

CELENT

BUILDING OUT DIGITAL ASSET SERVICES IN CAPITAL MARKETS

Questions to Ask and Answer, Now

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EXECUTIVE SUMMARY

Digital assets here to stay.

Despite continued volatility, institutional investor interest remains strong.

With client demand materializing, traditional financial services entities have entered a race against new crypto-native companies to secure first-mover advantage in the institutional market. But for these firms this can require considering the costs of a new risk/compliance framework as well as new infrastructure.

It may seem a long and winding road. Success will depend on deciding on buy vs build in context of each entity's unique technology and client needs and choosing partners wisely.



Institutional asset managers, banks, and brokers that serve them have been closely watching the growing demand for services supporting investment or use of digital assets. Large enterprises are investing and/or offering services in this space, including investment managers and asset servicers ([BlackRock](#), [Fidelity Investments](#), [State Street](#), [BNY Mellon](#)), market infrastructures ([CME Group](#), [LMAX](#), [Nasdaq](#), [SIX](#)), investment banks ([Goldman Sachs](#), [DBS](#)), hedge funds ([Brevan Howard](#), [Tudor Investment Corp](#)), endowments ([Harvard](#), [Yale](#)), and corporates ([Microsoft](#), [MicroStrategy](#), [PayPal](#), [Square](#), [Tesla](#)). Meanwhile, the number of worldwide cryptocurrency wallet users [increased from 6 million in 2016 to over 70 million by August 2021](#).

That said, digital assets remain a nascent asset class. While today there are thousands of types of digital assets, there is no standard taxonomy across global regulatory jurisdictions. The US Congressional Research Service [defines digital assets](#) broadly as assets “issued and transferred using distributed ledger technology (DLT) or blockchain technology,” noting these can be securities, currencies, properties, or commodities, but can also include new asset types such as stablecoins or non-fungible tokens (NFTs), which are blockchain-based certificates of ownership for unique virtual or physical assets. A key differentiator between traditional and digital assets is that traditional asset ownership is typically recorded on a private ledger

maintained by a central intermediary, while a digital asset is recorded on a decentralized digital ledger.

This research paper discusses digital assets such as cryptocurrencies, security tokens, and stablecoins. Market intermediaries including investment advisors, trading platforms, and custodians offering services in these digital assets (e.g., investment, trading, and safekeeping) will likely be subject to regulatory oversight with regard to these assets in areas such as money laundering, customer validation, investor protection, and accounting and tax law.

Investor demand to invest or trade digital assets is growing despite continued volatility in the cryptocurrency markets. Interest in digital assets other than cryptocurrencies, such as tokenized or fractionalized securities, is also strong as this offers potential to ease access and increase liquidity across a wide range of asset types.

As a result, financial institutions (FIs) are vying to secure first-mover advantage by building regulatory-compliant services to support transactions for digital assets. The outcome may decide the future of capital markets infrastructure. As [Toby Sims of Fidelity succinctly noted](#) when speaking about Bitcoin, “This is a highly risky, highly speculative market,” and as such, FIs need clear answers to questions about tech stack, security, regulatory, partnerships, and ecosystem strategy as they look to build out their offerings. Celent research found that making the critical decisions on custodial approach and partner strategy is the right starting point.

INTRODUCTION

Institutional asset managers, banks, and the brokers that serve them have been closely watching the growing customer demand for crypto and digital asset services and the increasing acceptance by regulatory and governmental authorities.

Familiar names are entering the space across investment management and asset servicers ([BlackRock](#), [Fidelity Investments](#), [State Street](#), [BNY Mellon](#)), investment banks ([Goldman Sachs](#), [DBS](#)), market infrastructures ([CME Group](#), [LMAX](#), [Nasdaq](#), [SIX](#)), hedge funds ([Brevan Howard](#), [Tudor Investment Corporation](#)), endowments ([Harvard](#), [Yale](#)), and corporates ([Microsoft](#), [MicroStrategy](#), [PayPal](#), [Square](#), [Tesla](#)).

Despite continued volatility in the cryptocurrency markets, FIs are building out digital asset services as investor interest continues to grow. In a survey mid-last year of ~800 institutional investors across US and Europe, [Fidelity Investments reported](#) almost 80% of investors found something appealing about this asset class. In May and June of this year, London-based Nickel Digital Asset Management found 82% of respondents of its survey of 100 wealth and institutional investors across the US, UK, France, Germany, and UAE expect to increase their crypto allocation in the next two years.

