



CV VC GLOBAL REPORT



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01

INTRODUCTION



INTRODUCTION

The world is globally transitioning as it rebuilds from a pandemic, endures geopolitical wars, and survives a climate crisis.

Underpinning the transition is humanity's new mindset. Climate, war, and a pandemic are only at the tip of the iceberg as an indicator of how humankind is reaching into itself and adopting a self-determining, caring, and globally focussed mindset. Institutions, companies, and brands will need to embrace this transition to stay relevant to existing and new customers. Humanity seeks trust and transparency, the democratization of institutions, and a better way of interacting and doing business.

Throughout history, substantial global upheavals, as we are currently witnessing, have resulted in transformation and renaissance. When these renaissances occur, renewal emerges and heralds the world toward better functioning and wellbeing. We are already entering a new epoch, driven by the new mindset and underpinned by the internet and the catalyst technology known as blockchain.

While past renaissances can be pinpointed to specific discoveries in some areas of the world, such as the wheel in Mesopotamia (Iraq), steam in the United Kingdom, and the internet at CERN Switzerland, the incoming blockchain revolution originates in pioneering hubs such as Crypto Valley. Naturally, innovation and tech-savvy regions become centric, but they co-exist with all corners of the world. There is now a global blockchain ecosystem, and it systemically feeds and nurtures itself across most cities and countries.

In the second installment of our Global Report series, created in collaboration with PwC Switzerland, CV VC provides an overview of this global blockchain ecosystem, outlining the main activities of top organizations using blockchain to transform existing and create new markets and industries. It is important to keep in mind that as crypto and digital assets happen to be one of blockchain's earliest and most prolific applications, much of this report focuses on the enormous strides happening across this realm. As a catalyst tech, the potential for other applications of blockchain technology across every industry is beginning to bloom and is vast. With over 80 of the world's top 100 companies by market cap already using blockchain, its possibility will no longer be unimaginable but realized.

The 2022 Global Report touches on the following blockchain sectors, in alphabetical order:

1. Brokers & Crypto Banks
2. Crypto Exchanges
3. Custodians
4. DAOs
5. DeFi
6. Launchpads
7. Market Makers
8. NFTs & The Metaverse
9. Platforms & Protocols
10. Service Providers
11. Token Issuance Platforms
12. VCs in Blockchain

Global Report lists the world's foremost blockchain companies from twelve sectors, excluding companies or organizations from the following categories: academia/education, events, and associations. The report outlines the most relevant players in in each category based on subjective research on their funding, valuation, employee count, and other factors such as their business model, the degree of innovation, and distinctive technological features.

Companies are listed by their primary service, specific to its category, to avoid multiple showings.

The CV VC Global Report draws subjective analysis of data from publicly available sources: crypto exchanges, information portals, research data, media reports, and social media channels. Where no data was available, estimates were made.

EDITORIAL FROM MATHIAS RUCH

As an initiator of Crypto Valley Switzerland - possibly the most mature blockchain hub globally, CV VC is proud to produce this global blockchain panorama report. We first began recording blockchain startups in 2017, detailing 300 here in Crypto Valley. In the five years hence this has grown to nearly 1200. What makes Crypto Valley particularly mature isn't just a large number of companies and fourteen Unicorns, but also that we are persistently active in all of the key development sectors. We don't just have the world's first truly regulated crypto banks, but we have custodians, market makers, infrastructure providers, and many of the most prolific protocols calling Crypto Valley - home.

We have profound respect for and are in awe of other leading hubs in New York, San Francisco, Toronto, El Salvador, London, Berlin, Lisbon, Singapore, Hong Kong, Dubai, and more.

Africa is unique and stands out globally as one of the most profound hubs in the blockchain ecosystem. It is unique because it has no true legacy systems and a considerable appetite to transcend.

CV VC is hugely committed to building the future with blockchain founders in the continent and has already made eight African investments. Africa is one of the youngest and most populated continents globally. It is an example of a common theme in life where circumstance advances evolution. In terms of financial infrastructure, personal identification, record keeping, regulations, and lack of access to individual financial independence, Africa's current state of affairs has created the perfect environment driving the adoption of blockchain technology.

Although the African blockchain ecosystem is thriving, there is limited information and data available regarding the exciting developments that are taking place on the continent. As a result, CV VC will create its first edition of an Africa-centric blockchain report. It will provide key insights into the world's fastest blockchain technology adopting continent. Topics for the report will include the regulatory overviews of various countries, company funding data, and

problems being solved in Africa using blockchain technology. The report will showcase the rapid pace at which the African ecosystem is evolving and how the lives of many are benefiting in the process.



Mathias Ruch,
Founder & CEO,
CV VC

Africa is a shining light in the global ecosystem, and its infrastructures have a bright future. We are all connected through our joint undertaking to enable global transitions and realize humanity's new mindset - trust, transparency, and tenacity to make the world more democratic, healthier, and happier!

As is said in Africa and applies to the entire Global ecosystem - "Ke nako," it's time, and this is only the beginning!

Mathias Ruch
Founder & CEO, CV VC

02

BROKERS & CRYPTO BANKS



BROKERS & CRYPTO BANKS

A cryptocurrency broker is a company or individual that operates as a middleman between cryptocurrency exchanges and individuals, enabling them to buy and sell cryptocurrencies. These brokers collaborate with banks and cryptocurrency exchanges to provide liquidity and access to hundreds of trade pairs with low bid/ask spreads.

Like traditional banks, crypto banks are financial entities that offer standard banking operations such as deposits and withdrawals, lending, saving, and investing in various markets and instruments. Additionally, however, crypto banks have integrated cryptocurrency into these financial tasks and acquired legitimacy in the eyes of local financial market regulators.

Within the last year, the financial industry has made a lot of progress regarding the adoption of cryptocurrencies and blockchain. Central Bank Digital Currencies (CBDCs) have made it all the way to the IMF, and the first pilots have launched in multiple countries, among them China and Canada. El Salvador has made Bitcoin a legal tender and has become a global news sensation. As a result, many leading politicians fear consequences to the stability of our current financial system, and some senators in the US even urged El Salvador to step back from its decision. These fears remain to be validated. Concurrently, private stablecoins account for over 9% of the total trillion-dollar crypto market.

There has been considerable turmoil in the markets, especially around the GameStop affair and the following halting of trading by Robinhood and other brokers. This incident was a major point of discussion and led to many questioning financial regulations. As a result, Decentralized Finance (DeFi) has become a commonly

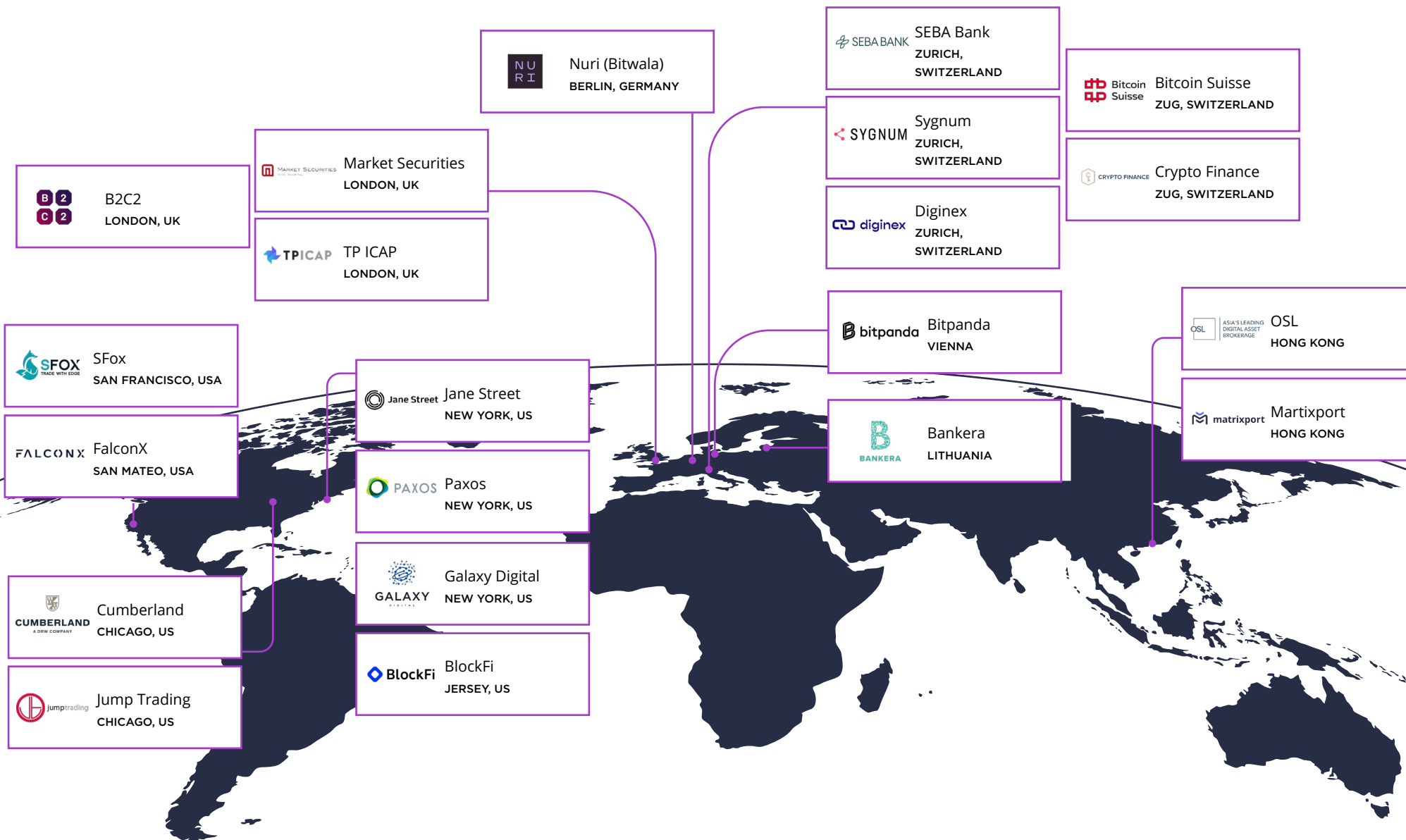
discussed phenomenon as the events are unfolding. It remains to be seen if and how the two fields, traditional finance and DeFi, will merge or coexist and the impact of regulation on crypto. Notwithstanding, we are already seeing the innings of cross-fertilization within the two realms.

In June 2021, a major acquisition was announced by [Deutsche Börse Group](#). The group acquired a majority share in the crypto broker Crypto Finance for a moderate three-digit sum, expanding its digital asset offering by providing a direct entry point for investments.

In January 2022, the two major Swiss crypto banks, [SEBA](#) and [Sygnum](#), announced new raises of \$110 million and \$90 million respectively, showing investors' confidence in crypto banking.

Crypto is becoming more mainstream by the day. Today, it is embraced by many traditional financial industry players, it is no longer a curiosity or fear but a trillion-dollar asset class that the world can no longer ignore. Players are increasingly aware that as most of their customers are already active in the digital space, they must offer crypto products or, at a very minimum, allow its presence in their offerings. Giant service providers such as PayPal have started to provide crypto services, and many others are exploring integration. Many governments, including the US, are evaluating CBDCs and the regulation of digital asset classes.

BROKERS & CRYPTO BANKS



BROKERS & CRYPTO BANKS



B2C2
London, UK

Founded in 2015, B2C2 is one of the largest cryptocurrency liquidity providers and the leader in electronic OTC trading. Bridging the gap between traditional financial and cryptocurrency markets, the company is trusted by retail brokerages, exchanges, banks, and fund managers to provide 24/7 liquidity. Headquartered in the UK, with offices in London, Brussels, and Tokyo, B2C2 is privately held.



BITPANDA
Vienna, Austria

Bitpanda believes in the innovative power of cryptocurrencies, digitized assets, and blockchain technology. Its mission is to tear down the barriers to personal finance and bring traditional financial products into the 21st century.



CUMBERLAND
A DRW COMPANY

CUMBERLAND
Chicago, US

Cryptoassets fundamentally change the way the world thinks about technology, investments, and how people interact with one another. Cumberland DRW LLC has been at the forefront of crypto-asset trading since 2014, giving innovative investors frictionless access to this new world of possibility.



BANKERA
Vilnius,
Lithuania

Bankera is providing innovative financial solutions for individuals and businesses. Their products focus on accessibility, cost-effectiveness, and speed. With a highly skilled and dedicated team, innovative solutions, and a strong foundation — Bankera is working towards becoming a blockchain-friendly bank.



BLOCKFI
Jersey, US

BlockFi was created to provide credit services to markets with limited access to simple financial products. BlockFi sets itself apart from other crypto service providers by pairing competitive rates with institutional-quality benefits. BlockFi is the only independent lender with institutional backing from investors, including Valar Ventures, Galaxy Digital, Fidelity, Akuna Capital, SoFi, and Coinbase Ventures.



DIGINEX
Zurich,
Switzerland

Diginex is a digital financial service and blockchain solutions company. They partner with institutional investors, corporations, and governments to make digital assets more accessible, efficient business processes, and secure societies.



BITCOIN SUISSE

Zug,
Switzerland

Bitcoin Suisse has been pioneering crypto financial services since 2013. The company played a crucial role in developing Crypto Valley and the overall Swiss blockchain ecosystem. Services include Prime Brokerage, Custody, Collateralized Lending, Staking, Tokenization, Payments, and more. More than 240 employees in Switzerland, Denmark, and Liechtenstein service private and institutional clients and develop in-house technology.



CRYPTO FINANCE

Zug,
Switzerland

Today's digital infrastructure is grossly inadequate for open, permissionless, and truly global digital assets to be adopted by mainstream institutions at scale. FalconX's mission is to build this connective tissue. Their technology provides the infrastructure for the future of digital assets and enables seamless price discovery, trade execution, and transfer of value.



FALCONX

San Mateo, US

Today's digital infrastructure is grossly inadequate for open, permissionless, and truly global digital assets to be adopted by mainstream institutions at scale. FalconX's mission is to build this connective tissue. Their technology provides the infrastructure for the future of digital assets and enables seamless price discovery, trade execution, and transfer of value.

BROKERS & CRYPTO BANKS



GALAXY
DIGITAL

GALAXY
DIGITAL
New York, US

Galaxy Digital is a diversified financial services and investment management company in the digital asset, cryptocurrency, and blockchain technology sector. Galaxy Digital currently operates four distinct business lines: Trading, Asset Management, Principal Investments, and Investment Banking.



MARKET
SECURITIES

London, UK

Market Securities offers large natural execution flows on various asset classes. They offer designated research and technical analysis to a broad institutional client base of investment banks, hedge funds, asset managers, proprietary trading desks, pension funds, and insurance companies.



OSL

Hong Kong

The OSL platform is Asia's premier institutional gateway to global digital asset capital markets, providing comprehensive brokerage, exchange, custody, and software-as-a-service (SaaS) to professional investors, traders, and asset managers. With worldwide coverage for large block trades or day-to-day transactions, OSL delivers access to a global network of counterparts focusing on Asia. OSL is part of the BC Group.



Jane Street

JANE STREET
New York, US

Jane Street is a quantitative trading firm that uses innovative technology, a scientific approach, and a deep understanding of markets to guide our business. Jane Street is a global liquidity provider and market maker, operating around the clock and globally, out of offices in New York, London, Hong Kong, and Amsterdam.



MATRIXPORT

Hong Kong

Founded in February 2019, Matrixport is a gateway to the digital economy where you can trade, have custody over, invest and borrow crypto assets all in one stop. With rich industry resources and leading technology capabilities, Matrixport aims to create the next generation digital financial service platform. Their vision is to enable a more open and equal financial system using blockchain technologies.



PAXOS

New York, US

Paxos is a regulated blockchain infrastructure platform, building a new, open financial system. Cutting-edge technology with bank-level oversight so you can trade, settle and manage assets with confidence.



jumptrading

JUMP
TRADING
Chicago, US

Jump Trading combines sophisticated quantitative research, best-in-class technology, and entrepreneurial culture to create a leading global, quantitative-based trading firm. Jump has more than 700 employees across offices in Chicago, New York, London, Amsterdam, Shanghai, Singapore, and Gurgaon, India.



NURI
(BITWALA)

Berlin,
Germany

Nuri is the new reality of banking, with easy access to cryptocurrencies, interest on your bitcoin, and a full German bank account. Everything you need to build your financial future — all in one place.



SEBA

Zug,
Switzerland

SEBA Bank is a pioneer in the financial industry, providing a seamless, secure, and easy-to-use bridge between digital and traditional assets. In August 2019, SEBA Bank received a Swiss banking and securities dealer license – the first time a respected regulatory authority such as FINMA has granted a license to a financial services provider with its primary focus on digital assets and crypto.

BROKERS & CRYPTO BANKS



SFOX

San Francisco,
US

SFOX is a cryptocurrency prime dealer that provides professional traders and institutional investors higher returns when trading large volumes through smart routing and a globally integrated order book.



SYGNUM

Zurich,
Switzerland

Sygnum is one of the world's first digital asset banks and a digital asset specialist with a global reach. With Sygnum Bank AG's Swiss banking license and Sygnum Pte Ltd's capital markets services (CMS) license in Singapore, Sygnum empowers institutional and private qualified investors, corporates, banks, and other financial institutions to invest in the digital asset economy with complete trust.



TP ICAP

London, UK

TP ICAP operates at the heart of global wholesale over-the-counter and exchange traded markets. They are active across all major financial, energy and commodities asset classes, where their brokers match buyers and sellers facilitating price discovery, the flow of liquidity, execution and risk management. They provide independent data to their clients including live and historical pricing content, and advanced valuation and analytics.

03

CRYPTO EXCHANGES



CRYPTO EXCHANGES

Crypto exchanges help match buyers and sellers of cryptocurrencies. The cryptocurrency exchange rate depends on supply and demand, with prices being influenced by news, economic and political events, and even technical issues.

Crypto exchanges can be distinguished by their functionality, volume, and design; some exchanges are designed for day traders, allowing them to buy and sell crypto at lower commission fees. Others are focused on facilitating crypto-to-fiat exchanges or huge OTC trades. The most recent trends have shown significant exchange volume moving towards decentralized exchanges. Nevertheless, centralized exchanges remain one of the most important entry points for new crypto users. Due to the enormous uptake of decentralized exchanges, many of these centralized exchanges have started to offer new products such as staking or lending functionalities to keep up with the market offerings.

Crypto exchanges have seen a massive increase in trading volume throughout 2021. According to The Block Research, the trading volume amounts to \$14 trillion, up 689% compared to 2020. As a result, according to MarketWatch, crypto exchanges' revenue has seen incredible growth of over 600%, amounting to \$24.3 billion. This is a milestone for the crypto industry, as it surpassed the combined revenue of the NYSE and Nasdaq.

Coinbase made the [headlines](#) as the first major crypto company to go public on April 14th, 2021. Based in San Francisco, the crypto exchange has since displayed its economic power by surpassing its fourth-quarter estimates by more than 27%. The exchange has made \$2.5 billion in revenue instead of the expected \$1.94 billion.

Binance remains the undisputed market leader in the crypto exchange category, although the company faced some difficulties in 2021. Shortly after launching securities trading on their platform in Europe, Binance had to halt its operation again after facing [regulatory pressure](#). Additionally, it made negative headlines when US authorities discovered a scheme allegedly used to avoid regulation. Nevertheless, the exchange remains unchallenged in the market and has further grown its users and market share. Looking at the volume growth reported by [MarketWatch](#) and the market share of exchanges, Binance is the market leader, with 69% of the volume traded on its exchange. Estimates of its fee revenue come in at over \$14 billion.

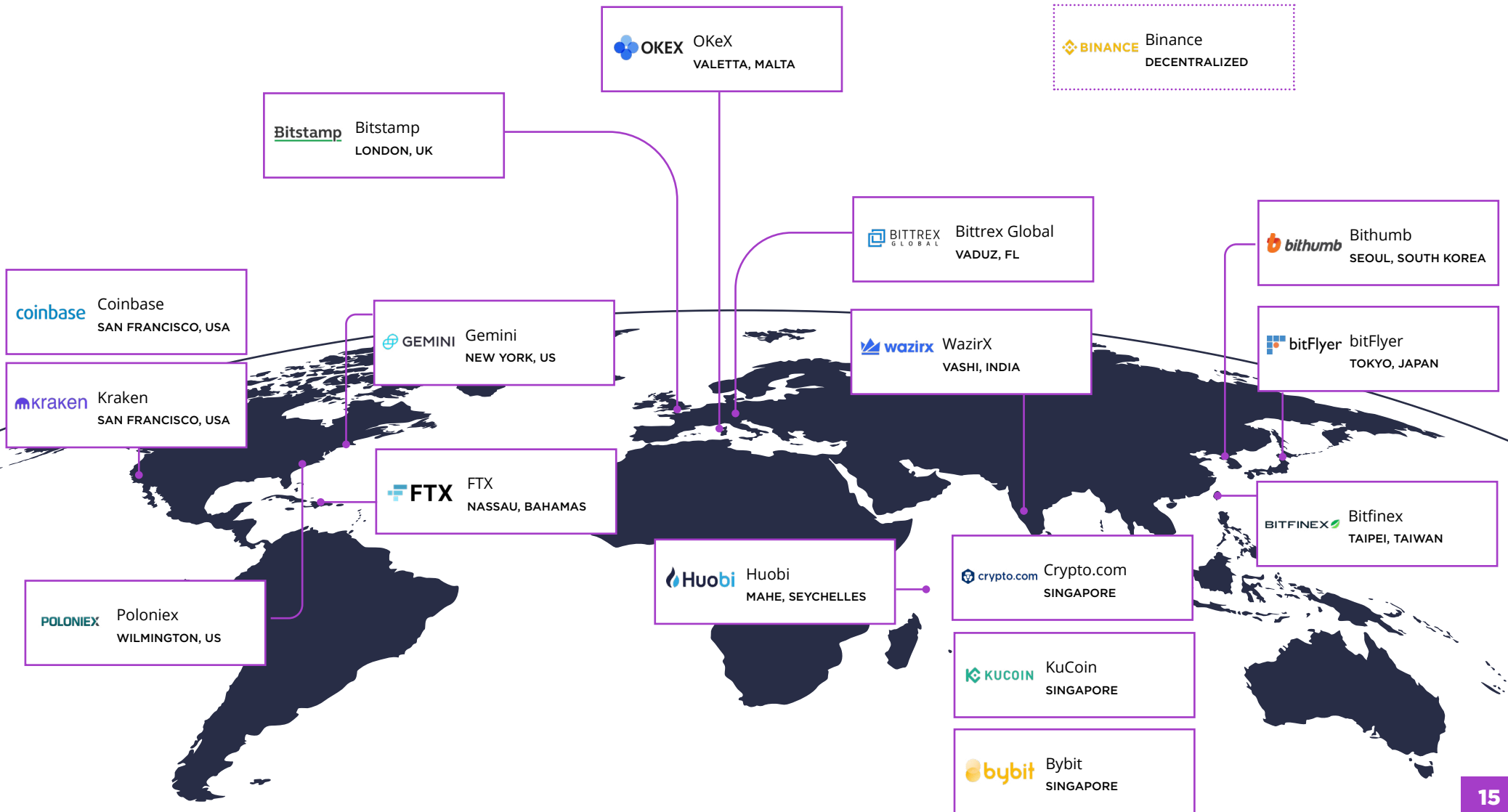
With the recent developments in Ukraine, crypto exchanges have come under pressure once again. The OFAC, amongst other international enforcement agencies, sought to enforce [financial market sanctions](#) and asked exchanges to exclude Russian users from its services. While some members of the public do not appreciate state intervention in crypto, most exchanges had to follow suit and adhere to the government's pressure eventually.

