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SHAPING TOMORROW'S DIGITAL ASSET LANDSCAPE TOGETHER

Insights from the

POINT ZERO FORUM™
Policymakers | Leaders | Investors
26-28 JUN 2023
Zurich, Switzerland

ABOUT POINT ZERO FORUM 2023

Point Zero Forum aims to provide an annual platform for global leaders across the public and private sectors, where the meaningful exchange of ideas and knowledge can help advance FinTech and Web3 in the digital economy.

The theme of Point Zero Forum 2023 (PZF2023) was "How can digital assets, technology for environmental, social and governance (ESG), and generative artificial intelligence (AI) make financial markets more efficient and stable?" Key stakeholders comprising government leaders, regulators, financial services leaders, entrepreneurs, investors, and technology leaders explored this theme across three key pillars:

- **Digital Assets:** Stocktake on the use cases for adopting digital assets, asset tokenization, and distributed ledger technology
- **Technology for ESG:** Showcasing the technologies and solutions that can accelerate a fair transition towards climate neutrality
- **Generative AI:** A deep dive into generative AI, its potential use cases in financial services, and the roadmap towards adoption

There were impactful discussions among senior leaders from governments and businesses across 25 plenary sessions, 14 roundtables, and 19 workshops and think tanks. Ten innovation tours were held across Zurich to showcase the latest developments in Web3 and sustainable finance. The second edition of the Point Zero Forum provided a unique opportunity for an exchange of views on future challenges facing the financial sector, with the presence of around 1,200 high-level decision-makers from central banks, policymakers, and regulators, as well as innovative financial companies.

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ABOUT ELEVANDI

Elevandi was set up by the Monetary Authority of Singapore to foster an open dialogue between the public and private sectors to advance FinTech in the digital economy. Elevandi works closely with governments, founders, investors, and corporate leaders to drive collaboration, education, and new sources of value at industry and national levels. Elevandi's initiatives have convened more than 350,000 people to drive the growth of FinTech through events, closed-door roundtables, investor programs, educational initiatives, and research. Elevandi's flagship product is the Singapore FinTech Festival, alongside fast-rising platforms, such as the Point Zero Forum, Inclusive FinTech Forum, Elevandi Insights Forum, The Capital Meets Policy Dialogue, The Founders Peak, and Green Shoots. For more information, visit www.elevandi.io.

ABOUT OLIVER WYMAN

Oliver Wyman is a global leader in management consulting. With offices in more than 70 cities across 30 countries, Oliver Wyman combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation. The firm has more than 6,000 professionals around the world who work with clients to optimize their business, improve their operations and risk profile, and accelerate their organizational performance to seize the most attractive opportunities. Oliver Wyman is a business of Marsh McLennan.

Oliver Wyman has a dedicated Digital Assets platform that supports industry powerhouses including i) regulators and public policymakers who are setting transformative requirements and norms, ii) traditional finance companies that are pioneering the digital asset landscape with blockchain-driven products and services, iii) trailblazing crypto natives that have established themselves as leaders in crypto and digital assets, and iv) investors. The team's unparalleled industry experiences have also positioned us as thought leaders, evidenced by a series of publications on digital assets, including centerpieces in collaboration with leading institutions in the domain.

For more information, visit
https://www.oliverwyman.com/our-expertise/hubs/digital-assets.html.

FOREWORD

Point Zero Forum (PZF2023) stands as a testament to the spirit of innovation, progression, and collective understanding of global visionaries and pioneers. We welcomed more than 1,200 participants and 400 speakers from all facets of the industry, including central bankers, policymakers, entrepreneurs, and industry leaders, to tackle the challenges and opportunities of tomorrow. The forum was designed not just as a series of presentations, but as a platform for collaboration. Through dynamic open dialogues, curated roundtables, orchestrated workshops, and ample networking opportunities, PZF2023 aimed to drive the understanding and adoption of transformative advancements across the ecosystem.

Digital assets, often compared to the internet's early promise, were a core theme of PZF2023, alongside generative AI and sustainability. With 24 comprehensive sessions on topics ranging from the future of money to the intersections of Decentralized Finance (DeFi) and Foreign Exchange (FX), PZF2023 also ensured opportunities for deeper interactions through an array of open discussion opportunities, meet-ups, and tours of leading digital asset companies to ensure attendees had access to and were engaged on the forefront of innovation. At its core, PZF2023 aimed to connect different worlds. We brought together the fresh perspectives of those in the industry and the experience of policy experts, pairing the bold ideas of crypto enthusiasts with the careful considerations of regulators. This gathering of different perspectives highlighted the growth potential of Web3 and digital assets, with an emphasis on shared learning and forward planning.

The atmosphere at PZF2023 was electric. Digital assets have the potential to redefine transaction paradigms and broaden financial inclusivity. As the industry expands, both the public and private sector powerhouses must step up to shape its trajectory through meaningful partnerships and collaboration. This report captures the discussions, insights, and key takeaways from PZF2023, reflecting on the industry's resilience and potential. While reading this report, we hope you gain a deeper understanding of our collective vision and the opportunities ahead. As pioneers in this field, Elevandi continually strives to provide platforms that foster knowledge, growth, and collaboration. We look forward to welcoming you to another enriching experience in 2024. Until then, let's keep the momentum.

Sopnendu Mohanty
Chief FinTech Officer, Monetary Authority of Singapore
Chairman of the Board of Directors, Elevandi

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EXECUTIVE SUMMARY

Digital assets, the focus of this report, took center stage at PZF2023, alongside AI and ESG, with focused sessions and conversations exploring the evolution of business models and opportunities to drive their adoption and integration into the economy.

This year's forum attracted an audience of more than 1,200 participants, drawing in a diverse array of entities and individuals. The crowd encompassed financial institutions, academic scholars, innovative start-ups, and public policy leaders, in addition to a mix of regulatory bodies and seasoned crypto natives. The conference fostered a spirit of collaborative dialogue, while emphasizing the importance of implementing necessary safeguards to foster digital asset growth without hampering innovation. Our speakers demonstrated vibrant enthusiasm for the potential of digital assets to foster cost efficiency, reduce transactional frictions, bolster financial inclusion, and heighten transparency and security within the ecosystem. Conversations echoed a shared belief in the significant societal value of the ecosystem and its impressive resilience, even as it navigates evolving regulations and innovative experimentations that pave the way to a promising future.

Collectively, the diverse crowd at PZF2023 was aligned on accelerating the maturation of the industry to illuminate the sector's promising trajectory. The gathering of thought leaders and experts painted a picture of a future where digital assets can stand out for their boundless innovation, transparency, efficiency, and inclusivity. All these discussions and insights supported a convergence towards a promising horizon for the digital asset ecosystem.