Regulators and governmental organizations are ramping up engagement. Most central banks are exploring central bank digital currencies (CBDC) according to a [survey conducted by the Bank for International Settlements \(BIS\)](#) in late 2020. The [European Commission has stated](#) the EU “strongly supports EU-wide rules for blockchain to avoid legal and regulatory fragmentation” and has proposed a new EU law on crypto assets. In [the US, the new comptroller of the currency has said](#) he hoped US officials would work together to set a “regulatory perimeter” for cryptocurrencies.

Financial institutions (FIs) are now vying to secure first-mover advantage. While in the past they may have attempted to build out solutions in-house, the extremely rapid pace of change in both underlying technology and global regulatory standards are driving a more collaborative approach. Celent research has found that FIs are seeking to work with trusted partners, who can help them develop the right ecosystem and investment strategy in both infrastructure and service models to best meet the unique needs of their clients.

The outcome may decide the future of capital markets infrastructure. Digital assets services across the capital markets value chain, e.g., issuance, trading, investing, borrowing/lending, asset servicing, and custody, can leverage existing market infrastructure, be built natively on an entirely new tech stack, or a hybrid of these two.

Adopting new technology can introduce complexity and risk to the business and the project planning process. However, in the race to keep pace with digital asset innovation, solutions leveraging existing market infrastructure, albeit reducing time to market, may lose to agile competitors utilizing full-stack solutions. Entities who have invested in full-stack solutions can create competitive differentiators to:

- quickly respond to new client needs.
- comprehensively support—and leverage—new blockchain protocols.
- deftly comply with evolving regulations across multiple jurisdictions.

Multiple factors are at play when deciding how to offer digital asset services, such as nascent solution-provider ecosystems, lack of in-house expertise, and evolving consensus on business models/client needs. Correctly answering the “buy versus build” question and selecting the right partner have never been more important.



Correctly answering the buy versus build question
(and with whom) has never been more important.”

—Monica Summerville, Head of Capital Markets, Celent

INSTITUTIONAL PARTICIPATION GROWING

The institutionalization of digital assets presents a significant opportunity across the capital markets value chain. Increasing demand from clients has been cited by a string of FIs as the basis for plans to launch or build their own cryptoasset solutions and offerings, and today a wide range of traditional financial services entities offer cryptoasset solutions (see Exhibit 1; also, Celent research paper, *State of Play—FIs and Crypto Services*, July 2021).

Exhibit 1: FIs Are Offering Crypto Solutions Across Asset Servicing, Global Markets, and Wealth



Source: Celent analysis. Legend: “Green” = FIs that have taken definitive action either launching services or forming dedicated businesses around crypto; “Amber”= FIs activity planning/preparing to launch crypto-related services; “Steady” = FIs “on the grid,” while no firm plans/launch date, in advanced planning/research mode around specific crypto-oriented initiatives. As of July 13, 2021.

Factors Driving Institutional Digital Asset Participation

Over the entire capital markets ecosystem, maturing digital asset market infrastructure and growing regulatory clarity are driving institutional participation (see Exhibit 2).

Exhibit 2: Factors Driving Institutional Participation in Digital Assets

Maturing Market Infrastructure	<ul style="list-style-type: none"> • Traditional financial exchanges are entering the market with support for cryptocurrencies and other digital assets, e.g., LMAX, Nasdaq, SIX, ICE. • Traditional asset and securities services are offering a range of institutional-grade services, including custody, fund administration, tax/accounting services, etc. • Custody is increasingly institutional grade, including SOC audits, multi-party computation (MPC), HSM devices, insurance, and compliant offerings for certain jurisdictions. • Adjacent services such as derivatives, lending, and prime broking are maturing. • Collaboration across industry between traditional and crypto-native entrants, e.g., State Street is an investor in crypto data accounting firm Lukka and Securrency, an institutional decentralized finance (DeFi) solution.
Regulatory Landscape Rapidly Changing	<ul style="list-style-type: none"> • In the US: The Office of the Comptroller of the Currency (OCC) approved national chartered banks to provide crypto-custody services (2020) and Acting OCC Michael J. Hsu indicated a review of recent OCC digital assets activities (2021); various states have licensing regimes, e.g., New York (2015), Wyoming (2019), Nebraska (2021), and Texas (2021); the Financial Crimes Enforcement Network (FinCEN) and the US Securities and Exchange Commission (SEC) issue proposed rules for digital assets (December 2020); an infrastructure bill includes provisions imposing new tax-reporting obligations on crypto market participants (August 2021). • UK's FCA requires some crypto-based businesses to register as a Virtual Asset Service Provider (VASP). • Switzerland passed finance and corporate law amendments recognizing blockchain and the crypto industry; crypto exchanges must be licensed by Swiss regulator FINMA. • Germany's Fund Location Act allows specialized funds to invest up to 20% of portfolio into cryptocurrencies. • Crypto exchanges in Japan, Korea, and Singapore operate under authority of respective financial regulators (FSA, FSS, MAS). • In late 2020, the European Commission published a digital finance package, which included legislative proposals for an EU regulatory framework on cryptoassets (regulation of markets in crypto-assets, or MiCA) and proposed a pilot regime for market infrastructures that wish to trade and settle transactions in financial instruments in digital asset form.