Crypto.com made the news by buying the naming rights of the Staples Center, renaming it to the [Crypto.com arena](#). This was one of the big marketing offensives by the crypto exchange this year, alongside casting Matt Damon for a commercial and becoming a major sponsor for the Formula 1 alongside other industry giants such as ByBit and FTX.

The latest news about President [Biden's executive order](#) positively influenced the crypto market. The order shows a well-calculated

approach to further crypto-related regulation, especially trading on centralized exchanges. Many feared a strong regulatory intervention in the US, which has not yet been deployed.

CRYPTO EXCHANGES



STARTING BLOCK: CONNECTING CRYPTO PROJECTS WITH MILLIONS OF TRADERS WORLDWIDE

Rising levels of crypto adoption over the past several years are ushering in a new financial era, one built upon the foundations of security, transparency, and interoperability.

In 2021, venture capitalists reportedly invested over \$33 billion in crypto, blockchain, and Web3 startups, representing a milestone achievement for the industry. Perhaps more impressive is that VC firms poured more money into the crypto sector last year than in all prior years combined. Due to rising retail and institutional adoption levels, expanding blockchain use cases, and rising prices for several key benchmark digital assets like Bitcoin, investor interest has skyrocketed.

Last year alone, several leading financial service institutions took significant steps into the space, with Goldman Sachs, Morgan Stanley, BlackRock, and others beginning to offer wealth management clients exposure to and custody of digital assets.

Traditional financial institutions are increasingly waking up to the game-changing levels of innovation throughout the crypto ecosystem, with digital assets like Bitcoin and Ethereum offering entirely new ways to send, earn, and store value.

According to Chainalysis, last year saw a stunning 880% rise in global crypto adoption. Yields for U.S. 10-year treasuries resulted in scant 1% returns. They are unattractive compared with USD stablecoins, which provided investor returns between 2% and 12%. Diminishing returns for traditional safe-haven assets like bonds and treasuries and the tantalizing opportunities emanating from the crypto ecosystem explains why, according to Fidelity,

more than 80% of financial institutions across the United States and Europe have expressed interest in cryptocurrency and digital assets.

The goal for the entire industry is to continue this growth into 2022 and beyond.

Entry into the broader crypto and Web3 environment becomes increasingly accessible via channels like DeFi, NFTs, DAOs, and the Metaverse. We expect these accelerating levels of institutional adoption to continue, provided that a clear regulatory framework that provides guidance and protection to investors, blockchain companies, and exchanges comes into view.

Bittrex Global recently announced plans for Starting Block, a new Initial Exchange Offering (IEO) platform built to support high-caliber crypto projects to meet these rising demand levels.

Bittrex Global has always been committed to fostering growth and driving innovation throughout the crypto ecosystem, and Starting Block allows us to share our resources and expertise on key issues like security and compliance with our partners. Starting Block will ultimately help promising new projects to leverage our industry resources to raise capital, launch and distribute tokens, and generate public awareness throughout the industry. Starting Block will also provide retail and institutional investors easy access to innovative projects emerging across the digital assets landscape.

Ultimately, Starting Block comes from a trusted brand that services millions of traders and investors around the globe. We

have the resources and marketing capabilities at our disposal to build awareness for new projects. We are fortunate to have a talented, experienced team with a deep understanding of shifting market conditions and trends which can adequately evaluate and advise new projects.

Bittrex Global has received submissions from various projects looking to take themselves to the next level and reach a wider market. Given the rising levels of investor interest and appetite worldwide, Bittrex Global's Starting Block could not come at a more opportune time.

To learn more about Starting Block, please visit our [website](#).



Stephen Stonberg
CEO, Bittrex Global

CRYPTO EXCHANGES



Binance is a blockchain ecosystem comprising Exchange, Labs, Launchpad, Info, Academy, Trust Wallet, and Blockchain Charity Foundation. The platform focuses on security, robustness, and execution speed - attracting enthusiasts and professional traders alike. The Binance exchange provides access to hundreds of digital currency pairs while maintaining security, liquidity, and high speed.

BINANCE

Decentralized



Bithumb Global is the digital asset exchange launched to meet the diverse needs of users worldwide. Bithumb Global will leverage its deep resources and technology to provide a wide range of services such as digital asset exchange, digital asset issuance, blockchain project incubation, decentralized finance, etc.

BITHUMB

Seoul, South Korea



Bybit is a cryptocurrency exchange established in March 2018 to offer a professional platform where crypto traders can find an ultra-fast matching engine, excellent customer service, and multilingual community support.

BYBIT

Singapore



Bitfinex strives to give its users the ultimate cryptocurrency trading experience by providing users with state-of-the-art trading tools, innovative technology, and unparalleled levels of customer service. The digital asset space is evolving at a breakneck pace. To keep up with such rapid technological innovation requires an equally forward-thinking and agile approach. Bitfinex provides state-of-the-art digital asset trading services for our users and global liquidity providers.

BITFINEX

Taipei, Taiwan



Bitstamp is one of the world's longest-standing cryptocurrency exchanges, continuously supporting the Bitcoin economy since 2011. With a proven track record and mature approach to the industry, Bitstamp provides a secure and transparent venue to over four million customers and enables partners to access emerging crypto markets through time-proven infrastructure.

BITSTAMP

London, UK



Founded in June 2012, Coinbase is a digital currency wallet and platform where merchants and consumers can transact with new digital currencies like Bitcoin, Ethereum, and Litecoin. Their vision is to bring more innovation, efficiency, and equality of opportunity to the world by building an open financial system. Their first step on that journey is making digital currency accessible and approachable for everyone.

COINBASE

San Francisco, US



bitFlyer is Japan's most famous crypto exchange in terms of Bitcoin volume and offers a wide variety of cryptocurrencies for trading. The exchange was established in January 2014 and is owned and operated by bitFlyer Inc. The exchange has a headquarter in Tokyo, Japan but provides its service all over the globe. In 2016, bitFlyer extended its virtual trading services to the US and allowed Bitcoin trading in three major continents: Europe, Asia, and the US.

BITFLYER

Tokyo, Japan



Bittrex Global is a secure, reliable, and advanced digital asset trading platform developed for international customers and built on Bittrex's cutting-edge technology. This international trading platform provides innovative tokens with a more streamlined listing approach and provides instant trade execution, dependable digital wallets, and industry-leading security practices.

BITTREX GLOBAL

Vaduz, FL



Crypto.com is on a mission to accelerate the world's transition to cryptocurrency. Through the Crypto.com Mobile App and Exchange, you can buy 150+ cryptocurrencies.

CRYPTO.COM

Singapore

CRYPTO EXCHANGES



FTX

Nassau,
Bahamas

FTX is a centralized cryptocurrency exchange specializing in derivatives and leveraged products. It supports the most commonly traded cryptocurrencies. 2. FTX's key product offerings include futures, leveraged tokens, options, MOVE contracts, and spot markets.



KRAKEN

San Francisco,
US

Kraken has employees in 60+ countries, offering a wide selection of digital assets and fiat currencies for trading. Known for its best-in-class security, execution, and regulatory compliance, Kraken is trusted by millions of individuals and institutions to serve their trading needs. Additionally, Kraken is the first exchange to display its price data on the Bloomberg Terminal and one of the earliest to offer leveraged margin trading, regulated derivatives, and index services.



POLONIEX

Wilmington, US

Poloniex is building the most active crypto marketplace, providing liquid markets that connect passionate investors with diverse blockchain developers revolutionizing global finance.



GEMINI

New York, US

Gemini Trust Company, LLC (Gemini) is a next-generation cryptocurrency exchange and custodian that allows customers to buy, sell, and store digital assets such as bitcoin and ether. Gemini is a New York trust company held to the highest fiduciary obligations, capital reserve requirements, and banking compliance standards. Gemini was founded in 2014 by brothers Cameron and Tyler Winklevoss to build a bridge to the future of money.



KUCOIN

Singapore

KuCoin lets you buy, sell, and store a wide range of cryptocurrencies. It has a web interface as well as a popular mobile cryptocurrency app. You can buy KuCoin's native token (KCS) to reduce fees and earn rewards. The account verification process is optional to trade crypto with just an email address.



WAZIRX

Vashi, India

WazirX is India's leading cryptocurrency exchange. It has built the world's first auto-order matching fiat P2P exchange and done millions in volume in P2P exchange alone. WazirX is expanding globally by bringing P2P solutions for on-ramp and off-ramp of Fiat Crypto across the world.



HUOBI

Mahe,
Seychelles

Established in 2013, Huobi has become one of the world's largest digital asset exchanges with an accumulated trading volume of US \$1 trillion. Having once accounted for half of the world's digital asset transactions, Huobi now serves more than 5 million users in over 130 countries worldwide.



OKEX

Valetta, Malta

OKEx provides hundreds of token & futures trading pairs to help traders optimize their strategy. OKEx is also one of the top digital asset exchanges by trading volume, serving millions of users in over 100 countries. OKEX derivatives remain a top-notch venue globally with a daily volume of approximately \$4 billion and are widely recognized as the golden standard of crypto exchange.

04

CUSTODIANS



CUSTODIANS

Custody services are vital in the crypto space. Nevertheless, it is still a fledgling market. Its importance has not yet garnered recognition; custody providers are essential for adopting cryptocurrencies and crucial within the institutional space. Furthermore, custody services are necessary to secure cryptocurrencies on respective exchanges safely. There have been numerous hacks and scams that have damaged the overall reputation of cryptocurrencies, and challenging these troubles has become an important issue to tackle. The digital asset space needs ways to safeguard these assets for private individuals, institutions, and enterprises. As a result, top custody providers are looking to build solutions for this problem.

Custodians' global assets under management have grown to over \$223 billion. The funding for custodians skyrocketed in 2021, surpassing \$4.5 billion, and there are already signs of consolidation in the custodian market, with [six providers being acquired](#) in 2021 alone. Furthermore, it is estimated that 10% of all digital asset holdings are stored on the technology of the eight biggest custody providers in the industry.

The concept “not your keys, not your crypto” is one of the most important phrases for cryptocurrency holders and holds a lot of truth, especially given the increasing amount of hacks that centralized technology providers have experienced over the last years. Ledger is one of the biggest and best-known service providers for digital asset self-custody, making the company a unique provider for independent retail customers.

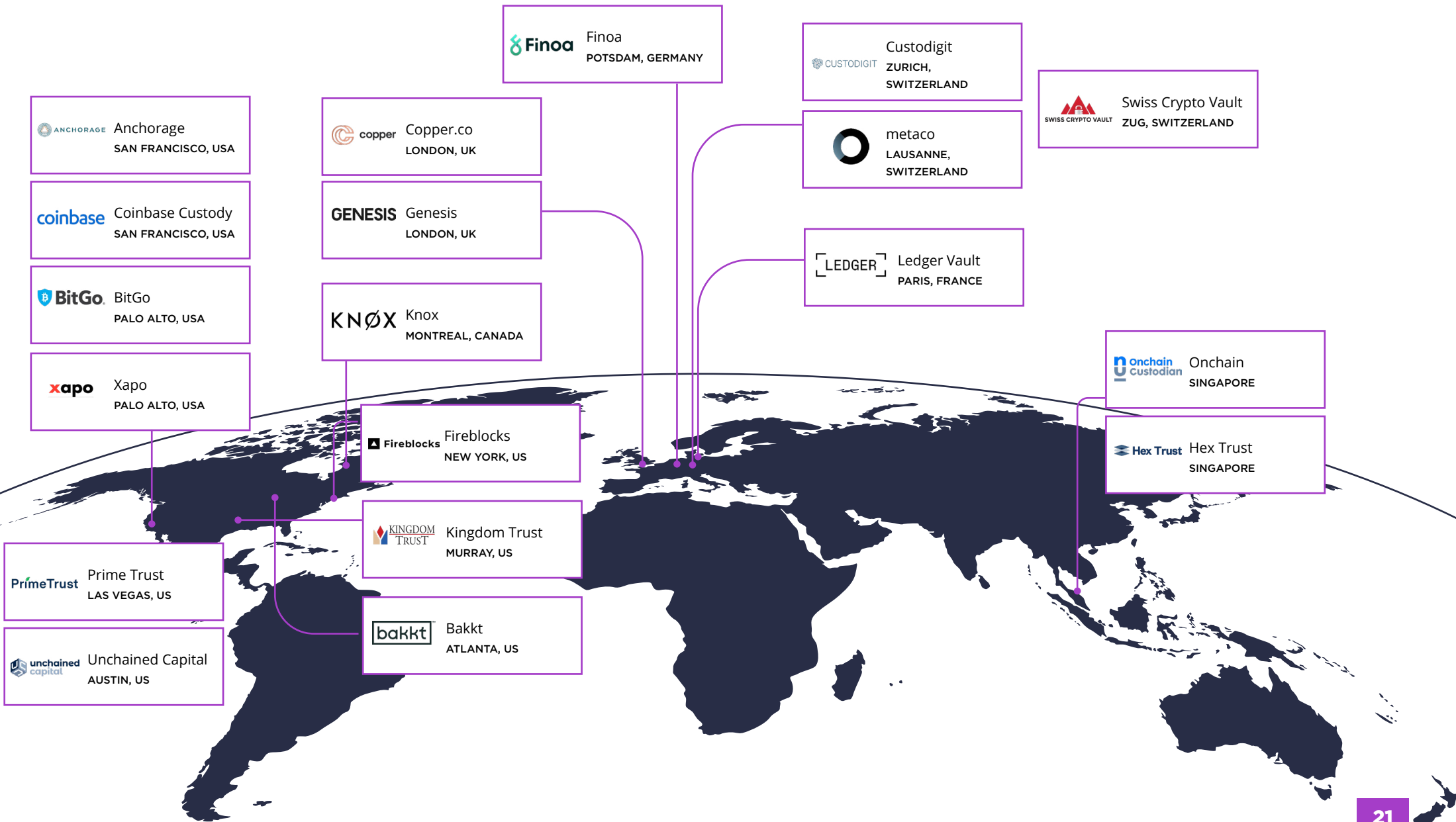
The highest valued crypto custody provider is Coinbase Custody. With more than [\\$90 billion assets](#) under custody, it holds around 40% of the global crypto assets under management. With its acquisition of Xapo back in 2019, the company has further strengthened its position in the market by providing custody to well-known players from the space, such as a16z and Polychain Capital.

BitGo is trailing closely behind Coinbase Custody with regards to assets under custody. According to [The Block](#), the firm has an estimated \$64 billion from its clients under custody. In early 2021 BitGo was acquired by Galaxy Digital in the first \$1 billion deal of the crypto industry until that date. It has also been the first custodian to accept wrapped assets such as wrapped Bitcoin, an asset type that represents assets that are not native to a specific blockchain.

Among the highest valued crypto custody providers is Fireblocks. With its [\\$550 million](#) raise in January and a valuation of \$8 billion, it is among the industry's leading giants. The company does not traditionally store its clients' assets but provides users with digital asset platforms and APIs to manage their funds in a self-custodial way. [Fireblocks](#) has reportedly handled over \$2 trillion worth of transactions over the past years since its inception.

Hex Trust recently raised [\\$88 million](#) at a valuation of \$300 million, providing crypto custody in the gaming sector. Crypto gaming has seen a massive increase in interest over the last year, and custodians have started to claim additional licenses to expand their services into this new sector.

CUSTODIANS



CUSTODIANS



ANCHORAGE

San Francisco, US

Institutional investors in digital assets no longer have to choose between peace of mind and asset productivity. Anchorage brings the world's most advanced and proven security architecture to cryptocurrency custody, making digital assets safe to hold and use.



COINBASE CUSTODY

San Francisco, US

Coinbase Custody is a standalone, independently-capitalized business and fiduciary under New York state banking laws, backed by an insurance program that protects both offline and online assets across Coinbase products. Major financial and security audit firms regularly audit Coinbase Custody.



FINOA

Potsdam, Germany

Finoa is a regulated custodian for digital assets offering custody and staking services to institutional investors and corporations. The platform enables users to manage their digital assets safely and efficiently, regardless of their familiarity with crypto.



BAKKT

Atlanta, US

The Bakkt Warehouse and Bakkt Bitcoin Futures and Options contracts serve institutional clients in an end-to-end regulated market with true price transparency. For consumers, Bakkt aggregates digital assets to enable instant liquidity and empower users to trade, transfer and pay however they want. Merchants within the Bakkt ecosystem see a lower cost of payment acceptance, enhanced customer engagement, and decreased loyalty liability through various redemption options.



COPPER.CO

London, UK

Developing next-gen digital asset infrastructure for those that know Copper builds infrastructure that will shape the financial services industry for a generation to come. They do it with the guiding principle that the problems their clients face can be solved efficiently, collaboratively, and securely to benefit the entire digital asset ecosystem.



FIREBLOCKS

New York, US

Fireblocks streamlines operations by bringing all your exchanges, OTCs, counterparties, hot wallets, and custodians into one platform. Wallets, deposit addresses, and API credentials are secured using patent-pending chip isolation technology and the newest breakthrough in cryptography (MPC). Institutions use Fireblocks to move funds securely in seconds – instead of hours.



BITGO

Palo Alto, US

Safeguard your digital assets with the world's most secure and compliant custody solution. Since 2013, BitGo has been the market leader in delivering institutional-grade security solutions for blockchain-based currencies. Built on BitGo's pioneering multi-signature security, BitGo Custody is purpose-built for securing today's digital assets. Clients seeking regulatory compliance can choose to have assets held by BitGo Trust Company, a qualified custodian focused exclusively on digital assets.



CUSTODIGIT

Zurich, Switzerland

CUSTODIGIT provides secure access to and storage of digital assets through an institutional investor-grade custody solution targeting regulated financial institutions. The platform covers the entire lifecycle of digital assets: safekeeping, access to exchanges, tax declaration.



GENESIS TRADING - VOIT

London, UK

Vo1t is a leading global custodian of blockchain assets. They combine cutting-edge system design with cybersecurity best practices to provide the world's most secure cold-storage vault. Their innovative solutions are robust and enable same-day access to your assets. Each client enjoys a dedicated account manager, ensuring the best service possible.

CUSTODIANS



HEX TRUST
Singapore

Access custody, DeFi, brokerage, and financing services built on regulated infrastructure with Hex Trust, the leading fully licensed and insured digital asset custodian in Asia.



LEDGER VAULT
Paris, France

Founded in 2014, Ledger is a leader in security and infrastructure solutions for cryptocurrencies and blockchain applications. Headquartered in Paris, Vierzon, New York, and Hong Kong, Ledger has a team of 170 professionals developing various products and services to safeguard cryptocurrency assets for individuals and companies – including the Ledger hardware wallets line already sold in 165 countries.



PRIME TRUST
Las Vegas, US

PrimeTrust holds cash and non-cash assets such as stocks, bonds, Bitcoin and other cryptocurrencies, tokens, real estate, and private business ownership interests. They act as custodians and trustees for many personal and corporate trusts and a major part of the crowdfunding industry. They work with individuals, corporations, lawyers, brokers, investment advisers, and others on holding and managing specialized custodial, escrow, and trust services.



KINGDOM TRUST
Murray, US

Kingdom Trust is an independent qualified custodian regulated by the South Dakota Division of Banking. They specialize in unique and innovative custody solutions for individual investors, investment sponsors, family offices, advisory firms, broker-dealers, and other investment platforms. They currently serve over 100,000 clients and have over \$12 billion in assets under custody.



METACO
Lausanne, Switzerland

METACO is the leading provider of security-critical infrastructure enabling financial institutions to enter the digital asset ecosystem. METACO brings together a diverse team of industry specialists in software, security, cryptography, and banking to transform the financial services industry. The company is deeply integrated into the banking sector through a growing network of strategic partners and institutional shareholders.



SWISS CRYPTO VAULT
Zug, Switzerland

Swiss Crypto Vault developed a proprietary ISAE 3402 audited piece-of-mind cold storage solution based on an HSM (Hardware Security Module). It applies the highest cryptographic, IT, and physical security standards, multi-party segregation, and multi-signing features. Swiss Crypto Vault is a technology provider and wholly-owned subsidiary of Bitcoin Suisse.



KNØX
Montreal, Canada

Managing Bitcoin keys is a usability and security trade-off. Operating robust technology, KNØX built its modular product for uncompromising service levels and simple integration.



ONCHAIN
Singapore

Onchain Custodian offers a global, standardized, resilient, insured, and compliant custody service for the safekeeping of institutional digital asset investments with incomparable user experience. ONC's solution is built with the flexibility to meet the possible futures of crypto custody.



UNCHAINED CAPITAL
Austin, US

Unchained Capital's mission is to build a Bitcoin native ecosystem that ensures everyone can secure and maximize the value of their bitcoin holdings over multiple generations. They believe bitcoin provides infrastructure for a free and open financial system far superior to current fiat standards. Their open-source tools and financial services leverage the bitcoin protocol to deliver safe, easy-to-use, and transparent products that empower clients to hold private keys.

CUSTODIANS



Xapo was founded to address two of the most significant issues with Bitcoin's success and adoption—accessibility and security. Xapo is expanding beyond Bitcoin to create a robust banking alternative that provides the same level of accessibility and security to all facets of your financial life.

XAPO

Palo Alto, US

05

DAOS



DAOS

The term DAO, an acronym for Decentralized Autonomous Organization (DAO), describes an organization managed by a transparent, autonomous piece of software. Neither the government nor shareholders can control the organization, making it a true vehicle of organizations native to the cyberpunk culture in which crypto culture has its roots.

Various business models are being tested in the DAO format, such as risk capital (VC), co-working, software development, insurance, and other financial products. The governance over decisions within the organization is distributed to its members using a governance token. This is mainly restricted to crypto native business, as it is still difficult to give a DAO a legal body to interact with stakeholders outside of the crypto space.

Some readers familiar with the DAO topic will know that one of the first DAOs suffered a major exploit, draining all of the funds in its treasury. The project called [“The DAO”](#) was an investor-directed venture capital fund. After this exploit, the Ethereum Community decided to hard fork the blockchain to restore the funds of the original contract.

A more recent hack was that of [BadgerDAO](#). This DAO focussed on bringing Bitcoin to DeFi on Ethereum, enabling protocols to use Bitcoin in their products and granting Bitcoin users access to the wide world of DeFi. Hackers were able to inject malicious JavaScript code on the BadgerDAO website, generating rogue transaction approvals. They waited for a couple of days until enough users approved their rogue transaction and pulled the

trigger on unbound tokens in the users’ wallets. This resulted in a total loss of \$120 million.

