



UPDATE ON THE INSTITUTIONAL DIGITAL ASSET ECOSYSTEM

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Summary

The following is an update of DAR's initial institutional [report](#) which highlights selective public initiatives of traditional financial institutions in digital assets and, in some cases, blockchain or distributed ledger technologies (DLT). We relied on public sources, media reports and press releases, to compile this report and while exhaustive in its analysis, by no means encompasses every initiative at every financial institution.

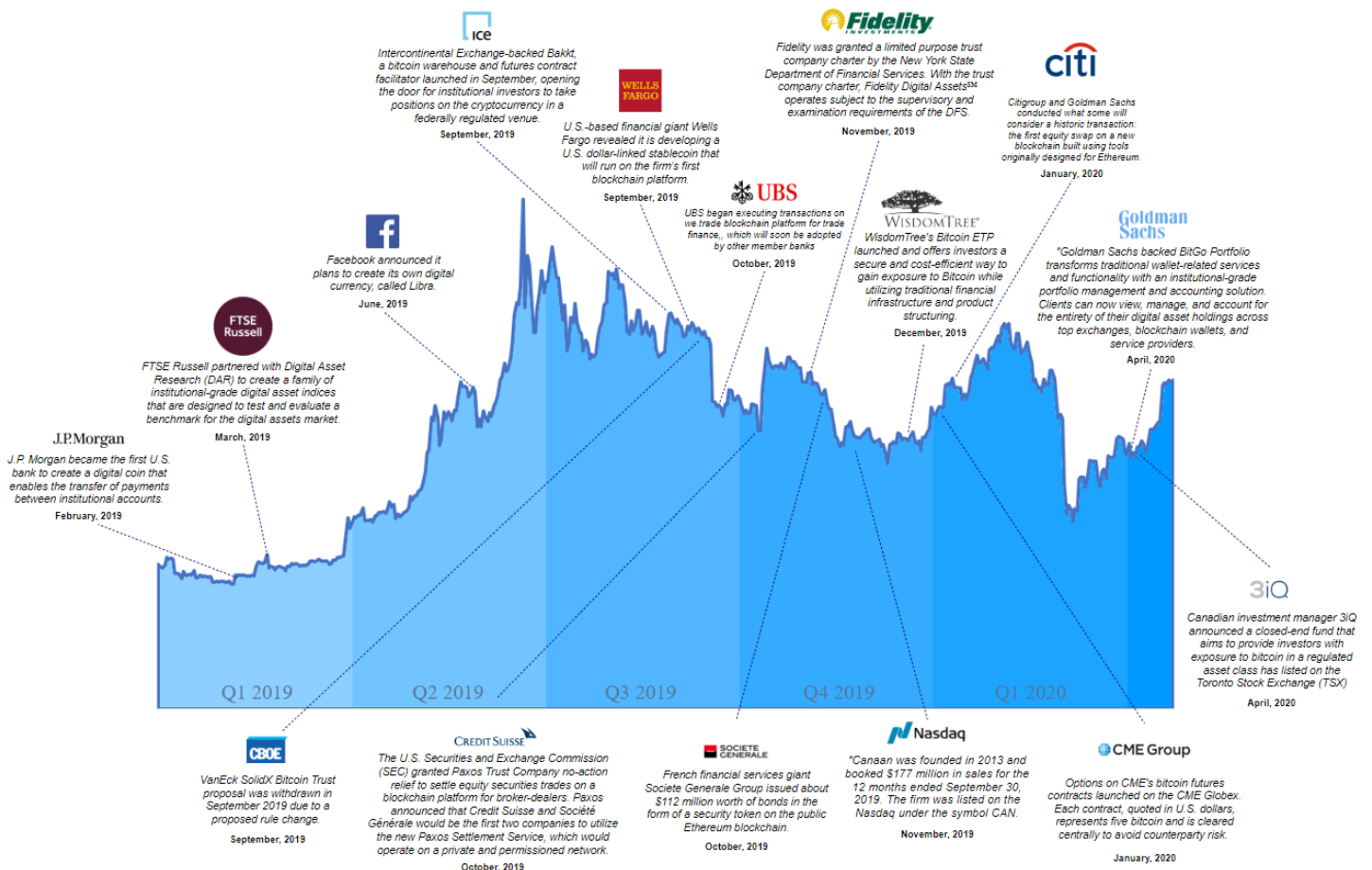
The current state of institutional efforts in digital asset markets has been an area of high interest from our client base since 2017. Digital assets, which began over 11 years ago with the creation of Bitcoin, have historically garnered most of their interest from retail investors. However, the behavior of activists and investors has changed which has helped the growth trend of a healthy ecosystem. Institutionalization is the at-scale participating in the digital asset market of banks, broker-dealers, exchanges, payment providers, financial technology (FinTech) firms, and other entities in the global financial services ecosystem.

