade with each other. Ensuring seamless flow of capital cross platforms is of particular relevance in the EU, where markets remain fragmented, with over 30 CSDs and many more trading venues connected to them. I would therefore encourage the EU industry to actively work on protocol interoperability and on connecting their DLT 'islands' as they come online to ensure that capital and users can easily switch between trading and settlement environments.

Beyond interoperability, making cash available on DLT will be key in reaping the full benefits of this technology. There is little use in moving to DLT solutions, if the cash leg of transactions remains off-chain. The exploratory work of the Eurosystem on wholesale CBDC is crucial here – there is no safer money than central bank money, and its availability on DLT would mark a turning point in the development of DLT-based infrastructure in the EU. It is therefore important that market participants seize the opportunity and participate in the planned trials and experimentations in 2024, also leveraging the DLT Pilot framework already in place. While wholesale CBDC is tested, market participants should continue their efforts to make available tokenized commercial bank money or e-money tokens, a type of stablecoin, that are robustly designed and safe. Market participants should have a variety of choices to settle transactions, depending on the use case and needs.

As markets look to capitalize on the benefits of DLT, we at the Commission will be actively working to support the industry and regulators in ensuring that the deployment of DLT in EU capital markets is done responsibly while maximizing its upside potential. ■

Rebuilding Trust in the Information Age:
Convergence of Regulations-Technology-Market Maturity

Deepa Raja Carbon
Managing Director
VARA

Since its inception, the virtual assets sector has presented the **promise of codified 'trust'** leveraging technology to improve predictability at every node so that the entire value-chain can be self-governed. The underlying blockchain layer offers **transparency, traceability and immutability**, without requiring intermediaries, potentially addressing accessibility constraints posed by traditional finance (TradFi).

Yet, the recent period of extreme turbulence triggered by entity-specific events and the systemic distress that has ensued has raised understandable concern from all quadrants - governments, investors, consumers, and market commentators. Much has been debated, and much more will be structurally refined in line with each jurisdiction's priorities. The majority of these outcomes will focus on one of **three axes:**

(i) Progressive Regulations,
(ii) Sustainable Technology, and
(iii) Responsible Market Engagement.

As we move into 2024, it is critical to keep in perspective: emerging technologies evolve in cycles; and several aspects of today's context validate the premise under which Dubai's Virtual Assets Regulatory Authority virtual assets Regulatory Authority (VARA) was created in 2022 as the first specialist Virtual Assets (VA) regulator. Tasked with responsibly scaling the VA layer across Blockchain-Web3-Metaverse-AI ('the Future Economy'), VARA's regulatory objective is to engage with, nurture and evolve **the decentralized finance (DeFi) ecosystem to be incremental and complementary to TradFi** rather than a replacement for it.

Through 2024, one can expect from this regime:

- Continued advancements and agile adaptations within the regulatory regime; with
- Effective legislative guardrails; building on existing risk control levers to create, and
- Resilient circuit breakers for swift de-escalation and strong consumer protection.

Scaling maturity to realize the potential of Decentralized-Disintermediated-Democratized Finance

Looking ahead, it is perhaps more critical to ensure that the series of high-profile industry flameouts do not detract from the momentous milestones that the technology and open source advancements underlying the VA economy have yielded over the same period. These have been designed to drive the requisite levels of mass adoption needed to **sustain acceleration across the Future Economy** by (i) transforming 'data' into 'information'; so that (ii) it can be valued, stored, and exchanged; through (iii) 'trustable' intermediary-free digitalization.

Even as governments and industry design for a 'future-proofed' economic model to address global development goals, **scaling trust becomes a prerequisite** to be factored. In the post-Gold Standard era, while FIAT gained adoption as the debt-based model of economic expansion, its inflationary construct has often come undone, visibly exacerbating the wealth chasm and consequently the social divide between the banked and the unbanked. Cryptoeconomics enters this reality with a compelling set of propositions – ones that can only be sustainably realized when underpinned by progressive cross-border regulations:

(i) Monetary velocity driving liquidity; and
(ii) Disintermediation allowing more assets to become accessible to more people; coupled with
(iii) 'Tokenized' assets as stored value with assigned rights and immutable ownership; that become
(iv) Securely tradeable with Web3 and blockchain-based smart contracts; and incrementally
(v) DeFi governance for users to be able to participate in the industry's success and growth.

Today, we find ourselves at the cusp of a prospective future where the seamless integration of AI, blockchain, and metaverse offers limitless potential with unprecedented digital interaction – presenting a material opportunity for the VA framework to layer financial enablement over this impending technological shift.

Responsible **market awareness and knowledge** building would substantially accelerate the efficiency, efficacy, and impact of these collaborative efforts. Much of the disruptive economic impact of the phase of crypto winters exemplifies a common lack of understanding of the risks, appreciation for the co-dependencies, and an acceptance of shared responsibilities of every participant, from the service provider to the regulator and the consumer. The Web3 revolution is already redefining the marketing landscape, and being noticeably leveraged by the crypto industry across social media, sponsorships, events, and promotions – this was one of the primary reasons why the Marketing Regulations were the first to be issued under the VARA regime at the very outset in 2022. As boundaries between TradFi and decentralized finance (DeFi) blur, the role of marketing in **guiding consumer understanding and interaction in these merging spaces becomes pivotal.**

As cryptocurrency products and services are complex and continue to evolve in real-time, their **safe adoption demands transparency**. Regulatory guidelines are warranted to assure consumer protection and prevent deceptive practices, ensuring honest, and ethical advertising.

So how does VARA balance the allowance for innovation with compliance – ensuring that the regulations remain agile and adaptable to digital advancements while being robust enough to never compromise on consumer protection?

As Web3 and the Metaverse grow in influence across media channels, the need for effective regulatory guidelines becomes **crucial to realize their full potential – ethically and in a future-proofed manner.** Navigating marketing in this context, notwithstanding the provision for the upcoming incrementality of AI, requires collaboration among industry leaders, regulatory bodies, and academia. This partnership is vital to ensure marketing practices evolve beneficially in the digital age while upholding transparency and ethics. As we delve deeper into Web3, establishing robust regulatory frameworks in cryptocurrency advertising is essential for responsible and sustainable marketing practices in this new digital era.

To **maximize the GDP expansion** potential offered by the VA ecosystem enabling the Future Economy, providing financial access for the **un/underbanked, in a secure, scalable, trusted, democratized and decentralized** framework, it requires a concerted effort to balance innovation with guardrails to, ensuring a **transparent, equitable, and thriving digital economy.** As we forge ahead, the collective responsibility of all stakeholders to act now in concert to purposefully shape this future becomes increasingly significant. ■

GDF PRIORITIES AND WORKING GROUPS

Custody
Working Group

In early 2023, as part of GDF's Annual Survey, digital asset custody was flagged as a major industry and regulatory priority.

In order to deliver on this priortiy, GDF partnered with the International Securities Services Association (ISSA) to form a Custody Working Group. The Working Group set out to map how digital asset custody (DAC) fits into the overall crypto and digital assets landscape, drawing parallels or comparisons to traditional custody with the aim to allow market actors to understand the DAC business and how critical it is in building digital market infrastructure.

In October 2023, the Working Group, in support of GDF and ISSA's member firms - including Working Group co-chairs Brown Brothers Harriman, Metaco, and State Street - and the Working Group Secretariat, Deloitte, published a report: "Digital Asset Custody Deciphered: A Primer to Navigating the Challenges of Safeguarding Digital Assets".

This report is a primer to help move the knowledge of DAC forward by bringing to the forefront, the opportunities and barriers DAC providers have to successfully navigate moving to these new digital technologies and ways of working. It sets out to provide financial services professionals, investors, and policymakers of all experience and levels with a starting point, covering nine factors in subsections across three section domains:

- Legal, Regulation, and Financial Crime
- Settlement & Finality, and Asset Segregation
- DLT Governance, Staking, Key Management, and Interoperability

The key takeaways of each section have been combined in a short auxiliary report. These takeaways condense the key considerations for financial services professionals, investors and policymakers of all experience and levels with a starting point to understand the risks and considerations involved in DAC and equip them to move forward with decisions, solutions, and execution.

Lawrence Wintermeyer
Co-Chair of the Board
GDF

Glen Fernandes
Co-Chair ISSA DLT and Digital Asset WG

"It has become clear that in order to advance the adoption of digital assets at an industrial scale, the industry needs to come together to create safe, secure and efficient custody foundations and services that allow asset owners to confidently hold and trade their digital assets. The ISSA Working Group on DLT and Digital Assets is proud to have recognized this need early on and collaborated on this thought leading paper together with our partners at GDF. We believe it will serve as a solid basis for industry, FinTech and policy maker dialogues in evolving the standards and policies for DAC and ultimately increasing investor confidence."
- Glen Fernandes, Co-Chair ISSA DLT and Digital Asset WG ■

Global Financial Institutions Crypto (GFIC)
Working Group

René Michau
Global Head of Digital Assets
Standard Chartered

Karl Mohan
General Manager - APAC & MEA and Global Head of Banking Partnerships
Crypto.com

Bringing together a diverse quorum of the cryptoasset ecosystem – from regulated financial institutions to native cryptoasset firms –, the Global Financial Institutions Cryptoassets (GFIC) Working Group first convened in February 2022 to address the industry's need to promote fair and transparent crypto markets, operating in line with key principles recognized as good practice by regulators. The Working Group's mandate was to work towards a common financial conduct and operating standards framework for the institutional trade of cryptoassets.

Over the course of an 18-month long rigorous development process, including a public consultation, and a global regulatory purview period, the Global Cryptoasset Standards was published in July 2023. The Standards offer the best global practices for regulated firms handling cryptoassets, aimed at giving assurance to clients, regulators, employees, and shareholders.

While jurisdictions such as Europe, Hong Kong, Dubai, and the UK move to comprehensively regulate cryptoasset markets, the Standards offer robust industry best practices to ensure regulated firms meet the highest standards of conduct when handling cryptoassets.

The Standards are aligned to the IOSCO Consultation Report: Policy Recommendations for Crypto and Digital Asset Markets, and were submitted to the US Commodity Futures Trading Commission (CFTC) Global Markets Advisory Committee's (GMAC) Digital Asset Markets Subcommittee which considers recommendations for industry standards and best practices.

Since the publication of the Standards, the Working Group has also engaged the Financial Conduct Authority (FCA), to conduct a deep dive on the Standards and work through the detail of each of the 56 principles to identify areas which could be enhanced or built upon for future consideration of supplementing the principles in the Standards, with a full update on the initial meeting available here.

Under the co-chairship of René Michau, Standard Chartered, and Karl Mohan, Crypto.com, the Working Group will progress into its second phase in Q1 2024, with a three-fold mandate:

- **Driving utility for the Global Cryptoasset Standards for financial institutions** - We would like to consider what an attestation model for institutions to adopt and adhere to the Standards would look like, and how this could promote better alignment amongst market participants.

- **Ensuring the Standards is kept alive as the digital asset industry evolves** - We would like to ensure the Standards is kept a living document and reflects the industry's priorities and concerns as it and the technology matures. We have strong buy-in from the UK FCA in particular for the Standards, and they have expressed their wish to see the Standards supplementing future FCA rules on cryptoassets.

- **Building on the Standards' principles-based approach to explore standards for digital financial market infrastructure (dFMI)** - The Standards set global principles of good practice to provide a common set of guidelines to promote the integrity and effective functioning of the cryptoasset market. As institutions look to build on these principles and effectively bridge into wholesale cryptoasset markets, we would like to consider what operating standards would look like for the dFMI needed to facilitate this transition. ■

ISWG
interVASP Standards Working Group

In June 2019, the Financial Action Task Force (FATF) adopted changes to its recommendations bringing virtual assets (VAs) and virtual asset service providers (VASPs) into the remit of anti-money laundering (AML) and counter terrorist financing (CTF) regulations. Since 2019, jurisdictions have been implementing the FATF's Recommendations into domestic rules and regulations.

At the time, Malcolm Wright of GDF and Siân Jones, Senior Partner of XReg Consulting saw the need for standards in this new area, particularly with regards to messaging of originator and beneficiary information that needs to be shared between VASPs with each transaction (known as the 'Travel Rule'). To tackle this, a cross-industry, cross-sectoral joint Working Group of 130 technical experts was formed in December 2019 composed of GDF, the Chamber of Digital Commerce, and the International Digital Asset Exchange Association (IDAXA).

A new technical standard, IVMS101, was developed and released by the group in June 2020. This standard provides for a common data standard to transmit and receive personal originator and beneficiary information between VASPs, and is used by all Travel Rule solutions.

In April 2023, the group reformed as an open GDF Working Group with Andrew Davidson of OpenVASP and Neil Samtani of VASPnet co-chairing the standards development, open to members of the crypto community with relevant technical expertise alongside regulators who were invited as observers to the WG.

The initial aim of the Working Group was to update the existing IVMS101 messaging format. Following its release and wide implementation, feedback points from the community were received and some minor updates made and ratified in an August plenary in an amended version known as IVMS101.2023.

As we look into 2024, further standards are planned to create greater consistency and integrity within the crypto ecosystem. Members of the community are invited to get involved in future standards work under the ISWG. ■

Neil Samtani
CEO
VASPnet

Andrew Davidson
Board Member
OpenVASP

KYC / AML
Working Group

Nicky Gomez
Senior Partner
XReg Consulting

Malcolm Wright
Head of Regulatory
OKX

2023 has seen a strong reshaping within banks and institutions taking greater interest as more regulators move to implement or update their regimes, tightening governance around areas of perceived risk.

The know-your-customer (KYC) / anti-money laundering (AML) Working Group had two key focus areas throughout the year: the first has been to assist regulators in shaping their regulatory frameworks by responding to consultations and holding bilateral conversations. The second focus has been socializing the GDF Virtual Assets Due Diligence Questionnaire (VADDQ), which was published in Q3 2023. The importance of this questionnaire cannot be understated. Financial institutions have been looking for a best practice, standardized way to assess AML risk for virtual asset service providers (VASP) that they might wish to onboard for banking services.

In the traditional finance (TradFi) sector, the Wolfsberg Questionnaire for Correspondent Banking has long been the benchmark, and so with the agreement of Wolfsberg, a similar questionnaire was developed for VASPs.

This work sits under and is governed by the GDF Open Standards Council, a council chaired by a GDF board director, and comprising all the (open-source) Working Group co-chairs. The Open Standards Council is accountable to the GDF Board (not to the GDF Advisory Council) to ensure its independence and to avoid membership concentration risks or vested interests. The Open Standards Council is exploring licensing options that ensures that community participants are able to distribute, remix, adapt and build upon the GDF VADDQ in any medium or format, and to develop derivative works as long as these changes are disclosed to the Open Standards Council.

As we move into 2024, GDF will continue to socialize and attempt to drive utility for the VADDQ for financial institutions. GDF hopes that it will allow more banks to consider onboarding VASPs for banking services; something that will not only expand and strengthen the virtual asset sector, but also allow TradFi to adopt blockchain and crypto into more of their own services. In this respect, the questionnaire may also serve to support the industry adoption of the Financial Action Task Force's (FATF) so-called 'Travel Rule,' by fulfilling a key aspect of Travel Rule requirements whereby every VASP should conduct a due diligence assessment (for AML purposes) with counterparty VASPs. ■

MiCA

Working Group - Phase 2

John Salmon
Technology Partner
Hogan Lovells

Lavan Thasarathakumar
Board Member
GDF

Following the publication of the European Commission's (EC) proposed Markets in Crypto Assets Regulation (MiCA), GDF convened a Working Group to analyze the proposal. GDF worked with its members to suggest constructive amendments to this proposal and feed into the EU's legislative process. The intention was for this group to follow the developments and be primed to respond to comments and amendments to the text as the EU moved forward with its landmark MiCA framework.