Source: Celent



The interest in digital assets from both private and public sectors is a display of confidence that government and industry leaders have interest in this emerging asset class.”

—Ryan Rugg, America's Blockchain Partner, Global Business Services, IBM

There is currently a lack of a standardized regulatory approach—or even standard definitions regarding digital assets—and global regulators are striving to balance adequate investor protection against stifling innovation when it comes to regulation and guidance around digital assets.

**Lack of Regulatory
Clarity for FIs
Holding Digital
Assets**

Regulatory approaches for FIs holding cryptocurrencies varies widely, with numerous regulators involved. In the US, for example, the OCC **has published an interpretive letter** clarifying that national banks and federal savings associations can provide cryptocurrency custody services for clients; however, the US SEC has **issued a statement** that broker-dealers operating under certain defined circumstances will not be subject to enforcement action.

FIs are also acutely aware of the new range of risks presented as they engage in new digital asset activities. However, while a lack of regulatory clarity is often raised by FIs as a key roadblock to digital asset adoption, Celent research found that FIs are increasingly confident they can find appropriate partners to help them mitigate these new exposures.

There is no time to wait, as demand for access to digital assets investments from both retail and institutional investors shows no sign of slacking. The regulatory picture is now clear enough to allow digital assets to enter mainstream payments; for example, PayPal now offers crypto buying and selling services as well as crypto payment services to **US and UK customers**. Both Visa and **Mastercard have plans to support cryptocurrencies**, with **Visa completing its first settlement transaction using USDC**, a stablecoin backed by the US dollar in March this year.

While the institutional regulatory landscape may be more challenging than the retail one, due to its global reach and complex product sets, numerous well-respected FIs are already launching services. Earlier this year, Goldman Sachs surveyed their client base on cryptoassets and out of 300 responses found that **40% currently have exposure to cryptocurrencies** and 61% expect their digital asset holding to increase over the next year. The investment bank has already gone live with a crypto trading desk focused on CME futures and non-deliverable forwards; however, these are currently “cash settled,” as opposed to settled directly on the blockchain, which allows Goldman to sidestep the issue of digital asset custody ... for now.

“

There has been some guidance from regulators on “permissibility” but not on safety and soundness. This lack of clarity on how to offer digital services and what controls to put in place can be an inhibitor for financial institutions launching digital asset services.”

—Julian Sevillano, Managing Director, Head of Digital Assets Group,
Promontory Financial Group

Growth Areas for Digital Assets in Capital Markets

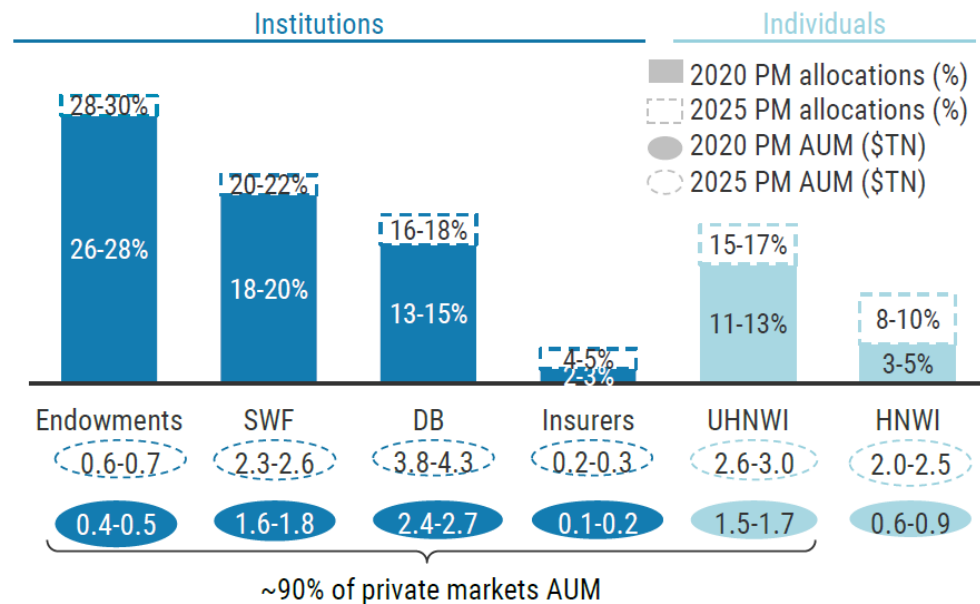
Investment Management

Digital assets are a key growth area for investment management, according to joint research by Oliver Wyman and Morgan Stanley, potentially generating a \$1 billion revenue opportunity from Exchange Traded Funds (ETFs) alone, representing a significant portion of the ~\$12 billion in total ETF revenues from other assets classes in 2020. But ETFs are just one specific investment offering in a broad digital asset landscape that includes native cryptocurrencies, derivative products, tokenized securities, and NFTs.