THE DEBATE ABOUT THE FUTURE OF DIGITAL MONEY AND PAYMENTS IS HEATING UP

Trusted forms of digital money are paramount for the uptake of digital asset adoption. Though there is broad agreement on its key features, such as safety, real-time transfers, cost-effectiveness, programmability, traceability, privacy, and sustainability, the landscape presents an open canvas, with many competing and diverse solutions with different visions and parameters. With the ascent of stablecoins, tokenized deposits, purpose bound money, and the expanding influence of central bank digital currencies (CBDCs), the future shape of digital money and payments remains open-ended. There was broad consensus that these represent distinct visions steered by varied stakeholders, making a single dominant form improbable. Instead, each digital money type will establish its space, guided by its use cases and inherent trust structures.

DIGITAL ASSETS ARE SHAPING TOMORROW’S FINANCIAL LANDSCAPE

Digital assets are on the cusp of redefining the future of finance, bridging digital innovations with real-world applications. The transformative potential of digital assets like fungible and non-fungible tokens offers significant advancements across many sectors. Digital assets are increasingly becoming intertwined with real-world assets, gaining broader societal acceptance and recognition from major institutions. These technologies are revolutionizing finance, with tokenization of both private and public assets poised for significant growth and DeFi targeting traditional pillars of capital markets like FX. Alongside the assets, custody solutions are evolving, emphasizing both security and innovation.

THE PUBLIC AND PRIVATE SECTORS BOTH HAVE A ROLE TO PLAY IN ADVANCING DIGITAL ASSETS

Digital assets are currently at a transformative juncture, with their future largely contingent on holistic progression across the ecosystem. Peering into the future, the public sector honed in on the significance of progressive regulatory development and mitigating regulatory arbitrage to establish harmonized frameworks for advancing the ecosystem. The private sector, on the other hand, was advocating with discussions charting the road to commercialization and the golden opportunities presented by the ongoing crypto spring. Across both sectors, there was a united call for financial inclusion, the vitalness of interoperability, and the absolute necessity for robust public-private partnerships. The synergy between public and private collaborations is the cornerstone for realizing the full potential of digital assets.

DIGITAL ASSETS AND WEB3

As digital assets solidify their influence in today's global economy, stakeholders from public policymakers to institutions are taking notice and embracing innovative strategies. The promised benefits, including enhanced economic efficiency, societal welfare, and a democratized financial landscape, have transcended theory to become tangible realities. In navigating this rapidly evolving ecosystem, the interplay of innovation and regulation is paramount: regulators must strike a balance to foster an environment that enables flexibility and allows for swift adaption without stifling the essence of innovation.

"Even with a strategy in place and clean focus areas for our work, developments can be incredibly fast, and it is not always possible to control and plan. Many developments in the financial sector have to be assessed nationally but also internationally, hence what is needed is not an absolute plan in certainty, but stability and flexibility to react to these developments."

Karin Keller-Sutter,
Federal Councilor and Head of the Federal
Department of Finance of Switzerland

At the heart of Web3 and the rapid acceleration of digital assets are the underlying digital tokens created, stored, and transferred on the blockchain. These tokens, with their rapid evolution, are becoming representations of ownership for items of value in various forms. While these assets can take both fungible and non-fungible forms, the landscape of digital assets has undergone a swift transformation, bringing tangible assets into the digital realm over the past several years. This transformation has paved the way for unique possibilities, such as tokenizing financial instruments, real estate, art, and even intellectual property, thereby easing access to investment opportunities that were previously out of reach for many.

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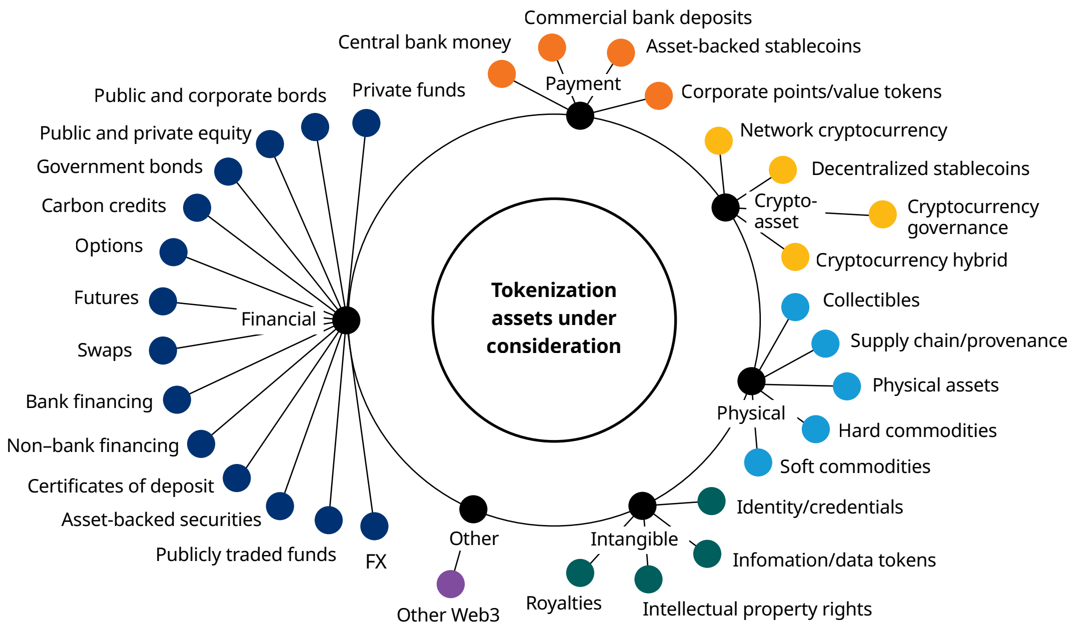
Exhibit 1: Universe of instruments under consideration



Examples of tokenized products

- **Financial:** Derivatives, government bonds, private funds
- **Payment:** Asset-backed stablecoins, deposit tokens
- **Cryptoasset:** Hybrid cryptoassets, governance cryptoassets
- **Physical:** Precious metals, coffee, real estate
- **Intangible:** Oracle data, intellectual property rights
- **Other:** Gaming

Source: Oliver Wyman analysis

MARKET BACKGROUND

PZF2023 convened at an exciting intersection, with the digital asset industry riding the waves of both challenges and opportunities. The last couple of years have been characterized by significant market adjustments, leading to a more prudent risk posture worldwide. Simultaneously, global events like inflationary concerns, geopolitical tensions, and shifts in monetary policy have added to the risks and challenges. However, these hurdles have not halted the industry's overall progress. The industry has responded with resilience, innovation, and building with purpose. Amid a backdrop of changing volatility and lower trading volumes, the spotlight is now primarily on liquidity, forward-looking innovations, and strategies that underpin the future of money and digital assets, as well as regulatory compliance and risk mitigation.