The Working Group reconvened in January 2023 to engage with European institutions and Supervisory Authorities (ESAs) on the Level 2 measures. This engagement focused on the delegated acts which were identified as a crucial part of the legislation for GDF members. The MiCA Working Group continued to analyze and discuss ideal outcomes for the legislation, and advocate for these outcomes to stakeholders throughout the process.

In July 2023, the European Securities and Markets Authority (ESMA) and the European Central Bank (ECB) issued consultations. The WG convened to formulate responses in line with their previously established priorities, that is Chapter 6 (C6) of the ESMA consultation paper with the intent of streamlining responses relating to the identification, prevention, management, and disclosure of conflicts of interest of cryptoasset service providers (CASPs).

In October, ESMA published their second consultation paper. GDF worked with the members of the Working Group to provide a constructive assessment of how to overcome challenges in implementing the Technical Standards. The response submitted at the close of 2023 highlighted key areas that may require further drafting consideration or additional guidance for purposes of clarity, proportionality, and effective implementation. The four core areas identified were:

1. Greater clarity on sustainability indicators and sustainability disclosure obligations;
2. Additional guidance on technical implementation for post trade requirements;
3. A more precise scope for insider information and;
4. Further consideration of the interplay of MiCA and other regulatory frameworks such as MiFID/ MiFIR and DORA.

As ESMA published throughout the course of the year consultations on regulatory technical standards (RTSs) and information technical standards (ITSs) that set out the specific requirements of MiCA, the WG remained engaged and supportive of the EU's legislative process. The co-chairs have continued to leverage their relationship with the European Banking Authority (EBA), ESMA, and the ECB as well as the European Comission, European Parliament, and regulators from key national competent authorities to ensure that the impact of these measures are understood.

Overall, GDF is supportive of the progress made by the EU on MiCA and of the development of the Level 2 measures to provide much needed clarity to the market. We appreciate the agility and speed with which the EU authorities have aimed to develop Technical Standards for the market, and believe that 2023 has been an important year that marked a milestone of growth in building a comprehensive EU global framework for digital assets.

Private Markets Digitization
Steering Group

In May 2020, the GDF Private Markets Digitization Steering (PMDS) Group convened financial institutions, leading tech companies, and digital asset leaders to develop recommendations to digitize the private markets by interconnecting tokenization platforms across the industry. At the time, many members of the group already had active tokenization projects running on a multitude of incompatible blockchains technologies but understood that the industry needed to come together to develop a solution for interconnecting everyone. Without this, it would not be possible to unlock the distribution and liquidity required to make digitized private markets assets investable and tradable by global investors.

That year, the group published a proposal for a digital security network specification, which would be open to all regulated institutions; multi-vendor; ledger agnostic, and have open interfaces, known as FinP2P. Through 2021, extensions to the API specifications were published to support secondary trading and collateralization of assets. This unlocked 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.

Throughout 2022, multiple working Group members have been working on projects that are real-life examples of the FinP2P open protocol being used in production. These projects encompass the issuance of multiple types of assets including pre-IPO companies, money market funds, institutional real estate companies, private equity funds as well as unique applications for carbon offsets.

In 2023, the Working Group has seen FinP2P move beyond the private markets to encompass public securities such as bonds and treasury products. This includes projects to distribute tokenized money market funds and an intra-day Repo platform that enables precise intra-day settlement and accrued interest.

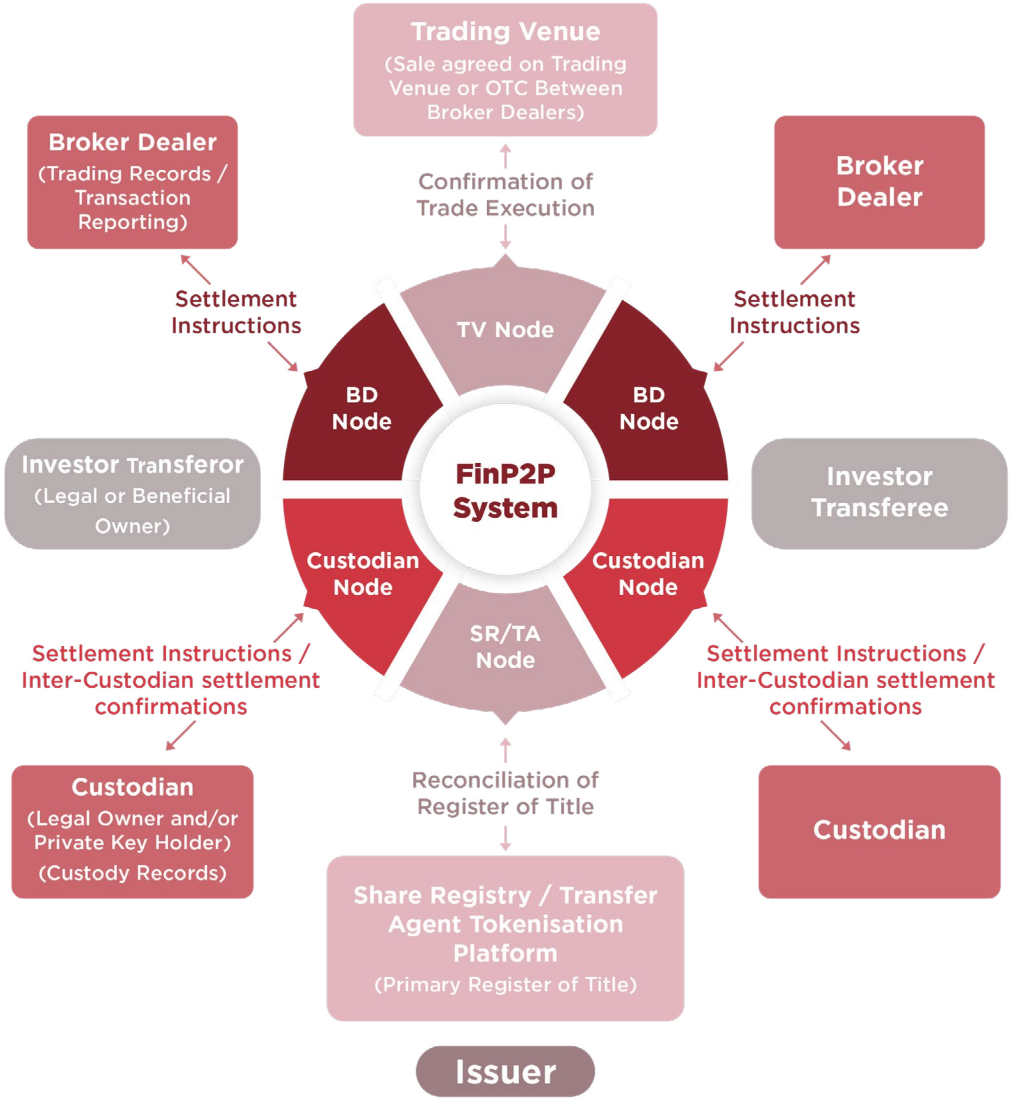
As FinP2P has developed, there have been many enhancements to support both 'collateralisation' of FinP2P assets for lending and borrowing, and also the addition of 'custody-as-a-service' so that institutional custodians can provide services to other financial institutions on the network.

Anthony Woolley
Head of Business Development & Marketing
Ownera

Lavan Thasarathakumar
Board Member
GDF

The custody service in FinP2P is a decentralized method that allows custodians to provide services to other FinP2P organizations by acting as the custodian for their investor's digital assets. This service provides a secure and reliable system for the safekeeping of an investor's financial assets, ensuring that investors' assets are segregated, protected and managed in an efficient and transparent manner.

FinP2P also connects custodians with a single adapter and interacts and provides information to the rest of the FinP2P network enabling interoperability. Typical custody structures for private market securities involve multiple messages between various entities to ensure the accurate reading of title transfers when



assets are sold between investors. However, using different messaging protocols among various entities can lead to risks of mismatching instructions, reconciliation hurdles, and operational issues, especially in transactions involving multiple custodians. To address these challenges, the new proposed model under the FinP2P custody messaging system aims to provide a common messaging format and framework. Each participant will have a 'node' within the system, under a licensing arrangement from FinP2P and other relevant technology users. The custodian's role will be to hold the private key for updates to the ledger. Alternatively, the custodian may still act as the legal title holder of the asset.

It is of the opinion that custody under FinP2P is under current regulation in the UK and US.

The diagram below outlines the messaging system under the FinP2P network.

The GDF PMDS Group makes the FinP2P protocol specifications freely available to all users on the terms of the CC0 Public Domain Dedication of the Creative Commons.

For more details and to stay up to date with the Steering Group please visit the FinP2P Open Specifications here. ■

VOICE OF THE COMMUNITY

Developing Education to Promote the Highest Ethical and Professional Standards

Kim Winding Larsen
President
ACI FMA

Rui Correia
Executive Director of Education
ACI FMA

In a year filled with exciting projects for the financial markets community, ACI Financial Markets Association (ACI FMA) is extremely pleased to partner with GDF.

Since 1955, ACI FMA has a long history and tradition of promoting knowledge and competence development among market participants globally. For us, this can only be achieved when those participants combine the required learning of new products, markets, and technologies with the continuous implementation of good market practices in their roles. Both aspects support the ongoing development of fair, honest, and appropriately transparent financial markets, allowing all market professionals to execute transactions with confidence and integrity.

ACI FMA maintains the focus of its activities on the three core values of our non-profit organization: ethical conduct, education and our members' network. Having launched its Crypto Working Group in 2019 (renamed Digital Assets Committee), we collaborate extensively with GDF and are always ready to assist with any matters where the expertise of our members is required.

To further support this partnership, other ACI FMA Committees and Working Groups also cooperate with GDF, such as the ACI FMA Board of Education (ACI FMA BOE). The ACI FMA BOE is dedicated to promoting the highest global standards of professionalism, competence and ethics in activities and products in financial markets through ongoing educational programmes and examinations.

Throughout this year, the ACI FMA worked extensively with GDF on the integration of the Global Cryptoasset Standards, promoted and maintained by GDF, into the ACI FMA ELAC Portal (ELAC) for E-Learning, Attestation and Certification on Industry Codes.

As a "...set of global principles... developed to provide a common set of guidelines to promote the integrity and effective functioning of the Cryptoasset Market", ACI FMA believes that it is essential for all market participants to have a thorough and continuous understanding of good market practices for the cryptoasset market. This is particularly important as the Standards include principles that offer guidance for unique risks impacting this market.

All entities accessing the ELAC portal have an opportunity to demonstrate that, on an ongoing basis, their staff members increase their knowledge and understanding of those guidelines. This commitment supports a robust, liquid, open, and appropriately transparent cryptoasset market in which a diverse set of market participants are able to confidently and effectively transact at competitive prices. Consequently, proof of individual adherence to the Standards can be achieved, and that will certainly support financial institutions in their processes to adopt those guidelines in their processes and procedures.

We believe that the addition of the Global Cryptoasset Standards is an important complement to the current content already included in the ACI FMA ELAC Portal, such as the FX Global Code, the Global Precious Metals Code, and the UK Money Markets Code and the GDF Code of Conduct, among others.

There is no doubt that continuous learning and attestation on good market practices support the cultural change needed for financial markets, and ACI FMA is proud to steward this through industry collaboration. These markets require the highest ethical and professional standards to be applied in the daily roles of all market participants. ■

Tokenized Real World Assets - Money Market Funds in the spotlight!

Breige Tinnelly
Head of Market Development
Archax

Tokenization of real world assets (RWAs) has been gathering momentum in 2023 and adoption has been increasing for institutional-grade assets which are well regulated in the traditional world, most notably for Money Market Funds (MMFs). The drivers for tokenizing this asset class are twofold. First, the issuer can distribute to a wider pool of investors, and second, the investor can gain access to a regulated asset class not previously available to them, whilst accessing yield. These drivers sit alongside the now well recognized promised benefits of utilising blockchain and distributed ledger technology (DLT), including increased transparency and auditability, immutable recording of all transactions, providing clear audit trails and easy, direct distribution of yield/interest payments. It also enables efficiencies in processes, particularly for settlement and post-trade actions, and lays a pathway for new types of products in digital form.

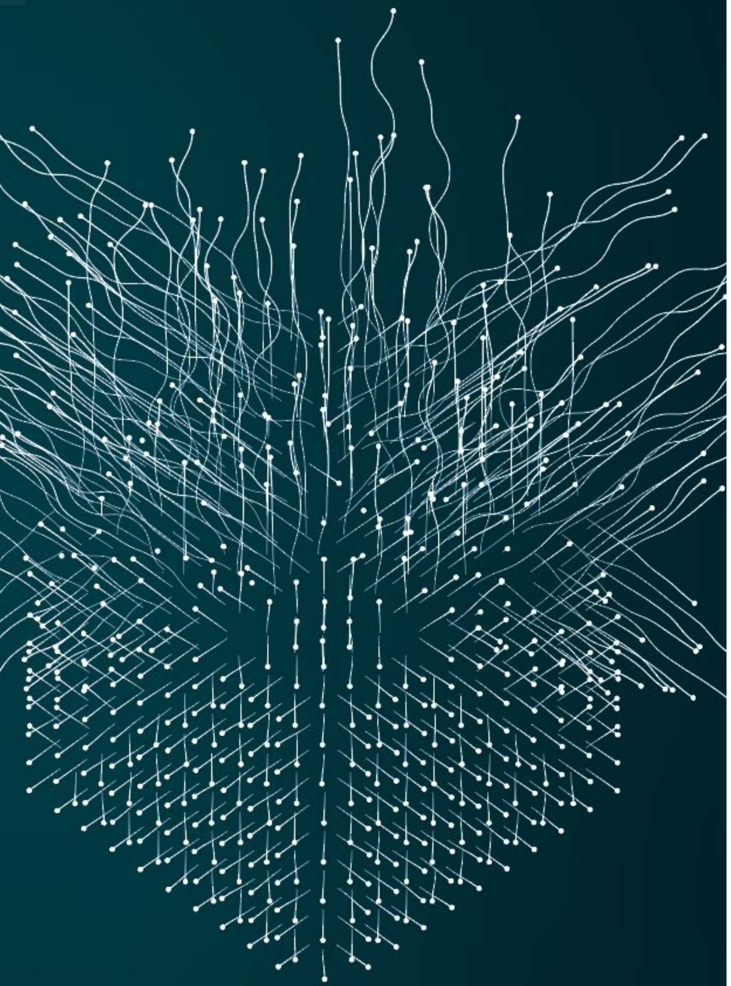
Institutions move from POC to Production:
Digital Asset Week in London during November 2023, saw another milestone for industry adoption of blockchain and DLT, where Archax, TomorrowNext and Ownera executed, on stage, a live production trade providing an institutional investor access to a MMF in token form. The successful trade demonstrates how cross-industry collaboration is an enabler for the market to accelerate the adoption and distribution of regulated tokenized assets, through a global interoperability network, in this instance via the open FinP2P protocol.

