Crypto Assets

Enabling fund administrators
to drive business growth
through a new asset class

Lukka

> Nobody wants to miss out on the journey even though it is going to be one hell of a ride.
>
> **Crypto Research Report**
> October 2018[1]

Ever since the global credit crisis of 2008, the financial industry has been poised for significant change. The recent emergence of blockchain technology and cryptocurrencies has reshaped the future of finance and launched a wave of unprecedented opportunity in the markets. As a fund or fund administrator, what do you need to know to not only ride this wave—but lead it? This white paper explores the leadership role that funds and fund administrators can play in the continuing evolution of digital assets—and why an estimated $235 billion opportunity exists. This white paper includes recommendations and insights that will enable administrators to evolve alongside the growth of crypto assets, and leverage business opportunities while creating continuous value for fund clients.

Decentralized Disruption Births New Opportunities

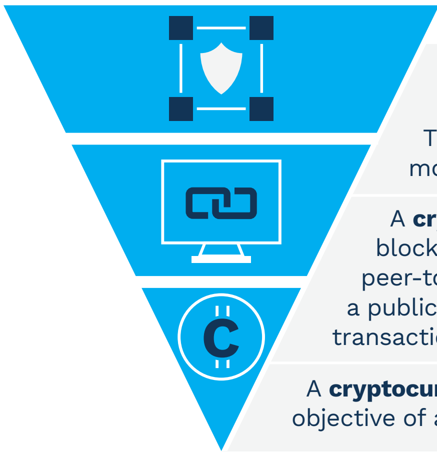
In 2008, everything changed. The period known as the Great Recession had a global impact on financial markets, housing, governments, society and individuals. From occupations to revolutions, from bailouts to closings, Blackstone Group's CEO Stephen Schwarzman estimates[2] that almost half of the world's total wealth was destroyed in a year. As a part of the aftermath, institutions acknowledged the need to elevate regulatory processes in response to the financial and economic crisis. It was only a matter of time before a challenger entered the arena that would ignite the hope of transforming the entire ecosystem: Bitcoin.

Bitcoin, a peer-to-peer electronic monetary system where trust is ensured by encryption and incentives, removes the need for third-party intermediaries. Most believe that Satoshi Nakamoto's infamous introduction of Bitcoin in early 2009 was aligned with the fallout[3] as it was released just months after the financial collapse. Regardless, the recession forced people to see the pitfalls of fiat currency for the first time. The growing attention and attraction to Bitcoin and accompanying crypto assets since 2009 has forced financial institutions to pay attention to decentralized assets.

Today, organizations are exploring and applying various business use cases for cryptocurrencies and blockchain technology, the permissionless and immutable ledger protocol behind Bitcoin.

With crypto currencies rising popularity, businesses have discovered a new asset class altogether, that promises economic opportunities. Bitcoin and subsequent altcoins have morphed from a niche interest to a front page topic that has produced an extensive taxonomy of decentralized digital assets[4].

The terms cryptocurrencies, crypto assets and digital assets are often used interchangeably but have different meanings. Cryptocurrencies *are* crypto assets *and* digital assets. Likewise, crypto assets *are* digital assets. But not *all* digital assets are crypto assets or cryptocurrencies. While there are approaches to classify and distinguish particular assets from one another based on economic, legal and technological attributes, we will refer to these three types of assets in this white paper as follows:



A **digital asset** is any type of binary information that includes usage rights. These can range from documents and movies to mp3s to this file.

A **crypto asset** is any digital asset built on a blockchain. It uses cryptographically secure peer-to-peer networking (to be transmitted), and a public ledger (to regulate, verify and secure transactions).

A **cryptocurrency** is a crypto asset with the main objective of acting like fiat money in the digital world.

Some see cryptocurrencies as the next Gold Rush, driven by rapidly increasing public interest, while others see nothing but market volatility. The market's skepticism to this new and evolving technology is similar to what was seen during the birth and evolution of the internet.