CONTINUED MARKET ADOPTION

The year 2023 marked a resurgence in the digital asset markets, as Bitcoin soared with an 66%[1] annual gain and total addresses registered surged by 15% year-over-year to above 1 billion.[2] Prominent blockchains like Ethereum[3] and Polygon[4] saw significant surges in activity levels, while others also reaped user growth. Concurrently, the Web3 ecosystem witnessed a substantial user expansion as research reports indicate crypto ownership averages around 4.2%, translating to more than 420 million users globally.[5] This surge parallels the swift adoption observed during the early days of the internet.

1 Source: CoinMarketCap.

2 Source: Glassnode.

3 Source: Blockworks.

4 Source: The Defiant.

5 Source: Triple-A.

PREVAILING THEMES FROM PZF2023

DEEP DIVE: FUTURE OF DIGITAL MONEY AND PAYMENTS

PZF2023 unveiled that there is a dynamic interplay between traditional money constructs and that digital innovation will shape the trajectory of our monetary future. The evolution of digital assets, and by extension, the future of digital money, depends on our ability to adapt, innovate, and embrace these novel forms of financial instruments.

The future of digital money hinges on the evolution of digital assets and could pioneer a transformational shift in our financial reality. This change could usher in a new era marked by unprecedented inclusivity, characterized by borderless transactions and democratized financial access.

"What is the future of money? Let that sink in for a moment… The question around the future of money affects every single person on this earth in some way, shape, or form. And yet, there's no one answer."

Sandra Ro,
Chief Executive Officer,
Global Blockchain Business Council

In contention for the future of digital money are emerging financial instruments like stablecoins, tokenized deposits, CBDCs, and purpose bound money, as spotlighted at PZF2023. Competing forms of money will adopt distinct business and economic models, necessitating trust from users in their ability to sustain nominal value. With smart contracts capable of seamlessly exchanging different digital assets, a broader range of tokens might assume monetary roles. This has the potential to blur the distinction between money and assets, paving the way for novel business opportunities and concurrently presenting new policy considerations. In assessing the multifaceted landscape of digital money, it's evident that the future is rich with opportunities, yet the direction is shaped by diverse stakeholders, each with unique visions and strategies.

Exhibit 2: Evolution of forms of money

Form	PHYSICAL	ELECTRONIC	TOKENIZED
Record-keeping	Paper-based and managed by intermediaries	Digitized, but distributed information requires reconciliation	Digitized, and a single network for both transfer of value and messaging
Network	Physical venues	Electronic network separate from record-keeping	
	Finance	**Digital finance**	**Digital assets finance**
Work design	Survey employees on preferences and how they perceive the current state	Formulate and implement flexible work policy and monitor progress	Develop a circular talent model by reusing, reskilling, and retaining talent

Source: Oliver Wyman Forum "Four visions for the future of digital money"[6]

COMPETING VISIONS: STABLECOINS VERSUS TOKENIZED DEPOSITS

STABLECOINS

Stablecoins are private sector-issued digital assets designed to maintain a stable value against a national currency or commodity like gold. They aim to maintain the benefits of transacting on a blockchain with the stability of traditional assets. Advocates highlighted the rapid advancements in stablecoin technology, emphasizing their diverse applications, such as promoting an "open internet of value" and enabling frictionless transactions across both centralized and decentralized ecosystems. Some also emphasized stablecoins' role as catalysts for financial inclusion, lauding their utility in periods of turmoil or geopolitical tension, for example, providing aid to Ukraine. As of October 2023, with a market capitalization exceeding $124 billion, they have been tested and practically applied digital assets with a strong value proposition. Currently, about 99% of stablecoins are backed by the US dollar.[7] Conversations at PZF2023 emphasized the need for diversifying, with stablecoins pegged to other currencies to enhance jurisdictional and global financial resilience and inclusion. On the other hand, concerns about a potential drop in credit intermediation capacity in the future were expressed, since stablecoins' reserves are invested in high-quality, short-term assets to ensure stability and reliable payouts for their intended purpose.

6 Source: Oliver Wyman Forum's Four visions for the future of digital money.

7 Source: CoinGecko.

TOKENIZED DEPOSITS

Tokenized deposits represent standard bank deposits issued on programmable platforms like blockchains and have the potential to offer enhanced functionality, significantly reduced transaction costs, and global accessibility. Advocates for this form of money emphasized the resilience of the time-tested banking ecosystem as a key factor for their potential success. They also noted the capacity for large-scale monetary transfers due to central bank backing. Experts on the topic shared that tokenized deposits showcase superior innovation potential while keeping current levels of credit intermediation at regulated banking entities intact. They also showcase more pragmatic use cases compared to stablecoins, though the experts acknowledge stablecoins' incumbent innovation in shaping the landscape. However, they recognized that the nascent nature of tokenized deposits necessitates extensive deliberation and collaboration. Overcoming challenges related to risk parameters, interoperability between banks, design choices, and pinpointing precise use cases will be pivotal.

	Blockchain-based deposits	**Stablecoin**
Common issuer	**Commercial banks**	**Non-bank private entities**
Examples	• Tokenized deposits such as USDF by the USDF consortium of 11 entities • Blockchain deposit accounts on JPM Coin system	• USDC by Circle and Coinbase • USDT by Tether
Adoption	• JPM Coin system is live with material transaction volumes • Deposit token projects are generally in early pilot phases	• Over $124 billion market capitalization since 2014 when the first major stablecoin was issued
Backing assets	• Claim on the issuer, like regular deposits	• 1:1 assets held by issuer to meet redemptions, typically held as high quality liquid assets
Regulatory oversight	• Subject to similar supervision and oversight as other regulated bank deposits	• No regulatory framework in most markets, although regulatory frameworks are emerging
Risk management practices	• Subject to mandatory minimum liquidity, capital, and risk management requirements by regulators • Subject to banks' internal risk management practices	• No unified risk management framework • Subject to issuers' internal risk management practices
Emergency protections	• Strength of existing bank balance sheet • Access to contingency funding sources at central bank • Resolution and recovery planning to overcome financial distress	• Liquidation of reserve assets • Resolution under traditional bankruptcy laws