This is significant because until now the ecosystem lacked a common global interoperability network connecting issuers, investors, exchanges and other market participants. The production trade demonstrated how investors can benefit from tokenized access to yield-bearing, regulated MMFs intra-day, thus delivering on the promise of tokenization reaching and being accessible to a global investor base. This initiative is a first step towards a liquid secondary market, which will make it easier for participants to trade more frequently and maximize their capital efficiency.

The forthcoming Archax launch of crypto trading pairs against token-based MMF instruments means that professional clients holding assets in regulated, protected MMFs – whilst accessing a yield – can then trade directly against leading unregulated cryptocurrencies, without the need to convert into another asset, like fiat, first. These MMF instruments can be used effectively as a ‘currency’ for trading against other regulated digital and traditional assets on the Archax exchange, which are held safely with Archax as a regulated custodian.

Scaling adoption, trust and the safe-keeping of assets
There is no doubt that asset managers and financial institutions see the future for financial markets through leveraging new technologies. The tokenization of MMFs is just one example, but application to other RWAs, like debt, equity, listed securities, private markets, is also gaining momentum among institutions. For scale, focus must remain on addressing the gaps in infrastructure, global standards, legal and regulatory certainty, settlement and finality, including payment leg, DLT governance and wider interoperability.

If we take a closer look at infrastructure, a core pillar is the role of the digital asset custodian. The task of the digital asset custodian is to securely hold and store all forms of digital assets, whether crypto, regulated security tokens, other digital assets,



traditional securities, or other financial assets. The custodian's ability to provide insolvency-remote segregated structures for these multi assets is crucial, whether regulated or unregulated, treating both equally and providing robust institutional-grade cryptography for secure key management.

Investors and asset managers wishing to minimise counterparty risk need to look at the regulated and registered status of a digital asset custodian as well as the level of corporate governance, controls, and processes which must be institutional grade.

Self-custody as an option has little appeal to institutions because unlike traditional assets, the custody of digital assets introduces unique operational challenges – typically anyone can view wallet balances and transactions on chain, but only private key holders can transfer assets. The reality is that these institutions would rather outsource the complex and evolving activities of the digital asset custodian than maintain the service in-house which adds no value to their core business. Indeed, such outsourcing is necessary if the industry is to scale.

The winners in this market are regulated digital asset custodians. In addition, service providers who not only meet these expectations but who can also give access to yield through cross-collateralization opportunities, institutional-grade stakingand digital securities lending will be in demand. Few have this capability today. At Archax, as regulated custodian, broker and exchange, we address these needs as we forge a path forward for the industry acting as a bridge across traditional and digital.

Looking ahead into 2024, expect to see more transactions in production from institutional players across MMFs, private markets, bonds, exchange traded products and real estate. Building must continue and gaps worked through. For the industry to achieve scale, incumbents and new players need to coexist and evolve through cross industry collaboration to deliver on the opportunities presented. As the head of digital assets at a global investment bank recently put it, distribution and liquidity will arise from interoperability. Connectivity is needed to achieve scale. The Archax, TomorrowNext, Ownera live production transaction of a tokenized MMF at Digital Assets Week in London is an example of this interoperability in action. In 2024, the industry will deliver many more. ■

Join and Shape the Future: Advancing Decentralized Payments Through an Open Standards Foundation; A Call to Action from TBD

Ben Boeser
Head of Tech Partnerships
TBD at Block

In October 2023, TBD and Circle invited the world to join a new initiative for payments and commerce enabled by decentralized technologies and open protocols. The mission of our foundation is simple (and shared by many GDF members) but challenging: enabling frictionless global payments and commerce. A world with borderless commerce and payments is a world of greater financial inclusion and economic empowerment.

At TBD, we think about friction in cross-border transactions every day. But to solve the problem, it requires broad cooperation and alignment beyond our company and partners. Working with other like-minded industry participants to create this unanimity of standards and specifications was the logical next step towards realizing our mission and Block's larger purpose of economic empowerment.

This entails removing barriers inherent in traditional financial systems, ensuring compliance with legal and regulatory standards while preserving privacy, facilitating quicker and more cost-effective worldwide transactions using decentralized payment methods, and making economic participation accessible to all. Again, these are common goals of most or all GDF members. But as we know, identifying these challenges is often simpler than solving them.

The announcement of this foundation has already begun to resonate with the industry. Dozens of organizations in the digital payments space share these goals and have raised their interest in the foundation. But to realize these ambitious objectives, a great deal of collaborative and transparent work lies ahead.

What will this foundation build?
In practice, foundation members will work together to contribute and promote open source standards, including technical specifications, open source software, and reference implementations focused on building trust frameworks for payments, commerce and financial use cases. This means the foundation will work on specifications, standards, and reference implementations for:

- Wallet naming conventions to find and address counterparties via human-friendly names and URIs
- Stablecoin standards and blueprints
- An open source liquidity protocol — which will eventually be contributed by TBD — along with specifications, reference implementations, and tools that work together with stablecoins and identity to support mainstream payments and commerce use cases, promoting wallet and financial service interoperability for highly scalable, low-cost, and trusted exchanges of value
- High assurance verifiable credentials for payment use cases such as sanctions credentials and KYC credentials
- Decentralized identity issuers
- Operational capabilities to grow and certify identity and credential issuers based on these standards

The compliance and foundational trust frameworks will leverage open standards as per World Wide Web Consortium W3C, Internet Engineering Task Force (IETF), Decentralized Identity Foundation (DIF) and OpenID Foundation (OIDF).

So what's next?

Establishing the Community
Join this journey. Any individuals and organizations may join this community and play a pivotal role in shaping the future of decentralized finance and commerce.

To succeed, this foundation needs more founding members that share our philosophy around embracing open source. In particular, we hope to work with companies that have major use cases and real solutions at global scale that can accelerate adoption and contribution to these standards and technologies.

If you are interested in contributing, please introduce yourselves at formation@linuxfoundation.org

Strengthening the Foundation
The initial phase will take place over the first half of 2024. It involves assembling a diverse group of founding members, including industry giants, smaller firms, and individual contributors. The immediate focus is on establishing foundation governance through in-depth discussions with founding members. Topics will include board structure, community engagement strategies, board seat distribution, IP policies, and drafting of bylaws. Foundation members are committed to transparent and adaptable governance, valuing your insights in this process. Following the Linux Foundation model, this Foundation will have a familiar legal structure with well-defined parameters (such as flexibility of bylaws and other characteristics).

This endeavor is not just about technological advancement; it is a part of a broader industry conversation on accelerating digital finance. By adopting best practices and standards, and engaging with regulators and policymakers, the Foundation aims to be at the forefront of shaping the future of digital finance and commerce.

Partners from banks, fintechs, wallets, credential issuers, eCommerce, and payment companies are welcome to collaborate and pioneer a future where digital commerce is seamlessly integrated into the global economy's framework.

This is a collective effort to create a future where digital finance is more accessible, efficient, and inclusive. Let's build this future together. To learn more, stay engaged, or get involved, visit here. ■

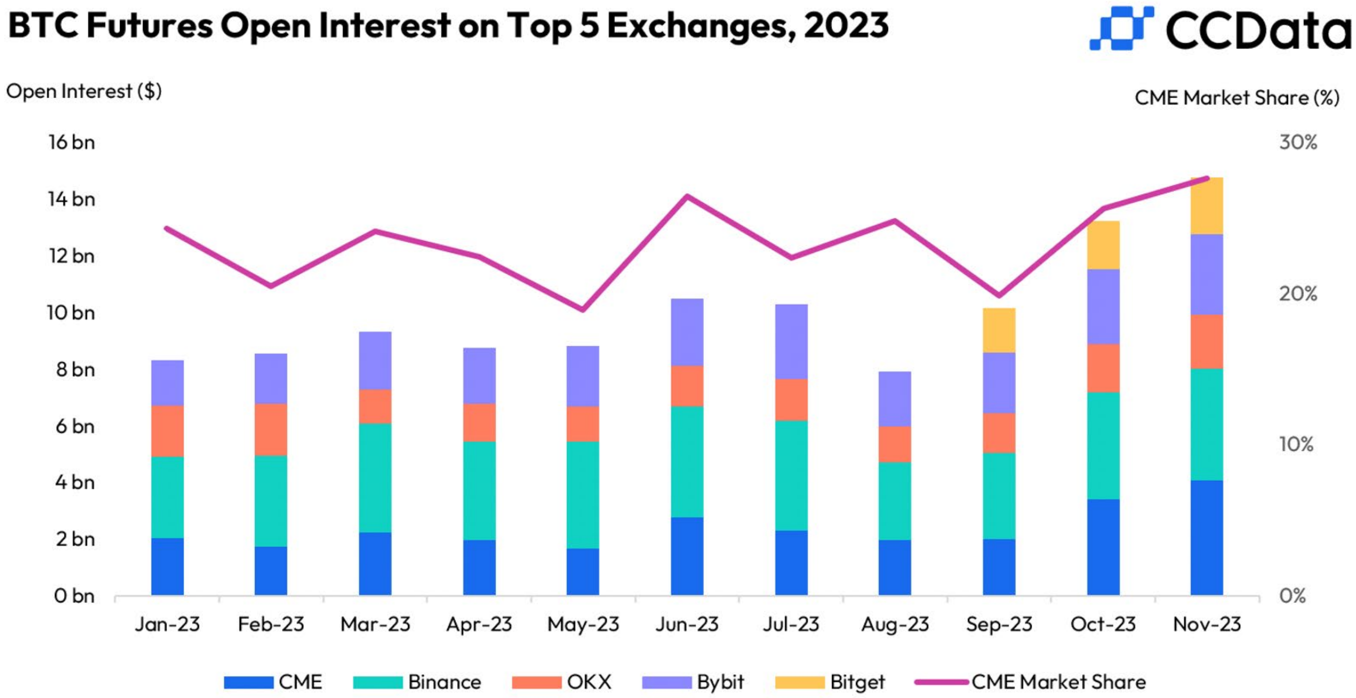
Drivers of Growing Institutional Interest in Digital Assets

Joshua De Vos
Research Lead
CCData

Alissa Ostrove
Chief of Staff
CCData

One of the central themes of 2023 has been the growing institutionalization of the industry. Counterparty risk was incredibly pervasive in 2022, culminating in the destruction of value from centralized entities such as Celsius and Voyager, concluding with the collapse of FTX and Alameda. US regulators were compelled to intervene, targeting Coinbase and Binance in high-profile legal challenges, with Binance recently settling to the tune of $4.3bn. Current growth is likely to be facilitated by the onboarding of new institutions who are regulatory-compliant, engaging with sophisticated instruments to participate in the market.

BTC Futures Open Interest on Top 5 Exchanges, 2023



CME OI & Market Share

When considering BTC futures open interest (OI), CME has consistently held a market share above 18% this year, showing strength during a year marked by increasing regulatory scrutiny. In November, CME's BTC open interest totalled $4.1bn, exceeding Binance's $3.8bn OI figure to become the top derivatives exchange in the industry for the first time since October 2021 with regards to BTC trading activity. This indicates changing institutional attitudes to BTC in light of speculation surrounding the potential approval of a BTC Spot ETF in the US.

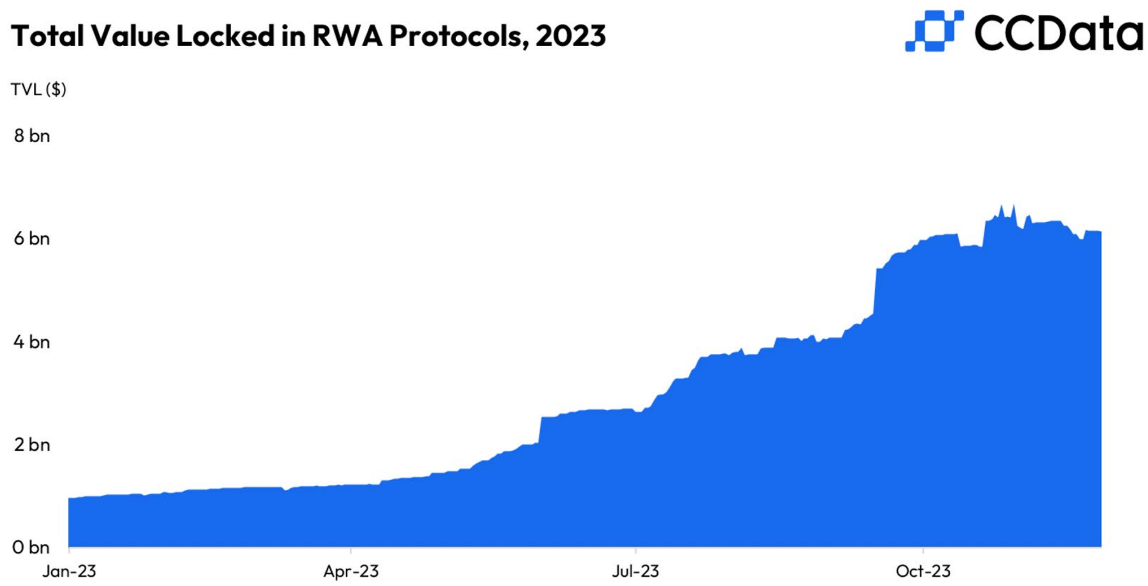
TVL in RWA Protocols

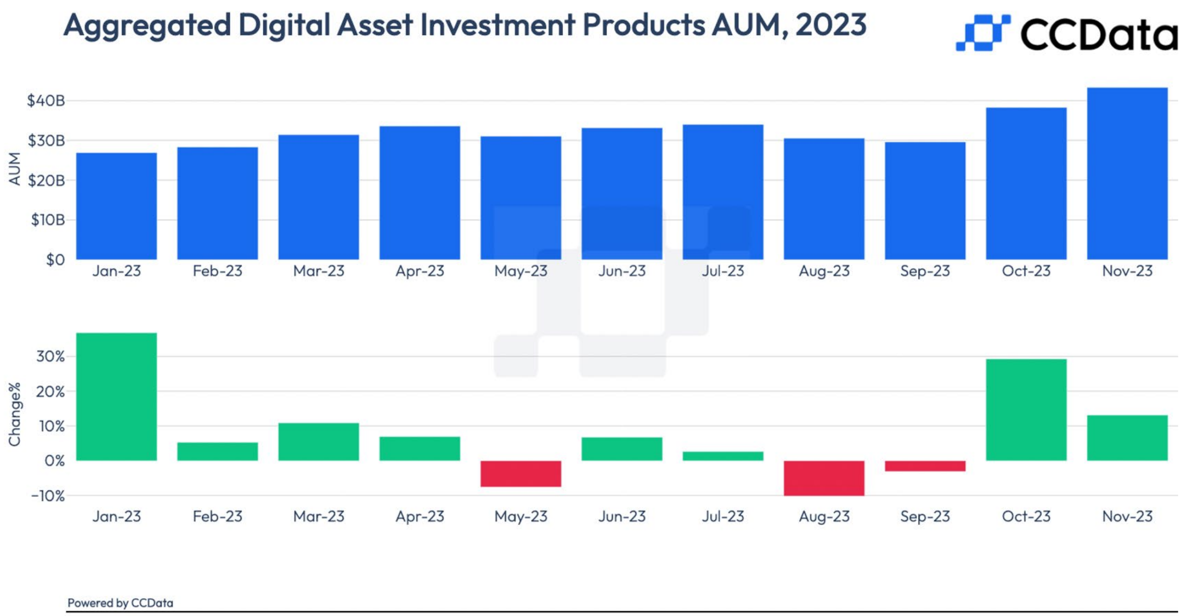
Tokenization is likely to be one of the largest drivers for onboarding institutions to the space. It allows for real-world assets (RWA) to be turned into digital tokens using blockchain technology, providing greater accessibility to assets, faster settlements, higher efficiency, and increased mobility of assets.

