

# Crypto, What Is It Good For?

## An Overview of Cryptocurrency Use Cases

DECEMBER 2020



# Contents

3	Foreword
4	1 Base layer blockchain and cryptocurrencies
5	Bitcoin
6	Ethereum
7	Ripple
8	Tezos
9	Celo
10	Litecoin
11	Zcash
12	Filecoin
13	Arweave
14	2 Second layer protocols
15	Bancor
16	Lightning
17	Compound Protocol
18	Uniswap
19	Etherisc
20	OMG Network
21	3 Financial products and services
22	XBT Provider
23	Deutsche Bank
24	BitGo
25	Gemini
26	Cowrie
27	Binusu
28	Metamask
29	Ripio
30	PayPal
31	LocalBitcoins
32	4 Non-financial applications and services
33	Rally
34	SuperRare
35	UNICEF CryptoFund
36	World Food Programme
37	Acknowledgements
37	Contributors

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# Foreword



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Over a decade ago, a white paper by Satoshi Nakamoto was distributed to a cryptography mailing list outlining a novel proposal for a “peer-to-peer electronic cash system” called bitcoin. This innovation spurred a new, global industry and asset class that has created hundreds of billions of dollars in value, and inspired a generation of entrepreneurs and innovators.

The advent of cryptocurrencies has led to the creation and operation of new global, decentralized networks that have been used by over 100 million people across the world to transfer trillions of dollars of value. Bitcoin, for example, is more than just a technology – it is a powerful social, political and cultural movement that asks us to imagine money, banking and payments in new and novel ways.

While cryptocurrencies are most often recognized as new monetary systems and financial networks, the public blockchain networks that they secure can be used to power diverse use cases and create new applications across industries. These networks are constantly evolving through an open-source software ecosystem with globally distributed

communities that upgrade, maintain and operate them. Innovators, entrepreneurs and engineers are rapidly building and bringing to market new products and solutions that provide access to or leverage these new networks.

The World Economic Forum Global Future Council on Cryptocurrencies represents a broad cross-section of experts working to make cryptocurrencies useful across a wide range of use cases. The Council includes practitioners from a diverse range of backgrounds, and more importantly, its members do not share one common view of cryptocurrencies.

While much has been written about blockchain technology, there is little discussion of cryptocurrencies beyond price and financial speculation. The Council has thus created this booklet to highlight a non-exhaustive list of companies, protocols and projects that represent the diversity of use cases that cryptocurrencies and the networks which they power can enable.

This is broken down into the following categories:

## 1. Base layer blockchain and cryptocurrencies

These are the native networks where cryptocurrencies are created, stored and transferred over.

## 2. Second layer protocols

These are open-source protocols that are built on top of base layer blockchains, which provide additional features and applications that cryptocurrency users can access.

## 3. Financial products and services

There are applications that help consumers, investors and businesses interact with and access cryptocurrencies and their associated networks.

## 4. Non-financial applications and services

These are new crypto-native networks and applications for use cases outside of financial services.

Cryptocurrencies have reached a point of inevitability. We have dedicated our careers to advancing the adoption and use of cryptocurrencies because we believe they represent an enormous opportunity to grow the global digital economy and benefit consumers and businesses across the world.

We hope that this Council can help to educate and advocate for this technology while serving as a trusted resource to navigate this new fascinating, emerging ecosystem. Over the course of this year, we will produce research, content and events that make cryptocurrency comprehensible, accessible and inclusive. We hope you will join us.

1

# Base layer blockchain and cryptocurrencies

These are the native networks where cryptocurrencies are created, stored and transferred over.



# Bitcoin

## Overview

Since the advent of the internet, cryptographers and innovators have struggled to create a native currency for transactions on the internet. The bitcoin white paper surfaced after the financial crisis of 2008. It combined innovations in cryptography and distributed systems into a novel solution.

The bitcoin network is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party. In simple terms, bitcoin is the internet of money.

## Project goals

Bitcoin attempts to separate money and state. Unlike traditional currencies, which are issued by central banks, bitcoin has no central monetary authority. Instead it is underpinned by a peer-to-peer computer network.

Bitcoin uses public key cryptography and an innovative approach to bookkeeping to achieve the authorization, balance verification, prohibition on double spending, delivery of assets and record inalterability described above. It happens in near real time at minimal cost.

## Implementation strategy

Bitcoin is an open-source protocol and software development project. The bitcoin network is made up of computers running the bitcoin protocol, and includes miners who use specialized chips called ASICs to organize bitcoin transactions into blocks and add these blocks to the blockchain in exchange for transaction fees and the opportunity to earn bitcoin via the block reward. Bitcoin has a fixed, pre-programmed supply schedule, and as of November 2020, 85% of all bitcoin that will ever exist have been mined. This is why some people describe bitcoin as digital gold.

By downloading and running the bitcoin software, anyone can use the bitcoin network to transact with bitcoin, the asset.

There are thousands of companies around the world who have built products and services around bitcoin, the asset, and the bitcoin network. This includes wallets, which broadcast transactions to the bitcoin network and facilitate storage of bitcoin, as well as exchanges, payment providers and more.

## Traction and key metrics

As a store of value and an asset, bitcoin has seen material price appreciation in the last year. At the start of 2020, bitcoin was valued at \$7,500 and as of November 2020, it was valued at \$18,500. Bitcoin's market cap is \$346 billion; \$28 billion of bitcoin is traded on a daily basis.

As a payment network, the bitcoin network processed \$3.8 trillion of transactions in 2019. As a point of comparison, PayPal processed \$700 billion in transactions over that same period, and its estimated total internet transactions via the traditional banking and payment systems totaled \$4.1 trillion over the same period.



A peer-to-peer electronic cash system

<b>Category</b>	Monetary system
<b>Status</b>	Live
<b>Technology</b>	Bitcoin protocol
<b>Governance</b>	Open-source software via bitcoin improvement proposals (BIPs)
<b>Permissions</b>	Permissionless
<b>Location</b>	Global

### Business case data

<b>Entity</b>	None
<b>Business model</b>	Self-sustaining through mining incentives and transaction fees
<b>Financing</b>	No financing; core developers financed via donations or sponsorships

### Resources and references

<b>Website</b>	<a href="https://bitcoin.org">bitcoin.org</a>
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# Ethereum

## Overview

Ethereum is a global, open-source network and platform for running new types of applications. Ethereum is known as a “smart contract platform” where these applications can programme the transfer of value from one address to another when certain conditions are met.

Executing these programmes requires the use of a native cryptocurrency called ether that is used to pay transaction fees and reward computers across the world for operating and securing the network. Ethereum-smart contracts are widely used to create new assets or tokens with their own use cases that can be issued and transferred on top of the Ethereum blockchain.

## Project goals

Ethereum was initially conceptualized as a “world computer” that would decentralize the client-server model of the internet. With Ethereum, servers and private clouds are replaced by thousands of so-called “nodes” run by volunteers from across the globe forming a computation network. When applications are built on Ethereum, no one entity or company has control or can suddenly ban apps or access to the network. Only the end user can make changes using their private key, not any other entity like a centralized service provider.

## Implementation strategy

Ethereum borrows heavily from bitcoin’s protocol and its blockchain design, but has some key differences that support different use cases. Every time an application is used, a network of thousands of computers processes it and tracks the “state” of each application. Smart contracts are compiled, read and executed by the Ethereum virtual machine (EVM). The EVM programmatically executes a specific function, hence the moniker “smart contracts”. Anyone can audit these smart contracts on the public Ethereum ledger, unlike traditional internet applications that own proprietary code.

Ethereum is powered by ether, its native currency, which is used as “gas” to fuel the smart contract’s execution on the network. Sets of smart contracts can be used to create decentralized applications.

The Ethereum codebase is maintained by the Ethereum Foundation, a not-for-profit entity financed by Ethereum’s 2015 token sale, which pre-mined ether tokens to sell for proceeds to fund development work. The Ethereum Foundation awards grants to developers and companies contributing to the open-source Ethereum code and employs a team of researchers and developers.

