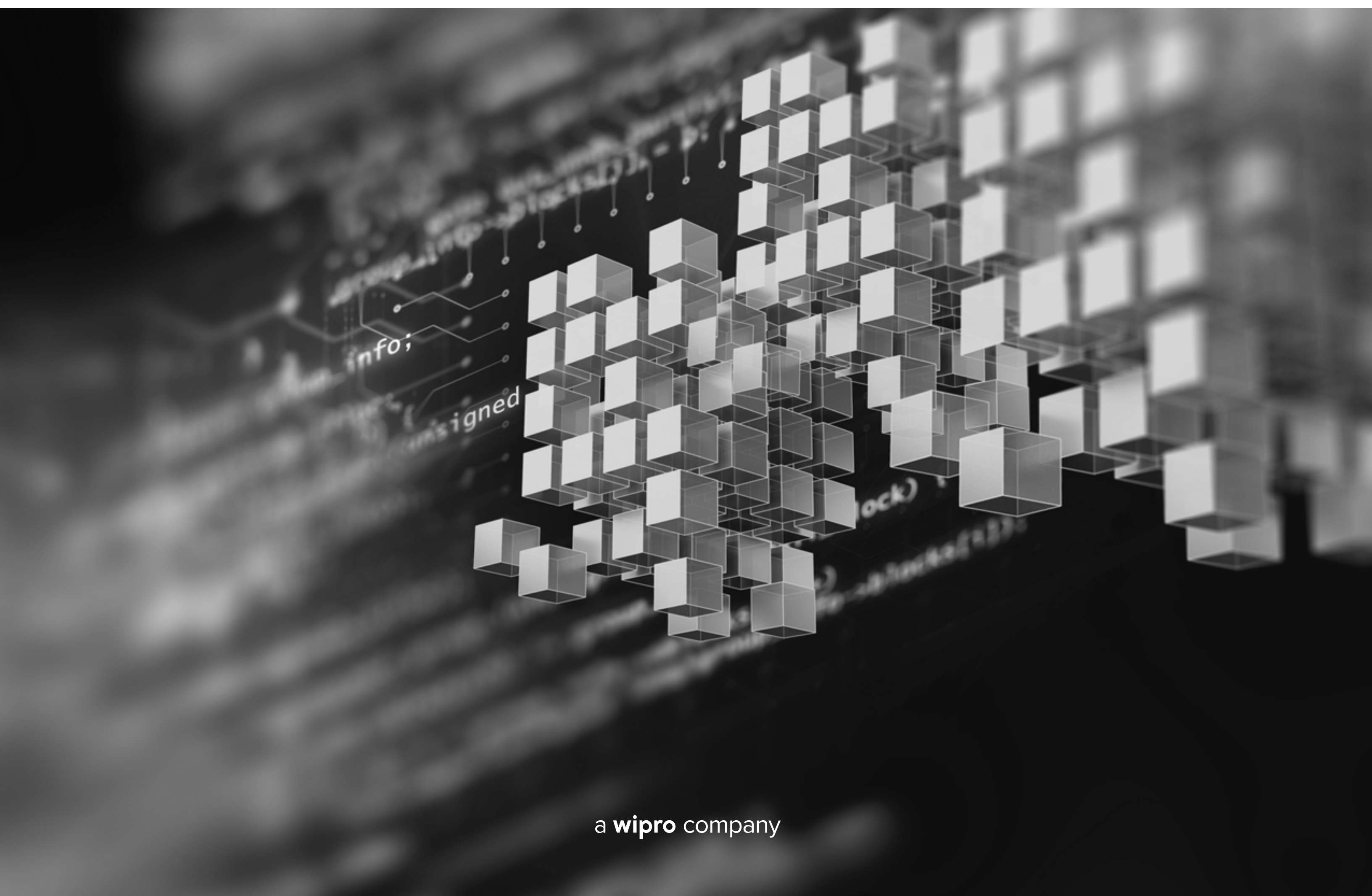
CAPCO

DIGITAL ASSETS CUSTODY CONSIDERATIONS FOR CAPITAL MARKETS FIRMS



INTRODUCTION

This paper explores the opportunities in the digital asset custody market. The current market capitalization of cryptocurrency and digital assets is $2.5 trillion with trends suggesting a market capitalization of $24 trillion by 2027.[1] The rapid growth of digital assets and blockchain capabilities is creating new business models and opportunities. This has re-imagined how value is stored, moved, and managed across the value chain, and could materially change the financial services landscape.