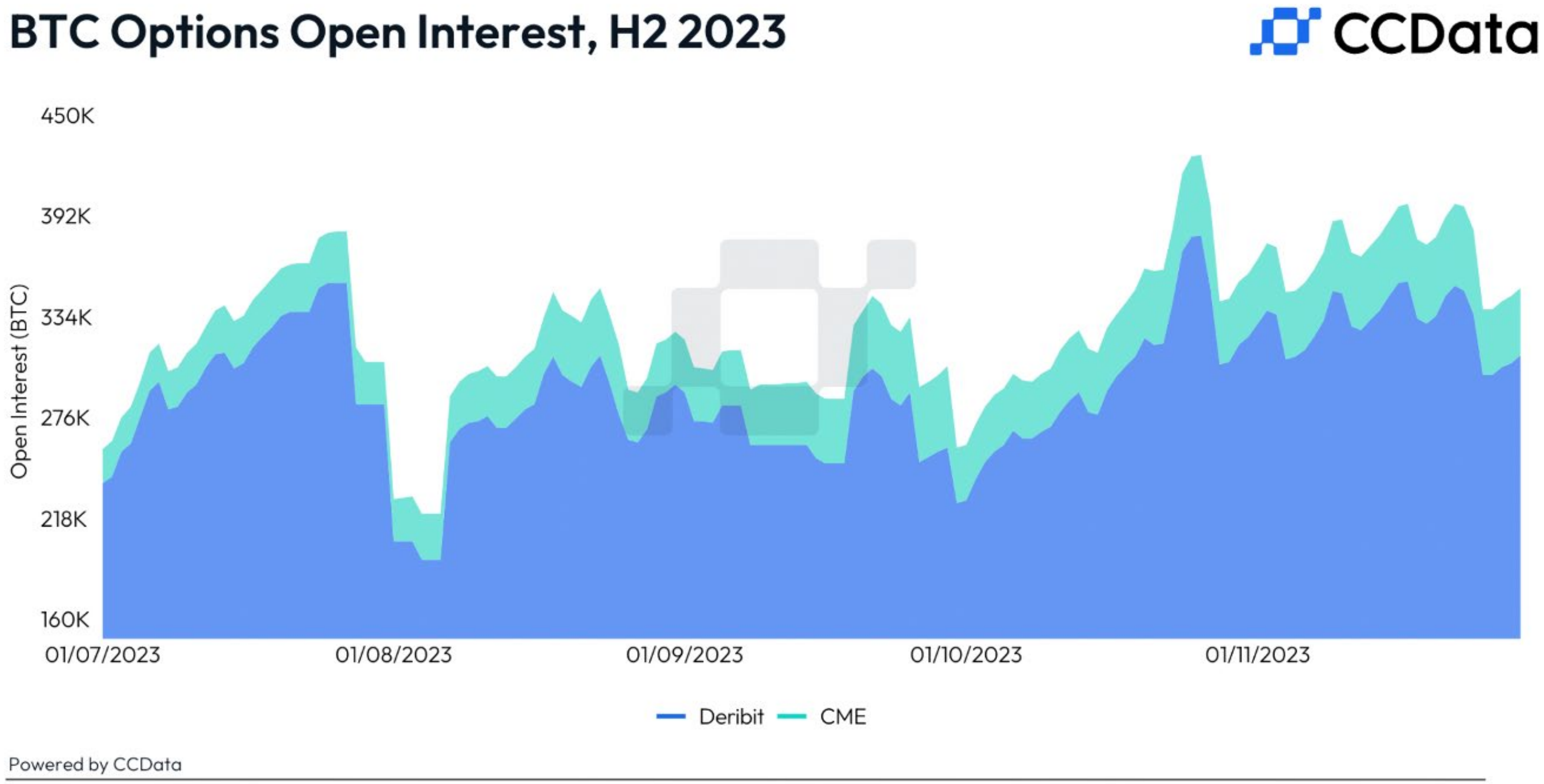
These benefits have catalyzed the growth observed this year, with the Total-Value-Locked (TVL) in RWA Protocols rising ~530% YTD, from ~$1bn to ~$6bn. Most of this has been related to tokenised US treasuries, which make up around 85% of TVL market share on-chain. During the recent hiking cycle, the attractiveness of tokenized treasuries has grown, with yields outpacing those accessible within decentralized finance (DeFi) with the benefit of additional guarantees in place.

Investment Products AUM

A clear uptrend in assets under management (AUMs) can be observed in digital asset investment products, such as exchange-traded products (ETPs) and exchange-traded funds (ETFs). Out of twelve monthly periods, nine exhibited MoM gains. Year-To-Date (YTD), aggregated AUMs have grown by 50%, from $28bn to $42bn; demonstrating notable inflows into investment products by institutions who may have limited accessibility beyond these instruments.







With the newly approved US BTC spot ETF, we expect to see larger-than-expected inflows into the market, given the superiority of a spot ETF for institutional investors. This superiority is likely to draw demand from demographics not seen yet, such as wealth managers and passive investors, by creating wider distribution through investment channels.

BTC Options Open Interest

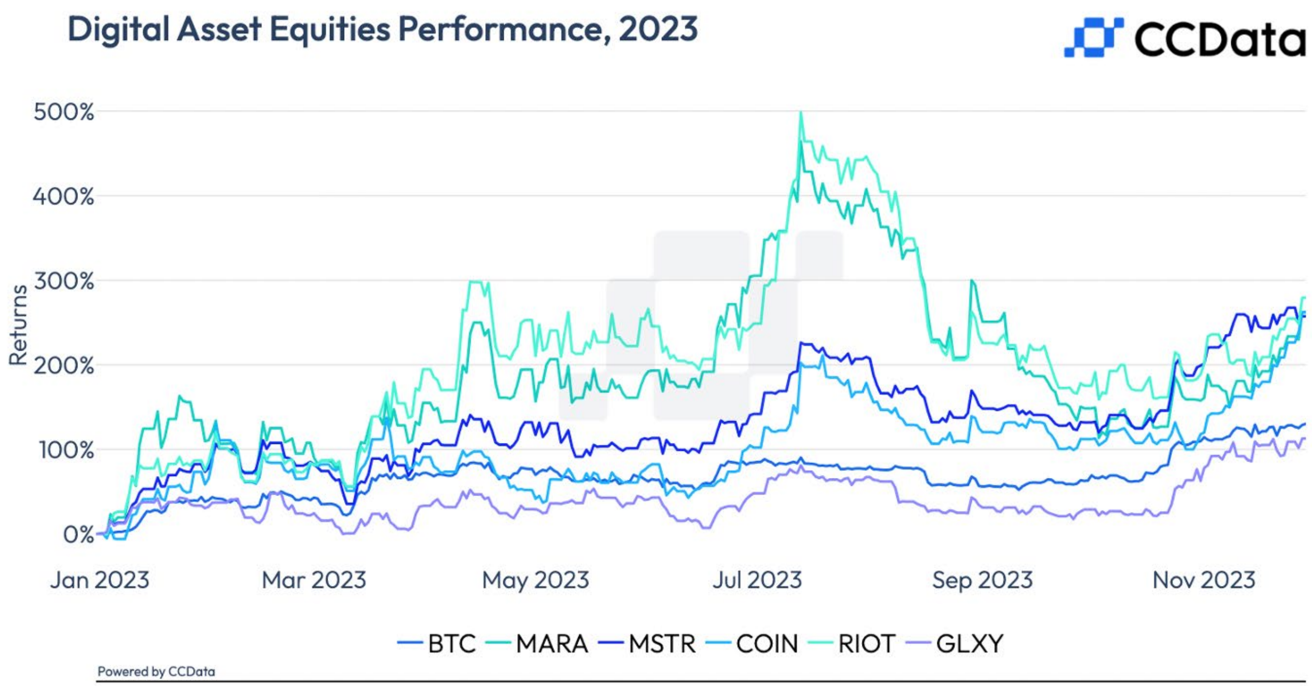
Options tend to be the instrument of choice for sophisticated investors looking to speculate on the market whilst maintaining complete control over risk. Options OI has been in a steady uptrend for the second half of 2023, with the venues of choice being Deribit and CME. Interestingly, CME market share of options OI has increased 50% since July; which may indicate a structural shift in demographics of those engaging with options strategies for BTC. As institutionalization persists, we expect to see options maintain a continuous uptrend in OI and volumes.

Digital Asset Equities

Digital asset equities provide a proxy to engage with crypto, without the reporting and accounting burdens associated with holding spot assets. Traditionally, one of the most common ways to gain indirect exposure to Bitcoin is by holding BTC mining stocks, such as MARA, RIOT or GLXY. Similarly, MSTR has acted as a BTC beta play, mirroring its performance due to their bold accumulation strategy - resulting in a total 174,530 BTC treasury, with an average price of $30,252; acquired for $5.28bn.

Notably, COIN was significantly underperforming BTC in July following the SEC case; however, it has now caught up as confidence returns, with a potential boost coming after the recent Binance settlement and renewed optimism surrounding the approval of multiple spot BTC ETFs, where Coinbase are listed as the Surveillance Sharing partners.

Looking back at 2023, the crypto market witnessed a significant shift towards institutionalization, marked by increased regulatory involvement and a relative surge in volumes in sophisticated investment instruments. This transformation was evidenced by the growth seen in derivatives markets and instruments, the rise of tokenization, and the resilience in AUMs of digital asset investment products. Despite the FTX collapse in late 2022, this year set a precedent for greater institutional participation and regulatory compliance. As the industry self-regulates and continues to mature, the foundation is being set for an exciting 2024, with positive catalysts such as the Bitcoin Halving, and a US-approved BTC Spot ETF having only just been announced. ■



Digital Assets in 2023:

Understanding an evolving landscape through data

Caroline Malcolm
VP of Global Public Policy
Chainalysis

In a year marked by major developments in the digital assets sector, from big steps forward in building regulatory guardrails in major markets to headline-grabbing enforcement actions, it is crucial to assess the overall market evolution. Beyond individual token prices and market capitalization, in the Global Crypto Adoption Index, we use on-chain and real-world data to get a snapshot of which countries are leading the world in grassroots crypto adoption.

Grassroots crypto adoption is not about which countries have the highest raw transaction volumes — anyone could probably guess that the biggest, wealthiest countries are far ahead there. Instead, our Index highlights the countries where, on average, everyday people are embracing crypto the most, and putting the greatest share of their wealth into cryptocurrency. You can read more on our methodology here.

From this year's data, 3 key takeaways stand out. First, bans on digital assets do not work to clampdown on adoption, nor are they an effective tool for protecting consumers. Second, policy

Country	Region	Overall index ranking	Centralized service value received ranking	Retail centralized service value received ranking	P2P exchange trade volume ranking	DeFi value received ranking	Retail DeFi value received ranking
India	Central & Southern Asia and Oceania	1	1	1	5	1	1
Nigeria	Sub-Saharan Africa	2	3	2	1	4	4
Vietnam	Central & Southern Asia and Oceania	3	4	4	2	3	3
United States	North America	4	2	3	12	2	2
Ukraine	Eastern Europe	5	5	3	11	10	10
Philippines	Central & Southern Asia and Oceania	6	6	6	19	7	7
Indonesia	Central & Southern Asia and Oceania	7	13	13	14	5	5
Pakistan	Central & Southern Asia and Oceania	8	7	7	9	20	20
Brazil	Latin America	9	9	11	15	11	11
Thailand	Central & Southern Asia and Oceania	10	8	15	44	6	6

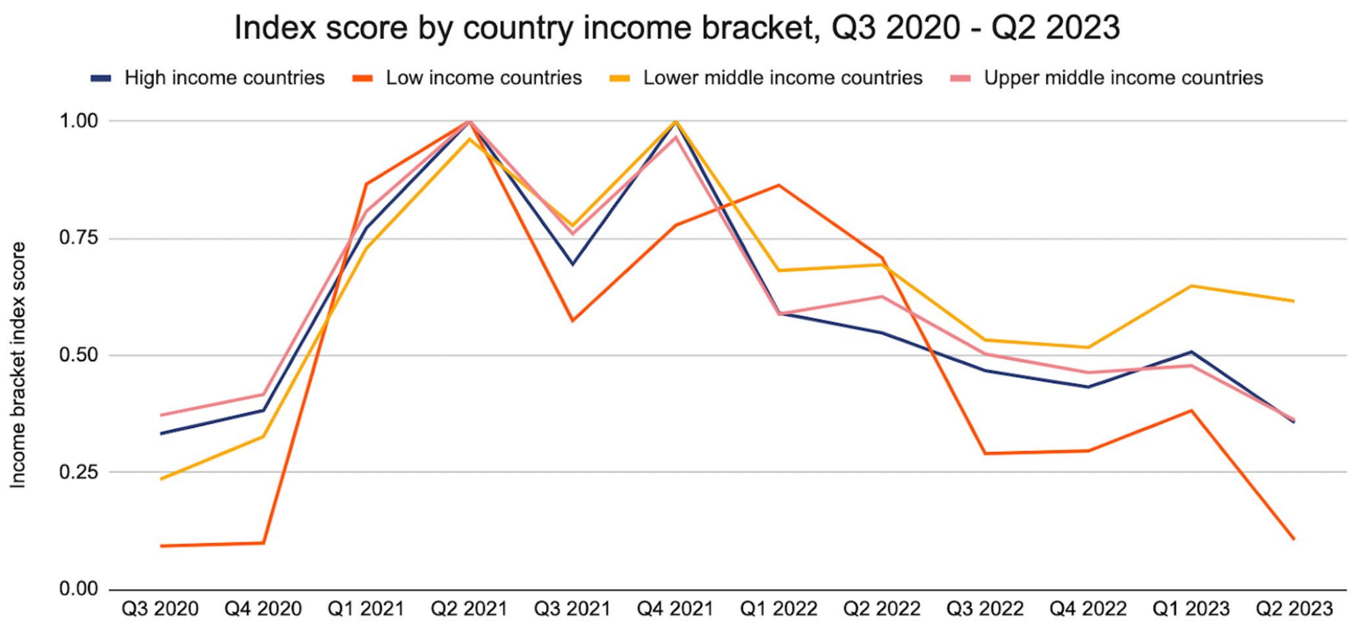
Country	Region	Overall index ranking	Centralized service value received ranking	Retail centralized service value received ranking	P2P exchange trade volume ranking	DeFi value received ranking	Retail DeFi value received ranking
China	Eastern Asia	11	10	5	13	23	23
Turkey	Middle East & North Africa	12	11	9	35	12	12
Russia	Eastern Europe	13	12	10	36	9	9
United Kingdom	Central, Northern, & Western Europe	14	15	20	38	8	8
Argentina	Latin America	15	14	12	29	19	19
Mexico	Latin America	16	17	18	30	16	16
Bangladesh	Central & Southern Asia and Oceania	17	18	19	33	12	22
Japan	Eastern Asia	18	22	21	49	18	18
Canada	North America	19	25	23	62	14	14
Morocco	Middle East & North Africa	20	27	25	21	26	22

options shape the nature of the market even if they do not affect overall adoption. And third, digital assets are increasingly solving for very specific needs of individuals, which vary significantly, depending on their location.