> We are in the early stages of a fundamental transformation in financial markets due to the digitization of assets.
>
> **Michael Novogratz**
> Founder and Chief Executive Officer of Galaxy Digital[5]

Initially, those in the finance industry responded to the rise of cryptocurrency as a fad. But with more than 700 cryptocurrency funds bearing more than $10.2 billion in assets under management, this clearly isn't considered a novelty anymore: digital assets are engaging new investors while new business models are developing. This white paper will discuss several new opportunities, including:

The Launch of the Digital Asset Class – Financial Leaders Engage

On Dollars and Sense – The Opportunity within Existing Funds

How to Leverage the Value of Digital Assets

Bitcoin Accelerates the Rise of a New Asset Class

While the idea of electronic cryptography-based currency stretches back to the 1980s, Bitcoin was only released in 2009. In 2011, the first real competitors showed up in the form of global altcoins. At the start of 2019, there were thousands of different crypto assets and more than 200 global exchanges to trade on. Bitcoin may have sparked the rising interest in cryptocurrencies originally, but its underlying protocol is what caught everyone's attention. Distributed ledger technology, or blockchain, enables the creation and transfer of additional digital assets. Subsequent blockchains have been created from the structural basis of the Bitcoin blockchain, such as Ethereum, Ripple and Hyperledger. This means the opportunity isn't just fueled by cryptocurrencies—but by any intangible digital asset that can be stored on a blockchain.

Naturally, for some, this new digital asset class may be considered volatile—but this is where a long-term lens is required. For many, novelty is the precursor to fast-growing markets and profitable opportunities. This movement has even attracted the involvement of leading venture capital firms such as Andreessen Horowitz[6] and Union Square Ventures[7]; seizing the opportunity and investing in the crypto market.

Investments in blockchain and crypto from venture capitalists continue to rise, with the first three quarters of 2018 raising **almost $3.9 billion in venture funding deals alone**[8], a 280 percent rise from 2017. The number of corporations investing in crypto, digital assets and blockchain projects is also trending up, with everyone from Bloomberg to Goldman Sachs getting in on the action.

> If these organizations have no competence to trade crypto assets at all, they'll be locked out of a broad segment.
>
> **Sam Chadwick**
> Director, Financial & Risk Innovation of Thomson Reuters[9]

As digitization brings about this new cycle of innovation in the financial industry, how can stakeholders such as funds, administrators, custodians, accountants and auditors find the best position to take part in the opportunities that come with it?

The two digital asset exchanges that handle the largest volume of trading, process approximately

$1.7B daily[10]

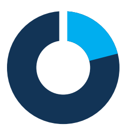
[Mar. 2018]

During 2018, more than 20 cryptocurrencies had a market capitalization of over

$1B[11]

[Sep. 2018]

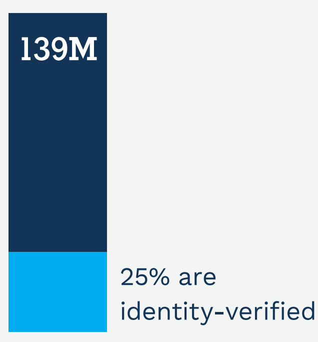
No. of global crypto exchanges	No. of crypto funds	Crypto assets under management
200+	**700+**	**$10.2B**
[Feb. 2019][12]	[Feb. 2019][13]	[Feb. 2019][14]



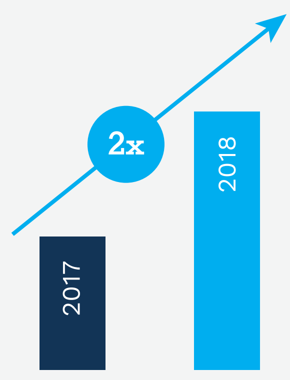
Crypto funds constituted **20%** of the total hedge fund launches in 2018[15]

Millions of New Users Entering the Crypto Asset Ecosystem

Total user accounts at service providers now exceed 139M with at least 35M identity-verified users. The latter grew by nearly 4x in 2017, and doubled again during the first three quarters of 2018.[16]



139M total user accounts



Growth of identity-verified users

The largest U.S. cryptocurrency operator, Coinbase, estimates **$20B** worth of crypto is sidelined until custody solutions make sense.[17]

The top 10 [digital asset exchanges] are generating as much as **$3M** in fees per day, or heading for more than **$1B** per year.[18]

From mid-September to mid-October of 2018, crypto-to-crypto exchanges peaked at about **$7B** per day. This is 2x higher than the trading volume of fiat pairs.[19]

The Launch of the Digital Asset Class – Financial Leaders Engage

MAY 5, 2018

Goldman Sachs announced they would begin Bitcoin trading operations. However, their stake isn't wholly in the *currency* aspect of crypto. Unlike those that treat Bitcoin as direct currency, Goldman Sachs is treating it as a digital asset, assigning the virtual representation the same weight, status and treatment as gold.