By operating at the intersection of finance, technology, cyber, and regulation, Capco understands the critical elements required to execute in the digital assets space. Capco can help define and deliver a future business strategy and implement the right technologies and partnerships to drive lasting transformation.

SPEED READ

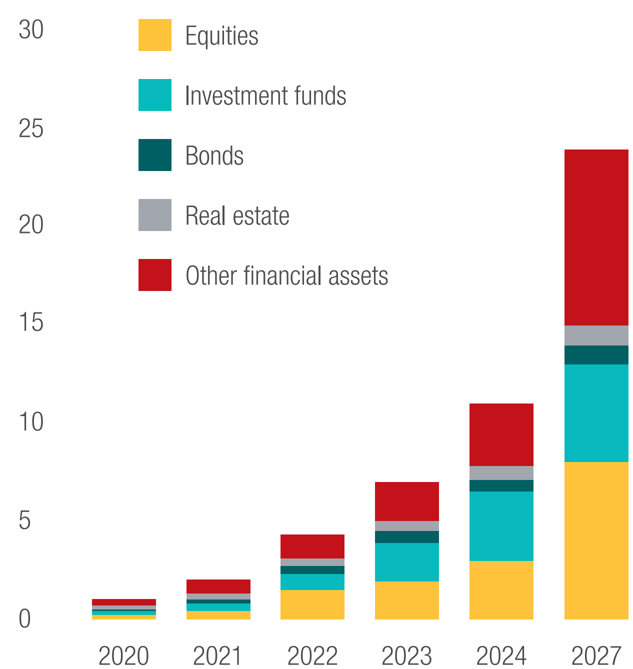
- Digital assets are rising in popularity and there is an opportunity for financial institutions to become a one-stop shop to store all asset types. The prime opportunity is for financial institutions to serve as a custodian for a retail customer who lacks the technical understanding to manage their own keys.
- The projected growth of the global crypto asset management industry coupled with the rapidly evolving adoption of digital assets presents a unique opportunity for custodians to offer their services to clients worldwide.
- Capco understands the complex nature of regulated institutions and employs a unique approach to servicing clients exploring digital assets. We combine core domain expertise in financial services with digital, technology, and cyber skill sets supported by regulatory and compliance experts.

1. THE ASCENT OF DIGITAL ASSETS AND THE INCORPORATIONS OF CUSTODIANS

Digital assets are broadly defined as coins or tokens of distributed ledgers and/or blockchains that typically use cryptography for security. Only five years ago, there were less than 15 million digital wallets. Fast forward to 2021, and there are roughly 60 million digital wallets.[2] A recent survey shows 60% of crypto owners would use their financial institution to invest in cryptocurrencies, and another 32% said they might do so.[3] This is a critical opportunity for retail banks to develop digital custody services for consumers.

Unlike traditional currency, cryptocurrency is mined on the blockchain, stored in digital wallets, and traceable to open ledger. Furthermore, as societal acceptance of digital assets grows, traditional financial entities have begun offering a growing suite of services catering to this new asset class.

Projected tokenization market volume (in trillions USD)



*https://medium.com/finoa-banking/market-outlook-on-tokenized-assets-a-usd24trn-opportunity-9bac0c4dfefb

Since the onset of COVID-19, cryptocurrency has seen a massive boost in popularity from individuals and institutions.[4] With more companies seeing the value proposition of digital assets, traditional financial institutions are well-positioned to capture this growing demand. They can do this by offering features and services that existing crypto exchanges cannot provide by leveraging their size, existing relationships, and established security protocols to protect, manage, and hold digital assets.

Clients looking beyond self-custody have the choice to store digital assets with either cold storage or hot wallet solutions. Traditional financial institutions can support the needs of crypto customers by serving as a digital asset custodian by providing multiple offerings for their clients. Partnerships with third-party vendors have allowed traditional financial entities to seamlessly offer a wide scope of digital asset custodial services at increased scale and functionality.

Major digital assets players, such as Coinbase, Anchorage, and BitGo, are offering varying levels of insurance coverage to clients using their platforms.[5,6,7] Larger custodians can be more flexible with their coverage by partnering with insurance companies to assess and protect digital assets.