## Traction and key metrics

- The total number of transactions on the Ethereum blockchain grew from 17,074 in January 2016 to 1,173,012 on 17 November 2020.
- Ethereum has one of the largest cryptocurrency developer ecosystems with over 200,000 developers across the world.



**Global, open-source platform for decentralized applications**

<b>Category</b>	General purpose
<b>Status</b>	Live
<b>Technology</b>	Ethereum blockchain
<b>Governance</b>	Ethereum Foundation and community
<b>Permissions</b>	Open source
<b>Location</b>	Worldwide

### Business case data

<b>Entity</b>	Ethereum Foundation
<b>Business model</b>	Mining and gas fees
<b>Financing</b>	\$18 million token sale in 2015

### Resources and references

<b>Website</b>	<a href="https://ethereum.org">ethereum.org</a>
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# Ripple

## Overview

Ripple is building next generation financial infrastructure with blockchain technology. Its payment network, RippleNet, offers connections to hundreds of financial institutions around the world via a single application programming interface (API) and makes moving money faster, cheaper and more reliable. RippleNet is both decentralized and standardized, meaning assets are transferred from one party to the other with no single point of failure.

RippleNet also allows customers to source liquidity on-demand via the digital asset XRP, Ripple's currency, that helps financial institutions eliminate the need to pre-fund accounts in destination currencies for cross-border payments.

## Project goals

Ripple's primary goal is to enable payments everywhere, every way for everyone using blockchain and digital assets. The company is focused on using XRP specifically to address a \$10 trillion problem – trapped capital that is required for cross-border payments.

XRP was built for a payments use case. It settles in approximately 3 seconds, already scales to 1,500+ transactions per second (TPS), consumes negligible energy and has a very low transaction cost (\$0.0003). It is open source and decentralized, making it a convenient instrument in bridging two different currencies quickly and efficiently.

## Implementation strategy

Ripple has hundreds of customers in various stages of deployment on RippleNet, with over two dozen using or signed production contracts for on-demand liquidity (ODL). Some customers include: MoneyGram, Azimo, Santander, American Express, CIMB, Siam Commercial Bank, SBI and HDFC.

RippleNet is available in 55+ countries on six continents, with payout capabilities in 70+ countries. Recently, Ripple also launched Line of Credit, a new service on top of RippleNet that allows ODL customers to source capital from Ripple.

Transactions over RippleNet are KYC/AML-compliant, and RippleNet is built with ISO 20022 standardization.

## Traction and key metrics

Ripple has processed over 2 million transactions with a nominal value of \$7 billion over RippleNet. Nearly a fifth of transactions over RippleNet today are through ODL, using XRP as a bridge between two fiat currencies.

ODL is live in four corridors today, with US to Mexico as the largest. Bitso, a Mexican exchange, recently announced that it is processing nearly 10% of remittance payments with ODL (\$35 billion yearly flows from US to Mexico).



### Using XRP to solve problems with global payments

<b>Category</b>	Payments
<b>Status</b>	Live
<b>Technology</b>	RippleNet
<b>Governance</b>	Corporate, global jurisdiction
<b>Permissions</b>	Permissioned and permissionless
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Ripple
<b>Business model</b>	Software and XRP sales
<b>Financing</b>	Venture-funded (Series C); \$293 million total

### Resources and references

<b>Website</b>	<a href="https://ripple.com">ripple.com</a>
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# Tezos

## Overview

The Tezos blockchain represents the ledger of a cryptocurrency, tez. Tezos is used for payments, to represent complex financial contracts, to represent financial assets from stocks to gold and real estate, and even to power applications such as voting.

The direction of Tezos is controlled by its token holders who participate in a community governance process.

## Project goals

Tezos aims to be the last blockchain. Tezos has a formal on-chain governance model that allows the blockchain to implement changes automatically without a hard fork, where a blockchain network splits into two.

Tezos also aims to create a true digital commonwealth. That is, the nature of the participation around the chain should evolve from being a pure economic cluster to being a polity. In simple language, in Tezos, all stakeholders may participate in network upgrades by evaluating, proposing, or approving amendments.

## Implementation strategy

Tezos is an open-source project, which means everyone is free to contribute. Contributions which affect the core protocol and which everyone must agree on are subject to a vote from coin holders. The entire software stack is written from scratch in OCaml and is undergoing formal verification efforts, the highest standard in enforcing code safety.

## Traction and key metrics

- In August 2020, the market capitalization reached over \$3 billion.
- Over \$2 billion of assets have been tokenized, or are in the process of being tokenized on the Tezos chain.
- Over 400 “bakers” located around the world secure the chain.
- Every minute, a new account is created on the Tezos chain.
- Between January and October 2020, the number of interactions with smart contracts has increased by 63% each month.



**A cryptocurrency and open-source platform  
for assets and applications**

<b>Category</b>	Cryptocurrency and smart contract platform
<b>Status</b>	Live
<b>Technology</b>	Proof of stake
<b>Governance</b>	Self-amending ledger, token holder vote
<b>Permissions</b>	Permissionless
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Tezos Foundation
<b>Business model</b>	Open source
<b>Financing</b>	Raised \$230 million in an initial coin offering; foundation has paid staff and provides grants

### Resources and references

**Website** | [tezos.com](https://tezos.com)



# Celo

## Overview

Celo is a mobile-first blockchain platform, built to provide six billion global smartphone subscribers easy access to digital banking and payment services.

The Celo protocol is a permissionless blockchain based on open-source code maintained by the Celo Foundation and supported by an open network of node operators.

The CELO token is the utility and governance asset through which the community can shape the direction of the platform by voting and staking. Celo also has a family of stable-value tokens whose values can track any asset. The first stablecoin issued is the Celo Dollar (cUSD), which tracks the value of the US dollar. The community can shape the direction of the platform by voting and staking.

## Project goals

Celo aims to build a more inclusive financial system, where value can be transferred in faster, more secure and at a lower cost manner, and requires fewer intermediaries than traditional bank wires.

## Implementation strategy

Celo's digital currency, designed to operate in data-constrained environments, can be sent to a person's phone number instead of a blockchain address, and transaction fees can be paid in any stable currency with no third party needed to make a payment. The combination of these features allow for free phone-to-phone global remittances.

Celo is supported by the Alliance for Prosperity, which consists of over 100 mission-aligned organizations.

## Traction and key metrics

Since Celo's mainnet launch on Earth Day in April 2020, over one million transactions have been processed on the network, which has more than 27,000 wallet addresses, and over 15 million cUSD in circulation.

For example, the Grameen Foundation, an Alliance member, used cUSD to distribute COVID-19 relief in the Philippines to over 3,500 female micro-entrepreneurs and their families.



A mobile-first platform for fast, secure and stable digital payments

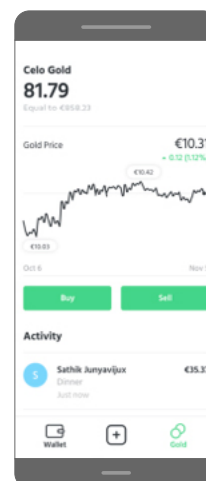
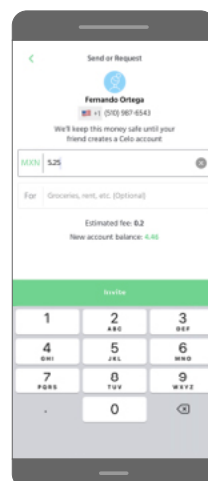
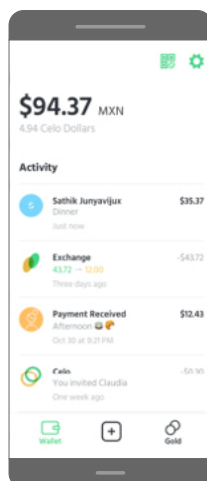
Category	Financial services
Status	Live
Technology	Celo
Governance	Token-based voting
Permissions	Open source
Location	Global

### Business case data

Entity	Celo Foundation
Business model	Transaction fees; value accrues to all token holders
Financing	Venture-funded startup with CELO token issued in 2020

### Resources and references

Website	<a href="https://celo.org">celo.org</a>
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# Litecoin (LTC)

## Overview

Litecoin is a decentralized cryptocurrency system that offers instant and low-cost payments to anyone in the world.