Although there was a market decline in 2018, many companies and experts continue to observe and analyze the digital asset market. Assets like Bitcoin have continued to mature as traditional institutions continue to look at investment products in the space.

DIGITAL ASSETS & DERIVATIVE PLATFORMS

The digital asset ecosystem has garnered significant attention from the media, financial analysts, governments, regulatory institutions, and investors over the last year. 2019 saw the launch of many regulated derivative exchanges such as Bakkt as well as the unveiling of company-sponsored stablecoins in JPMorgan's "JPM Coin" and Facebook's Libra. Financial institutions continue to focus on reducing costs and leveraging blockchain technology to settle cross-border trading activity. Institutionalization is necessary to build trust in the digital asset space and custodianship has matured as firms like Fidelity have gained regulatory approval for holding digital assets.

FIGURE 1 – BITCOIN PRICE & INDUSTRY TRENDS OVER TIME



Source: Digital Asset Research

OVERVIEW OF COVERED INSTITUTIONS

Figure 2, below, provides an overview of the financial institutions covered in this report, as well as the initiatives they are currently pursuing.

FIGURE 2 - Institutional Initiatives Overview

		Private Blockchain Initiative	Digital Assets Initiative	Invested in Blockchain Startups(s)	Invested in Digital Assets and/or Related Funds	Digital Asset Issuance	Digital Asset Derivatives Issuance	Digital Asset and/or Derivative Trading or Settlement	Digital Asset Custody	Digital Asset Indexing & API Endpoints	Read More:
Exchanges	ICE	✓	✓	✓			✓	✓	✓	✓	pg. 4
	Nasdaq	✓	✓	✓		✓	✓	✓		✓	pg. 4
	CME	✓	✓	✓			✓	✓		✓	pg. 4
	CBOE		✓				✓	✓		✓	pg. 4
Financial Services	Goldman Sachs	✓	✓	✓				✓			pg.5
	JPMorgan	✓	✓			✓		✓			pg.5
	Citi	✓	✓	✓		✓		✓			pg.5
	Credit Suisse	✓	✓	✓		✓		✓			pg.5
	Bank of America	✓	✓					✓			pg.6
	Nomura	✓		✓					✓		pg.6
	UBS	✓	✓								pg.6
	Societe Generale	✓	✓			✓					pg.6
	Fidelity		✓	✓	✓			✓	✓	✓	pg. 6
	TD Ameritrade		✓	✓							pg. 7
	Wells Fargo		✓	✓	✓						pg. 7
	Charles Schwab		✓								pg. 7
	ING Bank	✓	✓	✓							pg. 7
Custodians	BNY Mellon	✓	✓					✓			pg. 8
	State Street	✓	✓					✓	✓		pg. 8
	DTCC	✓	✓	✓		✓		✓	✓		pg. 8
Listed Products	FTSE Russell	✓						✓	✓		pg. 9
	VanEck		✓				✓				pg. 9
	Wilshire Phoenix		✓				✓				pg. 9
	21Shares		✓				✓				pg. 9
	3iQ		✓				✓				pg. 9
	XBT Provider		✓				✓				pg. 10
	Wisdom Tree		✓				✓				pg. 10
Stack		✓				✓				pg. 10	
Endowment & Pension Funds	University of Michigan				✓						pg. 11
	Fairfax County Virginia		✓	✓	✓						pg. 11
	Global Custodian		✓					✓			pg. 11
Other Notable Developments	Facebook	✓		✓	✓				✓		pg. 12
	Square Inc.		✓	✓	✓					✓	pg. 12
	Ernst & Young	✓	✓	✓	✓	✓				✓	pg. 12
	PwC	✓	✓	✓	✓					✓	pg. 12
	Deloitte	✓		✓						✓	pg. 13
	KPMG	✓		✓						✓	pg. 13
	Wyoming		✓	✓							pg. 13