Institutions can also leverage their existing client relationships, branding, and eventually become a one-stop shop to store all – digital and traditional – asset types. In a situation where a retail customer may not possess the technical know-how to manage their own keys, an opportunity emerges for financial institutions to protect retail consumer assets as well as offer institutions security and safety in managing larger digital assets.

GOAL

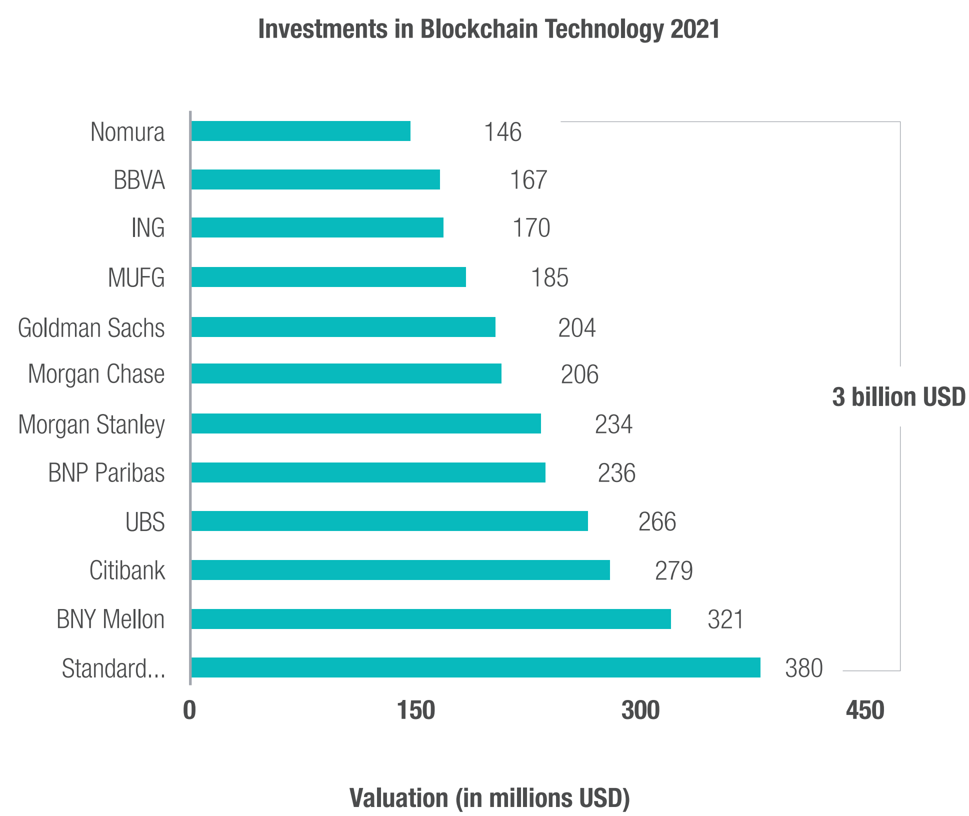
Digital assets are rising in popularity and there is an opportunity for financial institutions to become a one-stop shop to store all asset types. The prime opportunity is for financial institutions to serve as a custodian for a retail customer who lacks the technical understanding to manage their own keys.

2. INSTITUTIONAL ACCEPTANCE

As digital assets gain general acceptance from institutions and consumers, financial entities are beginning to create new services to optimize usage of, and secure, digital assets. Mastercard is preparing to announce that any bank, fintech, or merchant on Mastercard's network will be able to provide Bitcoin wallets, crypto rewards debit and credit cards, and even allow loyalty program members to convert their points or miles into Bitcoin.[8]

Due to the complexity of cryptocurrency exchanges' operations, the susceptibility of hacking, and data privacy issues, financial institutions are uniquely poised to offer custodial services for digital assets. Institutions and consumers alike will be searching for secure custodians to entrust digital assets. Furthermore, the current vendor landscape can provide add-ons to existing custody services that institutions currently offer.

Financial institutions, such as BNY Mellon and Fidelity, are beginning to offer crypto custody services to asset managers.[9] This is a crucial signal to the market that widespread adoption is underway. No longer will digital assets be associated with the fringes of economic society.