Their venerable presence shows the legitimacy and profit potential of asset digitization. What drove their decision to break from the other age-old finance houses? One of the executives that led the initiative, Rana Yared, Managing Director - Principal Strategic Investments, says it was about Goldman Sachs giving clients what they want. After being approached by newly-created Bitcoin millionaires, by endowments and foundations receiving virtual donations, and by hedge funds seeking guidance, they knew there really wasn't a choice. Yared answered,

> It resonates with us when a client says, 'I want to hold Bitcoin or Bitcoin futures because I think it is an alternate store of value[20].'

MAY 9, 2018

Bloomberg announced they had partnered with Galaxy Digital Holdings to launch the Bloomberg Galaxy Crypto Index (BGCI). Their aim is to track the performance of the "largest, most liquid portion of the cryptocurrency market" by tracking the top 10 cryptocurrencies, weighted by market capitalization. Novogratz predicted,

> You are going to see more institutional participation...and what they're looking for is this [index] architecture[21].

JULY 31, 2018

Northern Trust announced they have opened its fund administration services to a select group of hedge funds betting on bitcoin and ethereum. According to Pete Cherecwich, President of Northern Trust's corporate and institutional services,

> You can take movie rights, you can take all sorts of entities, and you can create a token for those. We have to be able to figure out how to hold those tokens, value those tokens, do those things[28].

AUGUST 3, 2018

The Intercontinental Exchange announced Bakkt, a trading platform that would act for digital assets the way their other trading platform—the New York Stock Exchange—acts for traditional assets. Jeffrey Sprecher, the Founder, Chairman, and CEO of Intercontinental Exchange (ICE) stated,

> In bringing regulated, connected infrastructure together with institutional and consumer applications for digital assets, we aim to build confidence in the asset class on a global scale[23].

OCTOBER 15, 2018

Fidelity Investments announced a new cryptocurrency custody and trading service for institutional investors, hedge funds, family offices, and market intermediaries. Abigail P. Johnson, Chairman and CEO of Fidentialy Investments, explains their long term vision,

> Our goal is to make digitally-native assets, such as Bitcoin, more accessible to investors. We expect to continue investing and experimenting, over the long-term, with ways to make this emerging asset class easier for our clients to understand and use[24].

On Dollars and Sense – The Opportunity within Existing Funds

Investors who once viewed cryptocurrency with skepticism are now among its primary backers. New funds are opening and existing funds are diversifying to include digital assets. Legends of the investing world are putting their weight—and their wallets—behind digital assets as a viable, valuable asset for their investments. ***Why?***

1,167% VS 8%

These numbers represent the returns of "...nine cryptocurrency hedge funds tracked by Eurekahedge Pte as a group in 2017...While that trailed the 1,403 percent gain in Bitcoin, it comfortably trounced the 8 percent return by hedge funds globally[25]."

With all of this market potential, demand and growth, it's no wonder larger players have stepped in. As an example, there were over 700 crypto-only funds as of February 2019, with total assets under management of more than $10 billion. While $10 billion may be a drop in the bucket for any one of the top hedge funds just in the U.S.—this only illustrates the market opportunity for a continual influx of funds into this asset class.

By the end of 2018, there were approximately 11,000 hedge funds with an estimated $3.6 trillion of assets under management[26]. That number is expected to grow to $4.7 trillion in 2023[27]. What if those 11,000 turned just five percent of their funds toward digitization? **That is a $235 billion opportunity or over two times the entire capitalization of the crypto market at the time of this writing**; and it's an opportunity that certain financial institutions and hedge funds are running to take advantage of.

Acting now means taking a piece of that **$235 billion pie**. The hedge fund industry is quickly transforming, while managers are increasingly becoming more agile and competitive to meet investor demands and grasp new opportunities.