Source: Digital Asset Research

INTERCONTINENTAL EXCHANGE (ICE)

The Intercontinental Exchange (ICE), the parent company of the NYSE, has continued its push to offer regulated digital asset products and services. Bakkt, ICE's Bitcoin futures exchange [launched](#) in September of 2019. The platform offers Bakkt Daily and Monthly Bitcoin Futures, which are the first physically delivered cryptocurrency futures contracts ever traded on a regulated exchange in the US. The product settles into the underlying futures contract two days before expiry on ICE Futures. Bakkt [announced](#) in March that it had raised \$300 million in a Series B round of financing.

NASDAQ

While Nasdaq has not made a direct standalone effort in digital assets like its competitor ICE, it has still been active in supporting the growth of the digital asset ecosystem. In the past six months Nasdaq has [listed Bitcoin miner maker Canaan](#), [added a new index](#) focused on blockchain projects in the decentralized finance (DeFi) space, and [facilitated 8i Enterprises acquisition](#) of blockchain services firm [Diginex](#). The firm also [announced in April](#) that it has entered an agreement with blockchain software firm R3 to develop technology that lets financial institutions create their own tokens and digital asset marketplaces.

CME GROUP

CME Group has been instrumental in the institutionalization of digital assets. In January 2020, the global markets company [launched options trading on its regulated Bitcoin futures contract](#). The options are European style and use the regulated CME CF Bitcoin Reference Rate (BRR) for pricing.

CBOE

Though Cboe announced in early 2019 that it would no longer be [listing new XBT futures contracts](#), the company has remained active in the digital asset industry, as reflected in its attempts to get a [bitcoin ETF approved since the end of 2017](#). In September 2019, the Cboe BZX Exchange withdrew its VanEck/SolidX bitcoin ETF proposal citing [a new rule change to publicly list shares](#). The global markets platform remains committed to bringing a physical liquid and insured bitcoin ETF product to market.

GOLDMAN SACHS

The investment bank has remained in the ecosystem via investments into various digital asset startups, most notably [BitGo in October 2018](#). The digital asset custodian has recently acquired [Harbor in February 2020](#) and [Lumina in April 2020](#), as well as [Hedge in late Q3 of 2019](#). All three acquisitions will expand services to institutional investors for launching and managing their digital asset holdings.

JPMORGAN

JPMorgan has been at the forefront of blockchain adoption and announced a successful test of its internal digital asset, [JPM Coin, in February 2019](#). The financial services firm noted that this project is a prototype and all regulatory and compliance obligations must be satisfied before an official launch. As of February 2020, [reports](#) show JPMorgan has been exploring merging its internal blockchain team Quorum with ConsenSys, an Ethereum focused blockchain software technology company.

CITIBANK

Citibank was one of the first banks to have a public opinion on Bitcoin and even though it has [canceled](#) plans to develop its own digital currency, the firm remains an avid investor in the space. In [March 2020](#), Citi increased its equity stake in Komgo – an Ethereum-based startup building an enterprise blockchain for trade financing. The firm also [underwrote](#) the Initial Public Offering (IPO) for Canaan, a global leader in mining equipment in Q4 of last year. In January 2020, Citibank participated in a joint effort with Goldman Sachs [to conduct the first equity swap](#) on a blockchain built using tools designed for Ethereum. The two firms integrated their existing back-office infrastructure with a distributed application (or dApp) built on top of [Axoni's](#) Axcure blockchain.