Nonetheless, in 2021, DAO treasuries experienced [more than 40x](#) value growth. At the time of this report, the DAO treasury was [\\$10.6 billion](#). The Uniswap DAO leads the field with \$2 billion worth of assets in its treasury.

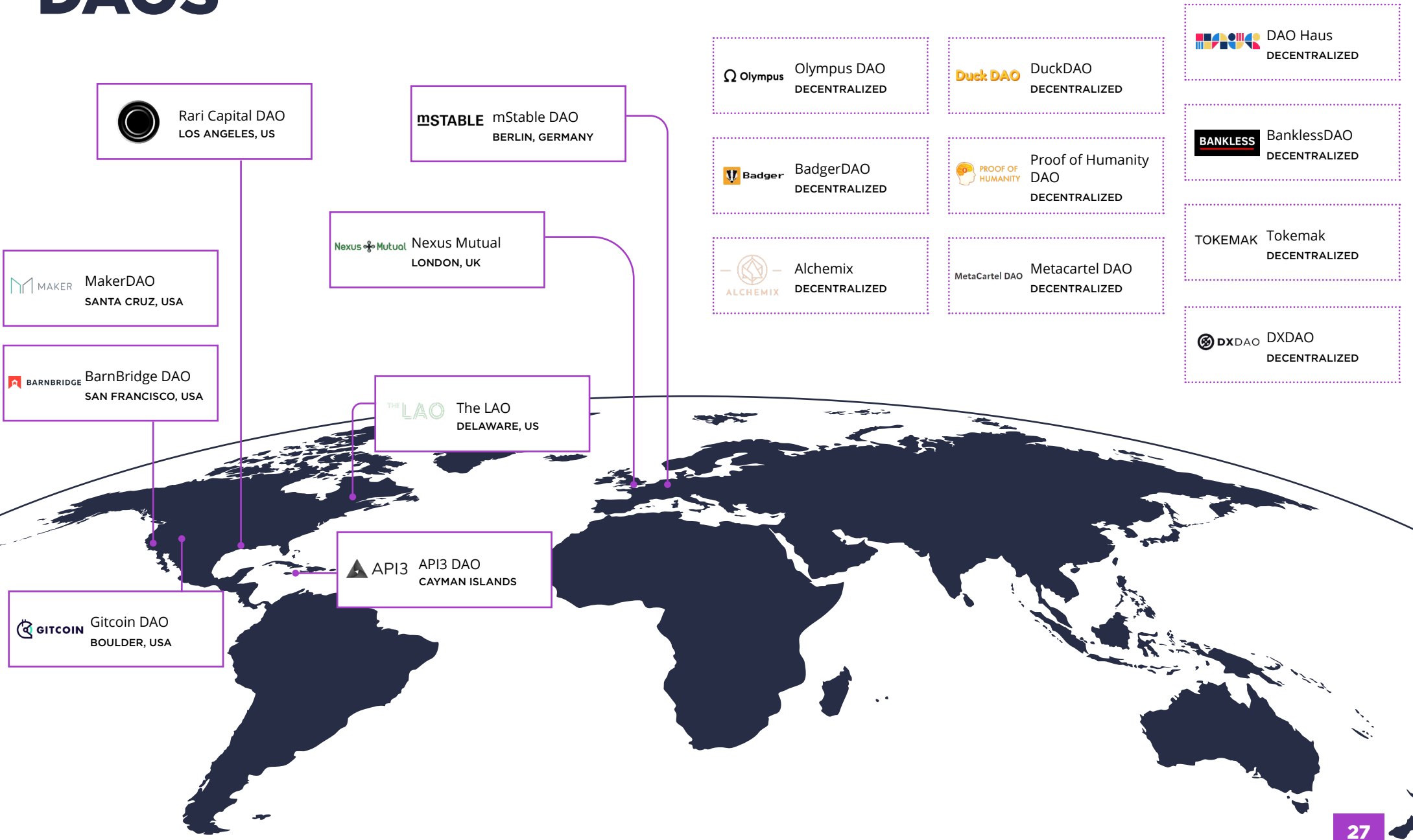
There are a few honorable mentions regarding the business models that DAOs deploy. First up is Flamingo DAO, an organization specialized in NFT art collections with a VC-style approach. The DAO is used to pool funds of the community, which are then invested in supporting the NFT ecosystem.

Another honorable mention for this category is the [Constitution DAO](#). The DAO got together and raised over \$46 million to buy one of the only 13 remaining copies of the United States constitution. Ultimately they were outbid at the auction for the Constitution, and the DAO decided to return the funds to all contributors.

Lastly, there is MakerDAO. This DAO aims to provide a decentralized stablecoin called DAI pegged to the dollar in a 1:1 relation. Effectively, being the largest central bank for DeFi bringing real-world assets on-chain. MakerDAO has become a vital backbone of DeFi, with \$9.4 billion in circulation.

The above showcases why DAOs are an exciting model for future crypto entrepreneurs. They enable builders and users to form collectives around a common cause they share without adhering to outside rules. Instead, the community around a project determines their collective ruleset in accordance with their common interest.


DAOS




 **Olympus** Olympus DAO
DECENTRALIZED

 **DuckDAO** DuckDAO
DECENTRALIZED

 **DAO Haus**
DECENTRALIZED

 **Badger** BadgerDAO
DECENTRALIZED

 **PROOF OF HUMANITY** Proof of Humanity DAO
DECENTRALIZED

 **BANKLESS** BanklessDAO
DECENTRALIZED

 **ALCHEMIX** Alchemix
DECENTRALIZED

 **MetaCartel DAO** Metacartel DAO
DECENTRALIZED

TOKEMAK Tokemak
DECENTRALIZED

 **DXDAO** DXDAO
DECENTRALIZED

DAOS



ALCHEMIX
Decentralized

Self-repaying loans - Spend and Save at the same time. Alchemix lets you reimagine the potential of DeFi by providing highly flexible instant loans that repay themselves over time. The synthetic protocol token (aUSD) is backed by future yield.



BANKLESS DAO
Decentralized

Bankless DAO is a decentralized community to coordinate and propagate bankless media, culture, and education. Its goal is to drive adoption and awareness of truly bankless money systems like Ethereum, DeFi, and Bitcoin.

Duck DAO

DUCKDAO
Decentralized

A decentralized Defi VC - DuckDAO projects get funded by the community and not by a for-profit venture. This way, you kickstart with the capital and the community you need.



API3 DAO
Grand Cayman,
Cayman Islands

First-party oracles are the next-generation technology to access off-chain data. API3 is leading the movement from legacy third-party oracle networks to first-party oracle solutions that deliver more security, efficiency, and data-source transparency.



BARNBRIDGE DAO
San Francisco,
US

BarnBridge is a derivative protocol that combines existing lending rates and yield products into "bonds." Said bonds are offered to DeFi investors at different levels of returns, and the risk is dampened by each product's risk/yield balance.



DXDAO
Decentralized

DXdao is a decentralized autonomous organization, or DAO, that develops, governs, and grows DeFi products. Spawnd in May of 2019, DXdao is a highly scalable collective focused on the DeFi ecosystem.



BADGERDAO
Decentralized

Badger DAO is a decentralized autonomous organization (DAO) that enables bitcoin to be used as collateral across decentralized finance (DeFi) applications.



DAO HAUS
Decentralized

DAOs give direct power to the people. Join us in pioneering a future where magic internet communities unlock the power of human-centric coordination.



GITCOIN DAO
Boulder, US

Gitcoin is creating community and infrastructure for Web 3 — a diverse range of tools, technologies, and networks that enable people to work for the open internet. By funding projects, building community, and making learning resources accessible, they are teaming up to create the digital public infrastructure of tomorrow.

DAOS



MAKERDAO

Santa Cruz, US

A better, smarter currency - Dai can be used by anyone, anywhere, anytime. Dai is a stable, decentralized currency that does not discriminate. Any individual or business can realize the advantages of digital money.



NEXUS MUTUAL

London, UK

Get covered against smart contract failure & exchange hacks. Nexus Mutual uses the power of Ethereum so people can share risks without the need for an insurance company.



RARI CAPITAL DAO

Los Angeles, US

Rari Capital delivered a relatively safe way that enables individuals to autonomously and efficiently earn yield on their stable assets in a lossless manner. From there, it transformed into a solution that leveraged yield farming strategies to increase the returns offered to users.

MetaCartel DAO

METACARTEL DAO

Decentralized

MetaCartel is an ecosystem of creators and operators building decentralized applications (DApps) - dedicated to building and connecting the application layer community of crypto.



OLYMPUS DAO

Decentralized

Olympus DAO's decentralized reserve OHM currency is intended to wean crypto markets off their unhealthy addiction to US dollars. The point of OHM is to act as a store of value, not pegged to the \$1 mark as are USDT, USDC, and others.



THE LAO

Delaware, US

The LAO is a project piloted by OpenLaw to create a new wave of DAOs in the form of limited-liability autonomous organizations. With the LAO, accredited investors can invest in the fund along with others and, as an organization, reach consensus on investments the fund will make for profit. The LAO is a global group of Ethereum enthusiasts and experts supporting the work of Ethereum builders.

mSTABLE

MSTABLE DAO

Berlin, Germany

mStable is a protocol that unites stablecoins, lending and swapping into one robust and easy to use standard. Meta is the governance token of the mStable ecosystem that governs the mStable protocol.



PROOF OF HUMANITY DAO

Decentralized

Proof of Humanity is a system combining webs of trust with reverse Turing tests and dispute resolution to create a Sybil-proof list of humans.

TOKEMAK

TOKEMAK

Decentralized

Tokemak is a novel protocol designed to generate deep, sustainable liquidity for DeFi and future tokenized applications that will arise throughout the growth and evolution of web3. It can be thought of as a decentralized market making platform and a liquidity router that disaggregates traditional liquidity provision and market making for DeFi.

06

DEFI



DEFI

A decentralized protocol can offer many financial services. Apart from exchanging cryptocurrencies, users can conduct lending and borrowing, staking, liquidity provision, yield farming, etc.

Some concepts are well known, such as liquidity provision, which market makers have traditionally conducted, or lending and borrowing, which banks have conducted on traditional markets. With these DeFi protocols, users can provide liquidity in both cases by pooling their assets in a smart contract providing financial service to others.

According to [The Block](#), DeFi exchanges surpassed the \$1 trillion trading volume in 2021. This remains a small part of the overall trading volume in crypto (\$16 trillion). Still, they have outpaced the volume growth of traditional crypto exchanges, thereby increasing their market share for the second year in a row.

The biggest decentralized exchange is Uniswap, with a seven-day transaction volume of over \$11 billion. Uniswap has more than 78% market share of DEX volume on Ethereum. There are other notable exchanges on different blockchains, such as PancakeSwap on the Binance Smart Chain. Still, none came close to the DeFi volume and relevance of the Ethereum Ecosystem in the past.

Decentralized lending and borrowing protocols attempt to eliminate banks as middlemen in the traditional lending business. According to Dune Analytics, the set of the largest three lending and borrowing protocols on Ethereum have an outstanding loan volume of approximately \$16 billion. Compared to the global lending market of \$6.9 trillion, this number is still comparably small and leaves room for growth.

Leading the pack is MakerDAO (listed under the DAO category), with over 980.000 loans outstanding and a total volume of \$9.6 billion. They have a 53% market share of the three main protocols, with AAVE sitting at second (28.2%) and Compound at third (18.7%). The borrow and lending rates are still quite volatile, although they have decreased in recent months. For Stablecoins, the stable (or fixed) borrow rates are currently between 10-12% on AAVE.

Yield farming, an investment strategy in DeFi, lets you lend or stake your cryptocurrency coins or tokens to earn rewards in the form of transaction fees or interest. This is similar to earning interest from a bank account, but you technically lend money to the protocol instead of the bank. Yield farming has become a common phenomenon, as projects started to offer their tokens in exchange for liquidity on their platform. This has resulted in extraordinarily complex yield farming strategies, depositing assets in a lending and borrowing protocol, taking out loans on said assets, and using these loans to provide liquidity in other places. The resulting strategies can be quite risky and even have systemic effects if, for example, prices drop and users start to get liquidated, resulting in further drops in asset prices. This phenomenon is called sell-off and cascading liquidations. In traditional markets, cascading effects had grave consequences for our economies. It remains to be seen how the crypto ecosystem deals with this in the future.

DEFI

0x
SAN FRANCISCO, USA

dYdX
SAN FRANCISCO, USA

The Graph
SAN FRANCISCO, USA

Compound
SAN FRANCISCO, USA

AAVE
LONDON, UK

UNISWAP
NEW YORK, US

1inch
BRITISH VIRGIN ISLANDS

UMA
CHICAGO, US

Balancer
LISBON, PORTUGAL

Bancor
ZUG, SWITZERLAND

Curve
ZUG, SWITZERLAND

Basic Attention Token
ZAGREB, CROATIA

yearn.finance
CAPE TOWN, SOUTH AFRICA

enzyme
ZUG, SWITZERLAND

LOOPRING
SHANGHAI, CHINA

Sushi
TOKYO, JAPAN

SYNTHETIX
SYDNEY, AUSTRALIA

PancakeSwap
DECENTRALIZED

convex
DECENTRALIZED

DEFI 2.0: TRUE ADOPTION OF DLT THROUGH STANDARDIZED FINANCIAL INFRASTRUCTURE

Decentralized finance (DeFi) creates a more efficient, transparent, and inclusive financial system. In a nutshell, DeFi uses smart contracts to replace intermediaries and conduct financial operations.

DeFi saw a tremendous innovation that attracted investors, developers, and speculators. Now, DeFi is entering a new era of development that will see Distributed Ledger Technology (DLT) become a core part of the global financial infrastructure as the lines between DeFi and TradFi become blurred.

In DeFi 2.0, innovators focus on addressing and improving the status quo of financial operations: current financial processes where DLT can provide additional efficiency, security, or automation. Making the promise of DeFi and the full potential of DLT a reality will require the creation and adoption of a blockchain infrastructure that is accessible, modular, interoperable, and standardized.

Importance of infrastructure

Cloud computing, which enables data storage resources to run without direct management by users, is the backbone of Web2. Infrastructure Platform as a Service (IaaS) and Software as a Service (SaaS) power the online world seamlessly. By 2025, it is predicted that 50% of all data will be stored on the cloud, and the industry will grow to USD 832.1 billion.

In a similar manner to what cloud computing provides to Web2, DeFi 2.0 will use DLT to process transaction data that will power the financial operations of the future. The additional innovation through smart contracts will come from execution based on this mass amount of transaction data.

What is required for DeFi 2.0?

The industry's processes and technology must be standardized and easy to integrate. Currently, interaction with DLT requires an in-depth technical understanding, specific applications, and cumbersome access processes. Easy integration and modularity of the technology must therefore be encouraged. A standardized API and SDK layer would allow interaction with the infrastructure, underlying protocols, and applications without elaborate smart contract coding or development.

Why is DLT the answer to finance's needs?

In almost all financial processes, coordination between parties is key. However, trust doesn't always exist between these parties, making processes administrative heavy and slow. DLT has the ability to change this due to its trustless nature and transparency. Transactions are easily traceable, and the setup requires less trust between parties.

There are several use cases in finance for DLT, such as borrowing, lending, staking, and liquidity mining. However, the application of blockchain technology has yet to complement existing financial operations or processes. Doing so would signal the mass adoption of DLT and its validation as an efficient, cost-saving instrument. The settlement of equity trades in traditional finance has a T+2 execution time, meaning that after you purchase or sell an equity on an exchange, you will only receive liquid cash after two business days. The

direct execution of blockchain transactions is much faster, enabling the verification of sufficient funds to permission and execute transactions in seconds. As the blockchain is transparent

to all market participants, clearing and settlements are faster and more efficient, so there's no need to reconcile multiple ledgers.

Benefits: Inclusion & Transparency

Public blockchains are transparent to everyone. Holdings are visible, and transactions are logged immutably, making the records extremely reliable and nearly impossible to defraud. This transparency does not infringe upon the privacy of the blockchain, as participants' activities, not their identity, are visible. Another aspect making blockchain finance desirable is its low entry barriers for developers and end-users. Blockchains are global networks that work across borders and jurisdictions. This means participants from all over the world can contribute, thereby including previously unbanked populations and creating a participative financial economy.

The day that financial institutions will leverage blockchain technology in their core processes and operations on a large scale is approaching. DeFi 2.0 has the potential to make finance more cost and process efficient, which will be essential for incentivizing organizations to adopt DLT. Through this, DeFi can enable a more transparent and participatory financial system that is inclusive, lucrative, and open to everyone.



Gerben van den Bergh
Chief Innovation Officer,
AllianceBlock



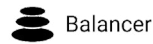
Joshua Forster
Head of Project Delivery,
AllianceBlock

DEFI



0X
San Francisco,
US

Founded in 2017, 0x Labs created and now partakes in the development of 0x protocol: a network of open-source infrastructure, tooling, and cryptocurrency-based incentives that allow for the decentralized exchange of any blockchain-based digital asset. 0x is a secure, publicly owned and governed, and upgradable standard that's abstracted away from application-layer developers and enables interoperability between blockchain-based applications.



BALANCER
Lisbon,
Portugal

Balancer is a community-driven protocol, automated portfolio manager, liquidity provider, and price sensor that empowers decentralized exchange and the automated portfolio management of tokens on the Ethereum blockchain and other EVM compatible systems.



COMPOUND
San Francisco,
US

Compound or Compound Finance is basically a decentralized marketplace for crypto investors which offers functionalities for lending and borrowing digital assets. Compound crypto is basically a decentralized protocol developed over a blockchain.



1INCH
Moon, US

The initial protocol of the 1inch Network is a DEX aggregator solution that searches deals across multiple liquidity sources, offering users better rates than any individual exchange. This protocol incorporates the Pathfinder algorithm, which finds the best paths among different markets over 70+ liquidity sources on Ethereum, 40+ liquidity sources on BNB Chain, 20+ liquidity sources on Polygon, 40+ liquidity sources on Avalanche, Optimistic Ethereum, Arbitrum, and Gnosis Chain. In just over two years, the 1inch DEX aggregator has reached 1M users and surpassed \$140B in overall volume on the Ethereum network alone.



BANCOR
Zug,
Switzerland

Bancor is the first decentralized trading protocol, empowering traders, liquidity providers & developers to participate in an open financial marketplace with no barriers to entry. No one needs permission to use the open-source Bancor Protocol.



CONVEX
Decentralized

Convex is a platform that boosts rewards for CRV stakers and liquidity providers alike, all in a simple and easy-to-use interface.



AAVE
London, UK

AAVE crypto is one of two tokens used on Aave. Lenders can deposit crypto in a pool with other investors and get what's called an aToken, which enables more accurate tracking of payments. Users who wish to borrow funds can post AAVE tokens as collateral, potentially earning a discount on loan fees.



BASIC ATTENTION TOKEN
Zagreb, Croatia

The Basic Attention Token is the new token for the digital advertising industry. It pays publishers for their content and users for their attention while providing advertisers with more in return for their ads.



CURVE
Zug,
Switzerland

Curve is a software that uses multiple cryptocurrencies to operate an automated market-making service focused on stablecoins (cryptocurrencies programmed to mimic other assets).

DEFI



dYdX is the world's leading decentralized exchange for advanced trading of crypto assets dYdX was founded by an ex-Coinbase, ex-Uber engineer, with a Princeton CS background. Their team has previous experience at Google, Bloomberg, Amazon, NerdWallet, Lyft, Facebook, and other top companies.

DYDX

San Francisco, US



PancakeSwap is a decentralized exchange built on top of the Binance Smart Chain, a quick and inexpensive alternative to Ethereum. The BSC is run by Binance, the owner of the world's largest cryptocurrency exchange.

PANCAKESWAP

Decentralized



The Graph is an indexing protocol for querying networks like Ethereum and IPFS. Anyone can build and publish open APIs, called subgraphs, making data easily accessible.

THE GRAPH

San Francisco, US



Enzyme is an easy-to-use DeFi asset management system that funds investment clubs, DAO treasuries, and companies can plug into. It simplifies interaction with DeFi by acting as an aggregator of protocols and making your asset management experience seamless.

ENZYME

Zug, Switzerland



SushiSwap is a software running on Ethereum that seeks to incentivize a network of users to operate a platform where users can buy and sell crypto assets. Similar to platforms like Uniswap and Balancer, SushiSwap uses a collection of liquidity pools to achieve this goal.

SUSHISWAP

Tokyo, Japan



UMA is an optimistic oracle that uses economic guarantees to secure markets. Unlike mechanically restrictive price feed oracles, an optimistic oracle can serve any arbitrary data on-chain. UMA's flexible oracle serves data for uses, including a cross-chain bridge, insurance, custom derivatives, and prediction markets, among other things.

UMA

Chicago, US



Loopring protocol can settle up to 2,025 trades per second while guaranteeing the same level of security as the underlying Ethereum blockchain. This is made possible by using a construction called zkRollup, which aggregates and executes transactions off-chain in a provably correct manner.

LOOPRING

Shanghai, China



Synthetix is a protocol that enables the issuance of synthetic assets on the Ethereum blockchain. Synthetix supports synthetic commodities like gold and silver, synthetic cryptocurrencies, synthetic inverse cryptocurrencies, synthetic cryptocurrency indexes, and synthetic fiat currencies.

SYNTHETIX

Sydney, Australia



The Uniswap Protocol is the largest decentralized trading and automated market-making protocol (often called a DEX, "Decentralized Exchange") on Ethereum.

UNISWAP

New York, US

DEFI

 yearn.finance

**YEARN.
FINANCE**

Cape Town,
South Africa

Yearn Finance is a suite of products in Decentralized Finance (DeFi) that provides yield generation, lending aggregation, and more on the blockchain. The protocol is maintained by various independent developers and is governed by YFI holders.

INSIGHTS FROM MICHAEL EGOROV

Michael Egorov is the founder of [Curve Finance](#), DeFi's leading Automated Market Maker (AMM), with nearly \$20 billion in total value locked. Curve specializes in high efficiency, low slippage trades among cryptocurrency assets.

The hype cycle around DeFi started early in the DeFi Summer of 2020. As always, the hype outran the reality. Only in 2022 is DeFi beginning to realize its potential to grow into a decentralized and highly efficient improvement upon the existing system.

Exchange Efficiency

The earliest attempts at creating AMMs launched the DeFi revolution. For the first time, this allowed for decentralized movement among assets for anybody who could access Ethereum. A multi-billion dollar industry was created almost overnight.

With these successes, the initial obstacles became apparent. Due to slippage, shallow liquidity, and low capital efficiency, large trades could not execute. Liquidity providers faced the risk of impermanent loss. Some trades between differentially priced assets became impossible when market conditions were volatile. The earliest generation of DeFi was useful under many conditions but broke down under extreme market conditions, precisely when DeFi was needed most. Centralized exchanges would suddenly go offline during market volatility. When traders looked to DeFi as an alternative, they would find it effectively non-functional at the same time.

Fortunately, these early problems are resolved with the newest generation of DeFi products. In late 2022, we launched Curve v2 pools to automatically rebalance liquidity ranges whenever prices moved. This guarantees exceptionally efficient trading conditions even in the most volatile market conditions. Instead of relying on oracles that occasionally misprice assets during extreme conditions, these pools tracked prices internally.