Litecoin is a blockchain network with a native cryptocurrency that can be transferred between users of the network.

## Project goals

Litecoin aims to enhance bitcoin's functionality by adjusting parameters of the blockchain network to increase transaction speed and attempt to lower transaction fees. Blocks are confirmed every 2.5 minutes – four times more frequently than bitcoin, which means more transactions can be processed in the same period of time; higher transaction capacity and relatively lower demand for litecoin transactions than bitcoin allows for low transaction fees.

## Implementation strategy

Litecoin's digital assets serve as a secure and efficient means of exchange and store value. High speed and low cost of transactions give it potential to be an efficient means of payment across borders.

## Traction and key metrics

As of 28 October 2020, over 66 million litecoins were in circulation, with a total market capitalization of nearly \$3.7 billion.

In Q3 2020, there was an average of 56,340 litecoin transactions per day. Bitcoin recorded an average of 351,417 transactions per day in the same period.

However, despite litecoin's faster transaction times and lower transaction costs, it has not seen significant adoption by payments companies or financial institutions.



**Cryptocurrency for instant and low-cost payments**

<b>Category</b>	Cryptocurrency protocol
<b>Status</b>	Live
<b>Technology</b>	Litecoin
<b>Governance</b>	Token-based voting
<b>Permissions</b>	Open source
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Litecoin Foundation
<b>Business model</b>	Self-sustaining with mining incentives
<b>Financing</b>	Developer grants from Foundation, which is funded

### Resources and references

<b>Website</b>	<a href="https://litecoin.com">litecoin.com</a>
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# Zcash

## Overview

Zcash is an open-source, peer-to-peer digital currency and payments system inspired by bitcoin, mainly focused on enabling transaction-level privacy.

In bitcoin, it is not necessary to provide any personal information to transact in the system; the transactions themselves are “transparent”, meaning they can be viewed on the ledger, and are therefore traceable. Differently, under the Zcash protocol, transactions can either be transparent as in bitcoin or partially or fully shielded, meaning data such as the sender, recipient and amount exchanged are obfuscated using specialized cryptography.

## Project goals

The main goal of the Zcash project is to combine the novelties allowed by bitcoin – particularly being a global financial system detached from the state, allowing for peer-to-peer financial exchanges combined with a payments system, allowing for financial inclusion through an open-source software, and providing for censorship resistance considering that the individual may establish direct access to his/her balance – with a new level of privacy for any such financial exchanges and certain upgrades.

## Implementation strategy

Although Zcash is an open-source project, it is backed by a private company, the Electric Coin Company (ECC) and the Zcash Foundation. They combine efforts to promote awareness about the need for financial privacy and about the relevance of the Zcash project in this context, as well as to promote Zcash technological and network development.

Funding includes a minor direct investment in ECC, but as in bitcoin the Zcash system also creates its own cryptocurrency (also named Zcash), which allows for self-funding as well, that being the major revenues source. The coins are delivered directly and exclusively to the project founders (10%) and to those that participate of the transaction validation process followed by the process of registering the transactions in the ledger, the so-called miners. Receivers have the autonomy to use the coins as they wish (for payments, donations, etc.). The Zcash price varies depending on market conditions (demand, supply) and, as in bitcoin, the maximum quantity is limited to 21 million coin units.

## Traction and key metrics

The current market capitalization of Zcash is \$600 million. The average number of monthly transactions in 2020 is more than 162,000.

As of mid-September 2020, 11% of all Zcash monthly transactions were fully shielded. The number is higher when partially shielded transactions are included. Shielded adoption is likely to increase as more major players (exchanges, wallets, custody providers) offer support for shielded ZEC. In October 2020, Gemini became the first regulated cryptocurrency exchange to support shielded transactions



### Privacy-focused cryptocurrency

<b>Category</b>	Protocol
<b>Status</b>	Live
<b>Technology</b>	Zero-knowledge cryptography
<b>Governance</b>	Zcash Foundation
<b>Permissions</b>	Open source
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Electric Coin Company and Zcash Foundation
<b>Business model</b>	Open source
<b>Financing</b>	N/A

### Resources and references

<b>Website</b>	<a href="https://electriccoin.co">electriccoin.co</a>
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# Filecoin

## Overview

Filecoin is a decentralized storage network, powered by a native cryptocurrency. By tokenizing storage space through the digital asset of Filecoin, the network offers those with extra storage space an economic incentive to share it, while at the same time offering those looking for extra storage space an alternative to traditional cloud storage, which aims to be faster and cheaper.

Prior to Filecoin, Protocol Labs' created IPFS, which lets users store, request and share data. Filecoin incentivizes long-term storage by adding a token incentive layer. Filecoin aspires to empower anyone to store humanity's most important information.

## Project goals

Filecoin's mission is to decentralize cloud storage. Users who want to store data on the Filecoin network can choose from thousands of geographically distributed storage providers. Storage providers may differ along dimensions such as price, available storage space and locations. By creating a marketplace where storage clients and providers can interact, Filecoin's goal is to eliminate reliance on a few centralized storage providers and instead create a decentralized cloud

## Implementation strategy

Filecoin fosters an ecosystem of collaborators, each of whom contributes to the growth and health of the network in meaningful ways. Storage miners provide storage capacity. Retrieval miners cache and serve files. Storage clients consume storage services. Token holders fortify the network. Developers build tools and services that leverage the Filecoin network.

## Traction and key metrics

The Filecoin network launched on 15 October 2020. As of 6 November 2020, key metrics include:

- Storage capacity of 780+ PiB
- Over 680 active miners providing storage
- Over 100 applications built on Filecoin, as highlighted below



### Decentralized storage network

<b>Category</b>	Cloud storage
<b>Status</b>	Live
<b>Technology</b>	Filecoin
<b>Governance</b>	Filecoin Foundation
<b>Permissions</b>	Open source
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Protocol Labs
<b>Business model</b>	Marketplace for storage clients and miners
<b>Financing</b>	Venture-funded startup; raised more than \$205 million in its 2017 ICO

### Resources and references

<b>Website</b>	<a href="https://filecoin.io">filecoin.io</a>
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# Arweave

## Overview

The Arweave protocol enables a decentralized, permanent web upon which data is stored immutably and reliably. From data storage to app hosting, Arweave is re-imagining the social and technological infrastructure of the web, including the corporate structures behind the production of apps themselves.

This is made possible by Arweave's economic model, powered by the Arweave token, which is based on an endowment rewarding those who store network data. Therefore, those who host their webapps on the Arweave network never have to worry about technical maintenance or ongoing hosting costs – once their code is deployed, it will persist forever

## Project goals

The Arweave project has two main goals:

- Create a decentralized, permanent web that empowers founders, contributors and users, providing a better experience for all.
- Ensure that vital historical and cultural information is not lost, censored, or altered.

## Implementation strategy

Arweave provides technical infrastructure that allows both ownership rights and profits from the usage of web applications to flow directly to value creators. To preserve historical information, Arweave partners with institutions such as the Internet Archive to secure historical records and also provides the tools for anyone, anywhere, to be able to record history in an immutable way.

Example uses of Arweave include:

- **File storage:** Arweave allows files to be stored for one single fee, instead of recurring monthly costs associated with other storage methods.
- **Data sharing:** Content can be uploaded and shared anonymously without any additional maintenance or hosting needed. This content cannot be censored or removed.
- **Data protection:** Content can be captured with a timestamp and archived in the blockchain providing a clear, defensible claim of IP and ownership.