$4.7T x 5% = $235B

In July of 2018, financial service leader Northern Trust forged a groundbreaking move for a traditional institution, quietly launching fund administration services to a select group of "mainstream hedge funds" keen on diversifying their portfolios with digital assets. While Northern Trust is not currently taking custody of such assets, Cherecwich stated that

> ... helping [our] company's customers account for their cryptocurrency investments is part of a larger effort to prepare for the day when fiat currencies are also issued on a blockchain[22]."

The Opportunity – Leveraging the Value of Digital Assets

Crypto assets represent an incredibly fruitful opportunity for hedge funds and administrators to advance their business and enhance their client base. For administrators, this is a remarkably profitable opportunity to respond quickly to market changes and get ahead of the game. The reality is, administrators who innovate and start working with crypto assets will lead the pack. Administrators who don't are at risk of following in the footsteps of brands like Blockbuster and Kodak—sidelined by the inability to respond to the pace of market changes.

Profit Potential

Traditional funds are recognizing the need to diversify and are responding to the evolving market—and traditional administrators need to keep up with market conditions to retain and attract business. Administrators that do will become more valuable for funds who already have or plan to add crypto assets to their portfolios very soon.

Services with Value

Since they were first developed in the late 1940s, hedge funds have been known to quickly respond to market changes to maximize asset growth. Digital assets represent an instance where funds are moving quickly and administrators need to follow along and engage with the new asset class their clients are interested in. They need to be prepared to leverage the opportunity when the moment strikes. When an administrator is able to strike NAV in an automated and timely manner for funds invested in digital assets, they become the partner that creates the most value.

> Hedge funds were on the brink of a slow and painful death up until about a year ago. This is a double shot of adrenaline for all of them...

Anonymous source from Morgan Stanley[28]

Stay Competitive

A record number of stabilizing factors are supporting interest in digital assets today. According to Tabb Group's April 2018 Crypto Trading: Platforms Target Institutional Marketing report[29], "institutional market participants we spoke with viewed market structure of crypto trading similar to the spot foreign exchange markets of about 10-15 years ago." Not unlike the requirement to adapt back then, fund administrators need to adapt to support crypto assets not if hedge funds require it, but **when**.

> Just like 20 years ago when very few institutions had exposure to hedge funds, it is now time for institutional investors to get off zero allocation to crypto assets.

Mark W. Yusko

Founder, CEO and Chief Investment Officer of Morgan Creek Capital Management[1]

The Challenge –
Warnings to Be Forewarned

The crypto ecosystem is growing exponentially with new assets, exchanges, funds and trading firms opening every day. Working with crypto assets is remarkably different compared to traditional assets, so funds and fund administrators need the right **partners** and **technology** to manage the most challenging elements.

Common Misconceptions

All crypto trades occur on the blockchain.

1 According to TABB Group, the OTC market for bitcoin is at least two to three times larger than the exchange market[30]. These institutional crypto trades hit the blockchain but the remaining trades are actually facilitated across exchanges that use alternative trading systems to match buyers and sellers—and are **only** processed on the blockchain when funds are transferred between exchange wallets. Since these trades do not occur on the blockchain, a connection to each exchange is required in order to identify, record and reconcile all transactional data.

Connectivity quantity supersedes quality.

2 New crypto asset exchanges and wallets are constantly entering the market, requiring expedited API development and continued maintenance. New exchanges tend to update or modify APIs frequently. Beyond the strength and immediacy of exchange connections, more critical for hedge funds is the type of data the API feeds can collect.

