

Institutional Digital Assets Handbook 2023

First Edition

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How financial institutions are embracing digital assets

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Word from the Sponsor: Amberdata



By Shawn Douglass
CEO and Co-Founder
Amberdata

Financial Services - Redefined

With the market capitalization of digital assets now over \$1 trillion and growing, financial institutions can no longer ignore this asset class. However, while entering this complex and highly volatile asset class provides tremendous opportunity, it also brings new risks and challenges. As you will see in this guide, the digital asset class is no longer just about Bitcoin. There are many blockchains, cryptocurrencies, centralized exchanges (CEX), decentralized exchanges (DEX) and decentralised finance (DeFi) protocols that make up this innovative ecosystem. In fact, DeFi is redefining how financial products and services are consumed. Traditional financial institutions understand that they need to innovate or risk replacement.

Actionable Digital Assets Data is Hard to Get

There are many questions that financial institutions need to answer related to research, trading, risk, analytics, reporting, and compliance to enter and succeed in the digital asset class. And to answer those questions, they need both fundamental (on-chain) and market data. This means building and maintaining a data infrastructure that connects to multiple integration points with constantly changing APIs. It also means gaining the expertise to make the raw data useful and delivering it in the formats and with the reliability received with traditional asset classes. The alternative is to find a data provider that can meet these needs.

Focus on Your Core Business Instead

Enter Amberdata. We have built and maintain an institutional grade infrastructure to deliver digital asset data, market intelligence and risk analytics so that financial institutions can concentrate on their core business. We deliver comprehensive data and insights into blockchain networks, crypto markets, and DeFi, empowering financial institutions to apply traditional finance methods to digital assets. We eliminate the infrastructure setup, integration challenges and maintenance headaches to access digital asset data, reducing cost and time to market for entering the digital asset class.

Looking Forward

In the future, as digital assets become pervasive and widely adopted, the total market size and applications are unimaginable today, but could represent trillions of dollars in new businesses being created as every individual and business around the world adopts this technology. Amberdata will always provide its customers with a trusted lens into the entire crypto economy so they can be successful in this growing asset class.

Introduction

Leaving aside the hype and drama of the retail cryptocurrency marketplace, A-Team Group has noticed growing interest in digital assets from institutional market participants over the past three to four years. Early interest inevitably stemmed from the market opportunities presented by bitcoin and a raft of other cryptocurrencies. But through audience participation at our TradingTech Summit events, webinars on the topic, and the growing willingness to stand up and be counted by Tier 1 institutional firms, A-Team has witnessed the acceptance of a potential role for digital assets in institutional markets.

What's emerging is a view that in the future, all types of assets could be issued natively on blockchains or represented in tokenized format. Furthermore, institutions have begun to recognise that digital assets could play a role in their own capital adequacy compliance activities, by allowing asset owners to unlock the value held in previously difficult-to-value assets.

What's been lacking so far - but is now being developed - is a framework for regulatory oversight and an infrastructure that financial institutions can use that meets their fiduciary requirements. As these rules and regulations develop further, we expect to see an explosion in institutional activity in digital assets, and along with it the opportunity to leverage digital infrastructures to transform firms' existing investment practices.

Adoption of DeFi has the potential to be transformative for financial markets in the same way that the Internet has been transformative for the retail sector. But while the Internet didn't really change the way banks do business, except for front end interfaces to streamline the client journey, the technology underpinning DeFi has the potential to change the way financial services operate in a big way.

So far, digital assets and crypto projects in the institutional space have focused on a few key areas:

1. the improvement of efficiency in the supply chain afforded by Distributed Ledger Technology (DLT),
2. the introduction of new asset types, like private equity, real estate and infrastructure, and
3. disruption to the market structure of existing assets by their representation in digital form.

Notwithstanding the trials and tribulations of the retail crypto segment, client demand for crypto-type services is growing, and financial institutions must begin to consider the practical implications of more mainstream digital asset adoption from a technical, regulatory and governance, macro-market structure perspective.

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SECTION 1

Overview of Digital Assets

What are digital assets?