## Traction and key metrics

From mainnet launch in June 2018 to November 2020, over 30 profit sharing communities and over 350 apps have been deployed on the Arweave network. There are currently hundreds of machines mining and therefore providing storage to the network.

One example of a profit-sharing community with a decentralized business model and governance is ArDrive, a Dropbox-style app offering permanent, secure file storage on the Arweave network.



### A permanent, decentralized web

<b>Category</b>	Compute and connectivity
<b>Status</b>	Live
<b>Technology</b>	Arweave protocol
<b>Governance</b>	Proof of work
<b>Permissions</b>	Open source
<b>Location</b>	Global, primarily EU

### Business case data

<b>Entity</b>	Multiple
<b>Business model</b>	Selling tokens, with value accruing to token holders
<b>Financing</b>	Community and venture-backed, token-based project

### Resources and references

<b>Website</b>	<a href="https://arweave.org">arweave.org</a>
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## Second layer protocols

These are open-source protocols that are built on top of base layer blockchains, which provide additional features and applications that cryptocurrency users can access.



# Bancor

## Overview

Bancor is a liquidity protocol that enables decentralized automated token swaps on Ethereum and across blockchains. Utilizing smart contracts to create automated market makers (sometimes called AMMs, liquidity pools or bonding curves) for new and existing tokens, Bancor Protocol introduced an alternative method to the long-standing asset exchange model of “bids and asks” or “order books” – minimizing asymmetries and manipulation that plague traditional exchange markets. AMMs like Bancor are now prominent in decentralized finance (DeFi), allowing any token to be instantly convertible to any other at real-time algorithmic prices.

## Project goals

Bancor was invented to support the long-tail of unique digital currencies by providing resilient, decentralized liquidity infrastructure for all digital assets as they proliferate. Bancor Protocol is an algorithm that standardizes how blockchains can automatically balance token pools to allow for instant conversions between any token at fair and predictable prices. From community and local currencies to corporate, national, asset currencies and beyond, Bancor redefined how value is tokenized and shared across a decentralized global network in a transparent and automated way.

## Implementation strategy

On 12 June 2017 Bancor activated \$BNT, the hub token for the Bancor decentralized liquidity network, in one of the largest token generation events in history. Bancor Protocol continually prices all tokens in the network vis-à-vis each other based on real-time demand for their deposits and withdrawals. Any token can be added to the network by anyone who has any amount of liquidity to deposit, creating more inclusive access to the benefits of liquidity provision, previously reserved only for financial institutions and large capital holders.

The Bancor network has been live for over three years, upgrading the protocol as the field matures and new use cases and challenges emerge. While currently liquidity infrastructure is most relevant to and targeted at advanced users, Bancor’s development roadmap aims to make token creation and usage accessible to all people and entities. This requires flexible features to address various stakeholder needs, including mainstream accessible UX, security, community governance, regulatory compliance, scalability and sustainable incentives for network participants

## Traction and key metrics

Since launch, liquidity pools for hundreds of tokens on both Ethereum and EOS blockchains have been added to the Bancor network, which has seen over \$2 billion in token-to-token conversions across tens of thousands of unique wallets with over \$65 million currently staked.



Decentralized automated market maker

<b>Category</b>	Decentralized exchange
<b>Status</b>	Live
<b>Technology</b>	Ethereum, EOS, other
<b>Governance</b>	Token-based voting
<b>Permissions</b>	Open source
<b>Location</b>	Switzerland

### Business case data

<b>Entity</b>	Bprotocol Foundation
<b>Business model</b>	Conversion fees, accrue \$BNT and liquidity pool token holders
<b>Financing</b>	Ethereum token generation

### Resources and references

**Website** | [bancor.network](https://bancor.network)

# Lightning Network

## Overview

Bitcoin allows anyone to send value without a trusted intermediary or depository. However, in its current design, bitcoin cannot efficiently encompass all of the world's transactions.

The Lightning Network is a Layer-2 technology built on top of bitcoin that enables "lightning-fast" bitcoin payments without worrying about bitcoin's block confirmation times, which are around 10 minutes. Unlike other payment-focused cryptocurrencies, Lightning does not have a separate token and simply uses bitcoin, which is already widely distributed and easily available to hundreds of millions of consumers.

## Project goals

The Lightning Network aims to enable instant, highly scalable, low-cost transactions using bitcoin. What that means is that with Lightning, sending and receiving bitcoin will be as simple as sending and receiving a photo. Unlike traditional payment networks, Lightning's open-source nature means anyone can utilize Lightning and build products or services with it. The Lightning Network aspires to create a bitcoin-native payment network for the internet.

## Implementation strategy

The Lightning Network is made up of nodes, which are computers running the software. Each node is connected to another node via a bi-directional payment channel, which is effectively a "money tube" that allows spending up to a certain amount, which is the capacity of the channel.

Payments on Lightning will find the optimal path from sender to receiver, as illustrated in this graphic. Each Lightning node has its own address, like in bitcoin, which is a pseudonymous identity that can send and receive money. Lightning-enabled wallets like BlueWallet.io make it easy to send and receive transactions.

The smallest unit of bitcoin is a satoshi/sat which is worth \$0.00002. Sending a bitcoin transaction can cost anywhere from \$1-50 per transaction. The cost of this transaction on the Lightning Network is 0.0000001 sats or 1.54e-10 dollars, an inconceivably small sum.

## Traction and key metrics

The Lightning Network currently has nearly 15,000 nodes and \$16 million of liquidity in open Lightning channels. Below are a few examples of companies and fun projects building with Lightning:

- Fold enables users to instantly earn "bitcoin back" when they spend money with specific retailers, and soon, on all transactions.
- Lightning Labs is a company developing Lightning infrastructure, including Pool, a marketplace where users can buy and sell Lightning channels capacity, creating a rate marketplace on Lightning.
- Satoshi's Place is a one million pixel grid, where it costs 1 satoshi to paint each pixel, which means the canvas is constantly changing and evolving.
- PolloFeed is a livestream of three chickens who you can feed using Lightning payments. The payments are instant, as is the gratification of watching the chickens enjoy their dinner.



### Scalable, instant bitcoin transactions

<b>Category</b>	Protocol
<b>Status</b>	Live
<b>Technology</b>	Bitcoin, Lightning
<b>Governance</b>	Open source
<b>Permissions</b>	Open source
<b>Location</b>	Global

### Business case data

<b>Entity</b>	None, numerous developer teams
<b>Business model</b>	None, businesses build on top of Lightning network
<b>Financing</b>	None, some businesses developing Lightning are venture funded

### Resources and references

<b>Website</b>	<a href="https://lightning.network">lightning.network</a>
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# Compound Protocol

## Overview

The Compound protocol is a global, permissionless, interest rate market that exists on top of the public Ethereum blockchain.

It allows anyone to deposit an asset issued on Ethereum into the protocol and earn interest on that asset or borrow against that asset as collateral 24/7 from anywhere in the world.

This creates new credit markets for fiat backed “crypto dollars” in addition to native crypto tokens with dynamic interest rates based on the supply and demand for each asset.

## Project goals

The primary goal for Compound is to enable crypto assets to be used as “productive assets” that can frictionlessly yield interest similar to existing assets in the financial system.

It also aims to expand access to financial services like credit by enabling consumers, businesses and investors to engage in economic activities without the need to rely on trusted third parties.

## Implementation strategy

Compound provides an important open-source building block where independent developers building decentralized financial applications and interfaces can easily plug into the protocol.

Therefore, crypto users can access Compound interest markets either directly or through dozens of third-party interfaces and applications.

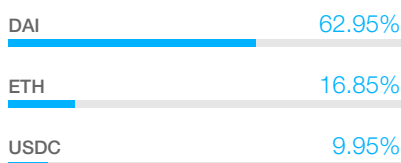
## Traction and key metrics

As of 14 October 2020, \$2 billion in crypto assets are deposited in the protocol earning interest. Over 40,000 users are interacting with the protocol to lend or borrow crypto assets.