Crypto assets have a **unique ticker and pair identification.**

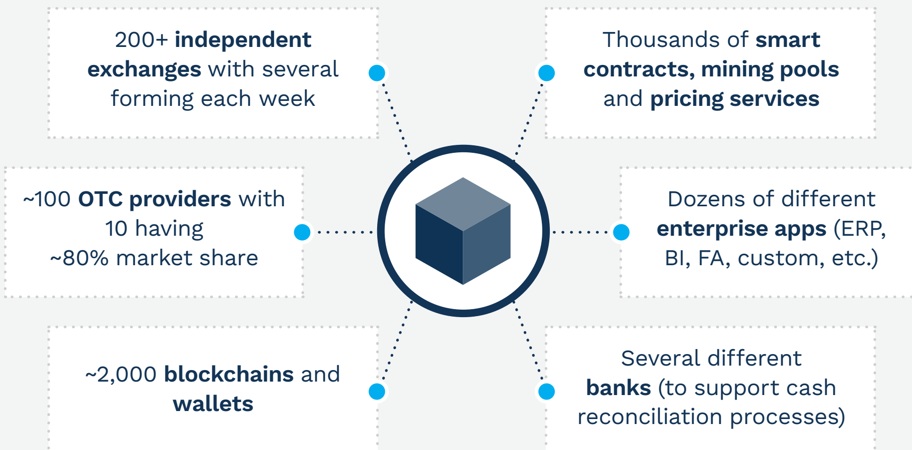
3 In 2018, there were more than 200 instances of crypto asset duplicates, and another 200 instances where exchanges abandoned an asset's designated ticker and created a new one. The most difficult data reconciliation undertakings materialize when different exchanges use the **same** ticker for **different** crypto assets. A universe made up of thousands of active crypto assets, approximately 200 global exchanges, and a multitude of crypto pairs, without any standard naming convention can lead to irreconcilable data and incorrect financial statements.

Existing back office software can support crypto transactions.

4 Legacy systems were not originally designed to track decentralized and distributed data. The complexities of accessing and obtaining data from the growing number of existing crypto venues is a much heavier lift than meets the eye. At the most fundamental level, existing systems are not equipped to support digital assets that extend further than two decimal places. ERC20 is the most common blockchain protocol, and unsurprisingly, legacy back office accounting softwares cannot read or speak this technical language.

Institutional Connectivity Challenges

The Decentralized and Distributed Crypto Ecosystem Landscape*



> Existing technology solutions cannot support decentralized and distributed data because of their inability to automatically access the data they need from the multitude of data venues. This connectivity challenge prevents the aggregation of complete and accurate data to produce the necessary financial reports.

Consumable Data

Accurate and complete data is only half the battle. Cleaned, consumable data is vital for investment risk assessment and decision making. Differing data standards slow down data reporting, especially essential NAV calculations. Month-end reporting is demanding enough, but funds now request more frequent weekly, or even daily, portfolio overview reports. The manual and time-consuming work required to produce crucial fund reports is archaic and hugely error-prone if manually mapped and configured.

Why Existing Legacy Solutions Cannot Fully Support Crypto Asset Transactions

1. Data is often truncated based on differing approaches between data venues, resulting in information that may not tie out. For instance, values may have two, three or even 23 decimal places.
2. Fees accrued in crypto transactions fall under a different accounting method and need to be expensed, not capitalized.
3. Legacy software solutions cannot support the inconsistent naming conventions and conflicting aliases for the same crypto assets.

*Based on Lukka Reference Data.

The Solution to Complex Crypto Transactions

Due to the rapid pace of change in the crypto ecosystem, administrators need a secure, scalable and accurate solution to meet the stringent reporting requirements that a fund's stakeholders, such as auditors, investors and regulators, require.

Institutional investors find themselves sidelined by two factors: the slow maturation of manual office processes that hinder current crypto processing workflows, and the complexity of aggregating and normalizing disparate data, compounded by the decentralized nature of crypto liquidity sources. Automated software is needed to connect, standardize, reconcile, process and report on transactional data.

An appropriate technology solution requires five key features:

1. Security | Data encryption in transit and at rest is imperative. The protection of sensitive trade, transfer and balance data is vital to a fund administrators' value proposition. Software-as-a-Service technological credentials, such as SOC 1 Type 2, provides assurance for stakeholders.

2. Independence | A trusted service provider is completely removed from any financial interests. Trusted technology assumes separation from any other business unit that supports trading or investing.

3. Accuracy | The accounting treatment of crypto transactions is unique compared to other traditional asset classes. Attempting to force legacy systems to support digital assets is complex and error-prone. Crypto-native technology will ensure appropriate data calculations for creating financial reports and striking NAV.

4. Scalability | Aggregating complete data into a consolidated view with an automated workflow is an institutional requirement. Businesses cannot be hindered by volume limitations.