Curve v2 has now been battle-tested through two flash crypto market crashes. During these periods, traders weathered the crash with high liquidity, low slippage, and 24/7 uptime for the first time. Unsurprisingly, Curve generated record fees when all others were panicking. Curve has since launched dozens of new v2 pools, which allow traders to enjoy highly complex routing, allowing trading between the most popular assets in any condition.

When asked to forecast the market, J.P. Morgan once famously answered, "It will fluctuate." Similarly, we know cryptocurrency markets are likely to fluctuate, often violently, in the months and years ahead. For the first time, DeFi is prepared for such foreseeably extreme conditions.

Governance

With uncertain geopolitical conditions, many DeFi protocols have responded with a greater emphasis on decentralization. Projects that successfully decentralize become highly resilient and capable of surviving the most hostile macro conditions. Curve was early to decentralize, and its success has become something of a template for other projects.

Currently, protocols seek to solve the problem of aligning their long-term objectives with the needs of their community. Protocols that generate fees from activity are always wise to share these fees with their users. Half of all Curve's trading fees are automatically given to long-term stakers. This creates a virtuous cycle in which users seek to acquire and lock more value into Curve.

We also see some projects try the opposite, looking to centralize more in reaction to these macro conditions. These projects seldom survive in the long run. The future will be kind to protocols that do the difficult work of aggressively decentralizing today and ensuring long-term survival as the global environment becomes harsher.

Cross-Chain

An important trend causing short-term growing pains to generate long-term resilience is the rise of cross-chain offerings. Most of the recent growth in DeFi has happened on sidechains and L2s. Bridging funds remains dangerous and an epicenter for hacks. Fortunately, these problems are beginning to resolve as more builders reinforce cross-chain solutions. We see the most successful sidechains are those that attract a vibrant ecosystem of DeFi services.

Ethereum alone is not likely to onboard the next billion users itself. We know the future of cryptocurrency is multichain. DeFi has already attracted nearly \$200 billion in total value locked. We'll surely see this number grow past \$1 trillion in the future, a size at which the industry will gather enough momentum to become unstoppable.

Trends

The early days of DeFi are nearly unrecognizable, compared with the new products we see launching now. Whenever traditional finance is moved on-chain, a wave of innovation is always necessary to adapt these concepts to the constraints of blockchain programming. For example, when exchanges moved on-chain, the new concept of an AMM (automated market maker) emerged. Today, builders of DeFi are starting to successfully tackle lending, forex, options, and derivatives. All of these concepts are reimagined as they move on-chain.



Michael Egorov
Founder of Curve Finance

07

LAUNCHPADS



LAUNCHPADS

Initial Exchange Offerings (IEO) and Initial DEX Offering (IDO) are two versions of launching a token. In an IEO, centralized exchanges help issue a token providing a market on their exchange platform at the same time of the launch. IDO platforms, also known as crypto launchpads, specialize in launching new currencies or crypto projects and raising liquidity. Launchpads have an essential role in the ecosystem, enabling crowdfunding through cryptocurrencies. They provide a stage for new projects, allowing them to raise funding and help build their community by promoting to a broad audience. They are typically built around an ecosystem token that can be used as an entry ticket to the projects launched on the platform. Users need to own a certain amount of said tokens to be whitelisted to invest in upcoming projects.

There are various options for projects to choose from and many ways in which tokens can be sold. For example, there is the Dutch auction, a market structure in which the price of something offered is determined after taking in all bids to arrive at the highest price at which the total offering can be sold. In this type of auction, investors bid for the amount they are willing to buy in terms of quantity and price. Another way would be the fixed swap, an auction with a fixed price. When the user buys, he has to make a deal with the auctioneer based on a set price. Lastly, there are closed bid auctions, where all bids are automatically filled in the smart contract. The filling goes from the high price to the lowest until all tokens in the pool have been sold.

Quality control is a major factor for launchpads. They want to ensure that the investors make money on the projects launched on their platform to attract more investors and pursue other projects.

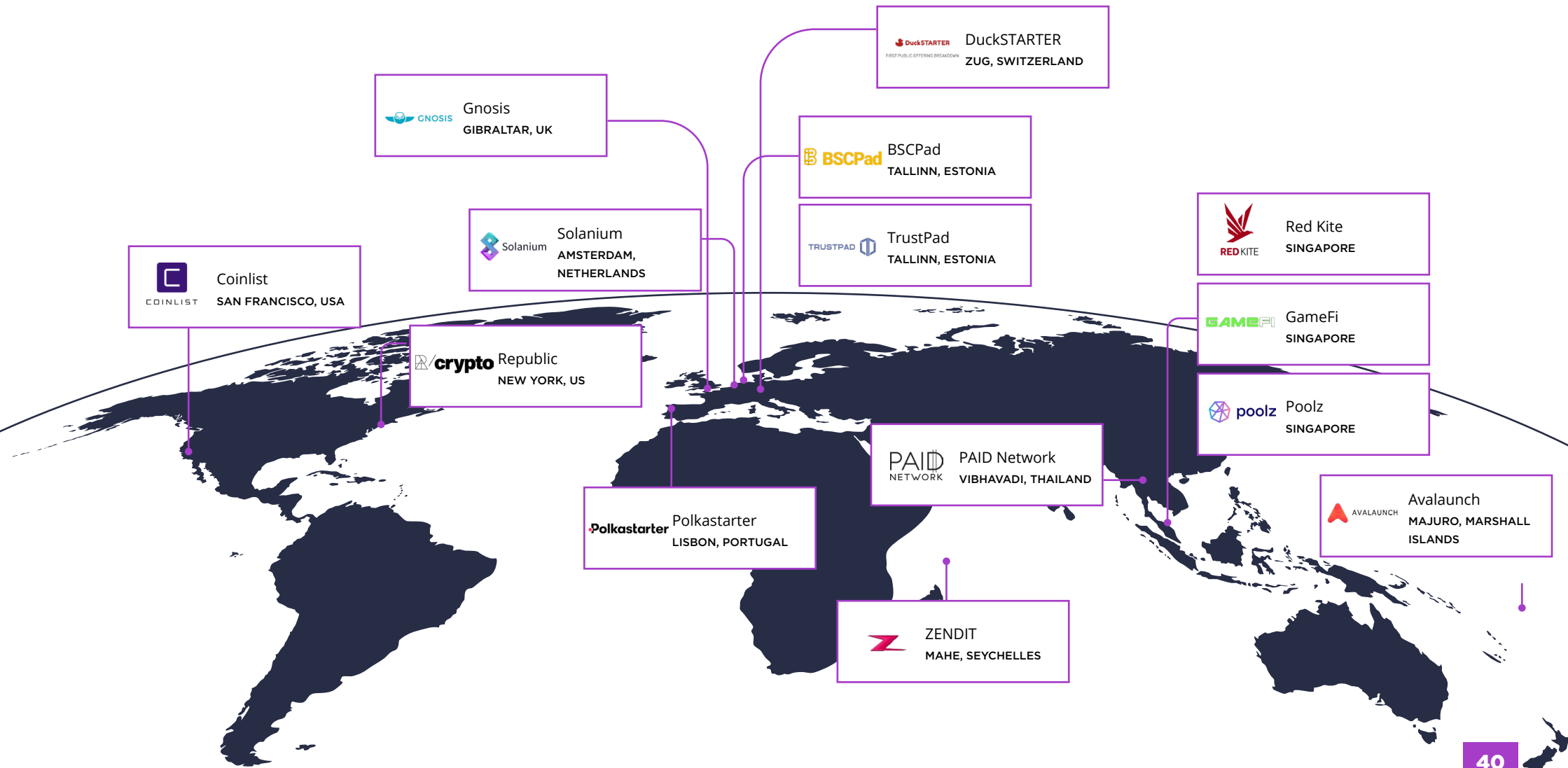
Many launches turn out not as successful as an investor might hope after the initial hype of a project dies down, which is one of the reasons many people feel dubious when looking at some launchpads. Community engagement and long-term investors are what projects aim for to reduce these pump and dump schemes from happening.

[Cryptorank](#) provides users with an overview of the profitability of many IDO Launchpads. The data they display has not been validated and can not be relied on, but it provides useful estimates of the success that leads many investors to invest in launchpads. With 96 successful IDOs, DAO Maker leads the group with an average current ROI of 368%. The second and third are Seedify and GameFi, with 275% and 253% ROI. The all-time high (ATH) ROIs show just how insane the price volatility of these early-stage projects is. GameFi leads the group with an incredible ATH ROI of 5989%.

One of the platforms that does not work with a token-based business model but instead as an IEO is the Binance Launchpad, a part of the Binance Exchange. They have previously helped big projects such as PancakeSwap or the Injective Protocol launch. They claim to have raised over \$130 million for 63 projects that launched over their platform, with more than 3.4 million unique participants in all launches combined.

LAUNCHPADS

 DAO Maker DECENTRALIZED	 Binance Launchpad DECENTRALIZED	 Seedify DECENTRALIZED
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LAUNCHPADS



AVALAUNCH

Majuro,
Marshall Islands

Avalaunch is the first protocol exclusively for the Avalanche ecosystem to offer promising and innovative projects a fast, secure, and efficient platform for decentralized fundraising.



COINLIST

COINLIST

San Francisco,
US

CoinList, one of the fastest-growing crypto-financial platforms, is where the world's best crypto projects build their communities, and early adopters can invest in and trade top-tier digital assets.



GAMEFI

Singapore

Game Fi is the world's first IGO Launchpad, that is, a platform designed to launch game projects that are based on blockchain technology. As a reminder, Launchpad is a platform for raising funds for an early-stage crypto project from retail investors rather than funds.



BINANCE LAUNCHPAD

Decentralized

The Binance Launchpad is the exclusive token launch platform of Binance, aiming to support the crypto ecosystem by offering first-look access to quality projects to all Binance users.



DAO MAKER

Decentralized

DAO Maker is a growth technologies provider that creates SaaS solutions for budding and growing crypto startups. Its flagship product is the DAO Pad, a multi-investment platform that allows DAO token holders to participate in early-stage token sales for stringently vetted upcoming projects.



GNOSIS

Gibraltar, UK

Gnosis Auction is a platform for conducting fair, transparent, and decentralized token price discovery.



BSCPAD

Tallinn, Estonia

BSCPpad is the world's first Binance Smart Chain Network launchpad. Launchpad is a platform for raising funds for an early-stage crypto project from retail investors, not funds. As a reward for participating in an early-stage project launch.



FIRST PUBLIC OFFERING BREAKDOWN

DUCKSTARTER

Zug,
Switzerland

DuckSTARTER is DuckDAO's public token launchpad, a service platform for blockchain projects. It will act as the final bridge between early-stage projects and the community before the project goes fully public.



PAID NETWORK

Vibhavadi,
Thailand

PAID Network is an ecosystem DAPP that leverages blockchain technology to deliver DeFi powered SMART Agreements to make business exponentially more efficient. They allow users to create their policy to ensure they Get PAID.

LAUNCHPADS

Polkastarter

POLKASTARTER

Lisbon,
Portugal

Polkastarter, a Protocol built for cross-chain token pools and auctions, enabling projects to raise capital on a decentralized and interoperable environment based on Ethereum, Binance SmartChain, Matic Network, and other blockchains.

Republic

REPUBLIC

New York, US

Republic is a startup investing platform for everyone. They allow regular people — not just a few wealthy accredited investors — to invest in highly vetted private startups, with as little as \$10 or as much as \$100,000 per investment.

TRUSTPAD

TRUSTPAD

Tallinn, Estonia

Announced in April 2021, Trustpad is a permissionless, multi-chain fundraising platform for crypto projects that aims to kickstart their launch in the space via IDO capital raising while guaranteeing exclusive access and prime blockchain security to early projects investors.

poolz

POOLZ

Singapore

Poolz is a decentralized cross-chain IDO platform built on Web 3.0 infrastructure to enable crypto projects to raise funds before listing. The Poolz platform has already integrated with many different blockchains and has discussions with more than 10 of the biggest blockchain networks.

Seedify

SEEDIFY

Decentralized

Seedify is a blockchain innovation hub with a DAO-driven seed-stage fund, decentralized incubator, and launchpad for empowering the next innovations of the blockchain ecosystem through community-driven governance, feedback, involvement, and funding mechanisms.

ZENDIT

Mahé,
Seychelles

As a launchpad platform, ZENDIT employs a decentralized fixed swapping protocol with many advantages, such as providing transparency on the number of tokens offered during a token launch and neutralizing the risk of bad actors artificially inflating token price then dumping.



RED KITE

Singapore

Red Kite is a cutting-edge launchpad and Defi platform powered by PolkaFoundry. Hold \$PKF to access hand-picked projects' token sales and other distinctive features.

Solanium

SOLANIUM

Amsterdam,
Netherlands

Solanium is one of the first launchpads in the Solana network. The Launchpad is a platform to raise funds for an early-stage crypto project from retail investors rather than funds. Investors get early access to innovative product features as a reward for participating in an early-stage project launch.

08

MARKET MAKERS



MARKET MAKERS

In a liquid market, buying or selling a digital asset at a minimal spread at any time is conceivable without creating a significant price shift. A liquidity provider is a company that offers both the buy and sell prices of a token at all times, making tokens and exchanges liquid and allowing for a well-functioning market to exist. Consequently, the digital asset ecosystem will only function if exchanges, token issuers, and liquidity providers collaborate to provide liquid and orderly markets, ultimately improving market participants' user experience.

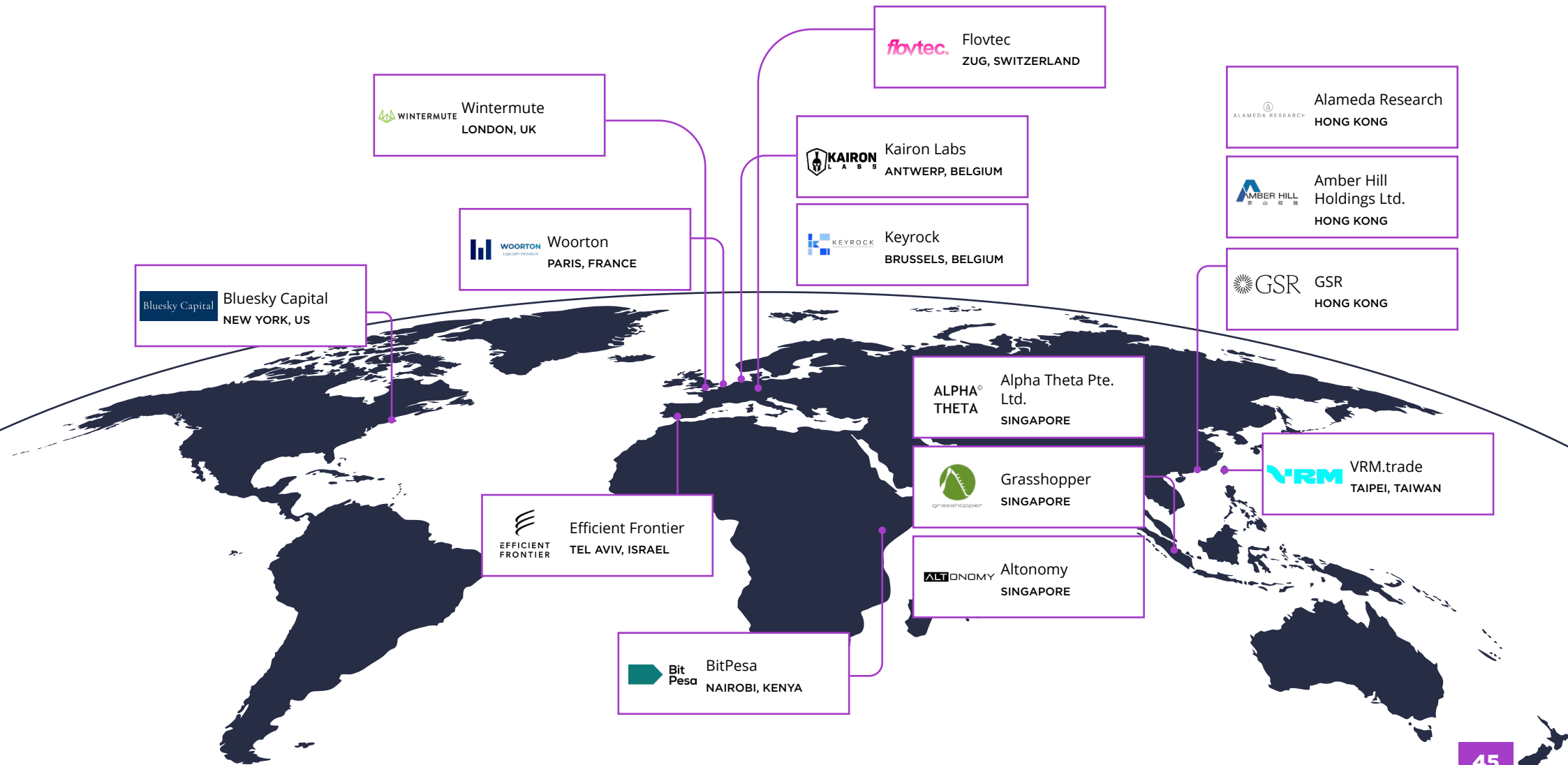
This concept has not changed much in the digital asset space, but the execution has diverted from market makers in traditional markets. Especially in decentralized markets, new concepts of liquidity entered the space. Liquidity providers, retailers, and institutions can provide liquidity to the market by pairing their assets in liquidity pools facilitating trades. Prices of assets in these pools are automatically calculated by an algorithm, therefore terming this an automated market maker or AMM.

Especially in crypto, market makers have the important role of providing liquidity for project tokens, allowing traders and investors to buy and sell at lower spreads. This is often crucial for the project development, as the team has issued its token, raising funds in exchange. The project profits if the token it has issued has higher liquidity, making it easier for retail investors to buy the asset. Another important feature for many projects is a centralized exchange listing. There is usually a minimum trading volume requirement at the more prominent centralized exchanges. Market-making plays an important role in assuring

that the token ask/bid price of the project does not spread too far, making trading more attractive for traders.

Crypto market makers are on the rise as the industry is booming and many projects are entering the market. The industry is a mix of upcoming market-making firms that have been founded by crypto native teams such as Alameda Research, B2C2, Cumberland, and Genesis Trading and traditional companies such as Jump Trading and Jane Street. According to the Financial Times, Alameda Research, which Sam Bankman-Fried established in 2017, is trading almost \$5 billion worth of coins daily. Furthermore, The Times outlines a clear trend of the last months - the traders are slowly shifting away from centralized exchange platforms, and so are the market makers. According to B2C2, their revenue has previously been almost entirely made on centralized exchanges. It has diverged into other decentralized platforms and new business models such as lending and exploiting inefficiencies in the DeFi space. Traditional Wall Street firms such as Jane Street have also turned to crypto, viewing this as a clear growth area and embracing the new opportunities they find in crypto. Over the last year, we have seen other firms such as PayPal turn to crypto, a trend that will likely speed up, resulting in more market makers and hedge funds joining the industry in the future.

MARKET MAKERS



BREAKING THROUGH THE ASPHALT

Perhaps no new technology up to this point has received as much backlash and criticism as crypto. Ponzi schemes, excess energy consumption, environmental damage, and many others have contributed to this. However, these challenges don't affect the users' enthusiasm; instead, they fuel it! Cryptocurrencies work similarly to a flower, breaking their way through the asphalt. Their determination to survive is so powerful that they can overcome any obstacle standing in their way.

Rethinking the role of cryptocurrencies

Right now, in a time of escalated geopolitical tensions, as well as unrest in both the stock and currency market, is when we see crypto's most valuable advantage - independence, most clearly. The ability to save and protect your funds while managing assets safely is vital considering the current restrictions. Having access to such a potent tool essentially creates an entirely new financial system that the world can lean on, along with a stable global currency. Considerable crashes of various currencies worldwide (see the picture) demonstrate the full scale of offset into crypto, with the volume of funds still increasing. There is a significant trend of turning cryptocurrencies into a fully-fledged financial instrument working under its own regulations, which are based on the consensus of the people rather than the will of the authorities. Further evidence of this is the vigorous flow of funds from centralized exchanges to DEXs. In the last six months only,

this transition has doubled in speed, and I predict that we will only see a further increase in the near future.

The market. Small steps to get matured

Traders still make up the main driving force of the market, with 70-90% of the total crypto trading volume consisting of HFTs and MMs. Following these guys and their evolution on the crypto scene is vital as it allows us to understand what to expect further down the line. First, it is driven by large CEXes that started to care not only about the trading volume - push traders to trade more, but also to create matured market for other customers. So the exchanges focus now on keeping the tide price spread, providing liquidity to different layers of the order book, etc. Second, comes from developing exchanges. This part is growing fast and using captive MM to generate profit. Of course, no competition is possible there. You will never beat the internal team, no matter how genius your trading strategy is. However, there are some changes too. Some of the developing exchanges started allowing external HFTs to trade with proper conditions on profit sharing. This proves that the market is tight, and only the best strategies can survive.

Another vivid market trend is MM for particular listed coins. Coins need to hire MM to support the order book, volume (sometimes even wash trading), and K-line. The market for this kind of service is still quite shady, and nobody discloses anything there. However, the price for MM is getting down dramatically. It has plummeted

from 20-50 KUSDT/m (in 2017) to 1-3 KUSDT/m (+ some profit sharing). So it is another proof that the time for wild profit out of nothing is over, and now it is the time

for professional services only.

Digital Banks

The banking industry isn't currently having the best of times.

Aside from the familiar problem of liquidity and overuse of assets, to which the system was more or less able to adapt, there is a visible trust crisis today. There is a growing number of regulations, inspections, bans, and subsequently more reasons to seek alternative methods of controlling your finances. The popularity of operations in cryptocurrency is growing exponentially, offering efficient alternative solutions. However, the world of classic fiat and cryptocurrency continues to coexist. The appearance of methods to bridge the gap between fiat and cryptocurrency still cannot answer the question: why do we need two separate financial systems in the first place? It is evident that eventually, the world of finance will shift to a sole financial system with cryptocurrency (at least technologically) playing a significant part in this new system. The baseline of the new financial system is actively forming as a digital bank. In this present moment, there is an accumulation of so-called "critical mass" made up of various components of the future concept of a digitized bank. The speed at which this is advancing allows us to predict that this system will be brought to light this forthcoming year.



Vladimir Demin
Chairman, VRM.trade

MARKET MAKERS



ALAMEDA RESEARCH
Hong Kong

Alameda Research is a quantitative cryptocurrency trading firm and liquidity provider. According to the firm, it manages over \$100 million in digital assets and trades \$600 million to \$1.5 billion daily across thousands of products: major coins and altcoins, as well as their derivatives.



AMBER HILL HOLDINGS LTD.
Hong Kong

Amber Group focuses on electronic market-making and systematic trading in digital currencies - covering spot, futures, swaps, options, and other derivatives. It provides liquidity for miners and mining pools, exchanges, hedge funds, and token issuers. According to the firm has executed over \$100 billion of trades across all products and categories since inception.