Adoption in lower-middle income countries

Many of the top countries on our Global Crypto Adoption Index are low-middle income (LMI) countries. Taken together, LMI countries have seen the greatest recovery in grassroots crypto adoption over the last year. LMI is the only category of countries whose total grassroots adoption remains above where it was in Q3 2020, just prior to the most recent bull market.

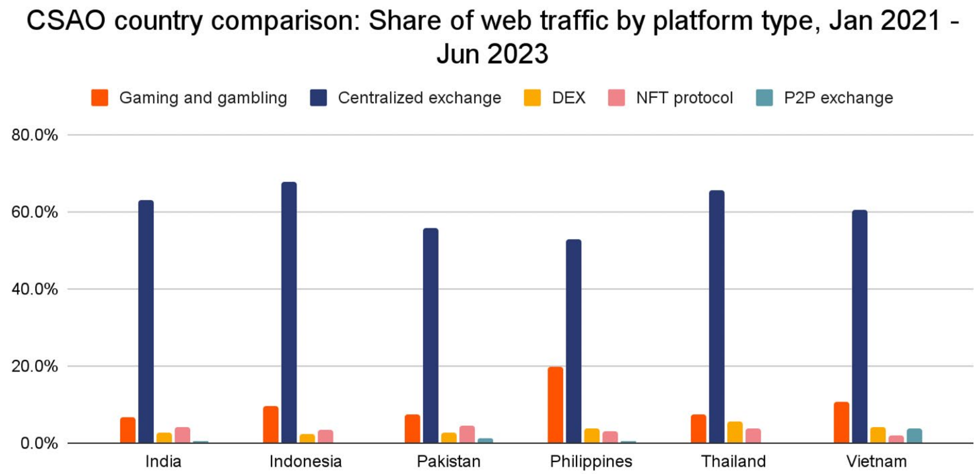
This suggests a strong future for digital assets with dynamic, growing industries and populations. Many of LMIs have undergone significant economic development in the last few decades to rise from the low income group. Yet perhaps most importantly of all, 40% of the world's population live in LMI countries — more than any other income category. If LMI countries are the future, then the data indicates that crypto is going to be a big part of that future. That, combined with the fact that institutional adoption — primarily driven by organizations in high-income countries — continues to gain steam even during the ongoing crypto winter, paints a promising picture of the future. We



could see a combination of bottom up and top down cryptocurrency adoption in the near future if these trends hold, as digital assets fulfill the unique needs of individuals in both segments.

Bans on digital assets

Two of the countries featured in the top 20 of the Index have regulatory regimes that either ban or quasi-ban the use of digital assets by consumers; others have dissuasive tax regimes in place for cryptoassets. China, for example, has a ban in place on most digital asset trading. Despite the oversight capabilities of the government, the country comes in at number 11 on the Index with an estimated $86.4 billion in crypto received between July 2022 and June 2023. In China and elsewhere, we see that consumers continue to enter the market regardless of the specific regulatory scheme in place in a particular jurisdiction. The message to regulators and policymakers could not be more clear: bans are ineffective. Therefore, even if your only goal is to protect consumers and create safer markets, clear rules covering the digital assets sector is the only viable path forward.



Global adoption of digital assets

There's no sugarcoating it: worldwide grassroots crypto adoption is down. We can see this on the chart above, where we apply our Adoption Index methodology globally by summing all 154 countries' index scores for each quarter from Q3 2020 to the present, and re-index them again to show adoption growth over time across the world.

Looking at specific regions individually, we can understand the story of crypto adoption a little more clearly. Central & Southern Asia and Oceania (CSAO) hosts what may be the world's most dynamic and fascinating cryptocurrency market. Measured in raw transaction volume, CSAO is the third-largest crypto market we study, barely trailing North America and Central, Northern & Western Europe (CNWE), and accounting for just under 20% of global activity.

Raw transaction volume doesn't tell the full story, though. When we account for purchasing power and population to measure grassroots adoption, CSAO dominates. Indeed, six of the top ten countries in the Global Crypto Adoption Index are located in the region.

However, CSAO is not a monolith when it comes to cryptocurrency adoption. Different factors are driving adoption in different CSAO countries, which leads to different rates of usage for different types of cryptocurrency services and assets. We can see this on the graph below, which shows the breakdown of web traffic to different types of cryptocurrency platforms for the top CSAO countries on the adoption index. This signals that digital assets are utilized in different ways for the people of these countries, an important factor when considering how the sector may evolve in 2024.

In a world where bans on digital assets prove ineffective, our Global Crypto Adoption Index reveals a compelling narrative: the future of digital assets is unfolding in lower-middle income countries (LMIs). Despite a global downturn, LMIs have experienced the most significant recovery in grassroots crypto adoption, signaling that the unique needs of individuals in these rising economies are driving the crypto revolution. As the introduction of regulatory frameworks in high-income countries sees institutional adoption gain momentum, the confluence of adoption across these different markets, driven by different forces, paints a promising picture for crypto's future, and gives further urgency to regulators to provide clear rules to foster a consumer-protective yet innovative digital assets landscape. ■

Unlocking Value:
Exploring Ownership Rights and Custody in Real World Asset Tokenization

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Tokenization of real world assets (RWA) is becoming more than just a buzzword in both the traditional finance and digital asset spaces. We are seeing significantly greater interest in tokenizing certain 'hot assets', including gold, real estate and luxury cars. Recently, HSBC and Metaco announced a new digital asset custody service for tokenized securities. Terrazzo, a private market investment platform, also announced a partnership with tokenization platform Tokeny to tokenize real estate assets in India within a regulatory sandbox under the ambit of the International Financial Services Centres Authority[2]. Clearly, tokenization of real world assets is more than a buzzword.... it is happening!

One of the key benefits of tokenizing a RWA, like a luxury car, is the ability to fractionalize the asset so that multiple owners are able to have a clearly defined and recorded stake in the asset.

This gives rise to the question as to how does the tokenization and fractionalization of RWAs enable investors to derive any benefits, including financial? Fractionalization of an asset through tokenization not only allows retail investors to have ownership rights over assets, it potentially eliminates the long drawn-out paper filling processes that are typically controlled by intermediaries.

Let's take a hypothetical example. Peter, Tom, David and Aaron are housemates who would not only like to have the benefit of driving a luxury car (utility benefit) but also have ownership rights over the car. All four of them could easily have ownership rights over the luxury car by entering into a smart contract through a blockchain. If David wants to sell his ownership rights to another external party, he could do this seamlessly, as long as the other three co-owners concede to the transfer of ownership via smart contract. In the current physical world environment, however, transfer of ownership could be only achieved through de-registration and registration between parties, via a centralized authority which is an onerous and cumbersome process that could stretch over a number of days or weeks and potentially be quite costly. Furthermore, in the physical world, co-ownership may be possible but this comes with the hassle of issuance of a brand new title when there is an ownership change, making the change of ownership process inflexible.

While the benefits of tokenization have been widely canvassed, the coverage on its drawbacks are marginal. The loss of a private key or the unregistered transfer of ownership of the private key by one of the owners will negatively impact the rest of the owners. Using the example above, let's say Tom loses his private key - Peter, David and Aaron (the original co-owners) will be stuck with an asset without being able to exercise any of their legal rights over the luxury car as the consent of all parties would be essential to carry out any transactions via blockchain. Again from the example above, if Tom chooses to share his private key with his non-owner friend Adam, tracking the actual ownership rights could potentially be jeopardized. It would be nefarious if Adam is an illicit actor.

Transparency of asset movement on blockchain could be a boon, but it could also be a bane, specifically when it comes to the tracking of the physical asset. To track these assets, there would need to be a trusted third party to be part of the permissioned blockchain, such as a custodian, who keeps track of the movement of the tokenized physical assets for a fee. Although proving custody of real assets is not new, this easier and immediate way for a custodian to verify ownership and history of ownership prior to providing the custodial services would be. As in the example above, Tom's private key will be kept safe by a third-party custodian, potentially eliminating the risks around losing a private key and unregistered transfer of ownership. The role of such third-party custodians in the tokenization of RWAs would become key to the ecosystem and licensing of these custodians by regulatory bodies would be paramount. Although the removal of middlemen is supposed to be one of the benefits of tokenzing assets on blockchain, it would be arduous and risky to remove the participation of a licensed third party custodian.

As experimentation around tokenization of RWAs escalates and offerings like those from HSBC and Terrazzo become more mainstream, how best to structure processes around the ownership of physical assets on blockchain will be, and should be, discussed extensively. ■

Crypto and Sustainability:
Contradictory or transformational

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Ute Brunner-Reumann
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Are crypto and sustainability contradictory? Can crypto and distributed ledger technology help the transformation to a more sustainable economy?

Discussions are currently focusing on integration into the overall framework of European financial legislation and on the sustainability impacts of cryptoassets. In Europe these topics have been addressed now, at least to a certain extent, in the long-awaited Markets in Crypto-Assets Regulation (MiCA), which provides a harmonized framework for cryptoassets and related services.

One of the most critical points was whether cryptoassets should adhere to minimum environmental sustainability standards for the consensus mechanism used for validating transactions. This raised the concern of a de facto ban on the Proof-of-Work (PoW) method (highly controversial due to its high energy consumption), of which bitcoin is the best-known example.

There was a suggestion to include cryptoasset mining as an activity in the Taxonomy Regulation. Mining activity could then be measured against technical, scientifically based standards. This would even have enabled mined cryptoassets to be labelled as “green” within the meaning of the Taxonomy Regulation.

Ultimately, the regulators chose a mid-way point between incentivisation and enforcement. Disclosure obligations would allow the market to be able to assess the ecological impact of cryptoassets.

Disclosures as a mechanism for market self-regulation
MiCA now contains specific obligations for sustainability-related disclosures when publishing white papers for cryptoassets.

Unlike providers of cryptoassets, cryptoasset service providers (CASPs) do not have to publish a white paper. They have to make the information available on their website. The information must include the principal adverse impacts (PAI) of the consensus mechanism used to issue the cryptoasset on the climate and environment. The information should not only relate to the validation of transactions, but also to the use of energy and resources required to maintain the integrity of the information stored in the ledger.

MiCA provides for a mandate to European Supervisory Markets Authority (ESMA) in cooperation with European Banking Authority (EBA) to develop Regulatory Technical Standards (RTS) that further specify content, methods and presentation of information on sustainability indicators in relation to adverse impacts on the climate and the environment. ESMA published the draft RTS in its second consultation paper on MiCA on 5th October 2023.

The RTS provide for mandatory information; for example, a brief overview of the most important impacts of the consensus mechanisms on climate and on the environment, including the yearly average energy consumption, the average energy consumption to validate one transaction, and the yearly average GHG emissions linked to the use of direct and indirect energy sources.

Cryptoassets can regain ground after the crypto winter

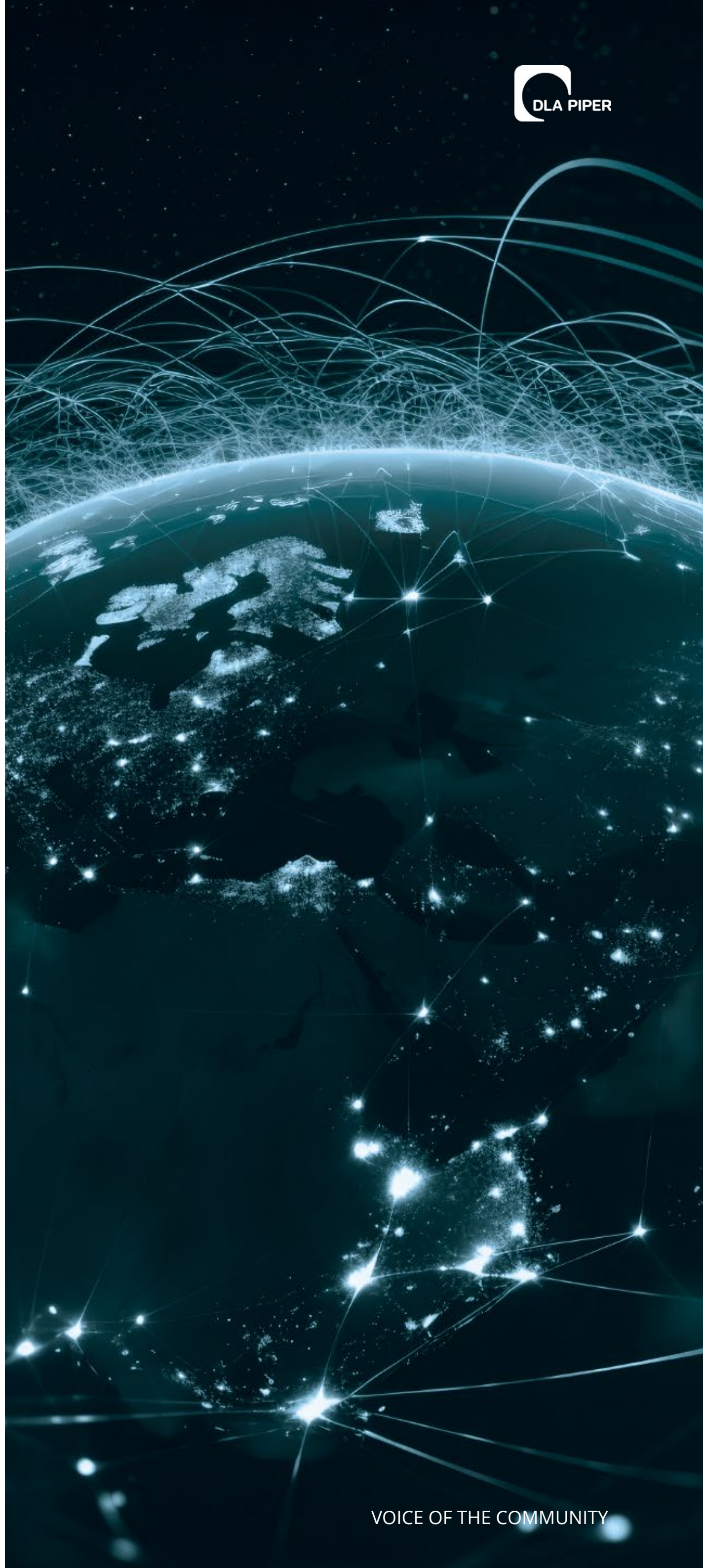
The newly implemented disclosures enable potential investors concerned about ESG criteria in the crypto universe to invest in cryptoassets more often. Publicly available information provides an important impetus to assess cryptoassets in investors' risk management. But it is also important for ESG-related financial products and is essential for investors to fulfil their own sustainability-related disclosure requirements. By connecting sustainability and cryptoassets, institutional investors have more opportunity to extend their investment strategies.

In Germany, the legal permissibility to invest in cryptoassets will be opened up to a group of institutional investors with a substantial amount of assets under management. Under the new *Zukunftsfinanzierungsgesetz* (Future Financing Act), which was passed by the German Bundestag on 17 November 2023, more types of investment funds will be able to invest in this asset class. Now, in addition to alternative investment funds (AIF) established as special funds (ie for professional investors only), AIF available for retail investors can also directly invest in crypto-assets up to a certain investment limit.

Challenges

The disclosure requirements of MiCA pose a challenge for cryptoasset issuers and CASPs active in the European Economic Area (EEA). They now have to collect, structure and publish sustainability-related data.