5. Audit-ready | Maintaining a repository of append-only transactional data is vital to creating audit-ready financial statements. Auditors need to rely on technology that tracks raw data directly from its primary source, traceable to a completed report.

Assets, Blockchain and Crypto – Basic Building Blocks for Business Growth

The Future of Funds and Administrators

Technology has changed the way the financial sector operates at an unfathomable pace. Blockchain has created a new paradigm with near-infinite possibilities. That rate of change isn’t slowing down and it's creating universal opportunities. As the market shifts and evolves, the only way to survive seismic change is for administrative business offerings to evolve alongside it. The adoption and growth of crypto assets offer opportunities for funds, fund administrators and other players to create new businesses and leverage the technology to improve existing ones. Administrators in particular have the chance to stay ahead of the market by positioning themselves as leaders in this asset class.

As new administrative service needs expand, the data collected and aggregated needs proper standardization and reconciliation. Administrators need to be able to quickly and accurately calculate NAV, create accurate financial statements, reliably, and on time—all of which relies on the correct capturing, processing and reporting of data.

Introducing Lukka: A Leading Middle and Back Office Technology and Data Services Provider

Lukka’s crypto-native software connects, standardizes, reconciles, processes and reports audit-ready information within a highly secure SOC 1 Type 2 enterprise-grade infrastructure. Lukka’s technology efficiently transforms decentralized and distributed data into business information to improve operations, create financial statements and provide regulatory reporting and transparency.

> Fund administrators face myriad challenges when dealing with crypto transactions. Lukka Crypto Office is a proven solution to these challenges and we want to support administrators through this exciting new growth opportunity of providing service to funds that hold crypto assets.

Jake Benson
Founder and CEO of Lukka

Lukka Enables Accurate and Complete Data

Lukka Crypto Office programatically pulls transactional data from the crypto ecosystem (exchanges, wallets, blockchains, banks and mining pools) and standardizes the results using a proprietary master repository of crypto asset data. Once a customers' transactional data has been captured, Lukka's platform provides reconciliation tools to verify accuracy and completeness by tying out exchange balances versus transactions. The software can identify breaks and other data gaps, as well as substantiate exchange reported transfers versus blockchain confirmations.

Secure and Institutional Grade

Lukka's technology adheres to the strictest information security policies. Lukka is the first crypto-native technology company to receive a SOC 1 Type 2 attestation report, which requires a rigorous examination of the softwares' comprehensive set of policies, procedures and controls specific to the crypto/ blockchain space. This report allows its customers to rely on its software platform for the processing of crypto transactional data into auditable information.

Lukka is Independent and Trusted

Lukka provides a business intelligence platform and reporting solution to address internal, regulatory and customer reporting requirements. As an independent technology provider that works solely on behalf of its customers with no trading desk or investing arm, Lukka is compliant.

Core Benefits to Fund Administrators Who Use Lukka:

1. Accelerate time-to-market to service funds holding crypto
2. Ensure client satisfaction with accurate daily or monthly NAVs
3. Drive revenue growth through the sale of new crypto-centric tools

New Crypto Tools Supplement Administrative Services

Lukka provides fund administrators the unique opportunity to introduce Lukka solutions directly to their fund clients. This enables administrators the option to supplement their existing go-to-market offerings with crypto-native tools to create highly differentiated service offerings. Examples of how funds gain value by directly using Lukka solutions:

- Access real-time consolidated transactional data and balances
- View verifiable on-chain transfers with blockchain node visibility
- Gain portfolio transparency with balance reconciliation tools
- Manage a self-service reporting portal

CASE STUDIES

How Lukka Helps Fund Administrators Add Value

CASE STUDY

Lukka supports award-winning fund administrator, Theorem Fund Services, to satisfy growing demand for high frequency reporting

THEOREM
FUND SERVICES

Lukka is a Best-in-Class solution in the marketplace and solves accounting challenges for the crypto asset class. It was very clear after our first conversation with Lukka that this was the type of solution that we were looking for.

Mikhail Davidyan
Managing Partner at Theorem Fund Services

Theorem Fund Services is a multi-service fund administrator offering turnkey solutions for investment managers.