Digital assets are essentially electronic tokens that can be bought, sold and exchanged for goods and services. According to Bank of America, digital assets today represent a \$2 trillion market with 200 million participants.

Digital assets and cryptocurrencies have some characteristics in common. Digital assets, for example, cannot exist without the underlying distributed ledger that created them.

Cryptocurrencies like Bitcoin and Ethereum are the best-known examples of digital assets. But they may take on other forms, including:

- Digital representations of physical (real-world) assets such as gold, real estate or real-world art (e.g. paintings)
- Digital representations of intangible (non-physical) assets such as equity and debt
- Initial coin offerings (ICOs) and security token offerings (STOs)
- Non-fungible tokens (NFTs), which are assets created digitally (such as digital art) containing a unique digital signature
- Stablecoins (currencies backed by physical assets, such as Tether).



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What is DLT or blockchain technology?

Digital Ledger Technology (DLT), also known as blockchain technology, is a decentralized system that allows multiple parties to maintain a shared, tamper-proof database without the need for a central authority. The system is based on a network of nodes, which are essentially computers that run the software and maintain copies of the ledger.

Each transaction on the network is recorded in a block, which is then added to the chain of blocks (hence the term 'blockchain') in a chronological and immutable order. Once a block is added to the chain, it cannot be altered or deleted, thereby ensuring the integrity of the data.

One of the key features of DLT is its use of cryptography, which provides secure authentication and encryption of data. This means that participants on the network can trust that the data they are receiving is authentic and has not been tampered with.

DLT's transparency, security, and accountability can help reduce fraud and corruption, increase efficiency, and reduce costs by eliminating intermediaries. In this way it can enable new forms of decentralized applications and systems, such as decentralized finance (DeFi), which allows for peer-to-peer financial transactions without the need for traditional financial institutions.

Benefits and risks of digital assets

Digital assets hold the promise of streamlining the processes associated with financial transactions, reduced administration and physical storage. They can also support fractional ownership of both physical and intangible assets, with lower investment minimums, making it easier and cheaper for firms to offer investment services to wider audiences. This more granular capability extends into intraday liquidity, allowing monetization of previously illiquid securities through fractional trading and micro-interest payments.

Digital assets can also help firms reduce risk by providing a common ledger across cash and securities. This can allow firms to collapse their counterparty risk through the concept of

atomic settlement, in which the exchange of assets occurs simultaneously and irrevocably, and without the need for an intermediary or clearinghouse. This means that if one party fails to deliver their side of the trade, the entire transaction is cancelled and both parties retain their original assets.

Atomic settlement relies on smart contracts, which are self-executing agreements that are encoded on a blockchain network. These smart contracts automatically enforce the terms of the trade, ensuring that both parties receive their assets simultaneously and without the need for a trusted intermediary. Additionally, by removing intermediaries from the transaction process,

digital assets can yield operational efficiencies, reducing issuance cost, for example.

In terms of risks, the digital assets segment remains an immature one. For those digital assets not backed by physical holdings or fiat currencies there is a risk of large fluctuations in value, which can also represent an opportunity for those willing to accept potential losses.

There are also security risks as platforms can be hacked by cyber criminals. Indeed, the history of cryptocurrency is littered with security breaches

and losses of funds, with seemingly little recourse. This points to an as-yet unresolved issue with the decentralised model: when things go wrong, how can investors get their money back?

This illustrates an inherent conflict between the libertarian decentralised approach to blockchain-based currencies and assets, and the need for a centralised regulatory body to provide governance and enforce the rules when they are breached.

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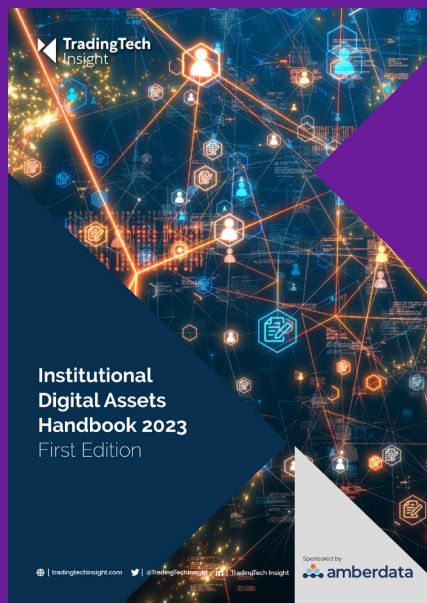
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SECTION 2

Institutional Interest In Digital Assets

What is driving institutional interest?