Private Markets

Digital assets and blockchain also have a proposition across private markets (see Exhibit 3), where both institutional and retail investors are looking to engage as they search for better returns. Blockchain offers to rearchitect end-to-end workflows, from client onboarding to transaction, making private market investments and operations more transparent, more standardized, and more efficient over time. Meanwhile, tokenization and fractionalization promise to democratize access to private markets securities.

Exhibit 3: Private Markets Allocations by Investor Type (2020–2025, %)



Note: Private markets include private equity, venture capital, private debt, real estate and infrastructure| Other pension plans such as DC plans currently allocate a much smaller share to private markets (1-2%) however the US DoL recently allowed DC plans such as 401(k) to invest indirectly into PE, which could lead to up to 4-5% allocations by 2025 (equivalent to ~\$0.3-0.4TN), depending on regulatory developments and DC providers’ responses| UHNW: financial investable wealth >\$50M | HNWI: financial investable wealth \$1-50M | Source: Oliver Wyman analysis

Source: Oliver Wyman analysis

Corporate Treasury

Use cases for digital assets have moved beyond investment management to encompass corporate treasury. In a period of global macroeconomic uncertainty, and loose monetary policy, corporate entities have been drawn to certain cryptocurrencies, such as Bitcoin, as a potential store of value. Corporates reported to have purchased Bitcoin include MicroStrategy, Tesla, and Square. While Bitcoin's price drop in May (from a high of over \$60,000 to below \$40,000) slowed corporate announcements, MicroStrategy, an early corporate buyer of Bitcoin, remains committed to its strategy. In late June, the company [announced](#) that it purchased an additional 13,005 Bitcoins (approximately) at an average price of ~\$37,617 per Bitcoin (inclusive of fees and expenses). As of late August, Bitcoin's price was back over \$40,000.



[Bitcoin] is a textbook example of a rational action in response to monetary inflation ... We know there's commitment to run deficits, and we know this commitment to stimulus. So now the issue is, what's rational behavior? I've got to find a store of value."

—Michael Saylor, CEO MicroStrategy, speaking with [Time Magazine](#),
March 2021

NEW SERVICE MODELS, SOLUTIONS LANDSCAPE

New service models around digital assets (see Exhibit 4) are rapidly evolving as technology and the ecosystem as a whole matures, resulting in a burgeoning solutions landscape for FIs.

Exhibit 4: Digital Assets Pose Challenges for Traditional and New Financial Service Models

SERVICE MODELS








Service Model	Examples	Celent View
Traditional investment banking and global markets offerings	<ul style="list-style-type: none"> • Issuance • Trade execution • Prime brokerage • Custody • Asset/securities services <p>Across various crypto tokens:</p> <ul style="list-style-type: none"> • Payment token, e.g., Bitcoin, Litecoin • Security token, e.g., ERC 20, ERC 1400 in support of fractionalized trading • Non-fungible tokens (NFTs) • Stablecoin, e.g., USDC, PAX <p>And products:</p> <ul style="list-style-type: none"> • Crypto derivatives, e.g., futures, options, funds 	<p>Challenges are high due to nascent tools and infrastructure with regard to:</p> <p>Security, risk, and compliance</p> <ul style="list-style-type: none"> • Proliferation of obfuscation services such as mixers • Fragmented global and sometimes national regulations (US state by state licensing, numerous regulators) <p>Surveillance expertise, methodologies, and solutions</p> <ul style="list-style-type: none"> • Provenance tracking, geo-blocking • CipherTrace, Elliptic, TRM Labs, Chainalysis, React <p>Custody technology and custody/asset servicing for new offerings</p> <ul style="list-style-type: none"> • Hot, cold, warm, multisig wallets • MPC and HSM • Governance, voting, airdrops, forks, smart contract-enabled securities • Fund admin, audit, and tax services
New capital markets offerings	<p>These include</p> <ul style="list-style-type: none"> • Staking aaS • Yield farming • Settlement coins • Tokenized assets • Fractionalized assets • Hybrid tokens • DeFi 	<p>Standards for institutional solution landscape</p> <ul style="list-style-type: none"> • Connectivity, APIs, standards, e.g., FIX • ISO standards, SOC 1/2 certifications • Market and reference data • Exchange reporting • Insurance for custody offerings

Source: Celent analysis

Risks and Security Concerns Remain High

While interest across institutional investors and corporate treasury departments around digital assets is growing, there continues to be concern around the risks associated with digital assets. Hacks, cybercrime, money laundering, and other criminal activity, coupled with a recent step-up in regulatory crackdowns, combine to pose huge risks for financial services entities both in terms of reputation and material impact (see Exhibit 5).