At the beginning of 2018, with hedge fund clients actively trading crypto assets **on over 30 exchanges**, Theorem experienced a rapid increase in the number of client requests for daily and weekly NAV reports. Traditionally, NAV statements are issued monthly for hedge funds, but Theorem's clients were experiencing crypto asset price swings of up to 30 percent overnight, and therefore requested more frequent reporting to monitor positions and risk. Theorem realized they needed to implement a technology solution to help them automate their NAV reporting process on a much faster turnaround time than ever before. That's where Lukka came in: Lukka provides an institutional-level product specifically built to support the crypto asset reconciliation, processing and reporting, and that's just what Theorem needed.

Unlike other competitors they evaluated, Theorem knew that working with Lukka would give them the confidence to service and grow with their clients, while satisfying the growing demand for daily and weekly NAV reporting.

Lukka is a strategic partner and plays a crucial role in supporting Theorem's growth plans as more and more funds deploy capital into crypto assets. Our business model requires thorough research into selecting systems that automate manual processes. The Lukka Crypto Office platform allows Theorem to provide superior service to our hedge fund clients who hold crypto assets.

Stephen Giannone
Managing Partner at Theorem Fund Services

CASE STUDY

Strix Leviathan, an algorithmic crypto trading platform, selects Theorem due to partnership with Lukka

STRIX LEVIATHAN

Strix Leviathan is a technology company that has built an institutional-grade algorithmic investment management platform specifically designed for cryptocurrency markets.

As Cofounder and Chief Operations Officer, Sadie Raney is responsible for the tracking and clearing of all the trades across multiple exchanges at OTC desks. With scalability as her biggest challenge, Sadie knew she needed a solution that could grow alongside their increasing trade volumes and complexity. Sadie interviewed three fund administrators and ultimately chose Theorem, as she knew Theorem was already working with Lukka and she was seeking an automated solution over the manual processes of traditional administrators.

In May 2018, Strix encountered a complex challenge during their calculation of the month-end NAV. They realized data being pulled from one particular exchange had a different structure, and was not normalized to time zone or base currency, resulting in mismatched trades and transactions on their reports. Working with Lukka, Strix was able to accurately reconcile the inconsistent data transactions for that month to produce financial statements on a timely basis.

> It was an easy choice for us to select Theorem as our fund administrator due to Theorem's relationship with Lukka. We needed an automated solution that could work with inconsistent trade data across the different crypto exchanges. The team at Lukka is detail-oriented and innovative, and they have made sure our reports are accurate. **I have faith in Lukka's ability to validate my trades due to their proven track record with our account, which in turn gives me extreme confidence in the numbers we are reporting.**

Sadie Raney
Cofounder of Strix Leviathan

CASE STUDY

Lukka supports global fund administrator, Trident Trust, with a flexible solution to supplement its traditional reporting engine

TRIDENT TRUST

With over 40 years of experience, Trident Trust services financial institutions, professional advisors, asset managers, family offices and international businesses worldwide.

At the beginning of 2018, Trident realized a number of their existing hedge fund clients were not only holding crypto assets, but were trading at increasingly high volumes. Using algorithmic trading, Trident's clients were arbitraging up to 12 different exchanges, an unfathomable number of exchanges as compared to the number of traditional exchanges that funds trade on.

But without the capability to process or normalize the growing volume of crypto asset transactions, Trident was left with unsustainable, manual workarounds. Trident searched for a solution that could support their new challenge—under one condition: they required a partner who could **collaborate and easily integrate with their existing data processing software**, Advent Geneva. For an adaptable solution, Trident turned to Lukka. With Lukka's flexible offerings, Trident chose to utilize Lukka's exchange connectivity, standardization and data storage solutions to resolve their crypto asset transactional data challenges.

Lukka helps Trident by efficiently collecting, normalizing and storing their crypto transactional data and seamlessly integrating with their reporting engine for further processing. Trident continues to support their clients' growing needs while using Lukka as a supplementary solution.

> We have been fortunate to find the right crypto technology partner in Lukka to help us support our clients' growing needs.