Cryptocurrency started off with a retail focus. But digital assets represent both an interesting investment opportunity, providing alternative sources of alpha, and high potential upside for firms looking to diversify their portfolios (also potential downside, as these are highly volatile instruments, which in itself creates trading opportunities).

Institutional firms are also interested in using initial coin offerings (ICOs) and security token offerings (STOs) to provide early-stage companies with an easier means of raising capital, and enable investors to participate in their growth. As a result, there is growing recognition of crypto and other digital assets as an asset class of its own, and belief that digital assets will make up part of everyone's asset allocation in the future.

The underlying technology supporting digital assets is also generating significant interest. The streamlined and efficient nature of blockchain - which can enable things such as same day settlement, 24/7 trading, bypassing of

intermediaries, and related cost savings - are garnering attention. Blockchain's ability to create trust between parties, for instance, can cut the cost of maintaining and accessing central securities depositories.

But institutional interest runs deeper than viewing digital assets as a new asset class in the traditional financial framework. While acknowledging the opportunity for blockchain to make existing processes, services and securities more efficient, practitioners are coming round to the idea that digital assets and DLT can enable them to unlock billions if not trillions of dollars of assets currently held in intangible assets that are not easy to liquidate.

In existing models, central repositories are critical to a given marketplace - whether property or car loans - and are typically run by regulated service providers or governments. Access to these repositories incurs frictional costs, in terms of lawyers and other experts that are needed to extract and process the data contained within them. As a result, only higher-



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value items are included in the repository, limiting trading to those items.

By adopting DLT as the basis for the repository, those frictional costs are eliminated. The cost of accessing the repository is a fraction of traditional costs, meaning it's worth adding lower-value items to the repository. This in turn frees up these items for trading, unlocking the

value in those assets that otherwise would be tied up.

Furthermore, institutions see the opportunity to securitise these lower-value items, making them more appealing for investors and – importantly – eligible as assets for firms' collateral management operations, which in turn frees up more capital for their investment activities.

State-of-play on institutional participation in digital assets

Institutions have, until recently, been sitting on the sidelines as far as cryptocurrencies and digital assets are concerned, while retail investors have dominated the space. And while few institutions have made much public fanfare about their activities, anecdotal evidence suggests they are boosting their activity in digital assets.

This reticence is primarily due to the fiduciary responsibilities borne by financial institutions, which has restricted their ability to engage in digital assets. But the rules are evolving, and some jurisdictions like Switzerland are openly embracing all things digital.

Another example is that just a few years ago, banks couldn't provide services such as custody to support digital assets, but now there are special purpose licenses for custody, with several major organisations outlining plans to get involved.

In a recent wide-ranging survey of institutional investors conducted by Fidelity Digital Assets¹, 52% of firms surveyed globally confirmed that they are currently invested in digital assets, either directly or through alternative investment products. With 90% of respondents saying that they found digital assets appealing, there is clearly a strong – and growing – institutional appetite.

Issuers and banks have matured from POC projects to a number of live issuances, with approximately \$1.5 billion of private debt and equity issued in the past 12 months alone.

Clearing and custody services have also seen an uptick in interest with a number of initiatives in the post-trade space increasing. These include a number of institutional custody services as well as digital Central Clearing Counterparties (CCPs).

This activity not only reflects the ongoing maturity of the technology and the financial

¹ <https://a-teaminsight.com/blog/beyond-cryptocurrencies-building-a-market-infrastructure-for-digital-assets/>

market's investment in understanding it, but the anticipation of forthcoming regulatory changes that will enable expansion of issuance and custody into regulated, listed assets too.