Exhibit 5: Hacks, Data Breaches, Thefts, Etc., Are Still Common in the World of Digital Assets (Non-Exhaustive List from 2020)

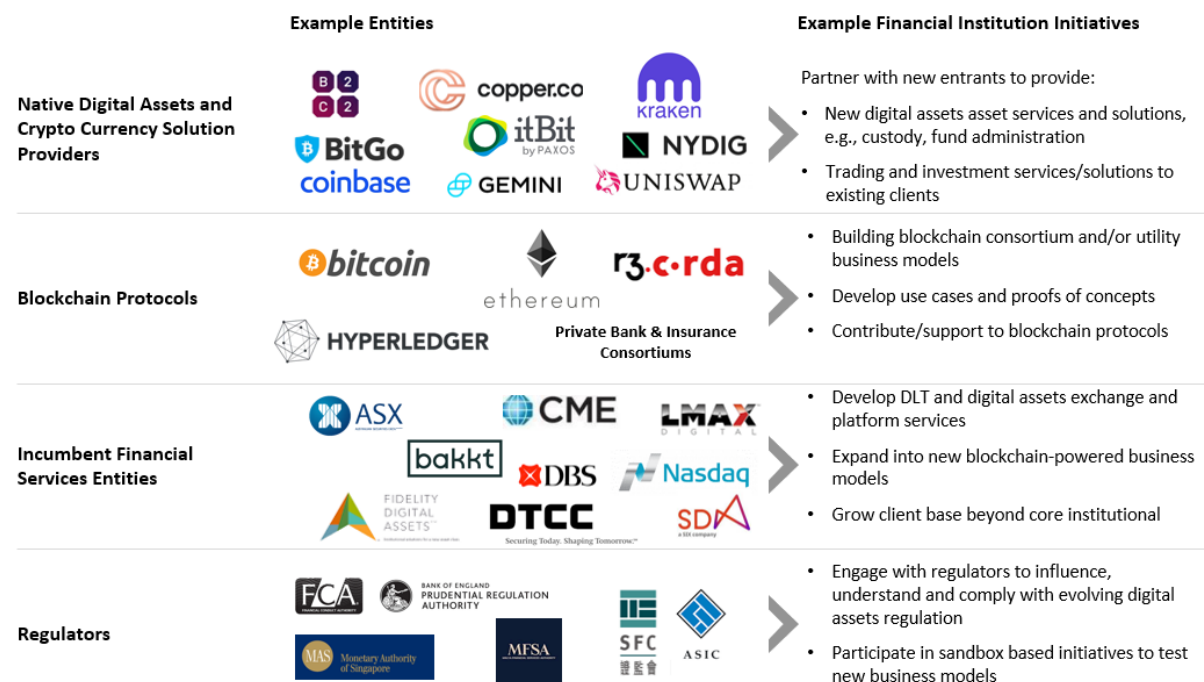
	Data Breach	<ul style="list-style-type: none"> Poloniex user credentials <u>were leaked</u> across social media BlockFi <u>disclosed</u> a data breach that potentially leaked customers' addresses, account activity
	Money Laundering	<ul style="list-style-type: none"> Est. <u>\$300 million laundered</u> through the Helix Bitcoin mixer/tumbler service \$90 million in BTC-e frozen by New Zealand
	Hacking, Leading to Disruption & Theft	<ul style="list-style-type: none"> Hackers <u>exploited vulnerability in the IOTA wallet app</u> to steal ~\$1.6 million worth of IOTA coins, causing IOTA Foundation to shut down entire network Akropolis had <u>\$2 million in crypto stolen</u> in a flash loan attack related to a bug in the code Majority of user funds were stolen in an alleged cyberattack on Altsbit, an Italian cryptocurrency exchange CryptoCore hacking group <u>has stolen at least \$200 million</u> from online exchanges ~\$150 million in <u>crypto stolen</u> from hot wallets at KuCoin (but majority later recovered) \$5.4 million <u>stolen from hot wallets</u> at Eterbase crypto exchange
	Covert Mining	<ul style="list-style-type: none"> A <u>botnet</u> was found exploiting the Microsoft Windows SMB protocol to covertly mine crypto Supercomputers across Europe were <u>hacked to mine for crypto</u> <u>FritzFrog</u> a P2P crypto-mining botnet compromised ~500 enterprise and government servers
	Scams	<ul style="list-style-type: none"> Hackers promoted a <u>Bill Gates-themed Ponzi crypto scam</u> utilizing hacked YouTube accounts <u>Twitter profiles</u> belong to high-profile figures (e.g., Joe Biden, Bill Gates, Elon Musk) hacked to promote a crypto scam <u>VaultAge Solutions' CEO</u> went into hiding and declared bankruptcy after an alleged scam worth \$16 million
	Theft	<ul style="list-style-type: none"> \$25 million stolen (<u>Lendf.me</u>) >\$250,000 stolen (<u>Bisq</u>) \$11 million stolen in "rug pull" allegedly performed by platform's developers (<u>Compound Finance</u>)
	Regulatory Action	<ul style="list-style-type: none"> <u>US SEC issued Kik Interactive a \$5 million penalty</u> over an allegedly illegal securities offering <u>\$1 billion in Bitcoins seized</u> by the US Department of Justice, allegedly linked to Silk Road <u>Cold wallet withdrawals suspended</u> by CEO Global crypto exchange while a cofounder who holds the private key is reportedly being held by Chinese law enforcement