It remains to be seen whether these disclosures will reduce the environmental impact and promote the compatibility of ESG-related financial products and cryptoassets. ■



Droit’s Adept Platform:
Revolutionizing Regulatory Compliance in Financial Services and Digital Assets

Brock Arnason
CEO
Droit

Droit is a technology firm at the forefront of computational law and regulation within financial services. Founded in 2012 as a response to the wave of regulation following the 2008 financial crisis, including Dodd-Frank and MiFID, Droit brings complete transparency in decision-making to comply with key regulatory requirements.

Droit’s patented Adept platform provides traditional buy- and sell-side financial institutions with solutions for pre- and post-trade controls, evaluating the permissibility of transactions, compliant regulatory reporting, and more. Adept generates decisions directly from digitized rules, regulations, and internal policies, visually represented in intuitive logic diagrams with a traceable pathway through to the source text. Its unique ability to codify complex regulatory requirements into intelligent, actionable decisions enables financial institutions to respond efficiently to their regulatory obligations in a completely auditable manner.

The application of blockchain technology to real world assets and to trading and settlement constructs brings new efficiencies to investors and market participants. As digital assets continue to expand into the mainstream financial marketplace and traditional financial institutions pursue the tokenization of financial products and assets, the demand for transparency and traceability and for consumer and investor protections will remain, if not increase. ‘Same risks, same activity, same regulation’ is the call of international regulators when looking at what and how to regulate in the crypto and digital assets markets. And, the corollary to that is compliance. Droit’s Adept platform supports compliance with complex regulations throughout the trade lifecycle. When applied to digital assets regulation, this transparency will provide the same increased efficiencies and a repeatable, defendable process already familiar to the traditional finance environment. ■

A Turning Point for Centralized Exchanges

Brian Rudick
Senior Strategist
GSR

While trading on a centralized cryptocurrency exchange can be risky, there are a number of actions that can reduce risk. And after an abysmal year, the future is finally looking bright.

Centralized Exchange Trust Assumptions

Despite aspirations to disintermediate traditional finance and the ability for blockchain technology to instantly instantiate trust, centralized crypto exchanges (CEXs) paradoxically require even more trust than their traditional finance counterparts for a number of reasons. First, as a nascent industry, many centralized exchanges operate with little or still-developing legal and regulatory oversight, making it easier for them to engage in malicious behavior if they choose to do so. Second, industry norms and generally accepted business practices are still being developed, leading to a wider array of potential outcomes and less predictability for market participants in unclear situations. Third, centralized crypto exchanges perform many more functions than their traditional finance brethren, acting as broker, exchange, and custodian, which further concentrates risk and provides greater opportunity for malfeasance. Lastly, upon receiving a deposit, CEXs create virtual balances or IOUs within their off-chain, centralized databases, effectively promising to pay out upon request, which may not always happen.

Risks Emanating from Centralized Exchanges

This construct and resulting trust assumptions exposes market participants on centralized exchanges to many risks. Indeed, professional and retail customers alike are exposed to heightened security risk and must trust that a CEX properly safeguards its keys. Incidents at Mt. Gox, Bitfinex, Liquid, and Huobi show that this is not always the case. In addition, market participants risk whether the exchange in question will honor its IOUs and pay out when requested. However, exchanges may not maintain adequate cryptocurrency behind user virtual balances, or worse still, may misappropriate user assets as was the case with FTX, Africrypt, and QuadrigaCX. Finally, many CEXs operate in the shadows in jurisdictions where rule of law and due process is not a given, and as black boxes with often opaque corporate and management structures, minimal transparency around business practices and processes, and little communication and guidance when issues occur. This setup leads to security and counterparty risks that often trump market risk for individual players, and increases the overall level of risk for the system as a whole.

Strategies for Mitigating Risks

Fortunately, there are many actions CEXs can (and must) take to reduce these risks. First, CEXs should increase transparency, which may be done through cryptographic tools like proof-of-solvency, increased dialogue with market participants, and greater clarity around beneficial ownership and legal jurisdiction. Second, CEXs should remove or disclose conflicting businesses, eschewing activities at odds with the exchange or its users like prop trading and internal marketing making or at the very least disclosing and adding safeguards like information barriers when not. Further, exchanges should employ robust risk frameworks, employing custody best practices, optimizing consumer protections, and operating prudently and in accordance with the highest market standards. Lastly, exchanges should promote fair and orderly markets by eradicating information asymmetries and integrating trade surveillance programmes to prevent and detect manipulative practices like wash trading.

A New Dawn for Centralized Exchanges

While recent, often exchange-related events have thrust the industry into a dark and dreary winter, these events have also planted the seed of true change. Governments have been hard at work instituting comprehensive regulatory frameworks to both protect consumers and promote innovation, with key jurisdictions like the EU, UAE, Singapore, and Hong Kong as examples. Second, exchanges are progressing towards many of the above recommendations, with efforts around proof-of-reserves, third-party custody/off-exchange trading solutions, loans and lines of credit, and enhanced customer due diligence as examples. Third, wrongdoers are being exposed, and are either being forced to remedy past admitted transgressions or are painfully going away altogether. And lastly, good actors, of which there are many, are being rewarded with liquidity and trading volume market share.
So while centralized exchanges require hefty trust assumptions that result in risks for its users, the future has never looked so bright. ■

The Digital Assets Summit: Trust and Tokenization Across Financial Services

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On 30th November 2023, Hogan Lovells and GDF gathered digital asset service providers, financial institutions, regulators, and Hogan Lovells Partners to Atlantic House for their annual Digital Assets Summit. This year, the Summit focused on the theme of digital trust: the role of trust in driving adoption of digital assets and distributed ledger technology (DLT) across the financial services sector.

Tokenization of assets

An emerging theme in the context of digital trust is the increasing differentiation between the narratives surrounding the use of digital asset technology and tokenization of assets (i.e., in terms of cost reduction, efficiencies, and other potential benefits), from the narratives surrounding cryptocurrencies such as bitcoin.

In particular, as the opportunities offered by tokenization have become more well known, innovation in this space has blossomed — the range of use cases is ever-expanding, including the tokenization of debt instruments, bonds, real estate, commodities, and other real-world assets. Financial institutions across the world are increasingly exploring the value of this technology, and in 2024, it is expected that many experimental projects will mature from pilot or testing phases to production.

Digital Asset Custody

The custody of digital assets continues to be a key area of interest in the world of tokenization. This is partly due to the differences in digital asset custody relative to custody in traditional finance — in brief, digital asset custody primarily focuses on the safekeeping and management of the private keys — and the heightened scrutiny over digital asset custody given recent market events.

Speakers at the Summit generally welcomed the notion of regulatory clarity and minimum market standards governing digital asset custody services. A question that policymakers and market participants are grappling with is that of applying established principles to this relatively new form of custody, such that clients of digital asset custody services can trust that they benefit from similar levels of security and protection as they would with "traditional" custody services, such as requirements to segregate client assets, and practical considerations in the case of insolvency of the custodian. Given the significance of the role of the custodian in the value chain of digital asset services, building trust in digital asset custody will be key to unlocking the adoption of tokenization.

Digital Payments

Alongside tokenization and digital asset custody, innovation in digital payments solutions has also thrived in recent years—in particular, there has been a growth in interest in digital money and other similar instruments, such as stablecoins, central bank digital currencies, and tokenized deposits. There are clear use cases for a central-bank payment system - whether or not this takes the form of a central bank digital currency (CBDC) - that is interoperable with, and can work alongside, digital payment solutions offered by the private sector. What will be interesting to watch is the evolution of the private-public partnership required to drive sustainable trust in digital payment.

International Developments
There was widespread agreement on the need for consistency in the approach to digital asset regulation across borders in order to encourage further adoption, particularly in terms of institutional adoption of DLT.

The recently published International Organization of Securities Commissions (IOSCO) recommendations for the regulation of crypto and digital assets in particular were heralded as a welcome development. Given the cross-border nature of the digital asset activities, speakers highlighted the need for collaboration and cooperation on an international level between regulatory authorities. The IOSCO recommendations provide a helpful roadmap for jurisdictions across the globe to develop their own regulatory frameworks to address the digital asset industry.

At the same time, there was also recognition that depending on the circumstances of different jurisdictions, there is no one-size-fits-all approach. A prime example is the use of "sandboxes", a tool for industry and regulators to experiment with new use cases that do not necessarily comply with existing regulatory regimes in a controlled environment—such sandboxes have been implemented by the UK, the EU and Dubai, while in contrast the Security Commission of The Bahamas, after careful assessment, took the active decision not make use of sandboxes.

Industry Collaboration
Central to building trust is community building, such as via associations such as GDF, which take important stakeholders from across the digital asset ecosystem and bring them together to develop common standards, terminology, and practices.

In the words of ex-Chancellor of the Exchequer Lord Phillip Hammond, who delivered the opening keynote speech to the Summit, "technology enables change, but does not make it happen." The capabilities of the technology behind tokenization and the opportunities it presents are effectively boundless, and initiatives to implement appropriate regulatory frameworks are developing at pace across the globe—but changes in behaviour and attitude will be vital to driving adoption across the sector. ■

Re-centralization Dynamics and Strategic Foundations of a Tokenized Economy

metaco

Katrin Koller
Product Director
Metaco

While cryptocurrencies and stablecoins represent currently a big part of the digital asset market, allowing banks to monetize business cases when creating custody and trading offerings for cryptocurrencies (e.g. BBVA leveraging Metaco's technology enabling custody and trading of cryptocurrencies), the market potential expands well beyond cryptos.

Asset tokenization is an inevitable shift from traditional paper-based ownership systems to decentralized digital ledgers for tokens. Forecasts from HSBC and Northern Trust suggest that by 2030, up to 10% of financial assets will be tokenized. This explains why a majority of banks and financial institutions are planning to or are already building capabilities to issue, custody, transfer and settle tokenized assets (e.g. securities, tokenized real-world assets, utility tokens or non-fungible tokens).

Centralization will enable the tokenized economy to scale

Initially, institutions and individuals relied on self-custody due to custodian market immaturity. As the market now expands in volume, the shift towards re-centralization and specialization along the value chain becomes essential. Regulated banks, custodians and securities services firms are anticipated to dominate digital asset custody services. This is fostered by regulation and recent market events that have sensitized ecosystem participants to assess service providers thoroughly. Specialized institutions will intermediate asset flows. This functional re-centralization is crucial for mainstream adoption, shifting the focus from technology to lasting value creation and easing the user experience for customers.

Custody is the foundation of the tokenized economy

Custody services form the foundation of every digital asset use case, mirroring the importance in traditional finance. Compliant custody platforms integrated with risk management and governance processes are crucial. The complexity of digital assets demands specialized custodians with advanced technologies, a scalable and robust governance framework, and blockchain agnosticism. Legal structures ensuring asset segregation, bankruptcy remoteness, and investor protection are vital considerations. Regulated custodians are key for establishing trust within the digital asset ecosystem.

Momentum is building globally. Based on our engagement with the market, we estimate that approximately 40% of the world's top 50 banks and asset managers are already implementing digital asset capabilities, a view confirmed by the "DLT in the Real World 2023" study. By 2030, it is expected that all major financial institutions, along with a majority of smaller firms, will possess these capabilities, enabling a widespread adoption of digital assets in the financial landscape. Newcomers in the regulated financial services space, specialized in digital asset services, like Archax, Zodia Custody, BCB Group, or Rulematch, join established banks in vying for custody market control. These startups prioritize security, compliance, and risk management, rapidly introducing competitive custody and asset servicing solutions. Their agile strategies complement established brands, acting as sub-custodians in specific jurisdictions or for niche digital assets, enhancing the overall custody value chain and promoting market vitality.

Building for network utility and interoperability
Ultimately, it is industry collaboration and incentive alignment to define global standards for interoperability that will enable mainstream adoption. This was echoed by a broad range of financial services industry stakeholders at a roundtable discussion at Point Zero Forum 2023. It is the lack of interoperable networked infrastructure that needs to be addressed. To scale the tokenized economy effectively, infrastructure must be scalable, standardized, and connected, enabling seamless communication and data sharing across capital markets.

The biggest challenge in transitioning from innovation showcases to scalable solutions delivering tangible value, lies in achieving scale through interconnected workflows and creating a sustainable secondary market with liquidity access and the right incentive mechanisms. This is where the industry needs to focus on - to unlock the benefits of tokenization, trading, and other value-added services, building on custody.

Forging use cases beyond individual companies
Technology companies such as Metaco are in a prime position to build infrastructure to connect, standardize and govern institutional flows, underpinned by custody capabilities as a foundational use case. The long-term vision for building institutional digital asset infrastructure must be to build it so that institutions can identify business partners, interact with each other and create their own networked business models and services, leveraging an interoperability standard created and maintained in cooperation with all the relevant market participants.

Instantiations of this are beginning to emerge, such as Societe Generale FORGE's issuance of a digital green bond registered as security tokens on a public blockchain, subscribed by two top-tier institutional investors; or Zodia Custody's ambitions to build a multi-custodian off-exchange collateral network for uncleared trade settlement of crypto options.

In conclusion, meaningful institutional digital asset adoption rests on two strategic pillars. Firstly, it is imperative for use cases to transcend individual companies. Seamless collaboration across specialized industry participants is crucial to unlocking liquidity and ensuring lasting traction. Secondly, for use cases building on custody, it becomes apparent that strategic planning must recognize the inevitable need for multiple technology solutions and service providers, especially as these use cases mature across jurisdictions and asset classes. Embracing this strategic vision is vital for navigating the ever-evolving dynamics of the institutional digital asset ecosystem. ■

The Future of Trust in a Trustless World

Hong Fang
President
OKX

This past year, Proof-of-Reserves (PoR) technology emerged as an industry standard. PoR is a way for users to independently verify the total holdings, liabilities, and solvency of an exchange. It is my view that adoption of POR will be regarded as just as consequential to the long-term health of the industry as any single event of 2023. Here's why.

Last year's industry upheaval was a stark reminder to responsible crypto players of what can happen when a bad actor betrays users' trust. However, it also gave us the opportunity to rethink the covenant between a crypto exchange and its users, and how this trust can be assured given the nature of trustless blockchain technology.

In traditional industries and the Web2 world, trust is maintained by third-party auditors and periodic financial disclosures. Web3 is fundamentally different - it aims to disrupt the intermediary/centralized model and therefore requires a 'do not trust, but verify' approach. Using blockchain technology to our advantage, we can design ways for anyone to verify we hold the funds we say we do.

Blockchains are powerful tools for peer-to-peer (P2P) transactions, cutting out intermediaries and putting control back in the hands of users. Another point of differentiation between blockchains and traditional systems is their transparent nature. Anyone can verify how much crypto is held in a given wallet and trace its transactions. This has enabled blockchain sleuths and other firms to track asset flows, giving us insight into the ecosystem and allowing us to catch bad actors.

PoR wasn't a new idea in late 2022 - in fact, a handful of exchanges including OKCoin had adopted it years prior. But these early applications of PoR tended to feature only a few assets and went relatively unnoticed outside of the dedicated crypto community.

Few large exchanges saw the need to undertake the massive effort of publishing thousands of their owned crypto addresses, compiling the total holdings of their cryptoassets and applying complex Merkle Tree technology to allow users to verify their holdings were covered by the exchange's reserves.

The FTX collapse changed all that. The industry finally had the impetus to launch itself at a new challenge, realizing that transparency through technology is the ultimate solution. We were among the leaders in this effort, debuting PoR in November 2022.