CREDIT SUISSE

Credit Suisse has been experimenting with blockchain-based transactions since 2016. Its recent venture has seen the [firm partner with Société Générale and Paxos Trust Company](#) to use the blockchain company's settlement service, which operates on a permissioned network. The platform [received a no action letter from the SEC](#) and went live in February 2020 as Credit Suisse [completed](#) the first live blockchain-based settlement of U.S. equities. The firm also [participated](#) in blockchain startup FundsDLT Series A funding round.

BANK OF AMERICA

Bank of American continues to be active in [acquiring blockchain patents](#), with the bank having received or applied for over eighty patents in 2019. One of Bank of America's [patents](#) includes an international settlement system based on cryptocurrency payment startup Ripple's distributed ledger technology. In April of 2020, Julia Harris, Head of Global Banking & Digital Strategy confirmed on a [podcast](#) that the two firms have been working together on payment infrastructure.

NOMURA

In May 2018 Nomura teamed up with hardware wallet provider Ledger and investment house Global Advisors, to create a [digital asset custody solution](#). The project, called Komainu, scheduled to launch at the end of Q2 2019 has reportedly been [delayed till sometime in 2020](#). As of November 2019, the project [received](#) regulatory approval for crypto custody and depository services in the country of Jersey. The firm aims to create a cryptocurrency ecosystem fit for institutional investors with the security and infrastructure they are familiar with when trading traditional assets.

UBS

In October 2019, UBS began [full-fledged blockchain-based transactions on the platform we.trade](#). Other platform participants include Société Générale, HSBC, Santander, UniCredit, Nordea, KBC Bank, Rabobank, and Deutsche Bank.

SOCIETE GENERALE

In early 2019, the firm made a major move to digital assets when it became the first financial firm to [issue a \\$112M digital bond on the Ethereum network](#). While the move displayed the firm's commitment to the digital asset realm, a big caveat was that SG was both the issuer and the sole investor in the digital bond. As of Q4 of 2019, SG has continued experimenting with tokenization technology and hopes to offer a blockchain-based bond to external investors.

FIDELITY

In November 2019, Fidelity received [a trust license](#) by the New York State Department of Financial Services that allows the firm to offer trading and custody of bitcoin. To expand liquidity on its digital asset platform, Fidelity Investments [partnered](#) with the digital asset marketplace platform and [recent recipient of New York's BitLicense](#), ErisX in April 2020. The firm can now provide access to the ErisX spot market, increasing the breadth of liquidity available to Fidelity's cryptocurrency clients. The firm has also been an active investor in the space by funding data provider [Coin Metrics](#), Hong-Kong-based operator of crypto exchange [OSL](#), and digital asset platform [Fireblocks](#) in recent months.

TD AMERITRADE

TD Ameritrade has seen tremendous client interest in digital assets despite volatile price movements within the asset class. At 2019's Consensus conference, Executive Vice President Steven Quirk said: "[As soon as you open the door, you're going to get a lot of people.](#)" To prepare for this expected demand, [TD Ameritrade invested in ErisX in 2018](#), a regulated digital asset exchange. The two firms are working together to develop digital asset trading products, likely targeted at retail investors.

WELLS FARGO

The United States fourth-largest bank [announced](#) it will develop its own cryptocurrency for international transfers. The new remittance platform, which is set to launch sometime in 2020 would be pegged to the US dollar form an international payment network based on distributed ledger technology (DLT). Wells Fargo has also been an active investor in the space where it recently [invested](#) \$5 million into U.K. startup Elliptic, which helps banks manage the risks associated with exposure to cryptocurrency. The London-based firm's blockchain analysis tool finds and blocks illicit digital currency transactions.

CHARLES SCHWAB

In a [report](#) published in December 2019, the brokerage giant revealed that millennials have a higher equity holding in Grayscale's Bitcoin Trust (GBTC) investment product than Netflix stock. A month earlier, Charles Schwab [reportedly](#) agreed to buy TD Ameritrade Holding Corporation, an avid investor in the digital asset space, in an all-stock deal valued at \$26 billion.