### Total Supply

\$2,025,732,476.17 +3.37%

#### Top 3 Markets

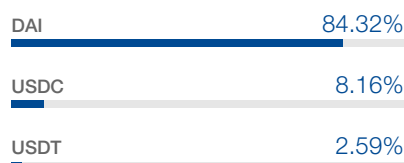


24H Supply Volume \$66,008,646.50 # of Suppliers 37207

### Total Borrow

\$1,151,668,804.06 +4.35%

#### Top 3 Markets



24H Supply Volume \$47,997,840.75 # of Suppliers 5625

Source: Data sourced from Compound.finance



### A decentralized protocol for lending and borrowing crypto assets

Category	Financial services
Status	Live
Technology	Ethereum
Governance	Token-based voting
Permissions	Open source
Location	Global, US-based team

### Business case data

Entity	Compound Labs
Business model	Business model Fees on borrowing; value accrues to token holders
Financing	Venture-funded startup with \$COMP token issued in 2020

### Resources and references

Website	<a href="https://compound.finance">compound.finance</a>
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# Uniswap

## Overview

Uniswap is a decentralized exchange (DEX) protocol that improves liquidity in the crypto ecosystem by enabling the direct exchange of tokens without the involvement of any external parties. Uniswap uses an AMM (automated market maker) model in order to enable token exchange.

Users can also lend their crypto assets to special reserves called liquidity pools. In exchange for providing money to these pools, these liquidity providers earn fees.

## Project goals

Uniswap aims to solve the liquidity problem in the DEX community by facilitating automatic token swaps. The protocol is implemented on the Ethereum blockchain. Given the amount of ERC-20 tokens on Ethereum, it is unlikely two different tokens of interest are listed on the same exchange with a direct trading pair.

As an automatic liquidity marketplace, Uniswap ensures there are no trading pair restrictions by utilizing the underlying liquidity pool so users can create their own trading pair and do the swap they want.

## Implementation strategy

Users stake their tokens in liquidity pools, which determines what tokens are listed. In Uniswap's second iteration, liquidity providers can now trade any two Ethereum-based tokens. The price of a token on Uniswap varies according to market demand.

The UNI token is the governance asset through which the community can shape the direction of the DEX by voting and staking.

Uniswap has emerged as foundational DeFi infrastructure, with integrations across hundreds of interfaces and applications.

## Traction and key metrics

In less than two years, the protocol has supported over \$20 billion in volume traded by +250,000 unique addresses across +8,000 unique assets, and secured +\$1 billion in liquidity, deposited by +49,000 unique liquidity providers.

Uniswap is one of the most relied upon projects on Ethereum and is performing well on all key metrics used to assess growth for a protocol of this type, including:

20858 Token Pairs	\$228M 24H Volume	\$2.9B Total Liquidity	> 100 Defi Integrations
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### A platform for decentralized token exchange

Category	Financial services
Status	Live
Technology	Ethereum
Governance	Token-based voting
Permissions	Open source
Location	United States

### Business case data

Entity	Uniswap
Business model	Transaction fees
Financing	Venture-funded startup

### Resources and references

Website	<a href="https://uniswap.org">uniswap.org</a>
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# Etherisc

## Overview

Etherisc is an insurance and risk transfer protocol built on the Ethereum blockchain. It allows anyone to purchase insurance directly via the Ethereum blockchain, see their funds on chain and verify if they have been paid out correctly.

## Project goals

The goal for Etherisc is to provide provably fair, transparent, automated insurance. Etherisc is the first on-chain insurance protocol to launch a licensed product globally, which ensures that policy terms are immutably coded into smart contracts and payout immediately and reliably.

The retail insurance market generates approximately \$4.5 trillion in annual revenue. Etherisc is focused on parametric products that can be triggered with automated data feeds, called oracles. Etherisc has launched risk protection for flight delays, crop risk and wind damage. It also aims to also provide investors with the ability to participate directly by depositing crypto collateral on-chain into insurance and reinsurance contracts in order to earn returns on

## Implementation strategy

Insurance coverage can be purchased using cryptocurrencies and stablecoins that are pegged to fiat currencies. The policies are triggered automatically through oracles to automate the claims process and provide immediate payouts.

By staking the protocol's native DIP token, participants provide collateral (bond) to guarantee future performance, availability and service levels. Staking also signals quality and reputation.

## Traction and key metrics

Etherisc obtained a license to sell blockchain-based insurance with an EU-based carrier. The company piloted on-chain flight delay coverage in risk protection for \$75,000 risk exposure, making immediate payouts automatically and earning underwriting profit. The constraints of needing to obtain licensing in every jurisdiction has been a limiting factor in driving growth. New approaches are being tested to scale programmable risk protection without the requirement of insurance licenses.

### Revenue model for protocol users & crypto investors



### Using blockchain to make insurance products transparent and reliable

Category	Financial services
Status	Live
Technology	Ethereum
Governance	Token-based voting
Permissions	Open source
Location	Global, Germany-based team

### Business case data

Entity	Etherisc GmbH
Business model	Fees on staking, value accrues to token holders
Financing	Grant-funded startup with \$DIP token issued in 2018

### Resources and references

Website	<a href="https://etherisc.com">etherisc.com</a>
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# OMG Network

## Overview

The OMG Network's scalable blockchain infrastructure enables real-time, peer-to-peer transfer and payment of digital value across geographies, asset classes and applications. This is achieved by creating a secure transaction layer, rooted in the Ethereum blockchain, which can perform thousands of transactions per second at one-third the cost.

## Project goals

OMG Network's primary goal is to enable real-time, peer-to-peer transfer and payment of digital value. These digital assets not only include cryptocurrency, but also other forms of value like loyalty points. By scaling the Ethereum blockchain network, applications run faster and cheaper without compromising the security of Ethereum.

## Implementation strategy

OMG Network uses the More Viable Plasma protocol to scale Ethereum. First, funds are deposited into the Plasma contracts, also known as the Childchain. Transactions occur on the Childchain, which operates as a shared ledger to keep track of all balances and transaction history. Then, leveraging the proof-of-authority (PoA) consensus mechanism, the Plasma operator validates transactions and creates a "child block" that is submitted to Ethereum. Plasma child blocks batch thousands of user transactions and are submitted to the Ethereum Network for confirmation once per Ethereum block, or every 15 seconds. Finally, trustlessness allows honest users to exit the OMG Network Childchain by withdrawing funds to the rootchain at any time, even if the network is attacked or goes offline.

## Traction and key metrics

The fee token for the OMG Network is distributed across over 678,000 addresses, making it one of the most widely distributed tokens in the Ethereum ecosystem. Integrations with digital exchanges and wallets are accelerating. Most recently, Bitfinex, a state-of-the-art digital asset trading platform integrated Tether (USDt) into the OMG Network, which could significantly increase performance, make payments faster and lower transaction costs. On the enterprise side, the OMG Network has previously worked with a range of enterprises, including Shinhan Bank and Minor International Group, to enable loyalty points on the blockchain.



### A value transfer layer for Ethereum and ERC20 tokens

<b>Category</b>	Protocol
<b>Status</b>	Live
<b>Technology</b>	Ethereum, Plasma
<b>Governance</b>	Open source
<b>Permissions</b>	Defined by relevant financial regulations
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Synga
<b>Business model</b>	Fees earned on transactions
<b>Financing</b>	Venture-funded (Series C) with \$OMG token issued in 2017

### Resources and references

<b>Website</b>	<a href="http://omg.network">omg.network</a>
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3

# Financial products and services

There are applications that help consumers, investors and businesses interact with and access cryptocurrencies and their associated networks.



# XBT Provider

## Overview

XBT Provider products make it easy for investors to obtain exposure to digital assets via traditional securities exchanges.

In October 2015, XBT Provider's Bitcoin Tracker became the first bitcoin-based security available on a regulated exchange. The certificates provide exposure to the performance of the digital currency bitcoin by synthetically tracking performance of the price of bitcoin (BTC/USD) less a fee. Since 2015, the firm has launched a total of eight ETPs tracking four digital currencies.