As the dust settled in December 2022, nearly all of the world's biggest exchanges had introduced some form of PoR - a remarkable example of 'self-regulation.' But we had only really addressed the technical imperative. Lest we forget, the main objective of PoR is to provide peace of mind to users that exchanges are holding enough assets to fully back all deposits. And so we set off on a mission to educate the community and the industry at large about the importance of PoR, and the need to establish standards of implementation that provide maximum assurance to users.

We've advocated throughout the year for broad outlines of these standards:

- **Merkle Tree** - a cryptographic structure that is used to show total reserves of an exchange.
- **Zero-Knowledge technology for user verification** - a cryptographic method for

users to verify that their individual balances are included in the Merkle Tree and therefore backed by the exchange’s reserves, while at the same time protecting the privacy of other users whose balances are in the tree. We introduced zk-STARK technology in May 2023 after a massive effort by our talented tech team.

- **Maximum asset coverage** - ensuring that assets covered by the PoR are as comprehensive as possible to match the total number of assets that are available to be held on the exchange.
- **Regular cadence of reporting** - like clockwork, the regular updating of total reserves and liability figures by the exchange for maximum transparency.
- **Constant technical improvement and external review** - listening to the feedback of the community and blockchain experts to constantly improve the implementation of the PoR.

We’re not done yet. In the future, we’ll endeavor to streamline the zk-STARK process to enable more frequent cadence of reporting. We are also always interested in supplementing our PoR with a reputable audit of the fiat side of our balance sheet, as and when that option becomes available. Lastly, we will always be thinking of ways to ensure as many of our users as possible verify their holdings are included in our reserves. The key is to never be complacent.

Have our efforts made a difference? Zero-knowledge tech has been adopted by many across the industry, and regular reporting has become the norm. This means that there is less reliance on third-party trust, and more onus on exchanges to prove to users that their assets are being used properly. However, our research has shown that general user awareness of PoR has stagnated over the past few months, especially as markets have ticked upwards.

The challenge laid before the industry now will be to build and sustain awareness of PoR, even in the times when industry shortcomings are not propelling it to the top of the agenda. OKX will be doing this as a priority throughout 2024, and we humbly ask for the community to join us as we look to build and grow into the next era of trustless financial systems that benefit our users. ■

Digital Currencies Took a New Turn in 2023

Dr. Alisa DiCaprio
Chief Economist
R3

In the past year, central bank digital currencies (CBDCs) have undergone a significant transformation, shifting from a standalone innovation to a pivotal element in broader digitization efforts within the financial sector. As we enter the next phase of development, the focus is on enhancing the infrastructure and ecosystem surrounding CBDC issuance.

Incentivising consumers to spend CBDC

While countries issuing CBDCs have experienced success in their initial distribution, challenges arise in subsequent phases, with adoption rates averaging a modest 0.2% in 2023. Addressing this issue will be crucial in 2024 to cement the feasibility of CBDCs.

In certain economies, like Nigeria, resistance is based on distrust of the government and opposition to a cashless society, whilst in others, users tend to hold onto CBDCs rather than spending them. In cases like China's, the digital yuan faces competition in a saturated digital payment market, leading authorities to collaborate with private platforms to drive adoption.

To properly incentivize consumers, we need a better understanding of public perception about CBDCs. Will they be viewed as equivalent to all digital currencies, including credit cards, or is there something special about sovereign currencies that affects spending behavior? Current data is insufficient to predict this, yet it is a factor that will determine the adoption and usage of the instrument.

Actioning real-time data

Receiving and analyzing data in real-time is an obvious benefit from a CBDC. It is considerably more transparent than cash, which is issued from a central bank and promptly disappears as it is spent in the economy. To reap the full benefits of CBDC, real-time data should be integrated into decision-making. This is not as straightforward as it sounds and will require much thought in the coming year.

Currently, the central bank relies on quarterly reports from commercial banks to gain information about money in the economy. With a CBDC, this is no longer the case. This means two things. The first is that a task of the commercial bank now becomes a task of the central bank. The second is that the constant data flow could allow more frequent policy changes. Decisions about the optimal frequency of policy changes will unfold throughout 2024.

Providing a sovereign foundation for digital assets

When most people think of CBDCs they think of money. But what if money wasn't the primary use case?

Following COVID, digital networks have expanded and become integral parts of the global financial infrastructure. As of today, these networks do not have a common underlying asset, and in turn are replicating the data silos that exist today.

Rather than see CBDCs as competition, commercial banks, FMIs, and other financial entities are increasingly exploring integrating a CBDC into their digital financial instruments, such as digital bonds and securities and jurisdiction protocols.

CBDCs are being integrated into the end flows in most tokenized deposit use cases. These trends are occurring in conjunction rather than at odds, as was previously the case.

Increasingly, CBDCs are being designed into these networks. The benefit of this is that even if networks use different CBDCs, a CBDC being used as a settlement mechanism allows for a common underlying asset to interact.

Regulated entities are making a move in governance

Regulatory advancements in 2023 signaled a significant shift, facilitating regulated entities', particularly commercial banks, engagement with distributed ledger technology (DLT) projects. The International Monetary Fund (IMF) and the Bank of International Settlements (BIS) have actively supported CBDC initiatives globally, with the BIS overseeing 12 CBDC projects covering wholesale and retail applications in domestic and cross-border settings, and the IMF publishing the new CBDC guidebook that aims to standardize the CBDC design process.

These efforts address the top five recurring questions about CBDCs: exploration framework, product development, monetary policy transmission, capital flow management, and role in financial inclusion.

Building new global payment rails through international use cases

The cross-border layer of CBDCs is at the frontier in 2023. It is of great interest to participants as it would vastly simplify the web of bilateral correspondent relationships that are currently used to transfer payments across borders.

Initiatives like the mBridge - involving China, Hong Kong, Thailand and the UAE - demonstrate the potential for expanding cross-border use cases, and this is set to expand next year.

The technical effort of mBridge is complemented by BIS-run projects which solve pieces of the policy puzzle. Project Mandala is looking to automate compliance procedures to address challenges involving multiple jurisdiction cross-border mCBDC platforms. Project Mariana is considering the use of automated market maker (AMM) in a tokenized FX market.

Conclusion

We expect CBDCs to continue to drive innovation in tokenization and financial infrastructure in 2024. As CBDCs become integral to the global financial ecosystem, the need for new guidelines, policies, and incentives becomes paramount to ensure both global and local interoperability. The landscape of digital currencies is rapidly evolving, and the coming year is poised to be a crucial period in shaping the future of CBDCs. ■

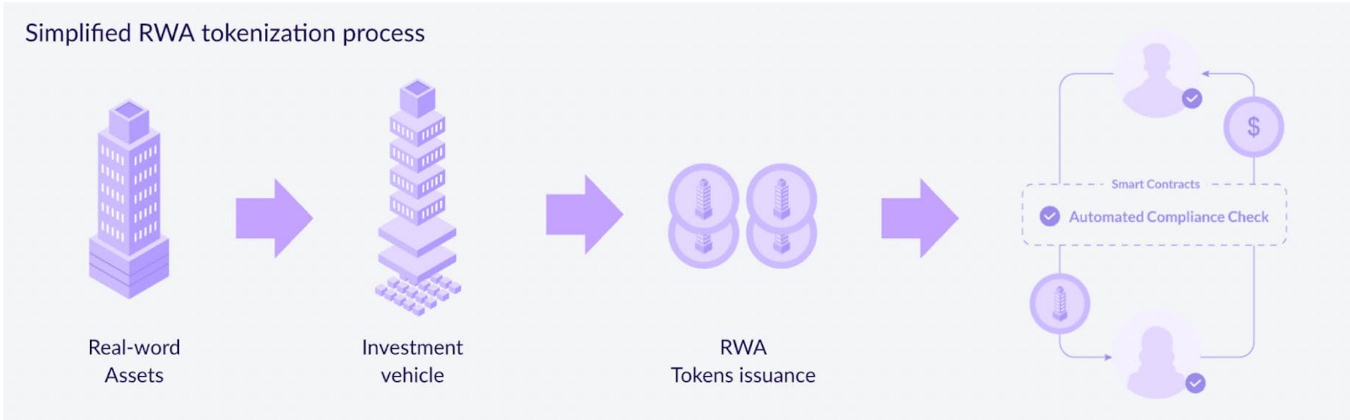
Standardization of the Tokenization Market via ERC3643 Smart Contracts

Luc Falempin
CEO
Tokeny

Tokenized securities and real-world assets require compliance enforcement
Securities and real-world asset (RWA) tokenization is the process of representing financial instruments on the blockchain. Now, regulators around the world acknowledge that tokenized securities are simply digital versions of traditional securities, but are presented differently and are still subject to the same stringent legislation. As a result, the main challenge for issuers is to enforce compliance to only allow eligible investors to interact with the tokens, while being able to control tokens for conducting actions required by authorities.

Market trends toward public blockchains for interoperability
In recent years, numerous institutions have explored the use of private blockchains to enforce regulatory compliance at the blockchain level. However, this approach often recreates the same fragmented systems that blockchain technology aims to overcome.

True interoperability and simplification of capital markets are only feasible with open and shared infrastructures. Recognizing this, many institutions are now shifting their projects from private blockchains to public blockchains. Illustrating this trend, notable financial entities like J.P. Morgan and Apollo utilized fund tokenization for personalized portfolios on Avalanche; Franklin Templeton launched their tokenized Money Market Fund; and ABN AMRO Bank issued digital bonds, both utilizing Polygon's public blockchain. Additionally, UBS has advanced in this domain by tokenizing a money market fund on Ethereum.



Permissioned tokens smart-contract brings on-chain compliance
The shift to public blockchains for tokenized securities requires a permissioned token standard. ERC20, ERC721, and ERC1400 are limited to enforce compliance on-chain. The token standard has to enforce compliance by dynamically verifying identity attributes, not only whitelisting wallet addresses. It prevents single points of failure and ensures ongoing compliance and functionality at the blockchain and smart contract levels. A clear test for a token standard's effectiveness in achieving on-chain compliance is its ability to continue enforcing compliance rules and functions at the smart contract level, even if the tokenization platform is offline.

The ERC3643 token standard effectively meets these criteria, offering a method for built-in compliance while implementing a privacy-reserved identity framework for investor whitelisting.

ERC3643 standard ensures compliance rules are embedded into tokens. It also enables data enrichment from any applications (such as valuation for private assets), enabling tokenized securities to carry both compliance rules and data to interact with any application across the entire open network. It transforms the blockchain into a comprehensive securities catalog, facilitating wide distribution and reaching a broad investor base. Compliance and operations automation allow for managing numerous investors efficiently. For investors, ERC3643 tokens offer the flexibility of peer-to-peer transfers among qualified investors, trading on authorized platforms, and engaging in DeFi applications for borrowing or liquidity provision.

Ongoing standardization movement to bring massive adoption

The ERC3643 standard, now the market standard for tokenization recognized by top financial institutions like Apex, Invesco, Aztec, and global law firms such as DLA Piper and CMS, is driving the widespread adoption of tokenization via the ERC3643 association. With a track record of billions of dollars in assets tokenized over six years, this open-source standard is set to accelerate massive adoption, offering a shared compliance framework for interoperability within the ecosystem. ■

Exploring a Test for Decentralized Protocols

Steven Becker
CEO
UDHC

Rationale for a Testing Framework

Users of decentralized protocols, such as blockchains and blockchain-based protocols, put a lot of faith in the code that they are interacting with – the constant worry of "Am I going to get hacked?"– but just under the surface is the importance of decentralization in a protocol, and with it, the ability to remain self-sovereign.

Defining decentralization's dynamic nature is inherently an ongoing process. Nonetheless, narrowing the definition of decentralization in the context of distributed ledger technology (DLT) helps outline a decentralization framework for blockchain and blockchain-based protocols. This provides visibility as to how decentralized a protocol is and allows for increased understanding and transparency for users and regulators.

Put into practice, picture a user swapping tokens on Uniswap or generating Dai from the Maker Protocol. In general, they will accept that the protocol is sufficiently decentralized and they, as users, have self-sovereign when engaging with these protocols. With a proper framework in place, a new user could ask the necessary questions to gain confidence in the protocol; while a seasoned user could quickly and effectively evaluate the protocols they are using to maintain their confidence.

To implement this, industry participants could develop and agree upon a new standard for protocols like Uniswap or Maker to be marked by a badge of quality or rating. The badge could have a coded in certification to demonstrate the level of decentralization and self-sovereignty afforded to the user when engaging with such protocols.

With new protocols built every week, a standard would transform the industry, instantly assuaging user concerns about interacting with the underlying code and directing regulation.

Which begs the question: what framework is required to create such a standard?

Decentralized Protocols: A Closer Look

At their core, decentralized protocols possess the following attributes: **fault tolerance** and **resilience**, **attack resistance** and **transparency**, and **collusion resistance**. Web3 is the Internet of Value, and these attributes ensure the operational integrity and security of the transacted and stored value.

Therefore, a decentralized protocol can be defined as follows:

A distributed, permissionless, non-jurisdictional infrastructure that serves as a platform to manage value and contribute to building an ecosystem.

Such a protocol should empower the user with self-sovereignty; thus ensuring the protocol meets the definition of a decentralized protocol.

Framework Overview: ***How can we establish if a protocol possesses these attributes?***

It can be determined by evaluating four decentralization components at each level of a protocol's technology stack. Furthermore, given the attributes exist, if a protocol also affords its user self-sovereignty, it is concluded to be a decentralized protocol.

The generic technology stack for a blockchain-based protocol is:

i. **Settlement layer**: the executing blockchain
ii. **Smart contract/backend layer**: the engineering layer of a decentralized application (dApp)
iii. **User interface/frontend layer**: the access point to the protocol
iv. **Data layer**: the data storage layer

At each level of the stack, the following decentralization components are evaluated:

i. **Structural component:** the number of tokens/computers/addresses/clients operating the project or protocol.
ii. **Control component:** the number of people that control the structural component
iii. **Influence component:** the number of people influencing the control component.
iv. **Process component:** the number of processes or functions the protocol has

If each layer of a protocol's technology stack is considered decentralized, then the protocol possesses the three attributes and is considered a decentralized protocol.

The Objective: Self-Sovereignty

The final step to verifying decentralization is identifying if the protocol affords the user self-sovereignty. In other words, the user's transactions, interactions, or value in a protocol are unlikely to be manipulated by another person or group, as well as the ability to contribute and stay freely informed.

A decentralized protocol should give rise to the following user-character traits for the user to claim self-sovereignty:

- **Political Decentralization:** Transfer of power to the community for public decision-making and influencing policy creation.

- **Administrative Decentralization:** Move responsibility for planning, financing, and management to the protocol and community.

- **Economic Decentralization:** Give the protocol and the community financial responsibility to generate revenue and control expenditures.

Final Thought on Decentralization

Decentralization is not just a buzzword but a powerful concept that gives users the reins to control and protect their interactions within a digital ecosystem. Understanding this allows us to assess and validate whether a protocol offers self-sovereignty, thus standing tall as a true beacon of decentralization. ■

Why true DeFi cannot be captured by the existing regulatory paradigm:

A solution to industry’s struggle to define DeFi and a case for the regulation of Hybrid Finance (HyFi)

Nathan Catania
Partner
XReg Consulting

Alexandra Walters
Head of Marketing
XReg Consulting

How in the world do we define DeFi?
When Satoshi Nakamoto published the Bitcoin whitepaper in 2008, the driving force behind the proposal was an ecosystem where the need for middlemen was non-existent, a network where two parties could transact with each other based on mutual trust backed by an incorruptible record of transactions. To this day, the identity of Satoshi remains unknown.