Ongoing initiatives aimed at the institutional marketplace include:

- Archax – an exchange and custody services business aimed at helping institutional firms issue and trade digital assets
- Coinbase Prime Brokerage – prime brokerage operation offered by Coinbase,
- an established cryptocurrency wallet / exchange
- Laser Digital – a subsidiary of Nomura offering clients cryptocurrency trading, decentralised finance and non-fungible tokens through a trading platform and custody services
- SDX – the Swiss Digital Exchange operated by SIX Group of Switzerland, SDX allows institutions to issue and trade digital assets.

Need for regulatory clarity

The lack of regulatory clarity around digital assets is regarded as a major block on institutional firms' embrace of the segment. A study by derivatives exchange Eurex in 2021 – Digital Asset Trading 2021: the institutional adoption of a new asset class² – showed that only one-third of sell-side firms and just over 7% of buy-side firms were trading or offering digital assets to clients. But of those sell-side institutions, 48% said they were trading cryptocurrency derivatives, with only 30% trading digital assets directly, whereas 23% traded cryptocurrencies through an investment product.

For institutional firms, much of their participation in digital assets has been focused around regulatory jurisdictions where they are accepted. Among major markets, Switzerland has emerged as the most 'crypto-friendly' jurisdiction, and several institutional players

have based their digital assets operations there, including Nomura's Laser Digital and SIX's Swiss Digital Exchange (SDX).

It's widely recognized, however, that there remains a significant degree of hesitancy among institutional firms, which will continue until there is clarity around the rules and regulations put in place for digital assets. The Eurex study found that 77% of firms surveyed said the lack of clarity around the environment was the main barrier to participation in markets for digital assets.

In particular, firms are keen to see how regulators in Europe are proposing regulatory frameworks for digital assets. In the US, firms have been encouraged by the arrival of Gary Gensler as SEC chairman, whom they see as supportive of digital assets. And in Asia-Pacific, the Monetary Authority of Singapore

² https://www.eurex.com/resource/blob/2872736/38c6dd474131994bfe2b45e7e76a0a45/data/20211208_crypto-survey-report.pdf

(MAS) is keen to lead the way in innovation and encourage development.

All eyes are on how these key regulatory bodies embrace digital assets. Certainly, there has been progress, in the form of the EU's emerging Markets in Crypto Assets (MiCA) regulation and growing interest in the segment from the Basel Committee. Initiatives like the EU Pilot Regime and the UK FCA's sandbox, meanwhile, are seen as useful foundational activities that will take

time to facilitate wider adoption by institutional market players.

Lack of consistency across jurisdictions is also likely to impede adoption. While observers note that it was relatively straightforward for a jurisdiction like Switzerland to embrace digital securities because the legal framework was already in place, France, Germany and the UK are proceeding at a slower pace because they don't yet have the legal frameworks needed and it will take time to design and implement them.



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SECTION 3

Infrastructure, Technology and Data Issues

Aside from the need for a consistent regulatory framework, the other significant requirement for institutional firms seeking to participate in the digital assets marketplace is a robust data and technology infrastructure. Indeed, a major hurdle in institutional firms' acceptance of digital assets

as a viable business has been issues around governance and compliance, with part of the concern relating to confidence in the processes around buying, trading and holding digital securities.

Infrastructure/market structure challenges

Like other, established asset classes such as equities and fixed income, digital assets require the appropriate technology infrastructure for both primary market issuance and secondary market trading. So far, much of the action in digital assets market infrastructure has focused on issuance, where the actual capital raising function takes place, whether through initial cryptocurrency offerings (ICOs) or securitization of existing assets. Ultimately, however, for primary issuance to be successful, it needs to connect seamlessly with the secondary market.

From a market infrastructure perspective, one particularly challenging aspect of digital asset trading is the need for pre-funding. Unlike more traditional asset classes, which are generally traded on margin and settled on a T+X basis, digital assets – because they reside on a blockchain – are generally traded and settled at the same time, with instantaneous movement of asset and funds between the counterparties of the trade. Not only does this tie up capital, particularly if firms are trading across multiple venues, it also presents a headache for banks, custody providers and their technology partners.



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Governance

Another issue that institutions face is that of permissioning: Who has access to the distributed ledger on which the assets reside? Cryptocurrencies such as Bitcoin, Ethereum, Litecoin and Dash all exist on permissionless blockchains, which means that anyone has

access. However, as regulated entities, banks and other financial institutions need to have clearly defined governance structures around who can transact, particularly for digital assets based on intangible assets such as equity and debt.