Dan Smith
President of Trident Fund Services

CASE STUDY

Tech-enabled Harmonic Fund Services selects Lukka as crypto technology platform after extensive deliberations to build or buy

harmonic

"It is quite rare for us to work with another technology provider but partnering with Lukka made sense. It was the most complete solution that we found, the customer service has been excellent and working with Lukka has exceeded all our initial expectations. Our fund managers are excited about working with Lukka to monitor their own trading and our Asian clients are looking forward to the structures we are putting in place.

Timothy Rossiter
Executive Director of Harmonic Fund Services

Harmonic Fund Services is one of the largest independent financial services firms to specialize in the global alternative investments industry. In addition to providing traditional fund services to clients across Asia, Europe and North America, Harmonic sets itself apart by building and offering technology solutions.

To facilitate the movement of institutional investors into digital assets, Harmonic began researching a solution to bridge the gap between traditional market requirements (such as accounting and financial reporting standards and regulatory measures) **and** the evolving industry of crypto transactions. Harmonic knew that different stakeholders, including fund managers, audit firms and lawyers, were seeking administrators with the proper technology solutions in place.

With a comprehensive technology arm of their own, Harmonic understood the complexities involved in building a suitable infrastructure to support different fund structures and institutions. They soon realized **the most complicated step would be building connections to the vast array of different exchanges.**

It was rare for Harmonic to consider working with another technology provider but when it came time to decide whether to expand their own platform or buy an existing solution, they chose to partner with Lukka.

"**The decision to go with Lukka was simple.** Lukka had the APIs and exchange connections already in place, as well as the experience in bringing it through to administrators.

Timothy Rossiter
Executive Director of Harmonic Fund Services

We surveyed a selection of fund administrators utilizing Lukka's services in 2018 and found that over the next 12 months...

75% anticipate that Lukka will contribute to an approximate **25% decrease in their operational overhead**

100% anticipate being able to convert **additional customer opportunities** as a result of using Lukka

50% anticipate that partnering with Lukka will contribute to a **16%+ increase in additional revenue** for their crypto business offerings

100% stated that using Lukka helps them prepare monthly NAV reports, on average, **one week faster** than they could without Lukka

100% are **extremely likely** to recommend Lukka to a colleague

Lukka

Making Crypto Assets Accountable

Lukka builds institutional-grade middle and back office technology and data services for the crypto asset ecosystem. Our mission is to efficiently transform decentralized and distributed crypto transactional data into business information to improve operations, create financial statements and provide regulatory reporting and transparency.

About Lukka Crypto Office

As the leading institutional-grade system of record for the crypto industry, Lukka's middle and back office platform transforms distributed and decentralized data into operational and audit-ready financial information.

Lukka Crypto Office

The most **advanced technology** for middle and back office crypto asset processing.

SUPPORT STRIKING OF NAV

Blockchain-native software purpose-built for crypto asset data aggregation and processing. Optimize support for fund clients and evolving customer needs with scalable technology for current and future tokenized environments.

DATA ACCURACY & COMPLETENESS

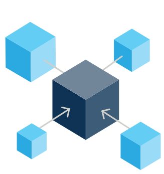
Software built to institutional standards, such as SOC 1 Type 2, which are required by auditors, investors and regulators alike. Strengthen customer confidence with controls and processes that are monitored and tested to manage the unique complexities of digital assets.

TRANSPARENCY & REPORTING

Customizable reports library to provide customers with portfolio data needed to monitor leveraged and unleveraged holdings and P&L. Adaptable data outputs to inform investors of transactional history, performance and compliance with regulatory requirements.

How Lukka Crypto Office Works

1 **ECOSYSTEM CONNECTIVITY**

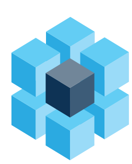


Plug in and **extract data** from the crypto ecosystem

2 **STANDARDIZE DATA**

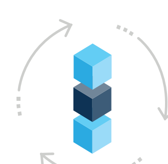
Eliminate data inconsistencies and duplications

3 **RECONCILIATION TOOLS**



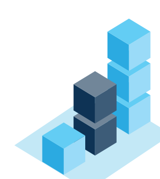
Verify **accuracy** and **completeness** of transactional data

4 **PROCESSING ENGINE**



Track **cost basis**; compute gains and losses

5 **REPORTING OUTPUTS**



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Legal Matters