Source: Celent analysis

Growing Landscape of Institutional-Grade Solutions

FIs can turn to partners for help across a solutions landscape that is rapidly expanding to include enterprise and institutional-grade offerings. FIs must now navigate this developing landscape of new service models and solutions (see Exhibit 6) while staying up to speed on the underlying technology and building out a business plan to justify the investment and size the opportunity. Celent’s research has found that this has proved challenging even for the largest institutions, across both banks and infrastructure providers.

Exhibit 6: FIs Must Navigate a Growing Landscape of Institutional-Grade Solution Providers



Source: Celent analysis

Financial Service Providers Looking to Partner

A large upfront investment for wholesale technology change with long-term ROI is a hard sell. Instead, some firms are looking for discrete use cases that will show returns in the shorter term while building out a technology stack in a way that does not limit future service models and use cases. In line with a general move to embrace a partnership approach across financial services in the past few years, FIs are turning to trusted partners to realize their digital asset ambitions in the areas of both technology and regulatory/risk support. FIs remain wary of being locked into a particular technology protocol and will look to understand issues around interoperability between protocols and incumbent infrastructure.



We see many RFPs, and when we talk to large financial institutions, it is about not getting locked in. Whether you are using Corda, Polkadot, Algorand, Tezos, Quorum, or Hyperledger, they ask how does interoperability work out? When you have CBDC [Central Bank Digital Currency] which will not stick with one chain, and there will be private and public aspects, you need to address these questions.”

– Peter DeMeo, Head of IBM Digital Asset Infrastructure, March 2021

While blockchain cognoscenti enjoy arguing the merits of one blockchain protocol over another or the philosophical differences between permissioned and private blockchain approaches, Celent believes that when it comes to choosing blockchain protocols, FIs are likely to want to work with multiple solutions, depending on the particular use case and capabilities of the protocol. The practical impact of this means that any blockchain-based solution must support integration; in other words, have interoperability baked in.

QUESTIONS ARE BEING ASKED

Regardless of the client use case or type, FIs and market infrastructure (MI) entities will need to ensure they have the right technology and the right partners to service clients as demands increase and new service models become apparent. FIs and MI entities already maintain a range of technology, networks, and connections to support mainstream financial services activity, and while generally they are tech-savvy, making the massive investment in building in-house expertise in this area is not seen as a core activity.

Instead, leading FIs and MI organizations are looking to focus on areas where they can add value, e.g., financial market structure and plumbing, capital markets regulations, and client needs. For the rest, as with other emerging technologies such as cloud or artificial intelligence, these entities are looking to work with partners as they build out services for their clients.

Considerations When Developing Digital Asset Services

The barriers to institutional adoption remain nontrivial, spanning regulatory uncertainty, persistently high volatility, and sustainability concerns. The crypto-native attitude of “build and comply as we go,” as opposed to waiting for the regulatory picture to come firmly into focus, can position disrupters to outflank incumbent providers in the battle to capture market share.

Leading FIs are no longer sitting on the sidelines simply educating themselves; they are acting. Celent’s research has found common themes among the questions that leading FIs ask as they build out digital asset services (see Exhibit 7). These questions revolve around understanding a client’s needs in context of the firm’s infrastructure, understanding the “buy versus build” risks and benefits, and realizing the opportunity cost of playing it safe.