Exchanges and connectivity

While there are many exchanges and platforms for trading cryptocurrencies, the majority are targeted at the retail rather than the institutional markets. As a result, they tend not to be set up for institutional use, and lack key components like consolidated order books, reporting facilities, consolidated records and high-performance connectivity options. In addition, in many cases, cryptocurrency trading platforms don't have the flexibility to handle other types of digital assets. That said, according to the Eurex study, 82% of the sell-side customers shared that they were trading digital assets via order book, with 18% trading via block trades.

A number of regulated exchanges – among them CME, CBOE, Nasdaq, Deutsche Boerse, ICE and SIX – have launched exchange-traded products in the digital asset space within the past few years. However, most of the listed products are based around cryptocurrencies – there are still relatively few traditional, regulated, institutional-focused exchanges that list other digital asset types.

One exchange that has been established for the specific intent of issuing and trading digital assets is the SIX Digital Exchange (SDX), a subsidiary of SIX Swiss Exchange. SDX received formal approval to operate from FINMA, the Swiss Financial Market Supervisory Authority, in September 2021.

SDX initially set out to build an integrated trading, settlement, and custody infrastructure for digital assets three years ago. Following SDX's regulatory approval, the exchange is now working with banks, issuers, insurance firms and institutional investors to create a global exchange network for digital assets.

Fundamentally, the need for liquidity access for trading of digital assets is no different from other asset classes. Trading institutions need connectivity to those exchanges offering digital assets/securities in the same way they do today for traditional exchange-listed securities. What's different is the set of venues financial institutions need to connect to, although there is some overlap with existing connections to traditional exchanges.

Order and execution management systems

Similarly, the fundamentals of Order Management Systems (OMSs) and Execution Management Systems (EMSs) aren't likely to change beyond offering different views, analytics and data sets relating to digital assets. Emerging OMS/EMS platforms for digital assets feature similar Financial Information eXchange (FIX) interfaces and APIs to their traditional counterparts, enabling integration into other systems within the trading workflow.

This ability to integrate the trading of digital assets with more traditional asset classes is likely to be a key requirement for institutions. This will allow firms to trade digital assets using established platforms and models, at least until blockchain-native solutions start to show similar performance.

For now, the practical challenge is how to integrate new digital asset classes and workflows into the existing trading architectures. This will require firms to work with their OMS providers to achieve similar levels of performance and functionality as traditional asset classes.

Observers see a significant opportunity for trading technology providers to bridge the gap between current capabilities and financial institutions' aspirations for their digital assets trading operations. Many expect existing suppliers of electronic trading tools, including incumbent OMS and EMS providers, to expand into the digital asset space.

For this to happen, suppliers need to make the barriers to entry as low as possible by leveraging existing infrastructure and protocols. This may include leveraging existing market connectivity, trading infrastructure, risk management and middle office systems, while also adopting recognised industry protocols like FIX.

The challenge, however, is that some of the platforms in the trading technology space are now considered to be legacy, with many lacking the openness and interoperability of more modern solutions, potentially hindering their ability to onboard new types of digital assets.

Price formation, market data and liquidity

Pricing of digital assets remains a challenge. In the Fidelity survey, 44% of respondents saw the lack of fundamentals to determine the value of digital assets as one of the main barriers to adoption.

One reason for this is the fact that different exchanges and wallets may be indicating different prices for the same digital asset. This can make it challenging for regulated institutions under fiduciary duty to execute at the best possible price for their clients and provide evidence of best execution.

The problem is exacerbated by the fragmented nature of the market. With new marketplaces springing up almost constantly - offering different assets, standards and processes across multiple jurisdictions - the lack of market transparency has implications for market manipulation, price formation and real-time data. The emergence of data aggregators and suppliers (like our handbook sponsor Amberdata) represents a step toward providing the marketplace with a consolidated view of prices across different execution vehicles.