EFFICIENT FRONTIER
Tel Aviv, Israel

Efficient Frontier is a crypto algorithmic trading firm and market maker with over 13 years of experience in traditional markets and three years in crypto. They trade over \$100M a day in spot and derivatives markets.

ALPHA THETA

ALPHA THETA PTE. LTD.
Singapore

AlphaTheta are experts in finance, trading platforms & analysis, and blockchain technology. They provide valuable support and guidance through the complexity of crypto markets. Their technology is built in-house by our talented team of engineers who have created robust algorithms specifically designed for cryptocurrency markets.



BITPESA
Nairobi, Kenya

BitPesa is a digital foreign exchange and payment platform that leverages blockchain settlement to significantly lower costs and increase the speed of business payments to and from frontier markets. BitPesa is a market-maker in every major African currency and opens corridors for business payments and trade between frontier markets and the rest of the world.



FLOVTEC
Zug, Switzerland

flovtec provides liquidity to tokens & exchanges and offers investment products for institutional & professional investors. They have extensive experience in the digital assets space and a proven track record in asset management. They run a low-latency trading infrastructure and a set of fully automated & highly successful trading algorithms that enable them to provide liquidity to any token on any digital asset exchange.

ALTONOMY

ALTONOMY
Singapore

According to Altonomy, it has direct partnerships with more than 80 token issuers, among which 40-plus are ranked top-200 by market capitalization, as well as top global and regional investment funds. Headquartered in Singapore, Altonomy closed a \$7 million round funded by Polychain Capital last year.

Bluesky Capital

BLUESKY CAPITAL
New York, US

Bluesky Capital is a leading global quantitative investment manager and digital assets market maker. Founded in New York in 2014, they bring substantial experience in the quantitative investment and trading space. Their main competitive advantage resides in their rigorous quantitative approach, the team's expertise, and substantial investment in proprietary technology.



GRASSHOPPER
Singapore

Grasshopper is a leading Singaporean proprietary trading firm providing liquidity in global markets. We are technology-led, innovation-driven, and heavily invested in developing the competencies of their people.

MARKET MAKERS



GSR

Hong Kong

Founded in 2013, the firm is one of the oldest established institutional market makers for digital assets. It is a recognized innovator in developing digital asset derivatives, algorithmic solutions, and proprietary trading strategies. The GSR leadership team consists of finance and technology executives from Goldman Sachs, Two Sigma, Nomura International, IBM, and Oracle, among others.



VRM.TRADE

Taipei, Taiwan

VRM.trade is a digital currency trading platform based in the EU, mainly focused on quantitative high-frequency trading strategies on the crypto market.



KAIRON LABS

Antwerp,
Belgium

Founded in late 2018, Kairon Labs is based in Belgium and the Netherlands and offers market-making for all utility tokens using proprietary trading software.



WINTERMUTE

London, UK

Founded in July 2017 by three senior Optiver traders and developers with the mission to professionalize crypto market making, Wintermute Trading is one of the top global algorithmic market makers in crypto. They trade over 500 trading pairs on over 40 vetted exchanges, in both spot and derivatives.



KEYROCK

Brussels,
Belgium

Founded in Belgium in 2017, Keyrock are cryptocurrency market makers building scalable, self-adaptive algorithmic technologies to support efficient digital asset markets. Through a combination of in-house algorithmic trading tools, high-frequency trading infrastructure, and industry expertise, Keyrock provides unparalleled liquidity services to tokens, exchanges, and brokerages within the cryptocurrency ecosystem.



WOORTON

Paris, France

As a leading European market maker, Woorton generates deep liquidity that helps to create more efficient markets. Their liquidity is powered by innovative, proprietary technology and designed to automate market making and post-trade processes.

09

NFTS & THE METAVERSE



NFTS & THE METAVERSE

Non Fungible Tokens are groundbreaking for the digital economy. They enable digital asset ownership to be unique and identifiable. NFTs first appeared back in 2014 with the first known art NFT, “Quantum.” Since then, technology has experienced an incredible rise. Today, there are many more use cases in multiple industries such as art, collectibles, gaming, conferences, etc.

Multiple markets face massive disruption based on the technology of unique digital representations. Enabling individuals to own their digital assets has brought a new economic incentive to the crypto world, and along with it came a large number of new users to partake in this movement. After the first few artists started, mainstream media reported that big stars from Hollywood such as Paris Hilton, Eminem, Justin Bieber, and Stephen Curry have joined in buying and creating NFTs.

Some NFT projects started as early as 2017-2019 and remained primarily unrecognized during the “Crypto Winter.” Many of them have seen massive growth over the last year, pushing the total volume of NFTs to never imagined highs of over \$23 billion in 2021 alone.

The top project to mention by trading volume is Meebits, with a total volume of over \$7.5 billion since its inception in May 2021. The project consists of 20,000 3D animated characters made by Larva Labs. Larva Labs are the creators of multiple big NFT projects, starting with the [Crypto Punks](#) as early as June 2017 and Autoglyphs in 2019. A single punk currently trades for 71 Ethereum, which equals around \$210,000 at the time of writing, their total trading volume since conception amassing \$2.67 billion.

The Crypto Punks are one of the OG collections in the space, comparable to the Crypto Kitties, which were launched in late November 2017.

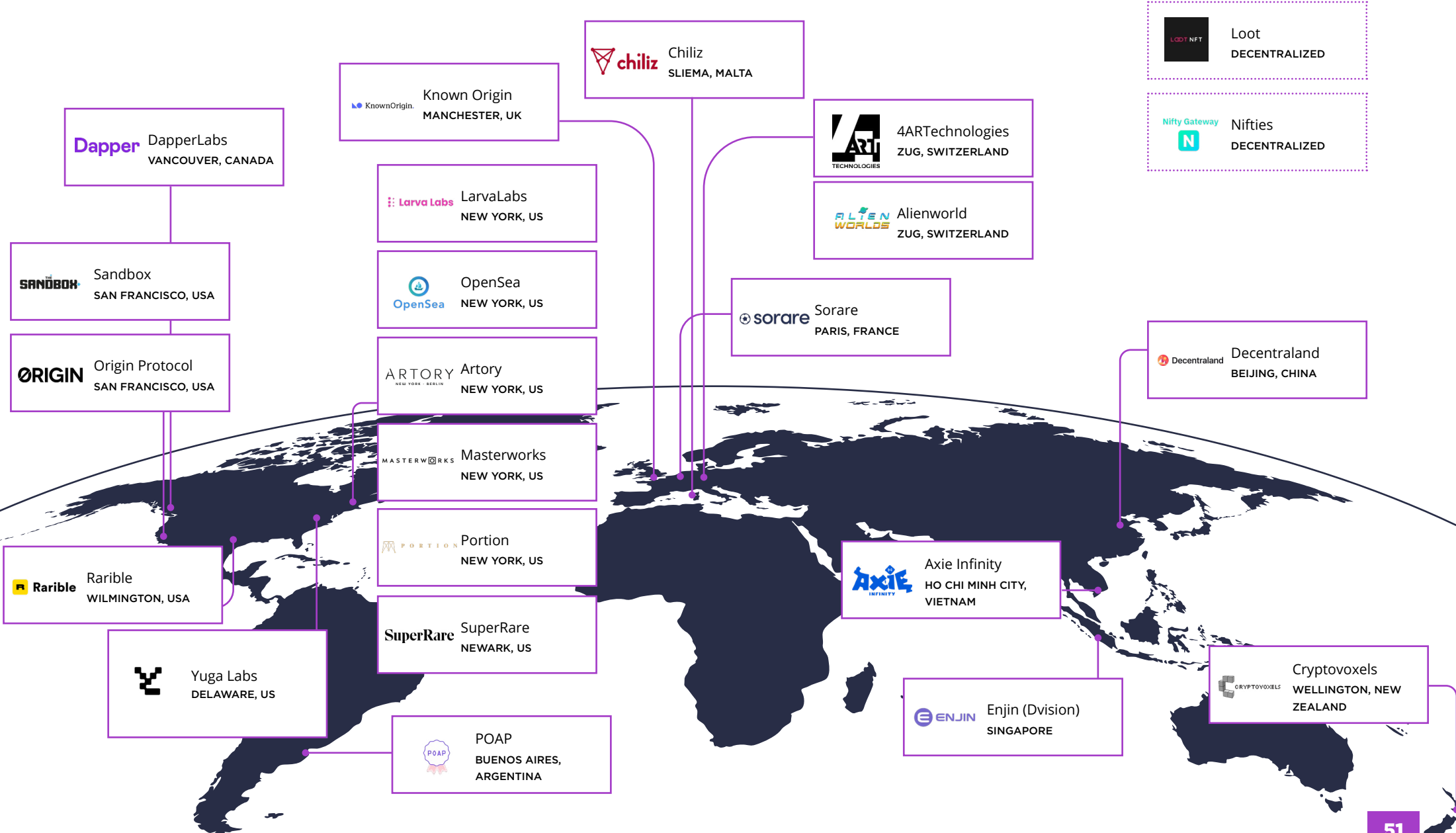
Update: During the time of writing, Yuga Labs, the inventors of Bored Ape Yacht Club (the 5th biggest NFT collection by all-time volume of [\\$1.41 billion](#)), has bought the [IP rights of Crypto Punks and Meebits](#) from Larva Labs. They went on to distribute the commercial rights to the owners of the NFTs through the so-called CC0 (Creative Commons Licenses). A few days later, Yuga Labs announced a raise of \$450 million led by a16z, giving the company a whopping \$4 billion evaluation.

Axie Infinity has brought blockchain gaming to the masses. With more than 1.9 million traders and a total trade volume of \$4.17 billion, the game has completely revolutionized the [blockchain gaming industry](#). Sky Mavis released the game in March 2018, and the company has grown to a \$3 billion evaluation at their latest raise in October 2021, where they raised \$150 million in a Series B. In many low-income countries, the game has become an income source for players, making it a well-paid profession for some to pursue.

NFTs and their intellectual property rights have been a major topic of discussion that lawyers and artists alike have been trying to solve throughout the last year. Legal ambiguity persists until regulators can create more clarity for the consumer. More critique has come from within the crypto space, as many artworks are stored on a centralized server and are therefore not owned by the buyer of an NFT. The buyer only owns the token associated with

the art, but the underlying art can be replaced, which has been shown on an OpenSea NFT drop. The artist replaced all NFT jpegs with pictures of rugs, as [Cointelegraph](#) reported, displaying how easy it is to take away the art component of the NFT. There are already solutions on the way to decentralize the data storage issue behind NFTs, but there is still work to do until this is truly resolved.

NFTS & THE METAVERSE



HOW NFTS, DAOS & DIGITAL PROPERTY RIGHTS WILL BOOST ECONOMIC ACTIVITY IN THE METAVERSE.

Today the focus is on NFTs and the Metaverse, but Web 3.0 offers far greater opportunities than the current hype around collectibles and celebrities.

The key to success lies with 'digital ownership' and it is here that NFTs and DAOs have an important part to play.

NFTs are unique digital representations of objects or possessions that are registered on the blockchain - the things that we buy, sell and own in our virtual lives. DAOs are Internet-based organisational structures that people collectively manage and own. A DAO typically has a built-in treasury to spend its budget, which is controlled by group approval ensuring that everyone has a voice.

In the future, we can foresee that NFTs will provide digital property rights to billions of people, covering physical as well as digital goods and all kinds of information, including the private data that we generate every day online but currently have no control over. Ownership in the virtual world will be just as important tomorrow as it is today in the real world and DAOs will play a key coordinating role.

Web 3.0 and the focus on value for each user

Different technologies are now enabling experimentation in the Metaverse. Cryptocurrency, NFTs, DAOs, VR, AI and cloud computing will serve as the building blocks for future growth in a virtual world.

The current Web 3.0 revolution which will deliver value through property rights that are accessible to everyone has much in common with the early development of the internet during the 1990s.

This breakthrough is sorely needed because of the erosion of free access to the internet due to recent 'net neutrality' legislation changes in the US. Today It is dominated by corporate giants such as Facebook and Google who leverage users' personal data to deliver highly targeted advertising, while retaining immense profits.

Similarly with video games, publishers such as Epic Games (Fortnite) and Roblox retain ownership and prevent players from benefiting substantially from the time, money and effort invested in their games.

While the internet's early promise of open and free access to information has been significantly diluted, NFTs and DAOs offer the potential to enhance user privacy and improve the quality of life for everyone who interacts with digital technology.

How NFTs and DAOs establish digital property rights

At the core of the Metaverse sits the blockchain which retains a decentralised record of all transactions stores digital goods and services in the form of unique NFTs.

This is 'True Digital Ownership' which confers economic freedom and property rights and allows everyone to enjoy this freedom to trade their digital assets (NFTs) for profit, engage in DeFi or GameFi and generate an income from play-to-earn games.

Digital property rights can also improve on current social media channels by creating a more inclusive virtual experience that helps people to build DAO-based communities based on shared values; express themselves in more authentic ways; and contribute to online economic growth that transfers to the real-world economy.

Games, Community, and the 'Play to Earn' opportunity

Gaming is one of fastest changing sectors to be impacted by Web 3.0 and the potential of 'Play to Earn' and is expected to grow almost 25% to US\$200 billion between 2020 and 2023 (source: Juniper Research).

It is a good fit because gamers already understand the basics of the Metaverse; including the use of avatars and digital currencies in a virtual economy. Just as importantly, the user base of three billion gamers worldwide provides a core audience for mass adoption of blockchain technology.

Alien Worlds is an example of this kind of thriving community that has achieved almost 7 million users in just 15 months, already becoming one of the biggest blockchain games available in terms of daily active wallets.

Users play with unique digital assets in the form of NFTs, stake Trilium tokens, travel to planets on Alien Worlds Missions, vote in elections, and run for planetary council. The game's six planetary DAOs engage in the same intense co-operation and competition - mining, fighting, exploring, playing games and participating in governance - that is found in any earthbound community.

Now that many more aspects of life are moving online - driven both by covid lockdown and the digitisation of business processes - the use of NFTs to manage assets (both real and virtual) makes increasing sense. We anticipate that Web 3.0 will generate many more opportunities to get involved in the newly decentralised economy.



Saro McKenna
Co-founder, Alienworlds

NFTS & THE METAVERSE



4ARTECHNOLOGIES

Zug,
Switzerland

4AR Technologies is setting a new digital standard for the art world. The Swiss Art & Tech specialist combines blockchain with its patented technology and offers more transparency, security, and efficiency to all participants in the art world.



AXIE INFINITY

Ho Chi Minh
City, Vietnam

Axie Infinity is a digital pet community in which you buy creatures – called Axies – and use them to battle, explore and breed with other Axies. It's developed by the gaming company Sky Mavis and runs through the cryptocurrency Ethereum.

Dapper

DAPPERLABS

Vancouver,
Canada

Dapper Labs, the company behind CryptoKitties, NBA Top Shot, and the Flow blockchain, uses blockchain technology to bring NFTs and new forms of digital engagement to fans worldwide, paving the way to a more open and inclusive digital world starting with games and entertainment.



ALIENWORLDS

Zug,
Switzerland

Alien Worlds (TLM) is a decentralized, non-fungible token (NFT) metaverse, where players compete for scarce resources, Trilium (TLM), in a stimulated economy centered around planetary worlds.



CHILIZ

Sliema, Malta

Chiliz is a sports and esports resource that creates branded tokens that allow fans to interact with teams. The CHZ token has two major uses. Some people acquire it to purchase fan tokens and support their favorite teams at Socios.



DECENTRALAND

Beijing, China

Decentraland is software running on Ethereum that incentivizes a global network of users to operate a shared virtual world. Decentraland users can buy and sell digital real estate while exploring, interacting, and playing games within this virtual world.



ARTORY

New York, US

Artory is a New York-based startup that uses blockchain technology to capture vetted provenance information about artworks and collectibles, bringing greater trust and transparency to these exciting but daunting markets.



CRYPTOVOXELS

Wellington,
New Zealand

Cryptovoxels is a virtual world and metaverse powered by the Ethereum blockchain. Players can buy land and build stores and art galleries. Editing tools, avatars, and text chat are built-in.



ENJIN (DVISION)

Singapore

Enjin Coin (ENJ) is an Ethereum token that aims to “make it easy for individuals, businesses, and brands to use non-fungible tokens (NFTs).” ENJ is used to directly back the value of NFTs minted within the Enjin ecosystem.

NFTS & THE METAVERSE

KnownOrigin.

**KNOWN
ORIGIN**

Manchester, UK

KnownOrigin allows budding and established artists to tokenize their artworks into non-fungible tokens (ERC-721). KnownOrigin facilitates purchases via their smart contract platform and protocol, enabling instant remuneration of funds to the artist.

MASTERWORKS

**MASTER-
WORKS**

New York, US

Masterworks is the first platform for buying and selling shares representing an investment in iconic artworks. Build a diversified portfolio of iconic works of art curated by their industry-leading research team.

ORIGIN

**ORIGIN
PROTOCOL**

San Francisco,
US

Origin Protocol provides a platform for building peer-to-peer marketplaces and e-commerce applications. Users can buy or sell goods and services on these marketplaces, and developers can create applications powered by the Origin blockchain.

Larva Labs

LARVALABS

New York, US

Matt and John are the creative technologists probably best known for their crypto art projects, the CryptoPunks, Meebits, and Autoglyphs.

Nifty Gateway



NIFTIES

Decentralized

The Nifty Marketplace is a blockchain-based platform to access some of today's most sought-after fine art and collectibles—from artists like Cey Adams, Kenny Scharf, Jon Burgerman, and Trevor Jones to popular crypto-game collectibles like CryptoKitties.



POAP

Buenos Aires,
Argentina

POAP is a digital collectible created as an NFT that enables a new way of keeping long-lasting records of life experiences. The company was founded in 2021 and is headquartered in New York, United States.

LOOT NFT

LOOT

Decentralized

Loot (for Adventurers) is a buzzy new Ethereum-based NFT project that launched for free last week. The Loot NFTs, which are simple lists of fictional fantasy adventuring gear, are now selling for upwards of \$954,000 apiece.



OPENSEA

New York, US

OpenSea is a peer-to-peer marketplace for crypto collectibles and non-fungible tokens. It includes collectibles, gaming items, and other virtual goods backed by a blockchain. On OpenSea, anyone can buy or sell these items through a smart contract.



PORTION

New York, US

Portion is a seamless, decentralized auction house and marketplace for creators and collectors to discover, collect, and sell NFT art, music, & collectibles. Through Ethereum smart contracts and distributed technology, art and collectibles enters a new market.

NFTS & THE METAVERSE

Rarible

RARIBLE
Wilmington, US

Rarible software allows digital artists and creators to issue and sell custom crypto assets that represent ownership in their digital work. Rarible is a marketplace for those assets and a distributed network built on Ethereum that enables their trade without a middleman.

SuperRare

SUPERRARE
Newark, US

SuperRare is a marketplace to collect and trade unique, single-edition digital artworks. Each artwork is authentically created by an artist in the network and tokenized as a crypto-collectible digital item that you can own and trade. One can think of SuperRare like Instagram meets Christie's.

THE SANDBOX

SANDBOX
San Francisco, US

The Sandbox is software running on Ethereum that operates a decentralized virtual gaming world. At its core, the Sandbox is a game in which players can buy digital plots of land, called LAND, and create experiences on top of them to share with other users.



YUGA LABS
Delaware, US

These are the creators of Bored Ape Yacht Club, a collection of 10,000 Bored Ape NFTs—unique digital collectibles living on the Ethereum blockchain.

sorare

SORARE
Paris, France

Sorare is a fantasy football game where players buy, sell, trade, and manage a virtual team with digital player cards. The game uses blockchain technology based on Ethereum and was developed in 2018 by Nicolas Julia and Adrien Montfort.

10

PLATFORMS & PROTOCOLS



PLATFORMS & PROTOCOLS

Blockchain is evolving from a digital currency infrastructure to a basis for digital transformation across all sectors. Since its beginnings, blockchain has developed substantially, and it is expected to continue to expand in the future years. It can alter the way we do business, operate, and complete tasks, among other things. This expansion may be due to the high caliber of developers who constantly push the boundaries of technology in search of more significant innovations. Blockchain platforms and protocols enable blockchain developers to create apps that improve and expand the technology's reach. From security to accessibility, blockchain technology is continuously expanding. The following list looks at various protocols and platforms by their market value or distinct business models.

In 2021, Chainalysis reported that approximately 20% of all existing bitcoins appear to be in lost wallets, worth a staggering \$205.8 billion as of December 2021. Tesla invested [\\$1.5B in bitcoin](#) last year, owning [48,000 Bitcoin to date](#) and making a trading profit of over \$250 million from Bitcoin alone. MicroStrategy and its CEO & Founder, Michael Saylor, presented its corporate playbook for acquiring Bitcoin over the past months, making the company the biggest Bitcoin holder with over 120,000 and a profit of \$845 million. Bitcoin is the market leader in crypto with a dominance of 42.1%.

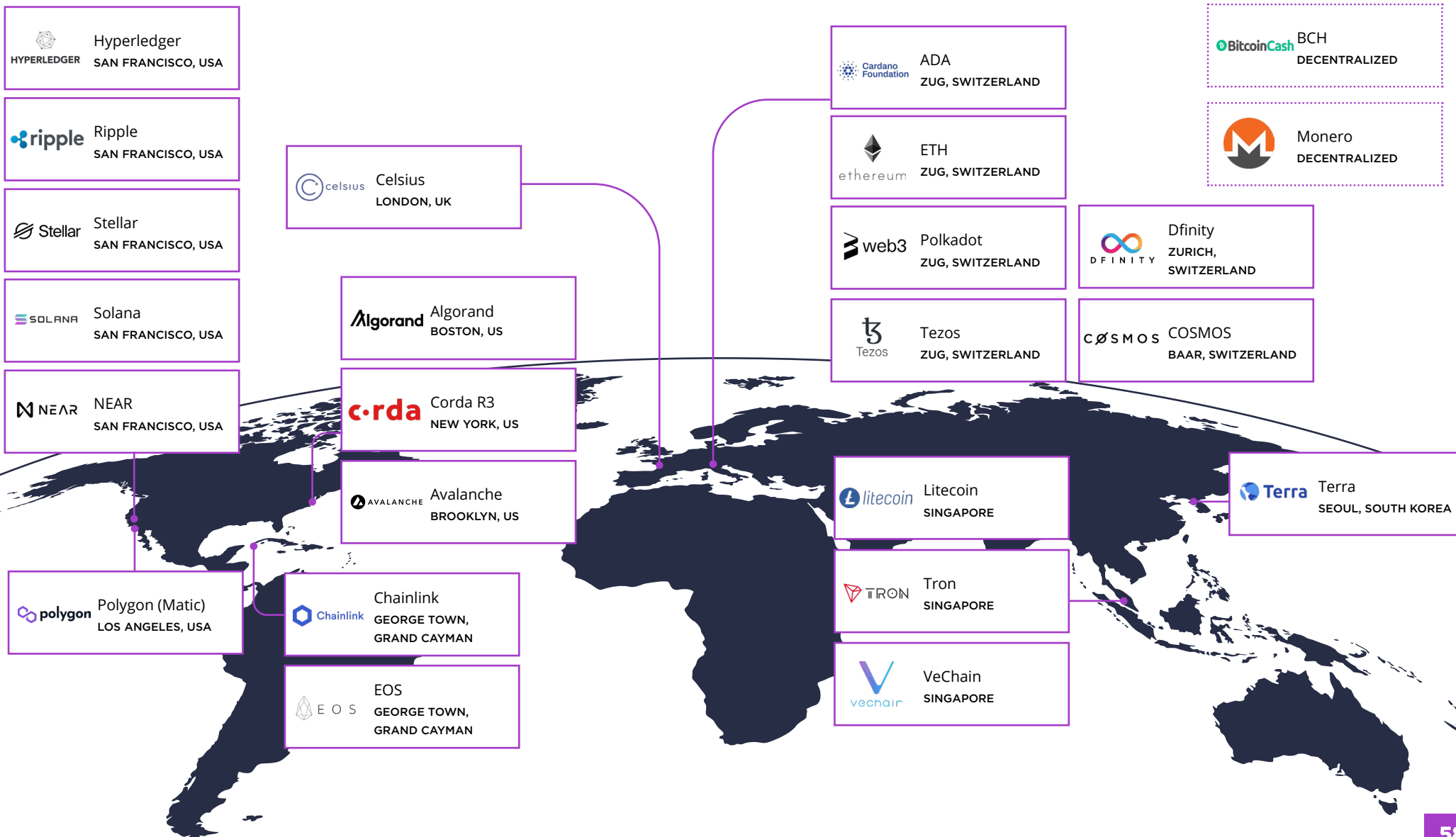
[The Ethereum Merge](#) is coming up soon. The long-discussed and awaited transition of Ethereum from Proof of Work to Proof of Stake is finally coming closer. Over the last month, more than 9 million Ether has been staked, showing overwhelming support for the transition to PoS. The consequences of the merger are going

to be major: the transaction costs will be reduced drastically, and the energy usage of the Ethereum chain is going to be reduced, improving its carbon footprint and thereby its public perception. This will possibly unfold closer to June/July of 2022, although the exact date remains unknown.