Exhibit 7: Common Themes Driving Questions as FIs Build Out Digital Asset Services

Common Considerations	Celent View
 <p data-bbox="362 417 673 478">Establish the service can be delivered safely and soundly</p>	<p data-bbox="760 401 1336 491">Achieving this is challenging due to the lack of global regulatory standards/definitions and limited track record of many crypto-native solution providers.</p>
 <p data-bbox="362 583 708 644">Assess clients' needs in context of own infrastructure</p>	<p data-bbox="760 522 1360 707">This is critical in identifying where third party collaboration and partnership is required. FIs are unlikely to have the skills in-house to keep up with this fast-moving, specialized sector and will need partners that can provide the technology in a way that drives customers' success.</p>
 <p data-bbox="362 810 729 867">Understand the risks and benefits of building versus buying</p>	<p data-bbox="760 730 1365 852">FIs are weighing potential for new revenues and clients versus the risks inherent in building new infrastructure or joining new ecosystems in a nascent and fast changing market.</p> <p data-bbox="760 856 1357 947">The "buy vs. build" question is not just about what infrastructure needs building, but also establishing the right frameworks for risk, security, and compliance.</p>
 <p data-bbox="362 1003 711 1060">Realize the opportunity costs of playing it safe</p>	<p data-bbox="760 972 1341 1094">With the high rate of change in crypto technology, market structure, and regulations, FIs must decide to be a first mover or a fast follower—any other option risks falling irreversibly behind.</p>

Source: Celent analysis

To Hold or Not to Hold?

There will need to be detailed questions answered to build out digital asset services and make decisions regarding technology stack. Digital assets are not "held" anywhere; they exist only on the digital distributed ledger of the blockchain platform they are issued under. All digital assets will be tied to an address and can only be transferred to a different address using an application referred to as a "wallet." Whether the wallet is hardware or software-based; hot, cold, or warm; air-gapped or optical-gapped; it will have a secure private key that is required to effect transactions. Because digital assets are bearer assets and because the private key is the only thing needed to transfer these, wallets are extremely high-value targets for hackers and thieves.

When considering offering a new digital asset service, the first question is often whether this is a service that the FI is confident it can delivery safely and soundly; however, once the legal and regulatory picture is better understood, the next key question is inevitably whether the FI is comfortable "holding" native digital assets.

If the answer is no, then their services will be constrained to working with/offering only products that utilize traditional financial market infrastructure. These products

include cryptocurrency futures and options contracts that trade on a regulated financial exchange (such as [CME Bitcoin contracts](#)), regulated investment trusts such as those offered by [Grayscale Investments](#) (>\$40 billion AUM as of March 31, 2021), or specialized hedge and/or venture funds that offer exposure to digital assets, such as [Pantera Capital](#). Gaining exposure to these products will not require the FI or its clients to arrange for custody of private keys or maintain wallets. FIs taking what they believe to be a “lower risk” approach are potentially reducing rewards by limiting product types they can offer clients and leaving them dependent on their outside product providers for product innovation.

Asset servicers, such as custodian banks, have two options for supporting clients who wish to deal in crypto assets: they can build out a solution, or they can work on a sub-custody basis with a crypto-enabled institutional-grade custodian for each relevant jurisdiction. Choosing a sub-custodian is not just about technology capabilities, but also:

- ecosystem support, both in terms of protocols and token types.
- capital and crypto market experience.
- reputation, stability, and financial strength.
- the ability to support a full range of fund administration for crypto assets, e.g., reporting, regulatory disclosure, being a transfer agency.

If the FI or custodian bank is comfortable, and permitted, to “hold” the native digital asset directly, then they can build out a solution, either alone or with a partner. This involves understanding a raft of regulatory, compliance, and technology issues around the custody of digital assets, starting with the regulatory environment in each jurisdiction it expects to offer services; how best to safeguard the private key; and procedures to ensure proper governance of transition workflow (see Exhibit 8).

Creating its own digital assets technology stack means the FI can support a wide range of possible business and revenue models going forward. This approach also has its own risk/reward considerations, such as future-proofing, cybersecurity concerns, and reputational risks, and Celent research has found that most traditional FIs are choosing to work with partners with specialized crypto technology, regulatory, and security experience.

The ability to quickly address risks and regulatory issues while having the flexibility to meet clients’ changing needs will be a key issue when evaluating digital asset infrastructure and making partner decisions due to the fast-moving nature of developments in this space. For example, while early crypto marketplaces have tended to be centralized finance (CeFi) offerings, the decentralized finance (DeFi) market is rapidly growing. DeFi offers non-custodial services—participants must safeguard their keys.

What is DeFi?

Short for decentralized finance, DeFi mimics products offered by traditional, centralized financial (CeFi) systems, but without any one entity or service controlling the entire system. These DeFi offerings operate entirely on a blockchain, usually employing smart contracts, which codify the rules of the products.