XBT Provider is operated by CoinShares, a global investment firm. The CoinShares group of companies provides sales, trading, custody, compliance and other services used to manage the XBT Provider products.

## Project goals

The primary goal of XBT Provider is to make digital assets, namely bitcoin, accessible to investors of all types. Similar to shares, the ETPs can be bought and sold whenever the stock exchange is open as prices are quoted throughout the day. The ETPs can be purchased through tax efficient wrappers.

## Implementation strategy

XBT Provider uses a traditional product wrapper to make digital assets available in brokerage accounts. By putting an ISIN (International Securities Identification Number) on bitcoin, XBT Provider enables clearing and settlement of digital assets without requiring investors to interact with the underlying asset.

Each XBT Provider Certificate purchased creates an obligation to pay that investor an amount based on performance of the relevant digital currency less the relevant fee. To ensure this obligation can be met, the relevant digital currency is held in either physical or synthetic form.

In August 2020, XBT Provider became the first ETP to introduce a real-time attestation service to provide trust and transparency to investors. Every 30 minutes, investors can view the real-time balances of the digital assets held versus the liability arising from the outstanding Certificates.

## Traction and key metrics

As of 18 November 2020, CoinShares' holdings in the assets referenced by the ETPs issued by XBT Provider total \$1.51 billion against an obligation of \$1.47 billion.

Over 40,000 customers hold XBT Provider products.

**Legal disclosure:** XBT Provider ETPs may not be available for investment in certain jurisdictions due to regulatory restrictions, and have not been, nor will be, registered in the US under either Federal or state securities laws.



### Crypto exchange traded products (ETPs)

<b>Category</b>	Financial services
<b>Status</b>	Live
<b>Technology</b>	Bitcoin, Ethereum
<b>Governance</b>	Corporate, falls under Swedish securities law
<b>Permissions</b>	EU financial services law
<b>Location</b>	Europe

### Business case data

<b>Entity</b>	XBT Provider AB (publ)
<b>Business model</b>	Asset management rev = AUM x fees
<b>Financing</b>	Privately owned and operated

### Resources and references

**Website** [coinshares.com/etps/xbt-provider](https://coinshares.com/etps/xbt-provider)

# Deutsche Bank Digital Asset Custody

## Overview

The cryptocurrency market is valued at ~\$400 billion,<sup>1</sup> while tokenized versions of traditional assets (private placement, bonds, real estate) only make up roughly \$5 billion today.<sup>2</sup> Over the next decade, tokenization is expected to move more into the mainstream and some analysts predict the market could grow to \$24 trillion in certain scenarios.<sup>3</sup> Barriers to entry in this market are subsiding and institutional investors are starting to engage with digital assets. Subsequently, safeguarding these assets will become priority for investors and custodians will need to adapt and support their clients.

## Project goals

Deutsche Bank aims to develop a fully integrated custody platform for institutional clients and their digital assets providing seamless connectivity to the broader cryptocurrency ecosystem:

- Introduce a secure connected bridge between digital assets and a customer's traditional banking services
- Manage the array of digital assets and fiat holdings in one easy-to-use platform, and create the gateway for value added services either supplied by the custodian or via third-party providers
- Ensure the safety and accessibility of assets for clients by offering an institutional-grade hot/cold storage solution with insurance-grade protection

## Implementation strategy

The digital asset custody platform will be launched in stages:

- Provide insured digital asset custody for vetted digital assets on behalf of institutional investors, such as asset managers, wealth managers/family offices, corporates and digital funds
- Provide clients with the ability to buy and sell digital assets via a partnership with prime brokers, issuers and vetted exchanges to build out the seamless integration across platforms
- Provide value-added services such as taxation, valuation services and fund administration, lending, staking and voting, and provide an open-banking platform to allow onboarding of third-party providers
- Provide issuance and trading capabilities

The platform will be embedded with a full suite of regulated banking services, including KYC/AML, compliance, settlement and more. Intuitive UX and CX will be crucial. Deutsche Bank will help users to focus on what's important – their investment decisions. This platform will focus on simplifying the customer experience and design implementation as a means of creating a differentiated product.

## Traction and key metrics

The bank has completed its proof of concept and is aiming for a minimum viable product in 2021 while exploring global client interest for a pilot initiative.



### New platform for digital asset custody targeting institutional clients

<b>Category</b>	Financial services
<b>Status</b>	Proof of concept
<b>Technology</b>	Deutsche Bank with third party providers
<b>Governance</b>	To be defined based on GTM strategy
<b>Permissions</b>	To be defined
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Deutsche Bank AG
<b>Business model</b>	Custody fee (later: tokenization fee, trading fee)
<b>Financing</b>	Deutsche Bank product

### Resources and references

<b>Website</b>	<a href="https://cib.db.com/solutions/securities-services">cib.db.com/solutions/securities-services</a>
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#### Footnote:

1. Coinmarketcap (as of 26/10/2020);
2. DB analysis based on various sources;
3. Finoa (2018).

# BitGo

## Overview

BitGo is one of the world's leading digital asset custody, trading and lending companies.

BitGo pioneered the first commercially usable multi-signature wallets and has evolved into the world's leading institutional-grade wallet that supports a multitude of digital assets. The BitGo security platform is used by hundreds of exchanges, institutional investors and others in the crypto industry.

## Project goals

Since its founding, BitGo has been focused exclusively on serving institutional clients to help accelerate the institutionalization of this nascent asset class. In 2018, as part of this strategy to create a safer and more robust market for digital assets, BitGo became the first independent, regulated custodian purpose built for digital assets by launching BitGo Trust Company.

## Implementation strategy

In 2020, BitGo expanded into cryptocurrency prime brokerage services and began offering lending and trading and acquired startup Lumina to build out portfolio management tools for its clients. BitGo now offers a wide range of services including:

- Custody, or secure storage of digital assets
- Prime services, which aggregate lending, borrowing, trading, clearing, settlement and other capital markets services in one managed account
- Portfolio tools, including tax solutions, to make it easier for users to manage their holdings
- APIs and other connectivity tools, which allow developers and institutions to easily integrate BitGo's offering in their own applications

## Traction and key metrics

- Has over 350 institutional clients across 50 countries
- Processes more than \$15 billion in monthly transaction and secures over 20% of all on-chain Bitcoin transactions
- The first wallet platform to support the FATF Travel Rule, a new global regulation
- Launched WBTC as main custodian to bring Bitcoin to the Ethereum network, helping it grow to over \$1.8 billion in market cap



### Institutional digital asset custody, trading and lending

<b>Category</b>	Wallet technology, custody and prime services
<b>Status</b>	Live
<b>Technology</b>	BitGo
<b>Governance</b>	Private company
<b>Permissions</b>	To be defined
<b>Location</b>	United States

### Business case data

<b>Entity</b>	BitGo, Inc., BitGo Trust Company, Inc., BitGo Prime
<b>Business model</b>	Custody fees, transaction fees, execution fees, lending, SaaS
<b>Financing</b>	Series B venture funded

### Resources and references

<b>Website</b>	<a href="https://bitgo.com">bitgo.com</a>
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# Gemini Trust Company, LLC

## Overview

The Gemini Trust Company is a licensed cryptocurrency exchange, custodian and stablecoin issuer where customers can buy, sell, store and make payments using more than 30 cryptocurrencies such as bitcoin, ether and other digital assets in a regulated, secure and compliant manner.

## Project goals

Gemini aims to build the best experience possible, providing a comprehensive suite of products and services to individuals and institutions alike with a simple, secure and intuitive way to interact with cryptocurrencies. This includes providing a regulated fiat onramp, exchange, custodian, US dollar-pegged stablecoin and payment services.