*https://markets.businessinsider.com/news/currencies/13-top-banks-investing-cryptocurrency-blockchain-technology-funding-blockdata-bitcoin-2021-8

Current Institutional Investments by Capital Markets Firms

Institutions, such as Standard Chartered BNY Mellon, Citibank, UBS, and other large financial institutions have each invested over $250 million USD in blockchain technology with 90% of those investments being focused on Distributed Ledger Technology (DLT), the technological infrastructure that secures digital assets.[10]

Additionally, financial institutions are investing in decentralized marketplaces and technology that supports accelerated settlement or immediate settlement. One of the key enabling technologies are Smart Contracts, a program which is traditionally stored on a blockchain that automatically executes once conditions are met. This technology enables the acceleration of transactions by removing the need for an intermediary.

With a total of $3 billion invested from the top 13 financial institutions, and billions more invested through the venture ecosystem, institutional acceptance has been on an upward trajectory and will soon become an expected offering across the board.

Areas of Investment	Market Penetration
Distributed Ledger Technology (DLT)	>90%
Accelerated Collateral mobility	45%
Decentralized Market Places/ SMART Contracts	40%
On Chain Payments	30%
Full-Stack Blockchain Solutions	30%

GOAL

Traditional financial institutions are already making investments in blockchain technology. Customers and institutions will be searching for secure institutions to hold their digital assets.

3. TRADITIONAL CUSTODY VS DIGITAL ASSET CUSTODY

There exist significant risks around the self-custody of assets. Housing assets with a qualified custodian is the standard for traditional assets, and is the clear, stated preference of the SEC.[11] While using qualified custodians is still the preferred option for digital assets, given their scope and the maturing nature of the industry, institutional self-custody is still heavily practiced throughout the digital assets ecosystem.

Stakeholders up and down the value chain should be demanding that, when possible, assets be held with a qualified custodian, and that the custodian's business practices are up to the institutional standards of today's investors. When qualified custodians are not available for a certain asset or marketplace, investors and institutions should confirm that proper protocols and safeguards are enacted to always ensure proper control of the asset.

The Association for Financial Markets in Europe (AFME) provides a highly detailed questionnaire[12] broken into seven categories which all asset owners should consult before engaging with a custodian for either traditional or digital assets. Many newer, or less established, firms find comfort in hiring outside professionals to assist in the custodial due diligence process.

Above and beyond the spectre of traditional custodial services, firms providing crypto custody must be further evaluated on their crypto-specific custodial and technological capabilities.

With traditional assets, custodians will take physical custody of an asset. Whether that is through a certificate, or a book entry, the custodian holds the asset either segregated in the client name, or in an omnibus account. With digital assets, a custodians will hold the private key to the digital asset. This can be done through hot or cold wallets, meaning either connected to or separate from the internet, respectively. Loss of this private key would constitute a loss of the associated asset(s), thus highlighting the import of key and wallet security.

A hot wallet allows asset owners and their custodians to place trades across multiple exchanges in near real-time. With a cold wallet, to transact, the private keys must first be recalled before any sale or purchase can be executed. Both hot and cold storage of private key come with their own distinct advantages and security concerns.

Security features surrounding these wallet solutions and their trading integrations are a major value add diversifier for players in the crypto custody space. Whereas custody of traditional financial assets has been commoditized, with the major players using similar security methods, on the digital frontiers, there is room for custodians to separate from the pack by providing both incremental and gradational improvement over competitors.

Technological differences between traditional trading and trading of digital assets highlight the sophistication required to provide custody of digital assets for institutional players. Whereas a custodian of traditional assets may provide integration with a handful of exchanges, a custodian of digital assets is potentially exposed to hundreds of exchanges, each providing their own services through proprietary interchanges.

Additionally, the number of products custodied can vary enormously between traditional and digital custodians. Compared to the limited capabilities required to house the few traditional asset classes, the capabilities required to host wallets for hundreds or more coins, each on their own blockchains, are enormously more complicated.

Finally, firms examining custodians should notice the differences in fee structure between custodians of digital assets and traditional assets. While all fees are negotiable, and size breeds leverage in these conversations, custodians of traditional assets are basing fees as a percentage of custodied assets. Compare that to custodians of digital assets which span a much broader swath of pricing solutions. A transactional fee may be a prohibitor for institutional clients looking to implement high-volume trading strategies.

GOAL

Digital custody with financial institutions is still nascent and still requires additional security and growth before overcoming self-custody.

4. SCALE INTERNATIONALLY

With the growth of the digital assets industry comes opportunities, risks, and challenges in their own form. Custodians must comply with the evolving regulatory landscape globally. They not only need to understand the domestic laws, but also need to follow international regulations to serve cross-border clients. Anti-Money Laundering/Know-Your Customer (AML/KYC) frameworks should be incredibly stringent. It is imperative for custodians to be cognizant about such challenges and offer optimal solutions benefiting their clients.