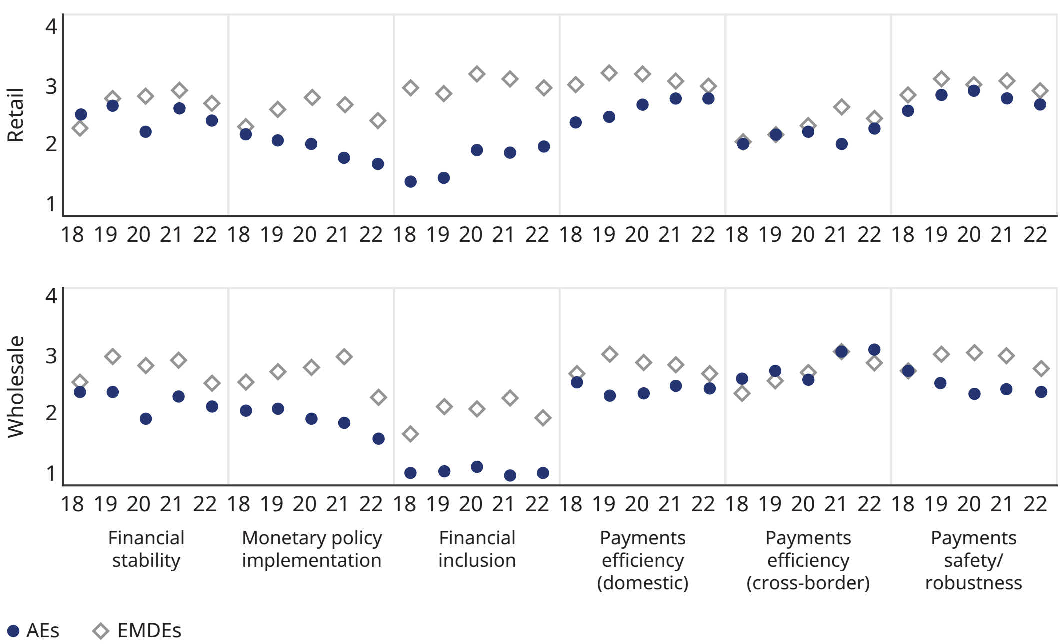
Source: Oliver Wyman analysis

GROWING MOMENTUM AROUND CBDCS

CBDCs are advancing at an unprecedented pace, reshaping the traditional notions of money and banking. Currently, 109 countries are pursuing a CBDC initiative, ranging from launch to pilot, research, and development,[8] as governments worldwide pinpoint imperative use cases. Expert panelists at PZF2023 outlined that these digital currencies present central banks with enhanced monetary control, providing real-time data access and potent regulatory capabilities, while also underscoring the notion that preserving cross-border interoperability of CBDCs will be paramount for its future success as adoption spreads. Furthermore, CBDCs potentially offer heightened economic stability by curbing excessive private money issuance and presenting a more resilient, safe, and available monetary toolset, especially for developing countries facing dollarization. The exhibit below illuminates the principal drivers propelling countries to embark on these transformative CBDC endeavors alongside the convergence of motivators for both advanced economies (AEs) and emerging market and developing economies (EMDEs).

Exhibit 3: Motivations for issuing a retail and wholesale CBDC

Average importance, from 1 (not so important) to 4 (very important)



Source: BIS central bank surveys on CBDC's and crypto, 2018–2022

8 Source: Atlantic Council's CBDC tracker.

PRESERVATION OF PRIVACY OF CBDCS

CBDCs hold substantial promise for revolutionizing the financial system and promoting financial inclusion. However, their design necessitates a balance of trade-offs, particularly in managing the desired levels of privacy against the need to collect information to prevent money laundering, terrorism financing, or other illicit uses. Within the two primary categories of CBDCs — wholesale and retail — the level of anonymity chosen is a crucial factor. At the prevailing retail CBDC level, it's a delicate balancing act — maintaining traceability to limit illicit activities while preserving user privacy to avoid undue intrusions. Experts at PZF2023 outlined that across both CBDC designs, retail and wholesale, privacy and design choices introduce trade-offs across operational efficiency, risk management, and user privacy. It is therefore essential to measure and balance the interests of diverse stakeholders. These include privacy advocates, law enforcement agencies, and data custodians, each with distinct needs and perspectives, making the task of finding the ideal privacy balance a vital aspect in the evolution of CBDCs.

EXPLORING POTENTIAL FOR PROGRAMMABLE MONEY

Programmable money heralds a new era in which currency can be encoded to execute on predefined instructions. At PZF2023, a key discussion centered around the breakthrough of housing both money and its transactional logic on the same tech stack, eliminating traditional inefficiencies. This represents a fundamental paradigm shift, as it allows for self-governance of rules and conditions applicable to governments and end-users alike. The innovation in programmable money has surged alongside the development of digital currencies, especially with the advent of smart contracts on platforms like Ethereum. Today, this concept has transcended the sphere of cryptocurrencies and is currently being probed by traditional financial institutions and central banks.

To propel programmable money, governments and regulatory bodies worldwide must proffer comprehensive, future-oriented frameworks to promote its growth and widespread adoption. Finding the optimal equilibrium between spurring innovation and securing seamless integration is crucial. Moreover, it's vital to establish a global framework that supports seamless cross-border transactions and adheres to programmable money standards, fostering scalability and universal interoperability.

RISE OF PURPOSE BOUND MONEY

The notion of purpose bound money (PBM) emerged as a natural progression of the programmable money framework. As defined by the Monetary Authority of Singapore, PBM offers a mechanism where funds are allocated for a designated purpose, without the need for programming the money itself.[9] The adaptability of blockchain and the precision of smart contracts facilitate this concept, enabling simpler reconciliation processes for both the issuer and the end-user. Experts at PZF2023 noted the benefits of PBM, which enables fractionalized payments, facilitates cross-border transactions, targets specific needs, and supports financial inclusion efforts. Given the nascent nature of this technology, experts also highlighted that managing privacy and counterparty risks are paramount challenges. Addressing these is not only essential for cultivating user trust but also for fostering an efficient ecosystem. Its maturation and broader integration necessitate collaborative support from regulators, possibly through sandbox environments or explorative initiatives, ensuring a sustainable and transformative evolution of this technology.

KEY TAKEAWAYS

The evolving landscape of money, encompassing CBDCs, stablecoins, programmable money, and tokenized deposits, signals a transformative era in finance. It's evident there won't be a sole dominant form; instead, each will find its niche based on distinct use cases and trust mechanisms. Crucially, banks will play an instrumental role, acting as catalysts for mainstream adoption of these innovations. The importance of matching the right type of money to its most suitable use case is paramount. As we delve deeper into this innovative domain, understanding, strategic regulation, and interoperability are crucial. This transformative journey promises to redefine our financial future.