## Implementation strategy

Gemini invests in four pillars in order to provide a safe, secure experience for its customers:

- **Product:** Gemini provides simple and secure ways for individuals and institutions around the world to discover and interact with digital assets.
- **Security:** Gemini obtained one of the highest standards for security (SOC 1 Type 2 and SOC 2 Type 2), which is independently verified by a global audit firm, and demonstrates the firm's commitment to security compliance with respect to protecting customer data and funds.
- **Licensing:** Gemini obtained a New York Trust license and launched in October 2015. As Gemini continues to expand globally and in its product suite, the firm continues to pursue and obtain the appropriate licensing in each jurisdiction.
- **Compliance:** Gemini is subject to the capital reserve requirements, cybersecurity requirements, and banking compliance standards set forth by the New York State Department of Financial Services and the New York Banking Law. Gemini is also a fiduciary and Qualified Custodian.

## Traction and key metrics

As of 6 November 2020, Gemini is a top 25 crypto exchange on CoinMarketCap with \$83 million in 24-hour trading volume, and Gemini's stablecoin, the Gemini dollar, has \$15 million in circulation.



**Cryptocurrency exchange, custodian and stablecoin issuer**

<b>Category</b>	Financial services
<b>Status</b>	Live
<b>Technology</b>	Bitcoin, Ether, Litecoin, Bitcoin Cash, Zcash and other digital assets
<b>Governance</b>	Corporate, regulated by the New York State Department of Financial Services and the Financial Conduct Authority
<b>Permissions</b>	Defined by relevant financial regulations
<b>Location</b>	United States, Europe, Singapore

### Business case data

<b>Entity</b>	Gemini Trust Company, LLC; Gemini Europe Ltd.
<b>Business model</b>	Trading and custody fees
<b>Financing</b>	Privately owned and operated

### Resources and references

**Website** | [gemini.com](https://gemini.com)

# Cowrie Integrated Systems

## Overview

Cowrie is a fintech offering blockchain-enabled, cross-border payments to and from Nigeria. By issuing tokens backed by Nigerian naira on the global, decentralized Stellar network, Cowrie offers a fast, inexpensive alternative to the costly foreign exchange and transaction fees and slow processing times associated with traditional banking rails.

For example, for a Nigerian business to pay for goods imported from a European retailer, they send fiat naira to Cowrie from their bank account, Cowrie issues tokens backed by the naira, and then the business sends the tokens to the European retailer via the Stellar network. Along the way, using Stellar's built-in exchange feature, the naira tokens are traded for euro-backed tokens issued by one of Cowrie's partner entities in Europe. The European retailer redeems the tokens for euros and receives fiat euros to the retailer's bank account.

By digitizing payments and using Stellar's decentralized exchange, Cowrie is creating a low-cost and efficient alternative for businesses and individuals to make cross-border payments.

## Project goals

The primary goal of Cowrie's business model is to enable Nigerians to meet the high demand for global currencies, particularly in trade, and transact in the global marketplace efficiently and cost-effectively. In underserved markets like Nigeria, where the local currency is not globally traded, cross-border payments and foreign exchange are exceptionally slow and expensive due to high-operating costs, technical inefficiencies of legacy systems and reliance on multiple intermediaries.

## Implementation strategy

Cowrie has developed a strong Europe-Nigeria bi-directional corridor and plans to expand to other corridors to meet Nigeria's high demand for global currencies created by its vibrant importation industry.

## Traction and key metrics

(as of October 2020)

- 500,000 euros per week from Nigeria to Europe
- 5x growth in daily payment volume from 2019 to 2020
- Transaction times:
  - < 2 seconds (Europe to Nigeria)
  - < 48 hours (Nigeria to Europe)



### Cross-border payment platform for Nigeria

<b>Category</b>	Financial services
<b>Status</b>	Live
<b>Technology</b>	Stellar blockchain network
<b>Governance</b>	Stellar Consensus Protocol, open source
<b>Permissions</b>	Permissionless (Stellar)
<b>Location</b>	Nigeria

### Business case data

<b>Entity</b>	Cowrie Integrated Systems Limited (a UK limited company with a principal place of business in Nigeria)
<b>Business model</b>	Cross-border payments
<b>Financing</b>	Private investment

### Resources and references

<b>Website</b>	<a href="https://cowrie.exchange">cowrie.exchange</a>
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## Overview

Binusu is a platform extending cryptocurrency access within Africa. It uses a custom built blockchain and a native fiat-pegged digital asset, BNU, to deliver non-custodial financial services to merchants and consumers who have been excluded from formal financial services due to lack of access, or lack of a bank account.

## Project goals

Binusu's vision is to democratize access to financial services and crypto asset markets by creating easy to use products that enable ordinary people to borrow, lend, save, invest and trade value.

To achieve this vision, Binusu is leveraging crypto to increase access to financial services that have hitherto been accessed via formal markets and to users with bank accounts.

Uganda has a population of 42 million people and only 6 million bank accounts. There are however 23 million mobile money subscribers, with mobile money offering peer-to-peer transactions and some payment features. Mobile money, however, suffers high costs, inefficient technology and limited financial features/services.

## Implementation strategy

The Binusu platform consists of several components, including a;

- Ugandan shilling pegged stable coin, BNU, for the platform
- Crypto to fiat exchange, which allows users to obtain access to cryptocurrencies or exchange them into BNU
- Payment platform, Binusu Merchant Services (BMS), using crypto to facilitate merchant payments for faster, more secure and cheaper payments that mobile money is unable to support
- Peer-to-peer lending marketplace, Binusu Credit, which enables lenders and borrowers to find one another
- Multi-asset wallet allowing customers to earn, trade and spend their rewards and loyalty points

The Binusu exchange is available as a web app and the wallet will be available on Google Play and the App store. It also partners with agent networks to enable cash on and off ramps. Binusu aims to drive usage by creating utility for crypto and stablecoins through payments and real-time settlement with crypto as rails.

## Traction and key metrics

BNU supply is 184.4 trillion shillings with 170 million in circulation.

Binusu's rate of 1.5% is the cheapest access to crypto in Uganda. The merchant services make transactions faster by enabling real-time settlement, unlike existing platforms settling value after days. With lower prices, and making the platform available via USSD, Binusu lowers the primary barriers that hinder financial inclusion.



**A decentralized finance platform providing access to crypto assets in Africa**

<b>Category</b>	Financial services
<b>Status</b>	Live
<b>Technology</b>	Private blockchain based on Cryptonote
<b>Governance</b>	Centralized stablecoin
<b>Permissions</b>	Open source
<b>Location</b>	Africa

### Business case data

<b>Entity</b>	CryptoSavannah
<b>Business model</b>	On ramp and off ramp fees, transaction fees
<b>Financing</b>	Privately owned and operated

### Resources and references

<b>Website</b>	<a href="https://binusu.com">binusu.com</a>
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# MetaMask

## Overview

MetaMask has a vision to transform the internet and world economy to one that empowers individuals, with interactions based on consent, privacy and people freely associating. It provides a secure, easy-to-use Ethereum wallet through browser extensions and a mobile app. Unlike traditional crypto wallets, MetaMask includes a web3 gateway that enables users to interact with thousands of sites and smart contracts with one common login. MetaMask also integrates with hardware wallets for heightened security. MetaMask is non-custodial, but provides users with key recovery mechanisms and synchronization across multiple platforms.

MetaMask is the leading way to access web3 among both developers and end users because of its great developer experience. The mobile app features a web3 directory that drives traffic and discoverability to compatible projects. It is building towards a multi-chain future that includes Ethereum, Layer 2 solutions and other blockchains.

Being an interoperable, universal solution allows MetaMask to support more use cases than any other solution in the space. This includes: payments, trading and DEX swaps, decentralized financial services, gaming, art collecting, international transactions, self-sovereign identity, authentication, and assets and securities.