Because of the issues seen with Ethereum, a whole new flood of Layer 1 protocols has emerged over the last year. Many are currently among the leading projects by market capitalization. NEAR, Solana, Avalanche, and Terra, to name a few. Each one brings its approach and trade-offs to the blockchain trilemma of balancing security, decentralization, and scalability. Many of these new Layer 1 solutions have seen incredible growth over the last year. Layer 2 solutions that build and rely on Ethereum have also seen huge wallet and volume growth, with Polygon leading the pack in terms of total value locked with \$3.86 billion, followed by Arbitrum with \$2.13 billion, according to recent data from [DeFiLama](#).

With multiple international crises arising, we could see many regulatory interventions from nation-states, both within their borders and with each other. Financial regulation and increasing transparency in the financial system have pros and cons. The fundamental philosophy of crypto is built on values of privacy and individual rights over political influence, which has led to a new launch of privacy coins. Although none of the new protocols have made this list, VeChain and Monero are still holding up strong to represent this subclass of protocols, of which you might hear more in the near future.

PLATFORMS & PROTOCOLS



HOW THE BENEFITS OF PROOF OF STAKE GO FAR BEYOND ENERGY CONSUMPTION

The capacity of blockchain technology to increase privacy, transparency, security, and trust is rapidly captivating the global business and technology community. Blockchain's capability to reduce transaction costs and the use of intermediaries is gathering impetus within these communities.

However, despite this, the process through which a blockchain network achieves consensus is not widely understood. The consensus mechanism can significantly impact outcomes and outputs for everyone involved in its ecosystem. The Proof of Stake (PoS) consensus mechanism deployed by the Cardano blockchain offers low energy consumption, security, and scalability. The first-generation Bitcoin's Proof of Work (PoW) protocol requires enormous computational power. The use of the low energy mechanism PoS contrasts significantly with the high energy mechanism and usage of Bitcoin's PoW.

For boards, environmental sustainability is key but can PoS consensus mechanisms benefit enterprises, dApps, and token holders further, beyond their low energy consumption?

The more ADA delegated, the more secure the network

A core attribute of PoS lies in its ability to lower entry barriers to engagement within the running of the network. Almost anyone can get involved in running a stake pool with Cardano. All that is needed is a basic hardware set-up, system operation, and server administration skills, ideally, experience in development and operations, plus the Cardano native token, ADA.

The more node operators, developers, and auditors within the

stake pool, the larger and more engaged its community. The further decentralization of PoS brings improved trust to the network.

Secure, unpredictable algorithm to appoint an anonymous block producer

Cardano's PoS protocol, known as Ouroboros, leverages an algorithm that makes it almost impossible to predict the block producer. This contrasts with PoW systems, which allow the first miner who solves the mathematical problem to validate the transaction and gain rewards*. It is almost impossible to ascertain which pool will produce a block and at which juncture it will do so. Consequently, PoS's random seed influencing block producer selection makes pools operating within the system less vulnerable to attacks. Accordingly, more individuals are encouraged to delegate ADA within the Cardano system because it's less obvious who will 'win'.

The protocol distributes rewards

The distribution of rewards is handled entirely by the Cardano protocol. The PoW protocol issues rewards to the stake pool operator and the stake pool delegator directly. However, the protocol parameters control the reward distribution together with the monetary policy.

Governance and voting opportunities

The Cardano blockchain has the potential to revolutionize voting processes for global enterprises. Any given entity can produce a token on the system and weigh its voting power based on a

range of different characteristics. Currently, three types of voting mechanisms are provided on its blockchain, non-weighted voting, weighted voting, and freely moving voting.

Non-weighted voting gives everyone in the system one vote. Weighted voting is based on how much of the token an individual holds, while freely moving voting allows individuals to pass their vote on to others in the system who may be better placed to make the decision required. Blind voting, an addendum to the third option, enables voting individuals to remain anonymous. Cryptographic privacy solutions, including Zero-Knowledge Proofs, are setting the scene for more transparent, inclusive forms of governance for everyone involved in this space.

Cardano is proud to be a front-runner in ensuring the future of blockchain is inclusive, secure, and transparent. Although the utilization of PoS is not the solution to all the problems within the blockchain, it is certainly a viable solution for various challenges facing the industry. Cardano's PoS can increase blockchain's interoperability and scalability, and decrease its entry barriers.

*the miner with the highest level of computational power at their disposal usually solves the mathematical problems, therefore gaining the most rewards.



Frederik Gregaard
CEO, Cardano Foundation

PLATFORMS & PROTOCOLS



Algorand is an inclusive and transparent system in which anyone can build prosperity through decentralized applications and projects, no matter where they are. The platform gives developers, enterprises, universities, and investors opportunities to participate in trusted, credible blockchain development.

ALGORAND

Boston, US



Bitcoin is a cryptocurrency and worldwide payment system. It is the first decentralized digital currency, as the system works without a central bank or single administrator. The network is peer-to-peer, and transactions take place between users directly through cryptography, without an intermediary.

BTC

Decentralized



Chainlink is a decentralized oracle network that enables smart contracts to securely access off-chain data feeds, web APIs, and traditional bank payments. Chainlink is consistently selected as one of the leading blockchain technologies by leading independent research firms like Gartner. It is well known for providing highly secure and reliable oracles to large enterprises (Google, Oracle, and SWIFT) and leading smart contract development teams.

CHAINLINK

George Town,
Grand Cayman



Avalanche is a blockchain platform with the native currency AVAX. Avalanche is a competitor to Ethereum that prioritizes scalability and transaction processing speed.

AVALANCHE

Brooklyn, US



Cardano is a decentralized public blockchain and cryptocurrency project and is fully open source. Cardano is developing a smart contract platform that seeks to deliver more advanced features than any protocol previously developed.

CARDANO

Zug,
Switzerland



Corda R3 is an enterprise blockchain software firm working with a broad ecosystem of more than 300 members and partners across multiple industries from both the private and public sectors to develop on Corda, its open-source blockchain platform, and Corda Enterprise, a commercial version of Corda for enterprise usage.

CORDA R3

New York, US



Bitcoin Cash is peer-to-peer electronic cash for the Internet. It is fully decentralized, with no central bank, and requires no trusted third parties to operate.

BCH

Decentralized



Celsius is proud to provide a platform of curated services that big banks have abandoned – things like fair interest, zero fees, and lightning-quick transactions. Their goal is to disrupt the financial industry, one happy user at a time, and introduce financial freedom through crypto.

CELSIUS

London, UK



Cosmos is a decentralized network of independent parallel blockchains powered by BFT consensus algorithms like Tendermint consensus. In other words, Cosmos is an ecosystem of blockchains that can scale and interoperate with each other. Before Cosmos, blockchains were siloed and unable to communicate with each other. Cosmos solves these problems with a new technical vision.

COSMOS

Baar,
Switzerland

PLATFORMS & PROTOCOLS



DFINITY

Zurich,
Switzerland

Dfinity platform uses blockchain technology which is aimed at building a new kind of decentralized public cloud computing resource with unlimited capacity, performance, and algorithmic governance shared by the world, with the capability to power autonomous self-updating software systems, enabling organizations to design and deploy custom-tailored cloud computing projects, thereby reducing enterprise IT system costs by 90%.



HYPERLEDGER

HYPERLEDGER

San Francisco,
US

Hyperledger is a collaborative effort created to advance blockchain technology by identifying and addressing important features for a cross-industry open standard for distributed ledgers that can transform the way business transactions are conducted globally. The Project is a Linux Foundation Collaborative Project and implements many open-source best practices familiar to other leading projects.



NEAR

San Francisco,
US

NEAR empowers millions to invent and explore new experiences through simple, secure, and scalable technology. Business, creativity, and community are reimagined for a more sustainable and inclusive future.



EOS

George Town,
Grand Cayman

Published by Block.one, EOSIO is a compliant blockchain protocol that enables horizontal scaling of decentralized applications, allowing developers to create high-performance distributed applications efficiently. The EOSIO software provides accounts, authentication, databases, and the scheduling of applications across multiple CPU cores and/or clusters.



LITECOIN

Singapore

Litecoin (LTC or Ł) is a peer-to-peer cryptocurrency and open source software project released under the MIT/X11 license. The creation and transfer of coins are based on an open-source cryptographic protocol and are not managed by any central authority.



POLKADOT/ WEB3 FOUNDATION

Zug,
Switzerland

Polkadot will enable a completely decentralized web where users are in control. Polkadot is built to connect private and consortium chains, public and permissionless networks, oracles, and future technologies yet to be created. Polkadot facilitates an internet where independent blockchains can exchange information and transactions in a trustless way via the Polkadot relay chain.



ETH (ETHEREUM)

Zug,
Switzerland

Ethereum is a decentralized platform that runs smart contracts: applications that run exactly as programmed without any possibility of downtime, censorship, fraud, or third-party interference. These apps run on a custom-built blockchain, an enormously powerful shared global infrastructure that can move value around and represent property ownership.



MONERO

Decentralized

Monero is cash for a connected world. It's fast, private, and secure. With Monero, you are your own bank. You can spend safely, knowing that others cannot see your balances or track your activity.



POLYGON (MATIC)

Los Angeles,
US

Polygon believes in Web3 for all. Polygon is a decentralized Ethereum scaling platform that enables developers to build scalable user-friendly dApps with low transaction fees without sacrificing security.

PLATFORMS & PROTOCOLS



Ripple is a company that offers a real-time payment system to send money using blockchain. The company provides RippleNet, a global network that enables financial institutions to process their customers' payments. It also offers the digital asset XRP to help banks and payment providers further reduce costs and access new markets.

RIPPLE

San Francisco,
US



Terra is a trustless, programmable blockchain ecommerce platform that offers fiat-pegged stablecoins to provide more stability when conducting cross-border payments.

TERRA

Seoul, South
Korea



VeChain is a leading global enterprise-level public blockchain platform. VeChain aims to connect blockchain technology to the real world by providing a comprehensive governance structure, a robust economic model and advanced IoT integration, and pioneers in real-world applications.

VECHAIN

Singapore



Solana is the fastest blockchain globally and the fastest-growing ecosystem in crypto, with thousands of projects spanning DeFi, NFTs, Web3, and more.

SOLANA

San Francisco,
US



The Tezos Foundation is a Swiss foundation, supervised by the Swiss Federal Foundation Supervisory Authority, part of the Swiss Federal Department of Home Affairs. Its purpose is to promote and develop new technologies and applications, especially in the fields of new open and decentralized software architectures, including the promotion and development of the Tezos protocol and related technologies.

TEZOS

Zug,
Switzerland



The Stellar Development Foundation is a nonprofit organization based in San Francisco. Stellar is building a common financial platform designed to be open and accessible to everyone. Just as the internet allowed anyone to send an email or create a blog, Stellar enables people to easily send, save, and receive money without large fees or hassle.

STELLAR

San Francisco,
US



TRON is dedicated to building the infrastructure for a truly decentralized Internet. TRON is a blockchain-based decentralized platform that aims to create a free, global digital content entertainment system with distributed storage technology and allows easy and cost-effective sharing of digital content.

TRON

Singapore

SCALING CONTENT: HOW TO TRULY TACKLE BLOCKCHAIN'S SCALABILITY PROBLEM

Ethereum and similar blockchains are facing a scalability crisis. Scaling Ethereum is crucial for the network's usefulness and adoption, and current transaction fees are certainly not constructive to that end, making everything except the simplest of DApps *impossible*. This infamous problem has proven to be very hard to solve without compromising on security and decentralization. Piet Hein said a problem worthy of attack proves its worth by fighting back, and blockchain scalability has undoubtedly been a mean bruiser.

However, current discussions on scalability are generally missing a key idea, perhaps as important as increasing transaction throughput and reducing fees. The processing limitations of the blockchain are not the only constraint making complex DApps impossible. Focusing only on computational scalability is a mistake; to create these impossible DApps, we must do more than that. A second constraint present in Ethereum that must be addressed to truly tackle the scalability problem: that of content scalability.

To explain what content scalability means, we'll quote Friedrich Hayek's seminal article *The Use of Knowledge in Society*. Hayek wrote that "we make constant use of formulas, symbols, and rules whose meaning we do not understand and through the use of which we avail ourselves of the assistance of knowledge which individually we do not possess." In Software, one can observe this characteristic in the existing ecosystem. It is a layered structure made of libraries, tools, operating systems, compilers, interpreters, and many other components, each abstracting away the underlying system. Modern software is very intricate; to write it, quoting Hayek, we must avail ourselves of the assistance of knowledge that we do not possess individually. Programmers

leverage tried and tested content that has been iterated repeatedly for the past decades without having to write them or understand their inner workings themselves.

The issue is that the computers in which smart contracts are executed are novel, in all the wrong ways. Imagine the hypothetical scenario of going to a computer store to buy a new computer. You're offered a super-fast computer that was just released, but it cannot run anything that exists today: applications, libraries, tools, operating systems, compilers, interpreters, you name it. It can only run its own flavor of machine code. The vendor could try to persuade you by saying, "ah, but new software can be developed, from the ground up, for this specific computer." Performance notwithstanding, such a computer would be useless. Without any abstractions painstakingly built and iterated over for the past decades, no one in their right minds would even consider buying such a computer. There's no content for this computer at any level.

Ethereum smart contracts are much like this computer, except they are also super slow. Scalability solutions are poised to break the processing constraints present in these smart contracts. However, without also tackling content scalability, their usefulness is somewhat limited; the emphasis solely on computational scalability is misplaced.

The most important scalability solution for Ethereum is rollups, with many competing designs and implementations. At Cartesi, we are developing our own rollups solution. Unlike other solutions, we bring content scalability to the table and computational scalability.

The key insight for scaling content is dragging into Ethereum the same computer we work with daily, using it as the infrastructure for previously impossible DApps.

Bottom line, we've put Linux and all of its toolchains inside Ethereum. One is no longer resigned to Solidity, confined by an extraordinarily costly computer; now, we can use a modern development ecosystem running on a fast computer. We have decades of content inside the blockchain. To boot, we can just import a compression library and use it within our favorite programming language. The benefits of this cannot be overstated: we are using the knowledge that we individually do not possess, inscribed in trustworthy compilers and interpreters, preexisting mature libraries, and battle-tested operating systems.

This is the power of Cartesi. Developers can tap into this rich ecosystem, decades in the making, containing knowledge no individual holds. It's not that it's hard to build remarkable DApps without proper content; it's actually not possible. Scaling content breaks the constraints holding us back, unleashing blockchains' full range of possibilities.



Gabriel Coutinho
Software Engineer, Cartesi

11

SERVICE PROVIDERS



SERVICE PROVIDERS

The quickly evolving ecosystem is accompanied by various service and infrastructure providers globally. These companies enable vibrant growth in the ecosystem, and these providers power many solutions. While this list is not exhaustive, it shows some major players from various categories valuable in the blockchain ecosystem, such as data & infrastructure providers, news services, legal advisors, code auditors, marketing and rating companies. This category is built to complete the missing facets of the industry.

It is important to keep in mind that crypto just happens to be one of blockchain's earliest innings. As a catalyst tech, the potential for other applications of blockchain technology is vast. Every industry will use the tech simply because it builds trust and increases the bottom line! Blockchain's business value add-on is expected to reach the [trillions](#) by the end of this decade.

In 2021 the market made a huge step towards the mainstream. Crypto, which is only the first inning of blockchain capability, reached an ATH of over \$2.9 trillion compared to the \$820 billion during the hype cycle in 2017. [The Fool](#) reports that more than 6,000 cryptocurrencies launched in 2021 alone, excluding projects that are not launched with a token. Therefore the number of new startups is likely a lot higher than 6,000.

These startups need a set of infrastructure and service providers to build their company further. The services providers listed only scratch the surface regarding the number of providers. Legal advisors are necessary for almost every project out there. Be it founding the company, getting advice on its legal structure, helping with obtaining licenses, filing tax reports, offering their

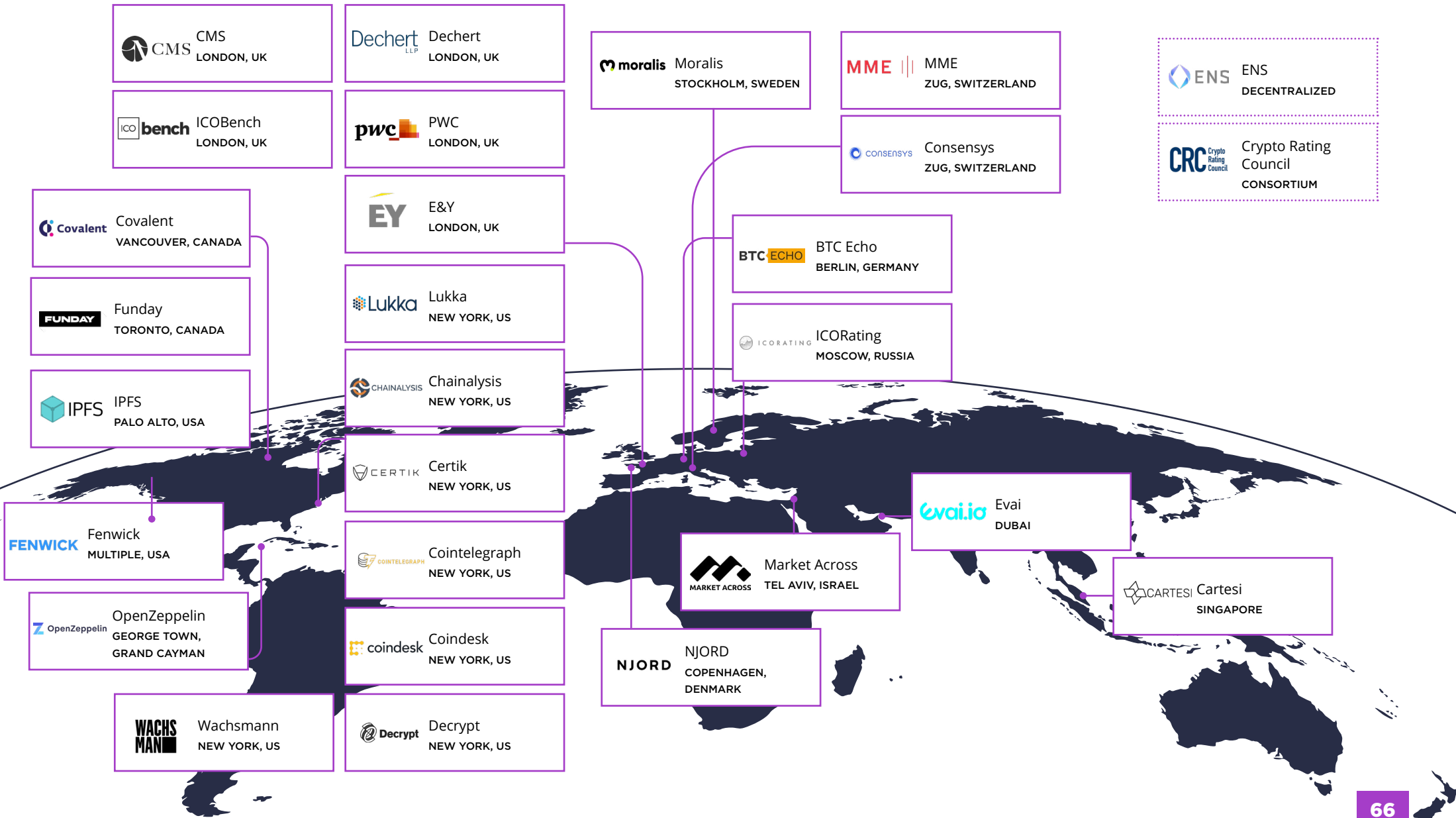
services in a legally compliant way with financial regulation, or litigation cases. There are many questions on which new projects or established companies need legal assistance. We have seen many lawyers specialize in crypto over the last years, as the legal frameworks of many countries are getting built out and adapted to deal with the new circumstances that crypto and web3 bring. Switzerland, for example, has brought a new [DLT Act](#) into force in summer 2021, providing more legal certainty for the growing industry.

Many of the companies founded are focused on building new technologies, either building blockchains themselves, providing technical services around them or building applications on top of them. The technical infrastructure is needed to help them build quicker and more adaptable solutions. Companies like Lukka provide infrastructure for all subsets of players in the industry, both traditional and crypto native. Moralis, Covalent, and OpenZeppelin are among the biggest crypto native service providers, enabling developers to interact with the blockchain. [Moralis](#) has reportedly raised \$11.5 million in their seed round in October. While [Covalent](#) has raised \$2 million in march 2021, bringing their total funding to \$5.7 million.

There are two services that attempt to revolutionize crypto web infrastructure. The Ethereum Name Service, ENS provides a similar service to classical DNS but brings it to the blockchain. This enables censorship-resistant, decentralized websites. IPFS or the InterPlanetary File System is a protocol to facilitate peer-to-peer file hosting and data sharing, essentially decentralizing data storage.

Journalistic work is essential for the crypto and broader blockchain industry, covering developments, the benefits of use cases for industry and humanity, and communicating them to a wider audience. Marketing and PR agencies uphold the public image of the blockchain and crypto industry and help new businesses and established ones to grow their user base effectively.