The most common use cases for DeFi applications currently are borrowing/lending and decentralized trading, but more complex options are possible, such as becoming a liquidity provider to a decentralized exchange (DEX).

Big names in the DeFi industry include Aave, Compound, and Maker (lending), and Curve Finance and Uniswap (DEXes).

The Total Value Locked (TVL) in DeFi as of July 2021 is \$92.7B, per Coindesk.com. This is way up YoY (~\$4B in July 2020).

Key Questions to Ask when Seeking to Custody Digital Assets

Exhibit 8: Questions and Considerations in Order to Custody Digital Assets



Question	Consideration
Does our solution offer adequate support for the extensive off-chain record-keeping architecture necessary to meet jurisdictional regulatory requirements?	Record-keeping and reporting considerations include customer identification and verification documentation, customer records, complaints resolution, and so on.
Can I meet the unique information security and cybersecurity challenges around key management to prevent the loss or misuse of private keys?	Bank operational resiliency plans will need to incorporate new digital assets-related considerations to ensure information security and operational resilience.
Can I tailor internal controls to the risks presented by digital asset custody including specialized auditing as needed?	Digital asset activities establish the need for digital controls' segregation of duties and accounting controls within the institution.
How will I keep abreast of best practices around meeting fiduciary risk?	Managing cryptocurrency as fiduciaries brings heightened risk; for example, in the US, a bank must demonstrate its approach for determining a market clearing price for a digital asset to evidence best execution and validation.
Can I meet requirements that may not be native to blockchain-based transaction activity in and around the Bank Secrecy Act (BSA), Anti-Money Laundering (AML), and economic sanctions?	BSA/AML challenges include verifying the origin and destination of digital assets held in custody, compliance with funds-transfer record-keeping requirements, and monitoring for unusual activity.
How will I manage liquidity risk for what is often a highly volatile asset with low trading volume?	Banks with digital asset exposure will have to account for this in their liquidity requirements. Bank custodians will have to maintain enough liquidity to ensure time settlement of trades between different exchange and digital assets.

Source: Celent analysis

PATH FORWARD

While blockchain technology promises to remove friction across capital markets to make them more accessible to all, financial solutions built on distributed ledger technology must address age-old challenges around risk. CeFi solutions may seem less trendy, but were designed to address just this, whether that is market, liquidity, counterparty, operational, systemic, or reputational risk.

“Legacy” market infrastructures and financial offerings have been tuned by regulators, governments, and market participants over many years and iterations to provide a safe environment for investors and a level playing field for market participants. Institutional-grade offerings around digital assets will have to do the same.

Digital assets, by virtue of the underlying DLT, offer the possibility to create entirely new service and business models. This could inherently mean greater risk and/or greater rewards; a challenge the wholesale financial markets have always been happy to meet.

There will be many twists and turns as FIs decide whether to be early movers or fast followers. But in these rapidly changing times, those are the only choices for financial entities wishing to survive—standing still is not an option. Demand from institutional and corporate clients for digital asset offerings has materialized, and Celent’s research has found that traditional financial institutions are now rapidly moving beyond education to action.

There will be many questions when considering the right approach and investment required. The question about whether to hold digital assets or not may be a red herring. While today there may be service offerings and solution partners that can deliver a point solution for digital assets, these could constrain or delay growth tomorrow. The digital assets space, both CeFi and DeFi, is evolving at too fast a rate to hard code or get locked into a single protocol. In any case, the biggest question is around safely and securely delivering a solution.

The solutions landscape for enterprise-grade and institutional-grade digital asset custodians has advanced with viable offerings from both leading traditional financial firms and crypto-native fintech companies. FIs looking to offer a digital asset service can turn to technology providers for help but building out the tech stack is only part of the puzzle. Partners that offer comprehensive solutions around technology,

regulation, governance, and security will be best placed to offer skills, tools, and platforms in creating issuance through post-trade solutions.

This is no easy decision. Celent suggests that the wise approach is to partner with a solutions provider that will provide reliable guidance around regulation and security, and a technology platform that supports the firm's ability to rapidly adapt its business and service model in launching new products and offerings. It is difficult, if not impossible, to predict where the digital asset space will go next, so a digital assets solution should offer assured regulatory compliance yet be flexible in maximizing future service model and revenue growth potential.

Ultimately, the most important questions are whether the solution is future-proof and whether your chosen partner—by offering a complete range of technology, regulatory, security, and integration services—can ensure you continue to solve the risk/reward equation in your favor.

LEVERAGING CELENT'S EXPERTISE

If you found this report valuable, you might consider engaging with Celent for custom analysis and research. Our collective experience and the knowledge we gained while working on this report can help you streamline the creation, refinement, or execution of your strategies.

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Typical projects we support include:

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