Lack of industry standards is also a challenge while administering digital assets. Additionally, since different digital assets operate on a variety of public/private networks, interoperability becomes a challenge in and of itself. Custodians who take the right decisions and embrace the evolving nature of digital business would drive innovation while safeguarding assets.

With the rising acceptance of digital assets and increasing demand for custodial needs, market participants see a tremendous opportunity in providing related services. Along with that comes the responsibility to comply with domestic and international regulations. Digital asset custodians also need to keep pace with key market players launching and adopting new products.

Regulatory bodies across many countries, including the U.K., Singapore, Japan, and Switzerland, have come up with guidelines for digital asset management which custodians must follow. At the same time, other countries, such as China, South Korea, and Nigeria, are wary about financial institutions providing crypto-related services to their clients.[13]

United Kingdom (FCA)	Singapore (MAS)	Switzerland
PS19/22: Guidance on Cryptoassets	Payment Services Act 2019	Federal Law to Develop Technology of Distributed Electronic Registers (2020)

Japan (FSA)	United Arab Emirates (FSRA)	Bermuda
Payment Services Act (Act 59/2009)	FSRA Crypto Framework	Digital Asset Business Act (2018) Digital Asset Issuance Act (2020)

While compliance with multiple geographic regulatory regimes may be cumbersome, geographic strategies must be carefully structured within a robust cross-border regulatory framework to serve global clients.

A robust market infrastructure coupled with widely adopted global standards can help solve the underlying challenges in digital assets lifecycle – whether primary issuance of digital assets, secondary trading markets, or digital asset custody for safekeeping and settlement.

CAPCO'S POINT OF VIEW ON POTENTIAL TO SCALE INTERNATIONALLY

Organizations need to ensure they consider key variables as they scale their business internationally

Objective	Option to Scale Internationally	Regulatory Landscape Compliance	Strategic Partnerships
Viewpoint	• The crypto asset management industry is expected to register a CAGR of approximately 20% during the forecast period 2021 – 2026. • We anticipate that the evolution of the asset management industry, coupled with increasing awareness about crypto funds, will further boost market growth. • Custodians need to be ready to scale to support international clients and take advantage of global business opportunities. This presents a host of additional issues as well as opportunities.	• European Union (EU) requires firms to set up an entity within the EU*. EU regulatory concerns include 5th AML directive, 2nd Electronic Money Directive (EMD2), Payment Services Directive (PSD2) and local regulatory directives such as MiCA. • Switzerland is home to 900 blockchain and cryptocurrency businesses, making their view positive to DLT, however they do have strict AML, KYC & CFT rqmts. and are monitored by FINMA** and SFTA**. • US companies operating in the EU need to be aware of and comply with GDPR data protection regulations	• It is important to partner with innovators who understand unique business needs to bring customized solutions focused on optimizing the current process, adapting to new iterations and focusing on the end user. • Working with our strategic labs and approved vendors in areas of service management, process mining, process automation, creating user personas, and targeted design initiatives. • Capco has on-the-ground operations in EU countries with local staff who are experts in local regulation.
Things to Consider	• Organizations need to determine targeting operating model to operate internationally (ringfences, firewalled operations, etc.). • Custodians need to review insurance models and policies that cover international deposits. • Cyber security standards will be of utmost concern.	• Careful consideration while selecting country of operation. It is prudent to align to the most collective and advanced regulatory framework. • APAC has fragmented regulatory approach. • Tax Efficiency: Germany's cryptocurrency transactions are exempted from VAT and have no capital gains tax. • GDPR requires intense review of KYC data collection and retention policies to prevent fines due to violation.	• Standardization of processes extremely important considering geographic separation. • Consider offshore resources as part of partnerships in order to have local-time support and economy of scale. • Increase automation as part of business process review to further standardize processes.

*Ringfencing rules likely apply (Recovery and Resolution)

**Financial Market Supervisory Authority (FINMA) * & Swiss Finance + Technology Association (SFTA)

Digital asset custodians should be designing systems in which custodied assets will be managed using state-of-the-art technology while complying with internal policies and standards in addition to global regulatory requirements. In their constant push toward operational excellence, these custodians should be continually upgrading processes and systems to stay ahead of evolving policies and standards.