SERVICE PROVIDERS



THE IMPACT OF CRYPTO ON GLOBAL COMMERCE AND MANAGING THE TECHNOLOGY RISK

Despite Bitcoin introducing blockchain to the world in 2009 and being the first crypto asset, the real innovation came afterward when hundreds of different blockchains were created, representing tens of thousands of crypto assets. This resulted in innovators forming global marketplaces (crypto exchanges) where investors could trade these assets for one another in fractional quantities without fiat and across borders.

“This creates liquidity in assets like we have never seen before. This is why I joined Lukka. I saw they were building the first institutional products to serve the future of this ecosystem and the future of global commerce.” Said, Robert Materazzi, CEO of Lukka.

Lukka provides businesses worldwide with institutional-grade solutions that deliver transparency, clarity, and insights into financial data. This is more difficult than most realize as crypto transaction data is not only on public and distributed blockchains. It is often recorded in private databases, without interacting with a blockchain, is in inconsistent formats, and varies in quality.

“It is important to realize that crypto is not an asset class; it is simply technology that can be applied to any asset through the use of blockchain, all assets can be tokenized (represented as crypto assets). With that said, the resulting transaction data has unique characteristics that make it unusable in most traditional infrastructure and software solutions.”

Most of the largest traditional financial institutions are rapidly expanding crypto assets into their businesses. Meanwhile, over the past decade, hundreds of exchanges and other trading venues that support trading crypto assets have formed - Lukka currently supports over 20,000 unique spot crypto assets with its software

and data, and that list is growing rapidly. These assets have been created and traded across all of these exchanges without standard setters, regulators, and governments involved, which is great for innovation but creates a ton of messy data and lots of technology risk to manage.

Lukka is focused on giving customers trust in their data by bringing institutional data standards to the world as crypto-assets become the fabric of global commerce. All of Lukka's products are created with the highest standards, often required by large businesses. They utilize several trusted frameworks such as AICPA SOC Standards for Service Organizations. Lukka was the first to receive an AICPA SOC 1 Type 2 in 2018, a SOC 2 Type 2 the following year, and is entering its fifth consecutive year renewing the audit of these controls and continues to build on them year over year. Maintaining trust and reducing technology risk is challenging. Still, Lukka aims to manage these risks through their products to enable their customers to focus on their respective businesses. The company's customer base spans from the largest traditional financial institutions to the crypto native companies at the forefront of the innovation industry to firms at the intersection of crypto, traditional finance, and beyond.

As CEOs and other leaders are adopting or considering adopting crypto into their business, here are a few suggestions:

1. **Buy some crypto.** It's easier than you think. Move it around, trade it for another crypto asset, transfer it to a hosted wallet, trade on a DEX. You will learn a ton.
2. **Don't assume traditional technology can handle crypto asset transaction data.** It can't - this starts with decimal place

precision (Bitcoin requires eight digits past the decimal place, Ethereum assets require eighteen digits, etc.), and that's only the first characteristic that breaks your traditional software.

3. **Dust off your Operations Risk Domain knowledge - specifically Technology Risk.** Blockchain and crypto wouldn't exist without technology. Therefore, this is not a risk domain to delegate anymore.

About Lukka

Founded in 2014, Lukka serves the most risk mature businesses in the world with institutional data and software solutions. Lukka bridges the gap between the complexities of blockchain data and traditional business needs. Its customers include both Traditional and Crypto Asset Exchanges and Trading desks, CPA & Accounting Firms, Fund and Financial Auditors, Fund Administrators, Miners, Protocols, individuals, and any other businesses interacting with crypto assets. Lukka's products are created with institutional standards, such as AICPA SOC Controls, focusing on accuracy and completeness. Lukka is a global company headquartered in the United States.



Robert Materazzi
CEO, Lukka

SERVICE PROVIDERS

BTC ECHO

BTC ECHO

Berlin,
Germany

Since its funding in 2014, BTC Echo has become the German speaking news provider for the Blockchain and Crypto Space.



CHAINALYSIS

New York, US

Chainalysis offers cryptocurrency investigation and compliance solutions to global law enforcement agencies, regulators, and businesses as they work together to fight illicit cryptocurrency activity. Backed by Benchmark and other leading names in venture capital, Chainalysis builds trust in blockchains.



COINTELEGRAPH

New York, US

Founded in 2013, Cointelegraph is the leading independent digital media resource covering a wide range of news on blockchain technology, crypto assets, and emerging fintech trends.



CARTESI

Singapore

Cartesi is the first Blockchain OS. It allows developers to build decentralized logic with Linux and standard programming environments, preserving blockchains' decentralization and security. That means moving beyond Solidity and coding smart contracts with rich software tools, libraries, and services developers are used to—all while free from scalability limits.



CMS

London, UK

CMS lawyers work across sectors and borders in more than 40 countries worldwide to deliver advice wherever you operate. They see themselves as more than just legal advisers. They strive to be business partners, and their focus is on helping clients mitigate risk and benefit from innovation, enabling businesses or organizations to thrive.



CONSENSYS

Zug,
Switzerland

With MetaMask, Infura, and a leading suite of blockchain products, they make it easy to build applications on Ethereum and participate in DeFi, NFTs, DAOs, and the metaverse.



CERTIK

New York, US

Founded in 2018 by professors of Yale and Columbia, CertiK is a pioneer in blockchain security, utilizing best-in-class Formal Verification and AI technology to secure and monitor blockchains, smart contracts, and Web3 apps.



COINDESK

New York, US

CoinDesk is an integrated platform for media, events, data & indices for the next generation of investing and the future of money.



COVALENT

Vancouver,
Canada

Covalent is a software that aggregates data from several leading blockchain platforms, including Ethereum, Avalanche, and Polygon. It allows participants to access these data points for various use cases.

SERVICE PROVIDERS



CRYPTO RATING COUNCIL

Consortium

Leading crypto businesses committed to creating practical tools to help comply with U.S. securities laws.



E&Y

London, UK

Ernst & Young provides audit, tax, business risk, technology and security risk services, and human capital services worldwide. The company, one of the Big Four accounting firms, dates back to the early twentieth century.

FENWICK

FENWICK

Multiple, US

Fenwick is a law firm dedicated to helping technology and life sciences companies thrive at every growth stage. They are taking inspiration from their clients and are driven toward their success.



DECHERT

London, UK

Dechert has built a global platform with a singular focus – delivering the highest-quality advice that is actionable, commercial & delivered efficiently.



ENS

Decentralised

The Ethereum Name Service (ENS) is a lookup system. It links information to a name. It is not a naming service just for Ethereum; it is a name service built on Ethereum. It offers a secure and decentralized way to address resources using human-readable names.

FUNDAY

FUNDAY

Toronto, US

Funday is a talented and entrepreneurial group of people who believe it pays to have fun. Great work takes a balance of creativity and performance. Imagination and insight. Fun and brains. They believe in making great work.



DECRYPT

New York, US

Decrypt was founded in 2018 with a simple mission: to demystify the decentralized web. Whether it's trust-less networks, privacy coins, or oracles, they strive to produce original coverage of the biggest stories, insightful profiles on the industry's movers and shakers, as well as engaging educational content to connect the dots.



EVAI

Dubai

Evai is a fully decentralized autonomous organization (DAO) that has developed the world's first unbiased crypto-asset rating platform, built on peer-reviewed, Nobel Prize-winning academic research. The evai.io platform evaluates each asset's live data against several critical KPIs through AI and machine learning, awarding an impartial rating based on performance.



ICOBENCH

London, UK

ICObench is a free ICO rating platform and a blockchain community supported by many experts that provide analytical, legal, and technical insights to investors.

SERVICE PROVIDERS



ICORATING
Moscow, Russia

ICORating is a rating agency that issues independent analytical research, evaluates ICO projects, and assigns ratings. Investing in ICOs is a potentially hyper-profitable yet high-risk industry.



MARKET ACROSS
Tel Aviv, Israel

World's Leading Blockchain PR & Marketing Firm - Providing a complete end-to-end marketing solution for blockchain firms. They guarantee results by using blockchain storytelling to execute success-based full-stack marketing and growth campaigns.

NJORD

NJORD
Copenhagen, Denmark

Njord is a law firm. Their principal tasks ensure that their clients obtain justice and provide the help and advice they require. This must be done properly with professionalism, knowledge, experience, and respect for the client, the process, and all parties involved.



IPFS
Palo Alto, US

IPFS (Interplanetary File System) is essentially a file system that allows you to store files and track versions over time, much like Git, keeping track of them on a distributed network, somewhat like BitTorrent.



MME
Zug, Switzerland

Legal | Tax | Compliance: MME provides integrated, comprehensive and interdisciplinary services with speed and efficiency in these three areas. As an integrated advisory firm at the cutting edge, they support and represent companies and private individuals in all economic and trendsetting matters. They serve their clients with personal and thorough attention: straightforward and persistent - in Switzerland and internationally.



OPENZEPPELIN
George Town, Grand Cayman

OpenZeppelin provides security products to build, automate, and operate decentralized applications. They also protect leading organizations by performing security audits on their systems and products.



LUKKA
New York, US

Lukka provides the world with institutional-grade solutions that deliver transparency, clarity, and insights into financial data. They aim to solve the most complex data challenges to support and accelerate innovation in their financial system and global commerce as a whole.



MORALIS
Stockholm, Sweden

Moralis is the fastest path from idea to mass-scale dApp, letting you focus on great experiences rather than heavy lifting. More than 65,000 blockchain projects use Moralis software and APIs to build & scale their dApps without the cost & complexity.



PWC
London, UK

As a global network of firms operating in 158 countries and with more than 276,000 people, PWC is among the leading professional services networks in the world. They help organizations and individuals create the value they're looking for by delivering quality assurance, tax, and advisory services.

SERVICE PROVIDERS



WACHSMANN

New York, US

As changemakers upend the old world and define a “new normal,” they need like-minded partners. Wachsman seeks out these companies pushing the boundaries, and empowers them to push harder. From strategic advisory to public relations counsel, they give them the tools they need to turn their vision into reality.

NON-FUNGIBLE TOKENS (NFTS): VAT AND OTHER REGULATORY CONSIDERATIONS

Given the steadily increasing popularity of Non-Fungible Tokens (NFTs), the NFT market has seen exponential growth in the recent past. However, many NFT holders seem unaware of the associated VAT issues and other legal and tax considerations.

NFTs are cryptographic tokens that exist only once on the blockchain and (in contrast to Bitcoin and other tokens that are issued in larger numbers of equal units) represent a unique, non-interchangeable item. Because of this characteristic, NFTs can be used as representatives of digital content (such as artwork, trading cards, images, music, or the like) or physical objects (such as gold bars or diamonds) and are effectively a digital title deed or proof of digital ownership. In the case of digital content, NFTs are often synchronized with a license right to use the underlying intellectual property. From a civil law perspective, NFTs are linked to digital content or physical objects and are usually considered absolute property-like rights.

Regarding the VAT treatment of corresponding NFT transactions, most published practices of the tax authorities do not contain any specific guidance on NFTs. However, the general approach to distinguishing the main types of tokens usually proves unsuitable due to the uniqueness of NFTs. Therefore, an individual case-by-case assessment must be carried out for each NFT.

In this light, the following VAT-related questions come up in connection with the issuance and sale/purchase of NFTs:

- Type of synchronization of the NFT with digital content, physical objects, or combinations of supplies.
- Qualification of the issuance or sale of NFT against consideration as a taxable supply of service for VAT purposes.
- Applicability of VAT exemptions, such as the supply of cultural

works by their creators.

- Proof of the place of supply for VAT purposes, especially in the case of sales of digital content or combinations of supplies to domestic and foreign recipients.
- Mandatory VAT liability of the seller resulting from an annual entrepreneurial turnover of CHF 100'000.
- Liability of the buyer to account for acquisition VAT (reverse-charge) or treatment as an electronically supplied service leading to a VAT liability of the seller in the buyer's country when cross-border transactions involve digital content or combinations of supplies.
- Import VAT and customs duties in cross-border transactions with movements of physical goods or combinations of supplies

A further complicating factor is that buyers and or sellers cannot identify each other, making it virtually impossible to prove the place of supply of digital content. Consequently, there is a risk that local sellers would be liable to pay local VAT on such transactions. In addition to VAT, various other legal and tax considerations need to be considered. Here are some of the key topics to be addressed:

Income Tax Considerations

Private capital gains are income-tax-free in Switzerland, while business income is taxable. However, in any case, NFT holders need to declare their valuable holdings for net wealth tax.

IP Considerations

While copyright and related rights come first to mind, NFT-art may be protected by numerous other IP rights, like designs and trademarks. An issuer of NFT-art must develop a clear IP strategy and decide what is being sold, which rights are to be granted to holders of the NFT and which rights the issuer, the artist, and

secondary market platforms may need to keep.

Regulatory and Compliance Considerations

- In terms of civil law, it is essential to distinguish between absolute ownership rights (valid against everyone), relative claims (valid only towards specific counterparties), and native tokens without defined rights.
- In financial regulation, tokens are categorized into three types, namely payment, utility, and asset tokens. Hybrid forms are possible.
- Traders of digital NFT art may become subject to Swiss AML regulations.
- Operating secondary marketplaces may trigger another set of legal challenges to be addressed, including consumer protection, KYC, and cross-border financial market topics.



Thomas Linder
Tax Partner,
MME Zurich



Fredrik Dekker
Tax Advisor,
MME Zug

12

TOKEN ISSUANCE PLATFORMS



TOKEN ISSUANCE PLATFORMS

Producing a digitized version of an asset is known as tokenization. This permits an asset, such as real estate to be broken into smaller digital bits, referred to as tokens. Transactions can thus be carried out safely on the blockchain utilizing cryptographic techniques, eliminating the need for central processing and reducing transaction costs.

When a crypto asset is released, the term “Initial Public Offering” (IPO) is replaced with “Security Token Offering,” which is more in line with the established capital market (STO). Security token issuing platforms can be quite promising for organizations considering the issuance of security tokens, as they can simplify numerous operations related to the distribution of those tokens. These platforms help by providing different services in the token generation processes. As a result, the tokens can be issued in a shorter period, which is a significant advantage of STOs over IPOs.

Asset tokenization has been a hot topic for a few years. While regulatory complications have slowed developments in many countries, others have moved to regulate positively. Tokenization is poised to receive a significant demand increase resulting from the uptake of contactless payments. From the consumer’s point of view, gaining fractional ownership of a digitized asset is increasingly appealing. The market size is estimated at \$1.6 billion, and experts believe it will grow at an annual rate of 18-20% over the next decade.

The current market leader with regards to the funding amount is tZero. Founded in 2014 as one of the first asset tokenization companies, they have an impressive \$330 million worth of funding, according to [Blockdata](#).

ConsenSys Codefi is a ConsenSys owned asset tokenization platform. They claim to have [over \\$1 billion](#) in tokenized projects launched already, which is a milestone few platforms can claim for themselves. Their platform offers a wide range of tools to manage digital assets.

In June 2021, [Securitize](#) raised an impressive \$48 million in their Series B, issuing new shares of the company through their digital asset platform. The company has reported more than 300,000 accredited investors on their platform, providing both a primary and secondary market. This makes Securitize one of the largest platforms in the space.

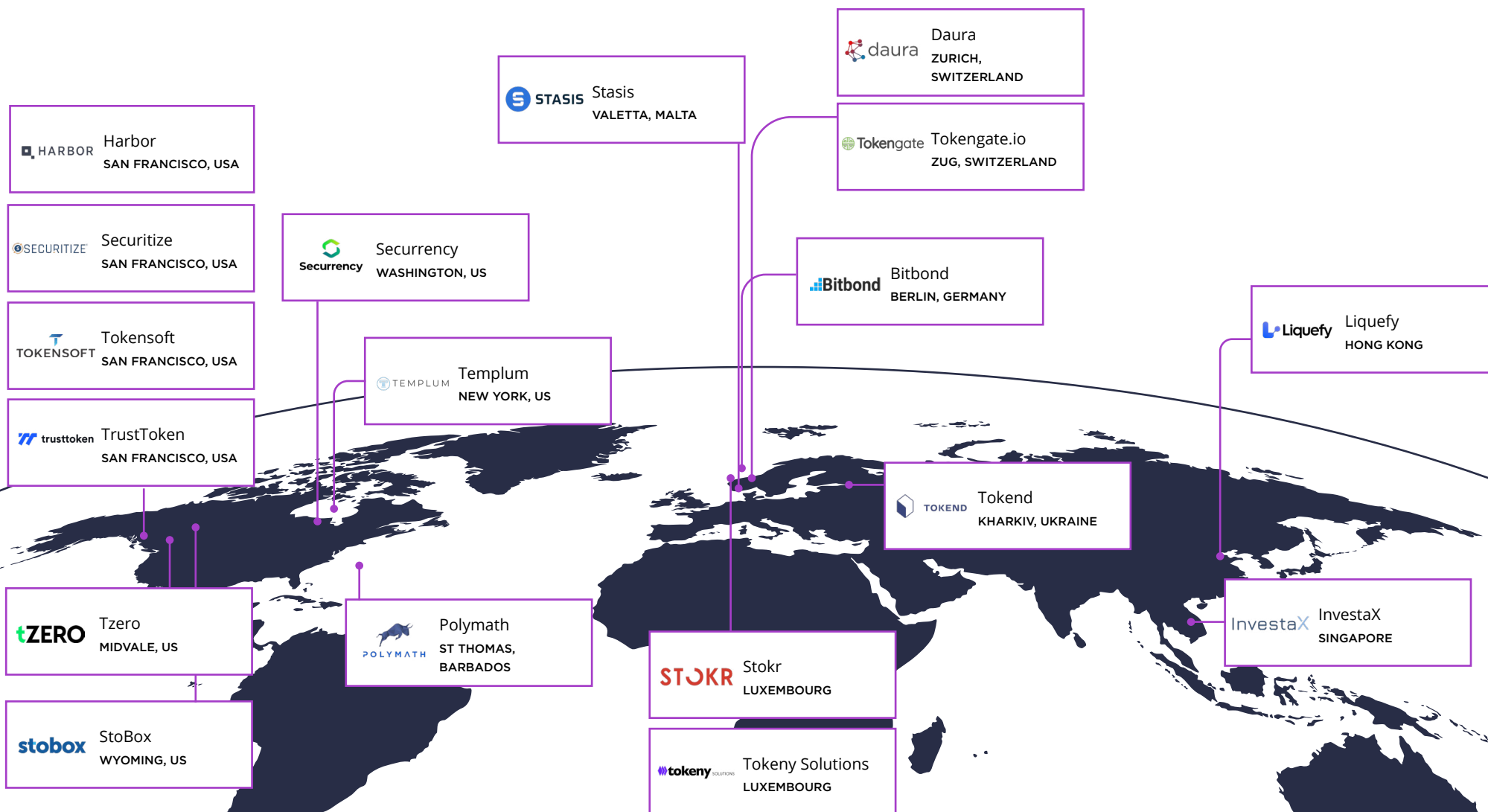
One of the latest raises has been by Tokeny, [collecting \\$5.7 million](#) from Inveniam Capital Partners, Apex, and K20 Fund. Tokeny offers a white-label solution for asset managers and owners to issue, administer, and manage digital assets.

The trend shows many traditional banks entering the tokenization space. Crypto native centralized exchanges such as Binance and Bittrex are starting to offer tokenized securities trading in some jurisdictions. The first attempts to do this in central Europe have failed, but it appears to be only a matter of time until we can trade tokenized stocks on crypto exchanges.

Tokenization is a promising market segment for financial products and other tangible assets such as land, property, art, and even intangibles such as experiences and fame. Many industries that have previously been illiquid are on the verge of experiencing a disruptive change led by the technological developments of blockchain and tokenization. Looking at this [Forbes interview](#),

experts are very excited for what the market might have in store in the future and prophesize incredible growth rates to come as the adoption progresses.

TOKEN ISSUANCE PLATFORMS



TOKEN ISSUANCE PLATFORMS



Bitbond has delivered blockchain-powered financial technology since 2013. They pioneered financial markets with Germany's first Security Token Offering (STO) by receiving BaFin approval for their tokenized bond in January 2019. Benefit from their bank-grade technology and expertise to serve your clients and raise capital in the most efficient way possible.

BITBOND

Berlin,
Germany



InvestaX houses a leading team of experts across the capital markets and blockchain industries. Their platform sits at the core of a private markets ecosystem that delivers end-to-end digital securities issuance, investment, and divestment solutions.

INVESTAX

Singapore



Securitize is a compliance platform and protocol for issuing and managing digital securities on the blockchain, including dividends, distributions, and share buy-backs. Securitize's innovative Digital Securities Protocol (DS Protocol) enables seamless, fully compliant trading across multiple markets simultaneously. Securitize partners actively with exchanges, broker-dealers, crypto custodians, escrow services, and other financial infrastructure for digital securities.

SECURITIZE

San Francisco,
US



Daura is the digital share platform for financing and investing in Swiss SMEs: Thanks to blockchain technology, the existing share register is easily digitized, and capital increases are carried out quickly and inexpensively at the push of a button. Shares can now be split into any number of small lots, enabling employees, successors, and even customers to be incentivized with shares and bound to the company. The share register always remains digitally maintained, complete and up-to-date.

DAURA

Zurich,
Switzerland



Liquefy is a technology provider that enables innovative business models through blockchain technology. Liquefy Asset Tokenization Software enables its clients to tokenize private companies, art, collectibles, closed-end funds, real estate, and other exotic assets using blockchain technology.

LIQUEFY

Hong Kong



SECURRENCY

Securrency is a technology products company that delivers a complete suite of security and compliance tools to issuers, broker-dealers, and alternative trading system (ATS) operators to enable the issuance, maintenance, and secondary trading of tokenized securities.

SECURRENCY

Washington, US



Harbor is a digital investment management platform for alternative assets that streamlines onboarding and subscription processing, simplifies investor communications, and unlocks enhanced liquidity options through branded private marketplaces. BitGo has acquired Harbor.

HARBOR

San Francisco,
US



Polymath Network (Polymath) is a decentralized platform that makes it easy to create security tokens and conduct security token offerings. The platform simplifies the complex technical challenges of creating a security token and aims to bring the multi-trillion dollar financial securities market to the blockchain.

POLYMATH

St. Thomas,
Barbados



Stasis tokenization platform allows investors to tokenize real-world assets, combining the speed and transparency of the blockchain with the relative stability of fiat currencies or using the efficiency of distributed ledger technology to increase liquidity for securities. The possibilities are endless.

STASIS

Valetta, Malta

TOKEN ISSUANCE PLATFORMS

stobox

STOBOX

Wyoming, US

Digital securities and virtual assets are powerful disruptive tools to raise capital, increase customer loyalty, enhance your brand, and build the community. Stobox provides comprehensive products and services for Security Token Offerings.