Fifteen years later, policymakers, regulators and participants in the global finance industry have struggled to agree on a definition of decentralized finance (DeFi). The International Organization of Securites Commissions (IOSCO)’s consultation report on DeFi from September 2023 acknowledges that “…there is no generally accepted definition of DeFi, even among industry participants, or what makes a product, service, arrangement, or activity decentralized”.

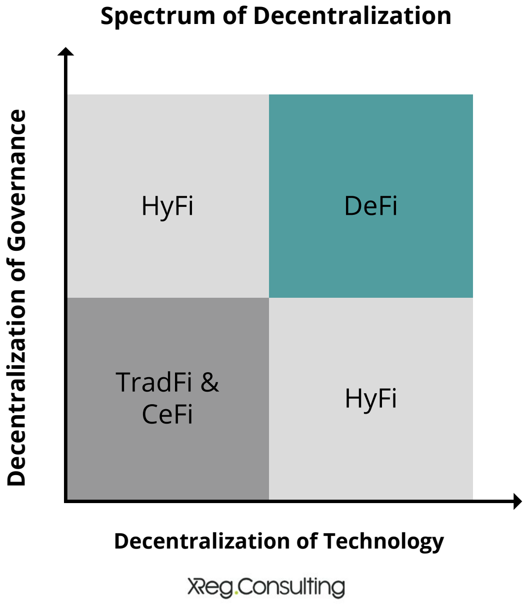
Intergovernmental standard-setting bodies, international organizations and regulators like the Financial Stability Board (FSB), the Bank for International Settlements (BIS), the Organisation for Economic Co-operation and Development (OECD), and the US Department of the Treasury have attempted to define DeFi with a plethora of terminology – disintermediated, open-source, permissionless, trust-minimised, transparent, accessible to anyone, self-executing code, automated peer-to-peer transactions, utilising smart contracts, leveraging distributed ledger technology (DLT).

But what makes a financial product or market truly decentralized? In XReg’s view and as evidenced by Satoshi, if you cannot identify a person (or people) to hold accountable, then and only then is it true DeFi. When regulations are drafted, they consider the intermediaries, the entities, and people that enable the use of a specific service, product, or technology and can be held accountable. But what if no one can be held accountable? Under our existing regulatory paradigm, DeFi will always remain out of scope.

What do we mean by Hybrid Finance?
While many financial products and services that utilise DLT aspire to be decentralized, in practice, most are situated somewhere on a spectrum of decentralization between true DeFi and centralized finance or the financial businesses that are ultimately owned and operated by centralized intermediaries with identifiable persons in control.

GDF’s response to IOSCO’s consultation on DeFi notes that “decentralization exists on a continuum” and emphasizes the importance of clear definitions. It goes on to outline the difference between DeFi Protocols and DeFi Arrangements, noting that in the former, “there are inherently no responsible persons”, and in the latter, financial products or services that are built on or interfacing with DeFi Protocols may, in fact, be centralized and “should then be subject to the appropriate regulatory treatment”.

The decentralization of both technology and governance must be considered in order to accurately evaluate if a financial product or service is truly decentralized.



We will refer to the financial products and services on this spectrum between centralized and decentralized as Hybrid Finance (HyFi).

How to regulate HyFi vs. true DeFi

In the case of HyFi, there are centralized points of accountability, like front-end web interfaces, applications and entities called oracles that provide real-world data to smart contracts. In such cases, regulators can still apply the existing regulatory paradigm and impose regulation on actors at these various points of centralization. It will be essential for policymakers to define for the industry who these actors are, their specific roles, what or who should and should not be regulated, and how we regulate them.

For example, a financial product or service may have implemented a decentralized system of governance, but decisions still realistically rest in the hands of "whales" or a concentrated group of people that hold a large percentage of tokens. In other cases, the blockchain or ledger on which a decentralized product or service operates may have a very small number of large miners or validators controlling the verification of transactions.

In the case of true DeFi, where no one can be held accountable, how can regulators achieve a regulatory outcome? A paper originally published by the BIS as early as 2019 (and revised in May 2022) outlines a case for embedded supervision and acknowledges the key principle "is to rely on the trust-creating mechanism of decentralized markets for regulatory purposes too…Since the information contained in the blockchain is verified by decentralized economic consensus, it could replace current processes for data delivery and verification". In October 2022, the European Commission published a call to study the embedded supervision of DeFi protocols.

A recent paper from the European Central Bank addresses decentralized autonomous organizations (DAOs), which in some cases provide decentralized governance for DeFi projects, stating the "urgent need to build a suitable regulatory framework around this new entity enabled by new technology, which requires cooperation between technologists, regulators, supervisors, and entrepreneurs".

As the industry moves to regulate DeFi, it will be critical to define the points of centralization in HyFi that regulators can apply regulation to. To capture true DeFi, regulators and DeFi participants will need to work together to define standards for embedded regulation and incentivize technologists to apply them. In 2024, can we move towards a regulatory system that relies on technology to achieve the same regulatory outcomes? ■

The Evolution of TradFi:
Embracing On-Chain Transformation

Justin Wright
Chief Operating Officer
Yield App

Over the last few years, we have witnessed the financial landscape undergo a transformative shift as traditional capital markets and financial products migrate onto blockchain technology. This on-chain transition has encompassed a range of products, from money market funds to bond issuance and the tokenization of a broad swathe of real-world assets (RWAs).

Migration of bond issuance on-chain for example eliminates intermediaries, streamlines the process, reduces distribution costs and offers near-instantaneous settlement, an attractive proposition for issuers and investors, who benefit from increased transparency, enhanced liquidity, and simplified ownership management.

As more assets are securitized and tokenized on-chain, this technology layer is unlocking a new era of asset fractionalization and democratized access, offering investors exposure to a wider range of assets with lower barriers to entry.

As adoption continues, we are likely to see increased demand and a faster transition of traditional finance (TradFi) offerings opening up. Whilst crypto options and futures volumes continue to grow, structured products are also starting to find their way on-chain.

In TradFi, structured products derive their value from an underlying asset or a basket of assets, such as market indices, stocks, bonds, or a combination of these. With pre-defined maturity dates, distinct yield-bearing profiles, and payoff curves, these products are designed to offer exposure to specific market thematics, making them an attractive choice for investors.

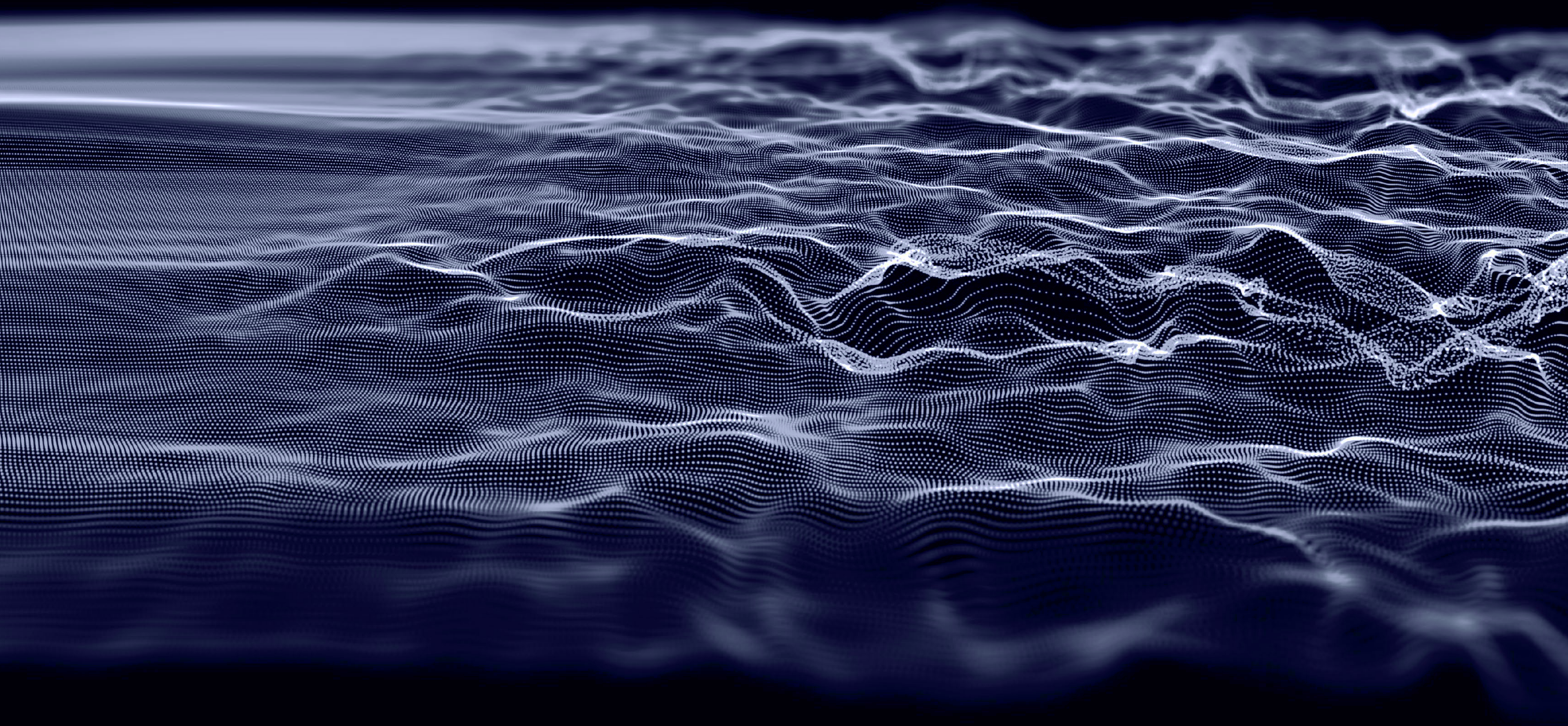
In cryptocurrencies, structured products operate under a similar principle, albeit instead of being underpinned by traditional assets, they rely on cryptocurrencies such as Ethereum or Bitcoin as their underlying assets.

In 2019, the global structured products market value was estimated at over $7 trillion, accounting for merely 1% of the $700 trillion derivatives market, according to Bloomberg.

While determining the exact market size or growth rates of structured products in crypto can be challenging, it is worth noting that cryptocurrency derivatives trading on centralized exchanges alone exceeded $3 trillion as of July 2023 and according to Index Coop, the structured products sector still accounts for less than 1% of the crypto market overall.

The on-chain transition of TradFi is not just a technological shift; it is redefining the way we interact with financial instruments and paves the way for a more inclusive financial ecosystem. ■

FINANCE AND TALENT



Talent and Governance Update

Abdul Haseeb Basit
CFO & Board Member
GDF

2023 was a bounce back year for the digital assets industry and GDF remains at the forefront of supporting our members as the global inclusive convening platform for the digital finance industry.

Through 2023 the GDF Board and Executive continued to be led by Lawrence Wintermeyer, with Simon Taylor, Greg Medcraft, Sandra Ro, Dimitrios Psarrakis and Dawn Stump in their capacity of Non-Executive Directors. Dawn also Chaired of the Reg-Forum in 2023 and continues in this capacity in 2024.

At the start of 2024, Greg Medcraft will take the non-executive director role of Co-Chair alongside Lawrence Wintermeyer who will take on an executive director role of Co-Chair and spend more time with GDF members and partners and the executive branch team. Lavan Thasarathakumar, a successful 2023 GDF Nomination Committee candidate joins the board as a non-executive director.

We say farewell to departing board members Sandra Ro and Dimitrios Psarrakis, and Reg-Forum co-chair Jeff Bandman and thank them for their contributions to GDF.

Lavan has been with GDF since 2020 as Government & Regulatory Affairs Director - EMEA. He is a former UK advisor at the European Parliament with a focus on Economic and Monetary Affairs within which he specialised in emerging technologies advising on a number of FinTech, cryptoasset and distributed ledger technology (DLT) files. Most notably, he advised the rapporteur of the EU Crowdfunding Service Providers Regulation and the Comprehensive European Industrial Policy on Artificial Intelligence and Robotics.

Lavan's ability to navigate the EU and UK legislative process enables him to help our members understand the incoming regulatory requirements that will impact them. His experience in drafting legislation, policy recommendations and a strong understanding of the industry leaves him well placed to represent GDF's membership.

Our core team saw the addition of Elise Soucie as Director of Global Policy & Regulatory Affairs.

Elise was formerly an Associate Director at the Association for Financial Markets in Europe (AFME) where she lead the division's Digital Assets and Data Strategy work, with a focus on emerging regulation such as the Market in Crypto Assets (MiCA) legislation and the European Commission's targeted consultation on open finance and data sharing

The GDF team together at Hogan Lovells.

in the financial sector. Furthermore, she also worked closely with global standard setters, driving and guiding engagement between the capital markets industry and bodies such as the Financial Stability Board (FSB) and the International Organization of Securities Commissions (IOSCO).

Prior to her work at AFME, Elise was in the public sector, working at the Financial Conduct Authority (FCA) in both their Technology, Resilience and Cyber Division and International Division. Notably she pioneered the FCA's International Digital Assets strategy in 2022 and led technical policy dialogue on DLT, Consumer Risks, Central Bank Digital Currencies (CBDCs), and Decentralized Finance (DeFi), among other topics.

Elise's experience with both the public and private sector enables her to support members in their engagement with policymakers around the globe. She has experience in both drafting and advocating for regulatory outcomes that will support the development of the digital assets ecosystem, and her technical understanding of the industry makes her well suited to represent the membership of Global Digital Finance.

In addition, Melissa Corthorn becomes Director of Member Services and Events in 2024 and Madeleine Boys assumes the role of Head of Programmes and Innovation. I am delighted to continue in my role as CFO and Board Member in 2024.

Andrew Smith as US Policy Advisor, Malcolm Wright as MENA and APAC Advisor and Steve Vallas as APAC Advisor continue to support our team with global outreach.

We say farewell to departing CEO Emma Joyce and thank her for her contribution to GDF.

Trade and industry associations had their own challenges in 2023, especially those in the digital asset and blockchain spaces. We are delighted that GDF finished the year with a retention and renewal rate of over 90% of our Advisory Council, comprised of our largest funding members, and an 80% talent retention rate across the GDF board, executive branch, and advisory talent bench.

We would like to take this opportunity to thank the members and team who have contributed to the success of GDF, and we look forward to continuing our collective mission in 2024. ■

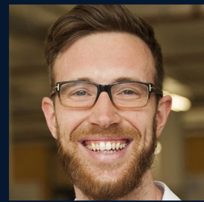
Going into 2024, the GDF Programme will be delivered by

Greg Medcraft
Co-Chair of the Board

Lawrence Wintermeyer
Executive Co-Chair of the Board

Dawn Stump
Board Member and GDF Reg Forum Chair

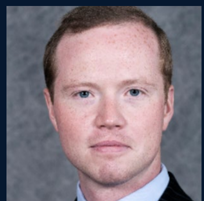
Abdul Haseeb Basit
Chief Financial Officer & Board Member



Simon Taylor
Board Member

Lavan Thasarathakumar
Board Member

Elise Soucie
Director of Global Policy and Regulation



Andrew Smith
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Madeleine Boys
Head of Programmes and Innovation

Malcolm Wright
MENA and APAC Advisor

Steve Vallas
APAC Advisor

Melissa Corthorn
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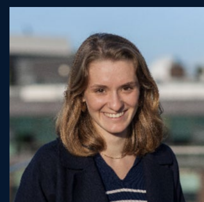

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