Most technical challenges revolve around security, scalability, and interoperability of the ecosystem. Additionally, as an increasing number of digital assets are introduced to the market, there is an increased risk of cyber threats. To prevent these cyber threats, and ensure system resiliency, custodians need to constantly stress-test their controls and safeguard public and private keys of digital assets. Enforcing security measures like two-factor authentication (2FA), multi-factor authentication (MFA), and use of complex passwords are industry-standard approaches. Using vaults to store, encrypt, and secure sensitive data, such as Personally Identifiable Information (PII), along with critical information like usernames, passwords, and public/private keys could prevent potential security breaches.

Today, many institutions and investors are skeptical about investing in crypto given the lack of robust infrastructure. Considering some of the factors outlined would boost investor confidence and eventually, increased adoption attracting more investors. Moreover, a safe and efficient ecosystem which takes into consideration global tax implications, enforcing stringent AML/KYC checks, security settlement, and governance of digital assets will increase adoption of digital assets and encourage investments from both institutional and retail investors alike. For example, financial institutions including frontline brokers do not trade in crypto today due to an unregulated market and lack of a robust ecosystem. Once regulations are established, markets are opened to them, infrastructure is in place, investors would be confident to put their money in, driving up the adoption.

But the buck doesn’t stop there. Offering additional services like digital assets insurance would bolster consumer confidence and encourage investments, as well. It would also showcase market belief in that particular custodian’s infrastructure, empowering the custodian to better serve customers and clients.

GOAL

Key variables organizations should consider as they scale their business internationally.

The projected growth of the global Crypto Asset Management industry coupled with the rapidly evolving adoption of digital assets presents a unique opportunity for custodians to offer their services to clients worldwide. This section outlines various aspects which custodians and other financial institutions should consider tapping in to such clients and delivering an excellent client experience.

5. CAPCO CAPABILITIES

The digital assets market is fast moving. By having a presence at multiple global financial institutions across the globe, as well as relationships with leading FinTechs, Capco is uniquely positioned to assist clients exploring digital assets. We leverage our cross-functional expertise to provide unique insight across a range of service offerings.

Successfully executing a digital assets strategy for regulated financial services organizations requires a unique perspective. Capco understands the complex nature of regulated institutions and employs a unique approach to servicing clients exploring digital assets. We combine core domain expertise in finance services with digital, technology and cyber skillsets supported by regulatory and compliance experts. We operate as an interconnected structure to ensure holistic market perspective. Below, Capco breaks out our capabilities and how we can help your institution:

1. Operational Readiness Assessment

Help assess your organization's readiness to take advantage of digital asset market opportunities. We leverage in house frameworks to assess market and business case viability and can conduct a regulatory impact assessment against OCC, CFTC, FinCEN, SEC, and NYDFS regulations.

2. Business Model Development & Growth Strategy

Help identify new business lines and opportunities around digital assets. We focus on financial product innovation and new segment penetration and can provide Target Operating Model assessments and commercial model/ROI development services.

3. Platform Solutions Evaluation and Implementation

Distributed business models introduce new challenges and complexities to traditional IT architecture. Capco's technologists are well versed in banking architecture and distributed ledger protocols and can advise on functional architecture, integration, and implementation of digital asset platforms/solutions.

4. Tokenization and Smart Contract Development

Our in-house accelerators can rapidly help to accelerate development for token issuance and smart contracts. Our team leverages the latest technical protocols and ensures adherence to latest technical taxonomies and standards (Corda Token SDK, ERC, AxCore, Hyperledger).

5. Partnerships and Vendor Selection

The growth of digital assets has resulted in the creation of numerous FinTechs, technology companies, consortia and infrastructure providers. We can help you identify and select the right strategic partners, and technologies to complement your business model and unlock market opportunity.

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ABOUT CAPCO

Capco, a Wipro company, is a global technology and management consultancy specializing in driving digital transformation in the financial services industry. With a growing client portfolio comprising of over 100 global organizations, Capco operates at the intersection of business and technology by combining innovative thinking with unrivalled industry knowledge to deliver end-to-end data-driven solutions and fast-track digital initiatives for banking and payments, capital markets, wealth and asset management, insurance, and the energy sector. Capco's cutting-edge ingenuity is brought to life through its Innovation Labs and award-winning Be Yourself At Work culture and diverse talent.

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