"The future does not happen by accident — we need to be quite deliberate in how we think about the future of money, because it pervades through society, it pervades through the real economy. In order for any notion of future money to materialize and gain traction, you need to prepare society, you need to prepare the real economy."

Leong Sing Chiong,
Deputy Managing Director (Markets and Development),
Monetary Authority of Singapore

Leong Sing Cheong's insights included:

- Digital finance's success rests on mastering interoperability across several dimensions: different currencies, central bank ledgers, crypto networks, and payment methods, and between blockchain and non-blockchain systems.
- A successful integration of Web3 technologies into existing systems demands collaboration between new Web3 players and traditional financial entities.
- Central banks and regulators play a pivotal role in scaling any financial concept across borders.

9 Source: Purpose bound money.

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MOMENTUM ON DIGITAL ASSET PRODUCTS AND INFRASTRUCTURE

Unveiling the future of finance, where digital assets and their supporting infrastructure redefine our economic landscape.

Digital assets are playing a pivotal role in shaping a modern financial landscape, bridging the digital realm with the tangible world. From the potential of decentralized finance influencing the FX markets to the increasing trust facilitated by comprehensive custody solutions, leaders in the field anticipate a potentially more inclusive and adaptive financial future.

CONNECTING DIGITAL ASSETS TO THE REAL ECONOMY

Digital assets, encompassing fungible and non-fungible tokens, are ushering in a revolutionary era in the conception, preservation, and exchange of value within the economy. While these assets are inherently confined to digital platforms, their impact significantly permeates the real-world economy. They emulate traditional money's characteristics, serving as a medium of exchange, a store of value, and a unit of account. However, their unique traits — decentralization, borderless transferability, and programmability — present unprecedented opportunities and challenges that hold the potential to transform the global economic framework.

The digital revolution's impact on the real economy becomes strikingly evident in the green technology sector, projected to burgeon into a $45–$55 billion industry by 2027, with blockchain-based solutions potentially carving out a niche worth 10–15%.[10] The surge in green energy demand and the parallel rise of on-chain ecosystems have galvanized blockchain firms into action. These innovative platforms are leading initiatives in asset origination and tokenization, shaping data services, and crafting marketplaces, effectively establishing a robust infrastructure for what was once an inefficient market.

10 Source: BCG's The next "digital": Unlocking $50 billion green tech opportunity.

TOKENIZATION OF ASSETS

The concept of tokenization, or digital representation of assets on programmable platforms, stands at the forefront of financial innovation, promising operational efficiencies, emerging asset classes, and enhanced risk management capabilities. This evolution has captured the attention of governments and financial institutions alike, catalyzing the advent of tokenized securities and digitalization of numerous initiatives in the financial sphere. On the brink of an unprecedented era of financial inclusivity and innovation, tokenization is poised for explosive growth. Market predictions anticipate a staggering rise between $5[11] to $16[12] trillion by 2030.

"The hope is that this tokenized ecosystem will be more efficient than the existing ones. We are still at the early stages, but already real transactions are taking place."

Professor Thomas J. Jordan,
Chairman of the Governing Board,
Swiss National Bank

The mass adoption of tokenization relies on the creation of resilient infrastructure supporting the entire value chain — from issuance to trading to post-trade activities. Tokenizing assets is only part of the equation; the true potential lies in fostering seamless interaction, trading, and pledging of these digital assets within a vast ecosystem, driven by interoperability and advancements in smart contracts that enable autonomous processes. Moreover, experts at PZF2023 highlighted the necessity to balance risks, costs, and benefits, particularly in incentivizing corporations to integrate verifiable data for smart contract automation. To enable tokenization's mass adoption at the institutional level, the economic advantages must surpass the infrastructural costs. Harnessing this synergy and interoperability, the blockchain realm stands poised for a transformative leap, enabling more liquid assets that fortify both buy and sell sides, ensuring a prosperous and efficient market future.

DECENTRALIZED FINANCE AND FOREIGN EXCHANGE

DeFi is revolutionizing the finance sector by democratizing access and removing intermediaries. This is particularly significant in the FX market, a $7.5 trillion daily titan. DeFi is upending the traditional FX model burdened with high fees, settlement risks, and time delays, introducing real-time peer-to-peer exchanges. With DeFi, liquidity is improved, and settlement times are optimized, eradicating traditional issues such as liquidity droughts and weekend service halts, which can reduce remittance costs by as much as 80%.[13]