TOKEND

TOKEND

Kharkiv, Ukraine

TokenD is a blockchain-agnostic tokenization framework that consolidates the experience gained by Distributed Lab in building production-ready tokenization solutions. It allows you to issue, transfer and exchange your assets with a high level of privacy, security, and auditability while following regulations of your jurisdiction.

tokeny SOLUTIONS

TOKENY SOLUTIONS

Luxembourg

Multi-award-winning Tokeny Solutions allow financial actors operating in private markets to compliantly issue, transfer, and manage securities using distributed ledger technology, enabling them to improve asset liquidity. The Euronext-backed FinTech is the leader in its field, and in 2019 they were included in KPMG's top 100 FinTechs globally, awarded Luxembourg's FinTech of the year. The Luxembourg-based firm has issued over \$27bn in assets to date.

STOKR

STOKR

Luxembourg

STOKR is a digital marketplace built on the blockchain to create independent access to a new age of capital markets. Through programmable digital shares (transferable securities) offerings compliant with EU capital market rules, everyday investors can directly fund forward-thinking startups and SMEs in return for a share of the ventures' future profits or revenues.

Tokengate

TOKENGATE.IO

Zug, Switzerland

Tokengate is a product of DSENT AG is a subsidiary of inacta AG. It specializes in enabling the token economy by providing an open platform Tokengate for ICOs, STOs, and token-based business models. Tokengate integrates KYC, AML, ESCROW, and Token Generation, and client on-boarding for banks and exchanges in a fully compliant way.

trusttoken

TRUSTTOKEN

San Francisco, US

TrustToken brings economic opportunity to all by building finance infrastructure for the internet age. They are the makers of TrueUSD, the first independently-verified digital asset fully backed by US Dollars, with approximately \$200M circulation.

TEMPLUM

TEMPLUM

New York, US

Templum provides an institutional-grade alternative asset platform and infrastructure for investing and trading alternative assets. Templum's innovative end-to-end trading technology solution provides global investors greater access to capital. It offers the potential for alternative asset liquidity with unprecedented levels of transparency and security to create a new strategic alternative in the private markets.

TOKENSOFT

TOKENSOFT

San Francisco, US

TokenSoft is the leading technology and security platform for companies seeking to issue assets on the blockchain, at scale and within compliance. From startups and funds to enterprises and investment banks, TokenSoft's platform offers a bespoke suite of technology and consulting services to meet the needs of the entire lifecycle of a digital security, including onboarding, distribution, custody, and ongoing administration.

tZERO

TZERO

Midvale, US

tZERO is a leading financial technology company that owns, develops, and operates a suite of fintech solutions for capital markets. The tZERO product offering consists of brokerage services, private electronic marketplace, digital brokerage, and blockchain project development.

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VCS IN BLOCKCHAIN



VCS IN BLOCKCHAIN

Over the last few years, global venture capital financing has increased dramatically, particularly for more mature, later-stage start-ups. Because Blockchain technology and applications are still in their infancy, investment in startups often includes a small number of influential people with deep experience and a broad reach within the Blockchain community. The sector has been established for over a decade, and crypto and blockchain-related enterprises are expanding to new dimensions. As a result, the stakes for venture capitalists are substantially higher, especially given the high rate of failures and, on various occasions, frauds that the industry is unfortunately famous for.

Blockchain and Cryptocurrencies are essential parts of Web3. The development of Web3 is often compared to the early days of the internet, justifying giant amounts of funding inflows to finance new projects. The total inflows into these VC funds have been increasing steadily, surpassing \$30 billion in 2021. The following list shows the largest blockchain VC funds globally in their respective regions. According to [Galaxy Digital's VC Report](#), there were 49 new funds raised in 2021 with an average size of \$300 million. The largest raises of the year were: Paradigm with \$2.5 billion fund, Andreessen Horowitz's \$2.2 billion fund, Hivemind Capital Partners' \$1.5 billion fund and 10T Holdings \$750 million fund. Furthermore they report 43% of those funds being first time funds, showing the need for VCs in the crypto market. Setting the total funding numbers into perspective with the global VC scene, we can see that only about 4.7% of the total invested capital flowed into crypto. The leading sectors in VC Deals and money invested are currently still AI/ML and Fintech.

Over the last years we can observe the funding stage to move from many pre-seed fundings to more seed and series A fundings. This indicates that the industry is starting to mature as more funds flow in. Comparing the deal sizes, deal amounts and total funding with the last frenzy in crypto in 2017, one can see the deal count reaching slightly higher, whilst the funding amount increased more than fivefold since back then. Moving through the years one can observe how VC deals have changed too. Back then many were focussing on layer 1 technologies and infrastructure providers, such as custodians and wallet services, as well as financial services. Today Financial services such as exchanges, investing, trading are still very much sought after, with more than 40% of the total VC funding flowing towards that category. Especially with DeFi on the horizon, a completely new financial infrastructure will evolve and completely disrupt our known financial system. A completely new category has emerged and grown rapidly: NFTs, DAOs and Metaverses. More than 17% of the total funding went to companies from that category. Communities around these are very strong and a new type of digital social interactions is a very interesting field for VCs. Investors are always on the lookout for the next Facebook, Twitter or TikTok and around DAOs and Metaverses it appears to be a question of when, not if, there will be the next global giant emerging.

VCS IN BLOCKCHAIN



INVESTING IN HUMANITY'S EMERGING MINDSET & THE FUTURE

We have just witnessed the biggest year ever in blockchain venture capital. The explosive growth of the blockchain industry in 2021 saw VCs both raise and deploy capital at a record pace. In 2021, \$33bn went to blockchain startups - the highest portion ever. More was invested in Q4 2021 than in all of 2020 combined, encouragingly indicating that blockchain venture capital will garner even greater traction in 2022. Venture Capital is truly the spark igniting innovation and heralding a new future.

What is behind this growth?

Our assessment of 2021 shows that valuations and blockchain funding are still dominated by exchanges, fintech, and institutional servicing platforms with companies such as FTX, Celsius, Gemini, and Fireblocks being amid some of the significant raises. Startups building in the NFT, Web3, DAO, and Metaverse sub-sectors came second to the capital allocation.

Last year was also the largest by blockchain VC deal count at over 2,000, almost double the previous year. The portion of deals completed at the Series A stage reached its highest level on record. This can be partly attributed to the growing maturity of the blockchain space, with early-stage companies founded during the 2018-2020 bear market reaching later stages successfully. This increased frequency of later stage rounds has resulted in at least 65 startups in the sector reaching \$1bn+ valuations and 40 reaching unicorn status in 2021. Let's not forget that there are 14 Unicorns here at Crypto Valley!

While 2021 started with a boom in megadeals, the year closed with a fresh tranche of new companies securing robust deals. According to CB Insights, early-stage deals inched up to 79% deal share globally

in 2021. In Europe, this early-stage deal share was 85%, signs that newly founded companies are making strides and investors are taking notice. Participating in incubation and accelerator programs like CV Labs increases startups' ability to raise earlier funds and equally allows VCs to understand founder visions. There is now more diversity and an expanding set of use-cases and market opportunities.

Investors have an enormous demand to allocate capital to the blockchain ecosystem, as shown in the fact that valuations in the space were [higher](#) than in the rest of the venture capital space. This fact also highlights the intense competition among investors for deal allocations. Galaxy reports the global universe of blockchain venture firms as nearing 500, with many first-time raisers and other veterans. CB Insights indicated that Coinbase Ventures was the top blockchain investor in 2021, with investments in 68 companies, followed by China-based AU21 Capital with 51 and Andreessen Horowitz (a16z) with 48. Funds are emerging rapidly to meet investor demand; a16z and Paradigm raised funds in excess of \$2 billion. In addition, larger and well-established funds like Tiger and Sequoia, who were historically shy, are entering the blockchain market through late-stage equity.

But what is fuelling this explosion in blockchain venture capital?

Olaf Hannemann, Co-Founder and CIO at CV VC AG shared the following salient insight - "Blockchain venture capital is simply about - investing in the future. More importantly, global VCs view blockchain as a catalyst technology enabling the most significant shift in humankind over the past centuries - the transition to a new

mindset. This new mindset will dictate that institutions, businesses, and brands will have to respond and act accordingly. Blockchain will be a distinct enabler of such corporate responses to humanity's new mindset.

The world is experiencing a transition to a new mindset, espoused by humanity's need for greater transparency and accountability. The recent two years have quickened the pace of the human mindset changes that were already surging. People trust less, want more privacy, a new way to interact, and a fairer way to transact. There are new working paradigms, supply chain challenges, demand for trust, and more. These factors are changing people's relationships with materialism, institutions, brands, and businesses, forcing them to adjust their thinking and actions. Companies and brands will need to meet the demand of humanity's new mindset, and blockchain tech will enable businesses to do just that!"

In short, the democratization possibilities that blockchain brings will be a major enabler of ensuring that enterprises are equipped to go with the needs of this new transparent and caring global mindset.

Venture Capital is fuelling enterprises to use blockchain technology and realize the expectations and demands of this new global mindset. At that junction, long-stay investors will yield a lot more than purely an economic gain, but a Sonic Global Boom!



Olaf Hannemann
Co-Founder & CIO, CV VC

VCS IN BLOCKCHAIN

#HASHED

#HASHED

Seoul, South Korea

Based in South Korea and San Francisco, Hashed has realized meaningful gains in the crypto industry. More importantly, Hashed prides itself on nurturing an ecosystem for the industry's growth. Led by serial entrepreneurs and engineers, Hashed has expedited global blockchain adoption through strategic investment and community building.



BLOCKCHAIN CAPITAL

San Francisco, US

Blockchain Capital was founded in 2013 with the mission of helping entrepreneurs build world-class companies and projects based on blockchain technology – providing founders with the tools they need to succeed: capital, domain expertise, partnerships, recruiting, and strategy. Blockchain Capital is one of the oldest and most active venture investors in the blockchain industry and has financed 80+ companies and projects since its inception.



CV VC

Zug, Switzerland

Headquartered in Switzerland, CV VC is a private venture capital company offering seed funding and an incubation program to global tech teams in exchange for equity. In addition, CV VC provides consulting and investment advisory to corporates and multiple investment solutions for qualified investors.

500 startups

500 STARTUPS

San Francisco, US

500 Startups is a global venture capital firm on a mission to discover and back the world's most talented entrepreneurs, help them create successful companies at scale, and build thriving global ecosystems. It is one of the most active venture capital firms in the world.



BOOST

San Mateo, US

Founded in 2012, Boost VC is an accelerator firm headquartered in San Mateo, California. The firm invests in pre-seed startups through its accelerator program. The firm seeks to invest in cryptocurrency, virtual reality, augmented reality, space, robotics, artificial intelligence, biotech, ocean, and time travel technology sectors.



DCG

New York, US

Digital Currency Group's mission is to accelerate the development of a better financial system. They do this by building and supporting blockchain and digital currency companies using their network, insights, and access to capital. DCG has been the most active investor in the digital currency industry, with investments in over 130 companies in 30 different countries.



A16Z CRYPTO FUND

San Francisco, US

Founded in 2009 by Marc Andreessen and Ben Horowitz, Andreessen Horowitz (known as "a16z") is a venture capital firm in Silicon Valley, California, that backs bold entrepreneurs building the future through technology. We are stage agnostic: we invest in seed to late-stage technology companies across the consumer, enterprise, bio/healthcare, crypto, and fintech spaces. a16z has \$10B in assets under management across multiple funds, including the \$650M Bio funds, the \$865M Crypto fund, and the Cultural Leadership Fund.



CMCC CAPITAL

Hong Kong

CMCC believes that blockchain technology is bringing about the next era of the Internet, facilitating the movement of value rather than just information. Furthermore, they believe that value will accrue in different areas of the blockchain ecosystem and offer investors exposure to various aspects of this frontier technology.



DIGITAL HORIZON

London, UK

Digital Horizon is a VC firm focused on backing exceptional entrepreneurs building B2B software-based solutions and marketplaces. With a presence in London, Tel Aviv, and Moscow, Digital Horizon aims to seek out early-stage technology companies with the ultimate goal to assist them in building and to scale their business.

VCS IN BLOCKCHAIN

FABRIC VENTURES

FABRIC VENTURES
London, UK

Founded in 2017, Fabric Ventures is a venture capital investment firm based in Luxembourg City, Luxembourg, with a regional office in London, United Kingdom. The firm seeks to invest in the financial service and cryptocurrency sectors.



GREENFIELD ONE
Berlin, Germany

Greenfield One is an early-stage crypto and blockchain venture capital firm. They make long-term bets on early developer teams building towards an open, decentralized, and more robust architecture of tomorrow's web. Charts can be found on various organization profiles and Hubs pages, based on data availability.



LINGFENG
Beijing, China

Lingfeng Capital is a growth capital private equity fund for the fast-growing fintech sectors in the Asia Pacific, particularly in the Greater China region, including focusing on real applications and underlying technologies for the financial industries with a vision of becoming the leading fintech and innovative tech fund management company in China and all over the world.



FENBUSHI CAPITAL
Pudong, China

Fenbushi Capital is the first and most active blockchain-focused venture capital firm in Asia. Founded in Shanghai in 2015, it has to date supported over 60 leading projects across four continents leveraging blockchain technology to reshape myriad industries such as finance, healthcare, supply chain, and consumer goods. Fenbushi's mission is to drive healthy and sustainable growth in the global blockchain ecosystem and actively works as a long-term strategic partner to its portfolio.



HASHKEY
Hong Kong

Valor Capital Group, LLC is an investment firm focused on Brazil and US-Brazil cross-border opportunities in New York, Silicon Valley, Rio de Janeiro, and São Paulo. The firm operates across two investment strategies: Growth Equity and Venture Capital.



MOSAIC VENTURES
London, UK

Mosaic Ventures is a Silicon Valley-style venture capital firm based in London, focused on Series A. They have raised \$300 million across two funds to invest in founding teams that fundamentally reshape big markets.



GALAXY DIGITAL
New York, US

Galaxy Digital is a technology-driven financial services and investment management firm that provides institutions and direct clients with a full suite of financial solutions spanning the digital assets ecosystem.



IOSG VENTURES
Hong Kong

Founded in 2017, IOSG Ventures is a research-driven venture capital focusing on Open Finance, Web 3.0, and the cross-chain industry. They have over 60 investments and have been actively involved in various developer & DAO communities. They invest in top teams with innovative ideas, operational excellence, and a robust community.



MULTICOIN
Austin, US

Multicoin Capital is a thesis-driven investment firm that invests in cryptocurrencies, tokens, and blockchain companies reshaping trillion-dollar markets. Since founding the company in May 2017, they have become one of the preeminent investment firms in crypto.

VCS IN BLOCKCHAIN

Outlier Ventures* supports the development and growth of emerging technologies. To do this, they advise and invest in talented teams and support businesses that create value for an open data economy. Established in 2013, they were Europe's first venture firm dedicated to blockchain technology. As early investors in the space, they foresaw the coming together of key technologies like AI and IoT with blockchains.

OUTLIER VENTURES
London, UK

PANTERA Exclusively focused on investing in blockchain technologies, the Pantera team is experienced in traditional finance and emergent blockchain technology. Having strong relationships with some of the most promising entrepreneurs and other top investors in the space, Pantera is fulfilling its strategic investment philosophy by building a diversified portfolio and bringing industry-specific value-add resources to its portfolio companies.

PANTERA
Menlo Park, US

PLUG AND PLAY Plug and Play Tech Center is an early-stage investor, accelerator, and corporate innovation platform with global headquarters in Sunnyvale, California, in the Silicon Valley. Plug and Play run two programs per year in each industry and location (totaling 50 accelerator programs per year) and has 300 corporate partners and 200 venture capitalists in its ecosystem.

PLUG AND PLAY
Sunnyvale, US



ROCKAWAY
Prague, CZ

Rockaway Capital, the investment group, founded by Jakub Havrlant, operates primarily in e-commerce, e-travel, media, blockchain and venture capital, and a few other fields.



SEQUOIA
Menlo Park, US

Founded in 1972, Sequoia Capital is a venture capital firm headquartered in Menlo Park, California. The firm seeks to invest in the information technology, healthcare, manufacturing, mobile, nanotechnology, financial service, internet, energy, media, and retail sectors.



THREE ARROWS CAPITAL
Singapore

Three Arrows Capital is a hedge fund manager that provides risk-adjusted returns. The firm was established in 2012 by Su Zhu and Kyle Davies and is headquartered in Singapore, Central Region, Singapore.



UNION SQUARE
New York, US

USV is a small, collegial partnership that manages over \$1B across seven funds. Their portfolio companies create services that have the potential to transform important markets fundamentally. They believe in the opportunity for new blockchain protocols to massively unlock competition and innovation in computing, data, finance, and money itself.



VALOR CAPITAL
New York, US

Valor Capital is the pioneer Cross-Border Venture Fund bridging the US, Brazilian and Global technology markets. Their companies enable empowerment through knowledge, significant technological advancements, and experiences in the new digital age.



WHITE STAR
New York, US

White Star Capital is an early-stage Venture Capital firm built by a team of founders, investors, and operators with a track record of entering new markets, expanding teams, and exciting companies.

VCS IN BLOCKCHAIN

WINKLEVOSS
CAPITAL

WINKLEVOSS
CAPITAL

New York, US

At Winklevoss Capital, they believe in determined entrepreneurs. Those rare individuals comprised three essential qualities: acumen, artistry, and audacity. Risk-taking is just in their blood. They reinforce their pursuit of a frictionless world and a better human experience by providing guidance, relationships, and capital. Because those who dare to fail greatly dare to achieve greatly.

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CV VC INVESTMENT THESIS



CV VC INVESTMENT THESIS

We invest in blockchain because it's more than just technology. Blockchain is a new mindset and a game-changing catalyst technology.

The mindset is decentralized, power to the community, and embedded trust. Blockchain technology can fundamentally transition some of society's most significant social, economic, and political challenges of the past into solutions that will build a more sustainable future.

At CV VC, we believe blockchain is the catalyst for tech megatrends reshaping the future. We support all features of blockchain as a transformative technology but focus mainly on two which we believe will revolutionize the way forward for work, society, and economics:

1. Decentralization capacity. Blockchain allows for the democratization of the world's most valuable resources, transforms value systems, and creates new assets.
2. Trust capability. Blockchain is a distributed, robust, secure, privacy-preserving, and immutable record-keeping framework and, therefore, can positively transform the nature of trust, value sharing, and transactions. The use of blockchain technology can raise trust and legitimacy concerning the functioning of public, economic, and social institutions, most of which are suffering an unprecedented erosion of trust. Without trust, there is no way forward.

CV VC's investment focus is on teams worldwide building the future, using blockchain technology as a catalyst to revolutionize how humanity works, lives, interacts, and transacts.

CV VC investments are based on six fundamental pillars:

1. Abiding investors: We have been investing in early-stage tech disruptors since 2018, have a committed capital base, and expect to hold investments long-term.
2. Founders for founders: Our investments have full access to a dedicated investment and operational team, successful entrepreneurs, and our complete ecosystem team at CV Labs.
3. Global ecosystemic ethos: We are a leading hub in the worldwide blockchain ecosystem. We contribute globally: advisory, regulatory, technical, networks, co-working, summits, and intelligence from our Swiss headquarters and global epicenters.
4. Industry flexibility: We invest and incubate at an early stage; blockchain is global and decentralized, so we invest everywhere. We invest in disruptors & enterprises that use blockchain to revolutionize the industries they serve.































5. The new economy: We invest in service providers building the infrastructure for the digital asset world, such as custody, market makers, KYC, and tokenization builders.
6. Investment bridge: We offer diversified exposure to blockchain technology alongside CV VC. Our investment certificates ("AMCs") include the Venture Capital focused "Blockchain Technology for Tomorrow ("T4T") AMC, which invests in the most attractive use cases across industries on a global basis. Its ultimate goal is to achieve a diversified portfolio regarding industries/geographies and weighting of the underlying portfolio companies, thereby minimizing any cluster risks and maximizing returns for investors. Our liquid crypto and digital asset AMCs are similar to traditional venture capital and investment funds. They include a fully bankable investment certificate with a Swiss ISIN that can be added into any portfolio, with bespoke solutions for a more targeted investor. Lastly, our CV CB Digital Asset AMC brings a portfolio approach to the most promising global crypto and digital asset investment strategies.

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CV VC PORTFOLIO



CV VC PORTFOLIO

<p>ADHASH</p> 	<p>Agyro</p> 	<p>Asvin</p> 	<p>BeemUp</p> 	<p>Bitfreezer</p>  BitFreezer	<p>BlockFrauds</p> 
<p>Blocksport</p> 	<p>Carmachain</p>  Alternative Credit Data Marketplace	<p>Coinrule</p> 	<p>DSENT</p>  AN INACTA COMPANY	<p>Float Capital</p> 	<p>flovtec</p> 
<p>Forward Protocol</p> 	<p>Geon</p> 	<p>HouseAfrica</p> 	<p>iVE.ONE</p> 	<p>Math for Money</p> 	<p>Mazzuma</p>  Your Money, Your Freedom
<p>Orvium</p> 	<p>Pravica</p> 	<p>Proof of Impact</p> 	<p>Ptolemy</p> 	<p>Scorechain</p> 	<p>Sprinter</p> 
<p>Tezsurre</p> 	<p>The Swappery</p> 	<p>Utopia</p> 	<p>Vault Wines</p> 	<p>Vereign</p> 	<p>Xion</p> 

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ABOUT



ABOUT



CV VC

We invest in Blockchain. Because it's more than just technology.

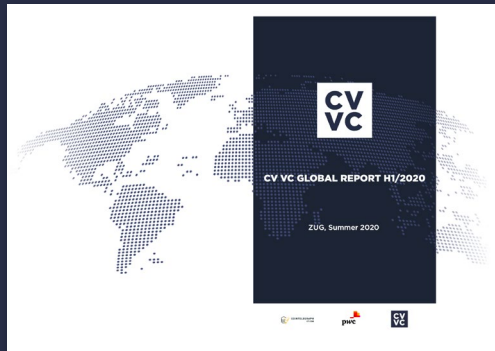
Headquartered in Switzerland, the private venture capital company offers seed funding and an incubation program to global tech teams in exchange for equity. In addition, CV VC provides consulting and investment advisory to corporates. As an initiator of Crypto Valley which is the birthplace of Ethereum and home to 14 Unicorns, CV VC & CV Labs is the hub of Crypto Valley's acumen and a global force that is driving the fourth industrial revolution. CV VC has an entrepreneurial spirit as epitomized by its founders and board members who represent its ethos - Founders for Founders. These include Ex Swiss President Johann Schneider-Ammann, industrialist Alex Wassmer, entrepreneur Mathias Ruch, investment banker Olaf Hannemann, former Finnish Minister Anne Berner, and Philipp Rösler, ex Vice-Chancellor of Germany & Managing Director of World Economic Forum.



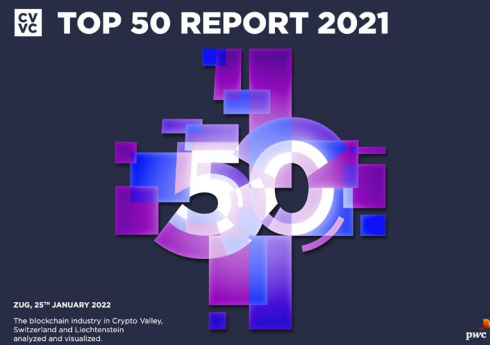
PwC

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