ING BANK

In December 2019, the Netherlands-based ING Bank announced that it is [developing technology](#) intended to provide secure digital asset storage for its customers. Earlier in the year, the multinational banking provider [announced](#) a five-year licensing deal with R3 for the use of its Corda Enterprise platform.

BNY MELLON

BNY Mellon has been [experimenting with blockchain technology](#) since 2015. In September 2019 the firm was [tapped](#) by Bitwise Asset Management to serve as the administrator and transfer agent for its proposed bitcoin ETF. Though the proposal was rejected, BNY Mellon's appetite in the ecosystem has grown as the firm [joined](#) the Marco Polo trade finance consortium running on R3's Corda.

STATE STREET

In December 2019, the global custodian bank [announced](#) that it was going to layoff upwards of 100 developers within its blockchain team. The move to scrap its native distributed ledger comes after management opted to focus on tokenized assets such as stocks and bonds.

DTCC

The Depository Trust & Clearing Corporation (DTCC) [pushed](#) back the release of its derivative blockchain-based post-trade system amid uncertainty over Brexit. The firm has also advocated for an agreed upon set of standards for the digital asset industry. In a [whitepaper](#) published in February 2020, the New York based financial services firm states that an industry consortium should address risks that have yet to be standardized for the ecosystem.

LISTED PRODUCTS

FTSE RUSSELL

In March 2019, FSTE Russell [launched the FTSE Digital Asset Indicative Index Series](#) which consolidates assets into three different baskets: Platform Tokens, Currency Tokens, and Utility Tokens. (Note Digital Asset Research is a partner in the FTSE Digital Asset Indicative Index Series.)

VANECK

In September, VanEck and SolidX [began to offer a limited version of their Bitcoin ETF-like product](#) to institutional investors under the SEC's Rule 144A, which allows the sale of private placed securities to qualified institutional buyers. The firm remains committed to support Bitcoin and Bitcoin-focused financial innovation.

WILSHIRE PHOENIX

The Wilshire Phoenix [bitcoin ETF proposal was rejected](#) in February 2020, with the SEC citing the potential for market manipulation and concerns over investor protection. The rejected proposal included both BTC and U.S. treasury bonds in its trust to make it less volatile.

21SHARES

In February 2020, Germany's second largest stock exchange, the Boerse Stuggart, [introduced the 21Shares Short bitcoin \(SBTC\) ETP](#). The 21 Shares ETP allows investors to short Bitcoin during declining price action thus providing them a positive return whenever Bitcoin's price falls. The SBTC, which trades in euro, is hedged 1:1 with the corresponding underlying asset.

3iQ

In November 2019, Canadian fund manager 3iQ [received initial approval](#) from the Ontario Securities Commission to launch its bitcoin fund on the Toronto Stock Exchange. On April 9th, 2020, ['The Bitcoin Fund'](#) became the first public bitcoin fund listed on a major global stock exchange. The rules-based index aims to give investors a standard to check the performance of Bitcoin on the following exchanges: Binance, Bitflyer, Bitstamp, Coinbase, Gemini, itBit and Kraken.

XBT PROVIDER

In April 2019, XBT Provider, a Stockholm-based subsidiary of UK-based digital asset manager [CoinShares](#) launched the first [Litecoin \(LTC\)](#) and [Ripple \(XRP\)](#) Exchange Traded Products. The firm has previously listed [Bitcoin \(BTC\)](#) and [Ethereum \(ETH\)](#) tracking products on both the Nasdaq and Stockholm exchanges in 2015 and 2017.

WisdomTree

In December 2019, New York-based WisdomTree [launched](#) a physically backed bitcoin ETP on SIX Swiss Exchange. As with gold ETPs, investors in the bitcoin product will have entitlement to the digital asset underlying it.

Stack

Stack, a Singapore-based digital asset platform, [announced](#) the launch of Asia's first institutional-grade bitcoin index fund in January 2020. The [institution-focused platform](#) is aiming to capture \$750 million in assets under management (AUM) within 2020 and to surpass \$2 billion in 2021 with its single-asset fund.