11 Source: Citi's 10th Digital Money Symposium 2023.

12 Source: BCG and ADDX's Relevance of on-chain asset tokenization in "crypto winter."

13 Source: Uniswap Labs blog.

Exhibit 4: Panel A. FX Transaction with correspondent banking

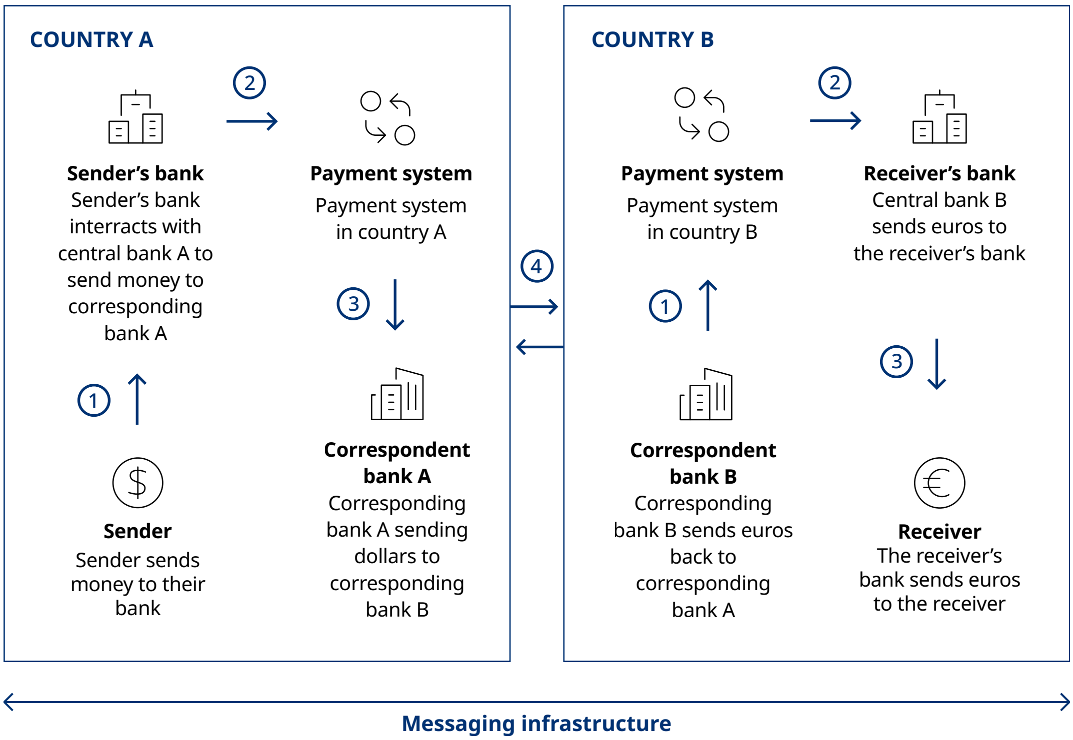
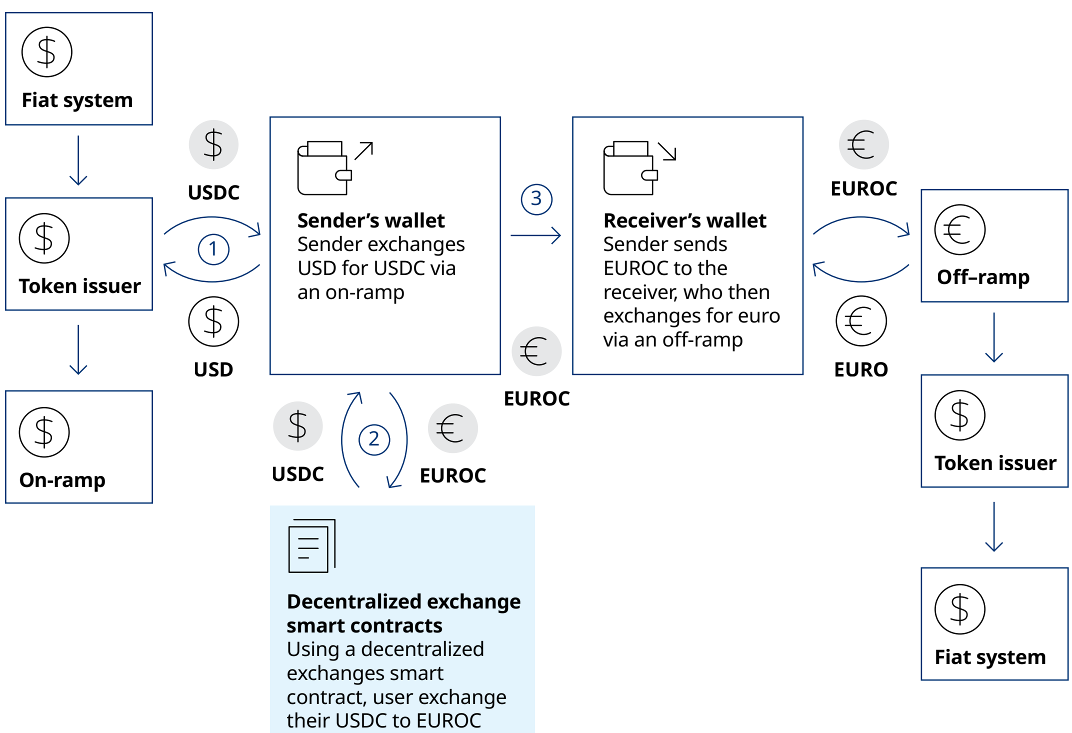


Exhibit 5: Panel B. FX transaction with decentralized finance



Source: On-chain foreign exchange and cross-border payments

Exhibit 6: Comparison of FX market features

Features	Traditional FX market	On-chain FX
Market hours	Nominal 24 hour market during weekdays; poor liquidity between New York close and Tokyo open; no trading and settlement on weekends	Always-on 24/7 trading liquidity through AMMs and near instantaneous settlement on blockchains
Settlement time	T+2 business days by convention and often greater than T+5 calendar days with holidays and weekends	Near instantaneous settlements in seconds; occasional blockchain congestions that may result in high gas costs
Settlement risks (credit exposure and liquidity risk)	Around one-third of deliverable FX turnovers are subject to settlement risk exposure on any given day	Minimal settlement risks as on-chain transactions adhere to Payment vs Payment principles by design
Transparency and trade reporting	Limited trade reporting with non-harmonizing standards across jurisdictions; reporting predominantly on forwards and swaps	Privacy-preserving transactions recorded on public ledgers in real-time
Benchmark transparency	Key benchmark had issues of rigging with lack of transparency in the price discovery process	Transaction data visibility the public allows for transparent benchmark construction and audits
Liquidity fragmentation	Increasing fragmentation in liquidity due to internalization of customer flows by banks	Composability of token standards enable direct liquidity aggregation from different AMM platforms
Liquidity providers	Principal trading firms supply liquidity on limit order books and dealers supply liquidity via bank platforms and voice	Any holders of tokenized cash in multiple currencies can supply liquidity via AMMs

Source: On-chain foreign exchange and cross-border payments

At PZF2023, a compelling dialogue underscored the challenges and potential of merging DeFi with the highly latency-sensitive FX markets. The current FX markets, which operate with single-digit millisecond latency, contrast sharply with the quickest blockchain networks. This latency, potentially affecting institutional client trades, suggests that while blockchain might falter in FX pre-settlements due to timing, it can excel in post-trade processes, especially settlement. This perspective highlights the need for advancements in infrastructure and interoperability. Other discussants shared that DeFi shows promise for institutional adoption and can potentially connect market participants and facilitate loan syndication through decentralized infrastructure. Policymakers should view decentralization as a spectrum and explore mechanisms of DeFi that can benefit financial market infrastructure and economies. Alongside this, the continued evolution of on-chain decentralized identity solutions, blockchain scalability, user interface accessibility, robust custody services, and a diverse range of financial instruments will be key in achieving the vision of universally accessible finance.

CUSTODY

Custody of digital assets serves a pivotal function in the ecosystem, empowering users to engage and participate by securely managing and storing the private keys to their assets. As the industry expanded, drawing a more diverse audience that included retail and institutional investors, the need for sophisticated public custody solutions surged. Today, exchange platforms, self-custody solutions, and institutional-grade custody services work together to create a more secure environment. This enhanced security promotes broader participation, fostering increased trust and confidence in the security and integrity of digital asset transactions. Following the collapse of FTX, customers are placing emphasis on transparency to alleviate and diversify counterparty risk, although some customers and advocates of the technology differ in their visions for the future.

"What are the key things that customers are looking for? Transparency, optionality, interoperability, and then convenience."