It remains a significant challenge, however, to come up with a fair market value for a tokenized asset. Smart contracts may help. These are self-executing agreements between buyer and seller, directly written into lines of code that exist on the blockchain alongside the digital asset itself. These smart contracts can be created to

contain variables around how to price and value the asset in question. Using these variables, trading systems can create a theoretical mark to market for the asset until secondary trading starts, creating the transparency needed to price the asset consistently.

Another potential barrier to more widespread institutional adoption of digital assets, particularly in the secondary market, is how to source liquidity. As the marketplace remains characterized as nascent, there is little liquidity or infrastructure to access liquidity.

But many digital assets are not listed. Like foreign exchange, there is no central price point. Some data aggregators are now pulling price information from the exchanges they rate highly, then aggregating the price to create a true reflection of where the price is.

Reference data, symbolologies, taxonomy and standardisation

The nascent and fragmented nature of the institutional marketplace for digital assets contributes to the ongoing lack of standardisation of data, particularly with respect to the reference or metadata used to describe individual assets and their characteristics. This lack of standardisation is another hurdle to broad adoption of digital assets by institutional firms, since standard identifiers and other factors used in securities administration can create operational difficulties for trading and investment firms.

That said, organisations such as Association of National Numbering Agencies (ANNA),

International Standards Organisation (ISO) and FIX are working to address the issue of data standardisation. ANNA laid out a plan to use International Securities Identification Numbers (ISINs) to identify digital assets, and exchanges are adopting this methodology.

ISO, meanwhile, has outlined its approach to establishing the Digital Token Identifier (DTI). And FIX, through its Digital Asset Working Group, is focusing on the use of the FIX protocol for the electronic trading of digital assets, and is working closely with ISO to help its members adopt the necessary standards. Elsewhere, individual numbering agencies and exchanges

like the London Stock Exchange Group are working to adapt their existing symbolologies

and taxonomies to accommodate the emerging digital assets segment.

Automating post-trade workflow

Some market participants believe digital assets may have a role to play in automating the post-trade workflow, which has been a common theme within traditional markets since the emergence of straight-through-processing in the 1990s. For these practitioners, the opportunity lies in the adoption of smart contracts, which can be used to add characteristics, actions and events into the underlying asset. Smart contracts can also be used to lock in terms of over-the-counter

derivatives like swaps, which are essentially agreements between counterparties, but also allow automation of the workflow of payments or other terms over the lifecycle of the swap. This can help reduce risk, but it can also speed up the entire process of creating new derivative and fixed-income instruments in particular, complete with terms and conditions and governance considerations.



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SECTION 4

Regulatory Landscape

Overview

It's still early days to see how regulatory oversight of crypto and digital assets is going to play out, but the first consultations and regulatory frameworks have begun to emerge.

Regulators (and the legal system) are scrambling to figure out how various digital assets should be classified and where the oversight might lie. But even where a regulator has jurisdiction, its rules and requirements inevitably were drafted before the advent of digital assets and so often don't fit well.

Various regions and countries have responded very differently. At one end of the spectrum is China's early 2021 clampdown ruling that activities related to cryptocurrencies are illegal. At the other is El Salvador's move to make bitcoins legal tender. In between, Singapore's MAS and others are working hard to make their jurisdictions a key player in crypto markets.

Wherever they lie on the spectrum, the challenge for regulators is to figure out how to balance investor protection and the integrity of the markets, while also encouraging innovation and growth. Legacy regulation is unlikely to be sufficient; new rules will need to be created and clear decisions about how to class these instruments - all of which will take time.

The uncertainty that this lack of clear rules generates, however, means that the institutional markets remain hesitant to invest too much energy into digital assets. So far, much of the institutional action has focused on markets where crypto and digital assets are welcomed, such as Switzerland, which has seen the creation of a digital exchange SDX by the domestic exchange operation SIX. All eyes now are on the US, where the administration has issued its 'Executive Order on Ensuring Responsible Development of Digital Assets', which attempts to drive policy without actual legislation.

Regional view

Different regions have different flavours to their approach to digital assets regulation.

Europe

In Europe, the EU's new MiCA proposals aim to provide harmonised regulation for digital currency assets (particularly cryptocurrencies)

across the EU. Much of the regulation emulates Markets in Financial Instruments Regulation (MiFIR)-type requirements, notably in oversight areas like surveillance and risk.