Endowment & Pension Funds

UNIVERSITY OF MICHIGAN

The University of Michigan's \$12 billion endowment plans to [follow-up](#) on its previous \$3 million investment into Andreessen Horowitz's CNK Fund I. The "a16z crypto fund" invest in cryptonetwork technology companies across the spectrum of seed, venture, and growth stage opportunities.

FAIRFAX COUNTRY VIRGINIA

Fairfax County's Virginia's Police Officer's Retirement System and Employees' Retirement System [have Invested a combined \\$50 million](#) in Morgan Creek Digital's second venture capital fund. This is an increase from the \$21 million the county invested in February of 2019. These two separate pension funds manage \$5.1 billion in assets for the state's police force.

GLOBAL CUSTODIAN SURVEY

In April of 2019, Global Custodian and The Trade Research, in partnership with blockchain security firm BitGo [reported](#) that 94% of endowments have been allocating to digital asset-related investments throughout 2018.

OTHER NOTABLE DEVELOPMENTS

FACEBOOK

In June of 2019, the social media and social networking company [revealed](#) the details of its cryptocurrency, Libra, which intends to let users buy and transact with nearly zero fees. The proposal includes a subsidiary, Calibra, as well as an independent consortium made up of firms such as Uber, Spotify, Andreessen Horowitz, Union Square Venture, Coinbase, Shopify and Iliad SA. The announcement was met with concern from nations around the globe and forced the firm to revamp its proposal. In April 2020, Facebook [released](#) an updated whitepaper of the virtual currency which will offer stable coins backed by single currencies, as well as a redesigned token based on the currency-pegged coins.

SQUARE INC.

Square Crypto, a subsidiary of payments company Square, [expanded](#) its involvement in the digital asset community by supporting the development of the Bitcoin protocol through a grant program. The money will allow developers to work full-time on open source projects that benefit the Bitcoin network. The firm's peer-to-peer (P2P) payments app [generated](#) \$178 million revenue in Q4 of 2019.

Ernst & Young

In January 2019, a court ruling [appointed](#) Ernst & Young (EY) to act as independent third party to oversee the QuadrigaCX bankruptcy case. The consulting firm has been active in the digital asset ecosystem and in May of 2019 [released Nightfall](#) — an open source software that integrates a set of smart contracts and microservices to enable standard ERC-20 and ERC-271 tokens to transact on the Ethereum blockchain with complete privacy. In late December 2019, EY [launched a public beta version](#) of its token and smart contract review service which allows users to paste code for analysis. The firm remains at the forefront of public blockchain development, [most notably](#) in the Ethereum community.

PwC

In April 2020, PwC released the [2nd Global Crypto M&A and Fundraising Report](#) which noted the majority of deals in 2019 took place outside of the United States. The firm's Switzerland office [purchased](#) contract audit firm ChainSecurity in January 2020 while its Luxembourg office [announced](#) in September 2019 that it would accept digital asset payments. PwC is active in the enterprise blockchain ecosystem, partnering with Walmart China and supply chain project VeChain in [June 2019](#).

Deloitte

In January 2020, Deloitte [conducted](#) the cybersecurity risk management SOC 2 Type 2 examination for digital asset exchange Gemini. A year prior, the consulting firm [completed a SOC 2 Type 1 examination](#) for the same exchange. In August 2019, Deloitte [launched](#) a plug-and-play product Blockchain in a Box (BIAB) aimed to assist enterprises showcase their blockchain solutions to clients.

KPMG

In July 2019, the consulting firm [partnered](#) with Microsoft, TOMIA and R3 to develop a blockchain for telecom settlements.

WYOMING

In April, the U.S. state of Wyoming has [amended its insurance code](#) to allow domestic insurance companies to invest in digital assets such as bitcoin. The state authorities have amended the state's insurance code to make it possible for domestic insurance firms to invest in digital assets. Wyoming has been at the [forefront](#) of [digital asset regulation](#) and its push is a reflection of the nation's patchwork of state laws created in the absence of clear federal rules.

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