Hong Fang,
President of OKX
and Chief Executive Officer, Okcoin

The future of custody now stands at an intersection, where the importance of regulatory clarity for both securing and encouraging innovation meets the necessity for robust safeguards for users. A regulatory framework that skillfully balances security needs with progressive development will play a critical role in steering the maturation of the custody ecosystem and the protection of investors. Additionally, centralized exchanges are dynamically reshaping the digital asset landscape by incorporating self-hosted wallets for accessing Web3. This transition signifies a merging of regulated security with the user-governed realm of the blockchain. The growing popularity of these decentralized custody solutions heralds a new era in digital asset management — one that provides a secure yet flexible platform that elevates user autonomy and engagement.

Panelists also expressed that traditional investors exploring digital assets are awaiting advancements from traditional banking giants to leap into the digital assets space. They seek the trust factor that comes from engaging with the ecosystem through well-established banking giants. This familiarity, combined with the advanced solutions from their trusted banks, offers them the confidence to immerse themselves into the world of digital assets.

"Traditional investors, with or without the FTX fiasco, are looking for this brand name, custom solutions, which for them, most of them are banks right now... They're waiting for a day when large traditional banks that they're familiar with are offering digital assets custody."

Michael Chen,
Head, HashKey Wealth

ADVANCING DIGITAL ASSETS

It was evident throughout PZF2023 that the widespread adoption of digital assets is contingent on progress across all facets of the ecosystem, involving a diverse array of stakeholders.

Numerous entities, including central banks, regulators, traditional institutions, and crypto natives, are actively conducting experiments to delve into the technology. Concurrently, an array of sophisticated products and services is materializing, catering to the needs of corporate and institutional participants. To facilitate the advancement of digital assets, both public and private sectors must not only drive individual initiatives but also prioritize collaborative efforts, recognizing that their combined expertise and resources are essential for sustained momentum. At PZF2023, as digital assets continue to advance, industry leaders compared the rise of digital assets to the internet boom as their thesis for entering the space, emphasizing their shared potential to revolutionize industries.

"Around 2014–2015, we started to pay attention to new technology, blockchain crypto... We thought that this new tech had the potential to change the industry like the internet did in the late 90s–early 2000s."

Fernando Luis Vázquez Cao,
Chief Executive Officer,
SBI Digital Asset Holdings

PUBLIC SECTOR

REGULATORY DEVELOPMENT

Regulatory development forms the backbone of digital asset evolution, with mass adoption relying heavily on robust legal frameworks that provide essential safeguards for ecosystem engagement. As regulatory, legislative, and public policy developments progress at different speeds and arguably in varied directions, it becomes evident that each jurisdiction may culminate in its own unique set of legislations. There will not be a "one-size-fits-all" solution; however, different tools might eventually converge to achieve similar end goals. AML/CFT, KYC compliance, and legal transparency remain pivotal, fostering trust and setting the stage for growth while acknowledging the potential consequences of an under-regulated digital asset space. Key ecosystem players, from innovators to investors, must align and collaborate with global regulators and mandates to propel the field forward. As mentioned at PZF2023, the future of regulation is not just about setting these regulatory standards but genuinely upholding and operationalizing them. Therefore, a well-balanced, transparent, and adaptive regulatory landscape is vital in shaping the future of digital assets, bridging the gap between innovation and security while advancing the ecosystem.

"It's not enough just to have clarity with rules and guidance on the books. Regulators must then walk the walk, not just talk the talk, and operationalize the rules we put in place. That is how you strike the balance between protecting markets and consumers, while also allowing for responsible innovation in the marketplace."

Adrienne A. Harris,
Superintendent, New York Department of Financial Services

GLOBAL REGULATORY ARBITRAGE FOR DIGITAL ASSETS

The concept of global regulatory arbitrage, a key mechanism where individuals and entities leverage regulatory discrepancies across diverse countries or jurisdictions for gain, plays a significant role in the digital asset space. The inception phase of digital assets was much like the Wild West — wild, unpredictable, and inherently decentralized. Enterprises and individuals quickly identified and exploited opportunities for regulatory arbitrage, choosing to base themselves in jurisdictions that exhibited favorable or less rigorous regulatory conditions. With the rapid surge in global interest surrounding digital assets, nations responded in a variety of ways, leading to a mosaic of regulatory approaches. This disparity significantly shaped the global footprint of various digital asset leaders, laying the groundwork for regulatory arbitrage. Companies, often exploring the best environment for their work, relocated to places that were more welcoming to digital assets. Their adaptability highlights how swiftly the industry can pivot, especially in regions with a more open-minded and well-defined approach.

"The innovators are going to innovate regardless of what the government does or says... That's just going to incentivize people to go outside the box to go to jurisdictions where there's a lot more freedom."

Sigal Mandelker,
General Partner, Ribbit Capital

Furthermore, participants highlighted the fragmented regulatory landscape for digital assets. Although there's some global alignment in areas like money laundering and terrorism financing, diverse jurisdictional priorities lead to varied approaches that may provoke regulatory arbitrage. This lack of uniformity undermines the call for harmonized global standards to align on frameworks and approaches.

"We've seen notable levels of global cooperation on digital regulatory for digital assets, in areas like money laundering and terrorism financing, but different jurisdictions have their own agendas and priorities. That's why the regulatory landscape for digital asset is still fragmented."

Lily King,
Chief Operating Officer, Cobo

PRIVATE SECTOR

ROAD TO COMMERCIALIZATION

The road to commercialization is multifaceted, demanding a delicate balance between institutional benefits and societal adaptability. For institutions, the decision-making matrix must unequivocally showcase that the benefits outweigh the costs, ensuring not just viability, but also substantial economic leverage. On the societal front, an accelerated and enthusiastic embrace of digital technologies, combined with a willingness to explore and adapt, becomes paramount. Together, these dual forces — institutional benefits and societal acceptance — will lay the blueprint for a commercially robust digital financial landscape. Commercial success is closely linked with societal advancement, highlighting the need to balance institutional gains with societal adaptability. This synergy paves the way to commercialization, stressing the importance of innovation and adaptation in our financial future to achieve greater efficiencies.

"The first wave of digitization has improved access to banking services and brought greater convenience to consumers. With Web3 advancements, we unlock greater efficiency."

Heng Swee Keat,
Deputy Prime Minister and Coordinating Minister for Economic Policies of Singapore

SEIZING THE CRYPTO SPRING

The crypto winter, an era of market retrenchment and subdued engagement, served as a vital time for laying solid foundations. Experts at PZF2023 highlighted that as we transition into the crypto spring, the focus has clearly shifted, marked by renewed interest from both institutional and retail investors, intensified actions such as progressive legislative advancements (for example, MiCA), ETF filings in the United States, and core ecosystem developments like the rise of zero-knowledge technology. The turbulent and uncertain times of the winter phase have been replaced by increasing clarity and risk management practices, signifying a maturing market developing for wider adoption.