MiCA is part of the EU's Digital Finance package, which was commissioned in September

2021 and also includes the Pilot Regime for DLT Infrastructures and DORA, the Digital Operational Resilience Act. It covers a variety of digital assets, including: asset-referenced tokens, which are based on the value of other assets such as fiat currencies, commodities, other crypt-assets or a combination of all three; e-money tokens, which again are referenced back to fiat currencies that are legal tender; and utility tokens, which are usually accepted only by the issuer of the token.

Under MiCA, stablecoins need to be authorised by regulatory institutions before they can be traded. As a result, when MiCA comes into effect, existing stablecoins will need to seek authorisation from the regulatory authorities in order to be traded in the EU. The regulation also prohibits the payment of interest on e-money tokens.

Finally, it should be noted that MiCA will not apply to financial instruments and structured deposits already covered by the Markets in Financial Instruments Directive (MiFID); electronic money, covered by the E Money Directive, except where qualified as electronic money tokens under MiCA; deposits, covered by various deposit guarantee schemes; and securitisation, covered by securitisation regulation.

The European Securities and Markets Authority's (ESMA's) DLT Pilot Regime will cover digital securitised assets, allowing Multilateral Trading Facilities (MTFs) and Central Securities Depositories (CSDs) to run 'pilot' infrastructures on DLT without adhering to certain onerous parts of MiFID2 and Central Securities Depositories

Regulation (CSDR). This relatively light-touch approach applies to illiquid instruments, and against a restricted total market capitalisation, ensuring risk can be controlled. The securities are 'live', so participants must deploy industrial-grade infrastructures to take part, but need not incorporate functions like transaction reporting.

Perhaps a nod to the future market structure of digital assets, under the Pilot Regime the roles of the various financial market infrastructures are disrupted. MTFs are permitted to operate autonomously, enabling issuance, trading, settlement and custody on a single platform. The opportunity here is clearly to reduce the frictional costs of the settlement and custody service provider. CSDs on the other hand are empowered to support the secondary trading aspects of the transaction lifecycle. Few CSDs are likely to move upstream, however, rather choosing to leverage another key aspect of the regime - the ability to interact directly with retail actors. Importantly, this enables CSDs to add valuable services by enabling corporate actions to be applied at beneficial-owner level direct from issuer to end user.

The UK

The UK treasury is actively sounding out the market for a lookalike programme dubbed 'The UK FMI Sandbox', likely part of the Financial Services and Markets Bill (FSMB) towards the end of the year. The UK is expected to differentiate by offering larger capitalisation thresholds and a broader range of asset types - aspects that have stifled take up of the European version. The UK benefits from 'fast follower' experience and more autonomy over its single-regulator jurisdiction.

North America

In the US, crypto and digital asset regulation stepped up a gear during 2022, further accelerated by concerns about the collapse of crypto broker FTX. Starting early in the year, the grandly named Executive Order on Ensuring Responsible Development of Digital Assets laid down 'strong steps' across six key policy objectives: control of financial risk and the protection of consumers, investors and businesses, US global financial security and illicit finance, whilst encouraging innovation, technological advancement and safe access to affordable financial services.

Regulation took on another dimension in the US too, with the introduction of the Crypto-Asset Environmental Transparency Act shining a light on the growing concern about energy use and environmental impact of bitcoin mining.

Further north, Canadian Securities Administrators (CSA) banned crypto margin and leverage trading in a similar reaction to FTX's failure, and also the spectre of the failed acquisition of local crypto platform Bitvo. The result saw the CSA reinforce the requirement to segregate custody assets from any related proprietary businesses.

Asia-Pacific

In the APAC region, Singapore has been a driving force in regulatory actions aimed at digital assets. In March 2022, Singapore enacted an extension to its three-year-old Payment Services Act (PSA) - Notice PSN02 - aimed

at crypto payment businesses. The notice introduced new audit and record-keeping requirements to crypto firms in Singapore to prevent financial terrorism and money laundering.