"For me, it reflects spring because we're seeing a maturation of the way people are looking at digital assets and risk management. And it's also spring for me, because we're seeing a lot more clarity coming through on the regulatory side."

Melvin Deng,
Chief Executive Officer, QCP Capital

Moreover, experts highlighted that crypto-native generations are emerging, and their mindset and expectations will impact how services are provided in the future. Some believe the convergence of traditional finance and crypto is likely, but not a full merger — it's more like a Venn diagram, with both industries learning from each other to foster greater clarity to the space. This clarity and maturation reflect spring, indicating a shift in how people perceive digital assets and risk management. The shift is a testament to the resilience of digital assets and their potential societal value, as they continue to evolve from niche novelties to integral financial instruments, effectively recalibrating the future of finance.

"You're hearing about new innovations, both in the underlying technology and the application space in new and innovative products that are coming out all over the world. That's an indicator that things are starting to thaw, and we're starting to see a shift."

Sheila Warren,
Chief Executive Officer,
Crypto Council for Innovation

KEY ELEMENTS FOR SUCCESS ACROSS BOTH SECTORS

INTEROPERABILITY

Interoperability serves as the crucial cornerstone in the advancement of digital assets, unveiling significant opportunities and amplifying operational efficiencies. It rests on the foundation of establishing common and consistent standards, nurturing a modular design approach, and creating an open and equitable environment for both technical and business accessibility. PZF2023 panelists agreed that as major global institutions embrace and roll out homogeneous standards, interoperability will evolve beyond mere system integration, shaping a secure, efficient, and universally accessible digital asset landscape. They also concurred on the challenge that lies ahead in terms of global collaboration demands to establish common infrastructures and cross-border legal frameworks. This paradigm shift brings us closer to an interconnected world where diverse ecosystems operate in harmony, driving the future of digital assets. The interoperability of systems and financial protocols stands paramount, bridging the gap between traditional financial infrastructures and modern digital platforms, seamlessly integrating a global digital economy. There is a shared sentiment among experts that we're in a race against time. Addressing interoperability challenges across different layers now is crucial, or we risk missing the momentum and potential benefits it offers.

"Even if you look at a proper crypto world, public, there are a lot of platforms, they're not particularly interoperable, without bridges. If you try to wait for interoperability, you might lose the race."

Umar Farooq,
Chief Executive Officer of Onyx by J.P. Morgan and
Global Head of Financial Institution Payments, J.P. Morgan

FINANCIAL INCLUSION

Digital assets herald a transformative era in financial inclusion, with the potential to bridge the gap for the unbanked population, especially in a world where about 1.4 billion adults remain unbanked.[14] The ubiquity of smartphones, with nearly 6.9 billion in circulation,[15] offers a promising avenue to access viable solutions, including income storage, transactions, and credit access. Digital assets, ranging from tokenized assets, CBDCs, and tokenized deposits to stablecoins, can effectively transform these devices into financial gateways, granting the underbanked access to the economic grid. This access not only brings them into the financial system, but also empowers them to actively participate in it. Experts at PZF2023 noted that developing economies are likely to, and have already seen, higher adoption rates of these technologies, compared to jurisdictions with developed technologies and paramount trust in central banks. In 2023, Chainalysis identified India as the global leader in crypto adoption up from number four in 2022, followed by Nigeria, Vietnam, and the US.[16] Emerging technologies, particularly DeFi, further elevate this potential. As many of the top crypto-adopting countries are developing economies, the benefits are substantial. DeFi remittances, for instance, have the capability to cut costs by up to 80%, potentially saving the unbanked and underbanked roughly $30 billion annually.[17]

Collaborative efforts between governments, private entities, and FinTechs can harness digital assets like CBDCs, tokenized deposits, and stablecoins to seamlessly integrate the unbanked into the financial ecosystem, ensuring broader financial autonomy and accessibility. Moreover, panelists emphasized that technology alone won't suffice. For true financial inclusion, it's essential to promote digital financial literacy, ensuring that individuals not only have access but also understand and trust these new mechanisms.

"If you want to move the needle for financial inclusion, you have to build a value chain that supports it. And part of that value chain, again, is not addressed by technology, it's digital financial literacy. It assumes both counterparties in a transaction are informed and have agency and therefore have the right information."

Dante Disparte,
Chief Strategy Officer and
Head of Global Policy, Circle

14 Source: World Bank.

15 Source: Bank my cell.

16 Source: Chainalysis' The 2023 global crypto adoption index: Central and southern Asia are leading the way in grassroots crypto adoption.

17 Source: Uniswap Labs blog.

PUBLIC AND PRIVATE SECTOR COLLABORATION

The rise of digital assets heralds an era demanding unprecedented collaboration between public and private sectors. This alliance is crucial for developing a comprehensive regulatory framework that both safeguards interests and fosters innovation. The private sector, with its technological prowess and market-driven solutions, can propel digital assets to new heights. Concurrently, the public sector can offer the necessary guidance, oversight, and policy-making expertise, ensuring that these advancements align with broader societal goals. A PZF2023 participant highlighted the recent success with public and private sector collaborations for Project Guardian. Others concurred that the program represented a quintessential example of mutual understanding and appreciation from both regulators and innovators, demonstrating that working together in the future via synchronized efforts can unlock the full potential of digital assets, ensuring sustainable growth, security, and integration into the global financial ecosystem. They believe that such collaborative efforts pave the way for a promising future.

“In the cases of digital assets and generative AI, there is an even greater premium on cooperation between the public and private sectors, given their newness and the wide range of their potential developments.”

Douglas Elliott
Partner, Co-head of Oliver Wyman Forum
Future of Money Initiative, Oliver Wyman

CONCLUSION

As the digital era surges forward, the convergence of technology and finance is signaling a significant transformation in the financial services landscape. Central to this transformation is the utilization of digital money and tokenization of private and public assets, and the emphasis on interoperability, aiming for integration across financial platforms and ecosystems. Collaboration and aligned objectives are essential, as we strive to shape a financial infrastructure that is interconnected, streamlined, and universally accessible for a promising future ahead.

"At PZF, both regulators, industry, and traditional financial institutions are leaning in and engaging in a way that is very constructive and a sign of positive things to come."

Brad Garlinghouse,
Chief Executive Officer,
Ripple

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