Digital tokens, meanwhile, have been regulated for some time under MAS's Securities and Futures Act (SFA), and are subject to a specific Guide to Digital Token Offerings last updated in 2021. But in general, Singapore remains cautious, particularly in its guidance to retail investment in cryptocurrency.

In China, Shanghai People's Court ruled that Bitcoin should be considered 'virtual property' and is liable to property rights laws and regulations, in an apparent loosening, albeit regional, of its previous blanket ban on crypto. In a move prompted by a court case around a contested loan of bitcoin between two individuals, the court appeared to contradict the ban brought into effect in 2017.

The juxtaposition continued with China implementing various clampdowns to combat illegal financial activities, aimed at a range of assets - from banning NFTs to removing crypto miners from the national power grid - while at the same time introducing the digital yuan, a central bank digital currency (CBDC).

SECTION 5

What's needed to accelerate institutional adoption of digital assets?

It's clear that institutional interest in digital assets – both as a tradable asset class and a tool for unlocking liquidity from physical assets – has been piqued. But the intensely volatile nature of the cryptocurrency segment means that many financial institutions are taking a cautious approach. What's needed to shift their participation toward mainstream adoption?

Some key considerations:

- Regulatory conformity – As well as the overall lack of regulation governing the digital assets segment, the asymmetry of adoption by national regulators makes building strategies around digital assets difficult for global organisations. Catering to the nuances of multiple national authorities presents a significant barrier to entry for many institutions, with the result that participation thus far has tended to focus on a small number of regulatory jurisdictions.
- Standards – As with traditional asset classes, systems supporting digital assets need to be able to accurately identify and process new asset types. The standards used to identify and describe traditional asset classes have been developed over many decades, but are still in the formative stages when it comes to digital assets. That said, key standards organisations like the International Sustainability Standards Board (ISSB) are fast-tracking identifiers and meta data that can help. With many initiatives running concurrently, the challenge may be to consolidate on a globally recognised set of standards for the segment.
- Trading technology – Trading systems need access to new markets, to enable trading in new instruments. Decentralised markets may operate in a significantly different way to 'TradFi' exchanges, so platforms will need to evolve or be augmented by new infrastructures. They also need to take into account the blurring of roles played by exchanges, sell-side and buy-side firms, custodians and other intermediaries in the digital asset space.
- Post-trade and risk systems – These need to be adapted to cope with shorter, or even immediate settlement times, as well as 24/7 trading in the future. Compressed settlement times – which are being embraced by the mainstream drive toward



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T+1 – can reduce risk, which may encourage wider acceptance of digital assets.

- Digital cash/eMoney – For digital assets to go mainstream, settlement needs to be against forms of digital cash. Wholesale Central Bank Digital Currency (CBCD), the best proxy for current central bank settled markets, is some time away, at least a

year or two. In the meantime, stablecoins and Regulatory Liability Networks (RLNs) (regulatory liability networks) are emerging as alternatives, although both have their own set of operational challenges.

OUTLOOK

What's next for the digital assets segment?

A few key developments and trends are emerging on the horizon to form a discernible road map for institutional digital assets.

Key elements include:

- The embrace of private assets by public markets – The market has already witnessed a substantial increase in private issuances (around \$1.5 billion in the past 18 months), so observers can expect to see these accelerate. This will be accompanied by the country-by-country adoption of public offerings, particularly as exchanges start to launch new digital markets.
- The emergence of niches – Institutions are exploring initiatives built on new niche asset types. Candidates include carbon, renewables, infrastructure and real estate. In these instances, digital assets are seen as the key to unlocking liquidity tied up in physical assets, potentially freeing up vast amounts of capital for investment elsewhere.
- Self-disruption – Large market service providers and utilities like Euroclear, Swift and DTCC are beginning to play out their DLT strategies, and they are likely to bring the rest of the market along with them.
- New tech – The marketplace has already witnessed the emergence of new exchange systems, OMSs/EMSs, risk management and reporting platforms. Expect to see more activity from incumbents as they begin to assess how the market structure and technology changes will affect them and their clients.
- Resources – Banks will gear up their regulatory change, business process and compliance areas to address the legal, policy, regulatory and IT change required.



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