## Project goals

While the existing MetaMask web extension helps serve millions of users around the world by connecting them to the Web3 applications, the recently launched MetaMask Mobile App has the potential to serve millions more. Close to 2 billion people, about 60% of the internet-connected population, are estimated to access the web exclusively from a mobile device, where network infrastructure and affordability are driving the growth of mobile internet adoption. Mobile is becoming the preferred platform for accessing web-based products and services. Web3 is no different. Over 65% of MetaMask Mobile beta users are based outside of North America and Europe and index highly in unbanked markets.

## Implementation strategy

MetaMask Swaps combines multiple decentralized exchange aggregators, professional market makers and individual DEXs (e.g. Uniswap and Airswap) to ensure Metamask users always get the best price with lowest network fees, reduce gas costs and protect from slippage. The UX allows the user to directly execute the swap within the wallet and remove the friction from comparing prices across multiple platforms. These liquidity sources include Uniswap, Airswap, 0x, 1inch.exchange, Paraswap, Totle and dex.ag.

This has been released on Firefox and Chrome extensions with a mobile app scheduled soon.

## Traction and key metrics

- 4 million-plus monthly transactions
- 1 million-plus monthly active users
- Mobile app MAUs up 750% in 2020



# METAMASK

Democratizing access to the decentralized web

<b>Category</b>	Financial services
<b>Status</b>	Live
<b>Technology</b>	Ethereum
<b>Governance</b>	Corporate
<b>Permissions</b>	Open source
<b>Location</b>	Global, US-based team

### Business case data

<b>Entity</b>	ConsenSys
<b>Business model</b>	TX fees for executing on DEXes
<b>Financing</b>	Strategic investors

### Resources and references

<b>Website</b>	<a href="https://metamask.io">metamask.io</a>
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# Ripio

## Overview

In 2019, amidst high inflation rates and local currency devaluation, the Central Bank of Argentina limited individual monthly US dollar purchases to \$200 and introduced a 65% tax to avoid massive draining of reserves.

As the leading crypto firm in the region, Ripio offers a full suite of products to help Argentinians overcome their macroeconomic issues, including fiat on/off ramps and stablecoin-backed yield accounts, which are fully compliant with the local regulations but not affected by purchase limits and taxation.

## Project goals

The primary goal for Ripio is to widen access to alternative financial products, allowing Argentinians to save money and yield interest at competitive rates.

It also aims to extend the tools and knowledge to access the new digital economy in the region.

## Implementation strategy

Ripio's platform allows users to deposit and withdraw Argentine pesos 24/7 to then buy, sell and store crypto easily.

The use of stablecoins (i.e. USDC) as monthly interest-yielding assets completes the user journey and displays crypto as a store of value.

## Traction and key metrics

Ripio leads the local market with 600,000 users. Stablecoin demand thrived over nine times during Q2 2020 (compared to Q1), as an attractive alternative against the rapid Argentine peso devaluation.

Ripio's USDC yield accounts currently offer 6% APR while traditional US\$ yield accounts offer 1% APR.



**A platform to buy, sell, store and yield interest with crypto assets**

<b>Category</b>	Financial services
<b>Status</b>	Live
<b>Technology</b>	Bitcoin, Ethereum
<b>Governance</b>	Corporate
<b>Permissions</b>	Defined by relevant financial regulations
<b>Location</b>	Argentina, Brazil, Mexico, Spain

### Business case data

<b>Entity</b>	Ripio International
<b>Business model</b>	Asset management; fees on trading/spread, yielding and lending
<b>Financing</b>	Venture-funded

### Resources and references

<b>Website</b>	<a href="https://ripio.com">ripio.com</a>
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# Cryptocurrency in PayPal Wallet

## Overview

By leveraging technology to make financial services and commerce more convenient, affordable and secure, PayPal empowers more than 346 million consumers and merchants in more than 200 markets to join and thrive in the global economy.

In October 2020, PayPal launched its first consumer-facing cryptocurrency service, enabling users to buy, hold and sell Bitcoin, Ethereum, Litecoin and Bitcoin Cash using their PayPal accounts in a seamlessly integrated experience online and within its popular mobile app.

In 2021, PayPal will be expanding the service by enabling users to use cryptocurrency as a funding source for merchant transactions.

Users will be able to select cryptocurrencies as the form of payment; however, merchants will be settled in fiat currencies.

## Project goals

The ultimate goal of the project is to increase the overall adoption of cryptocurrency by significantly expanding its utility as a form of payment for purchases at PayPal's 26 million merchants around the globe.

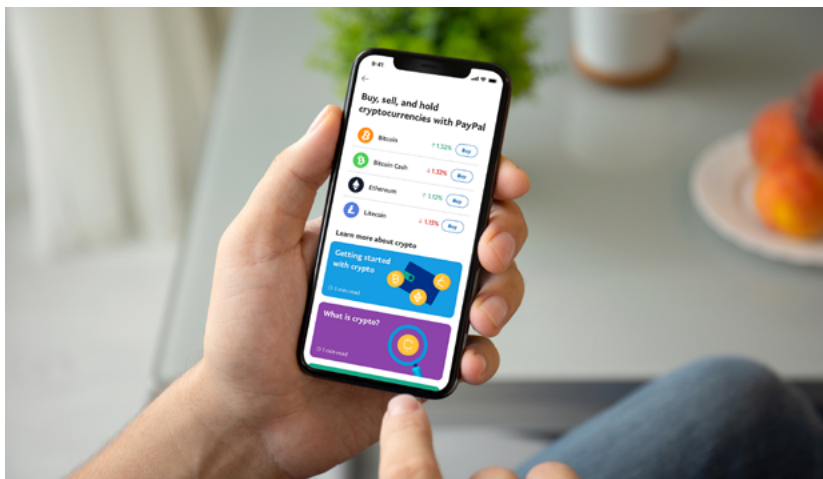
It aims to both increase the optionality for buyers by allowing them to pay with crypto, while eliminating pain points and barriers to adoption for merchants by settling the transactions in fiat currency.

## Implementation strategy

The first phase of the project (buy, hold, sell crypto) – combined with a focus on providing educational content to new users – is designed to help users become more familiar with cryptocurrencies.

The second phase of the project – enabling cryptocurrency as a funding source for merchant transactions – creates additional choice for consumers at checkout and encourages mass adoption by merchants.

Though initially launched in the United States, this initiative will expand to select markets commencing in 2021.



### Increased utility for cryptocurrencies

<b>Category</b>	Financial services
<b>Status</b>	Live
<b>Technology</b>	Bitcoin, Ethereum, Litecoin, Bitcoin Cash
<b>Governance</b>	N/A
<b>Permissions</b>	N/A
<b>Location</b>	United States

### Business case data

<b>Entity</b>	PayPal, Inc.
<b>Business model</b>	Transaction fees
<b>Financing</b>	Publicly funded

### Resources and references

<b>Website</b>	<a href="https://www.paypal.com">paypal.com</a>
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Photo: PayPal

# LocalBitcoins

## Overview

LocalBitcoins is a marketplace that enables people from different countries to exchange their local currency into bitcoins. It allows users to post their payment method and exchange rate for buying and selling bitcoins. LocalBitcoins also provides a web wallet from where you can send and receive bitcoin transactions.

LocalBitcoins has users in thousands of cities worldwide, from Andorra to Zimbabwe.

## Project goals

The mission of LocalBitcoins is to make the global economy accessible in all corners of the world, using bitcoin. Bitcoin can enable financial inclusion in regions underserved by the traditional banking industry, but people in these places need on and off ramps to it. LocalBitcoins provides the platform.

## Implementation strategy

LocalBitcoins is a peer-to-peer marketplace, embracing the nature of bitcoin. Unlike exchanges and centralized trading sites, LocalBitcoins allows users to interact, negotiate and transact with another human being. This makes the process customizable, fast and suited for exchange rather than speculation. LocalBitcoins supports a wide variety of payment methods globally and offers escrow services to protect buyers and sellers.

## Traction and key metrics

LocalBitcoins is available on every continent and has served as a platform for transactions in over 8,000 cities worldwide. In 2019, LocalBitcoins facilitated close to \$3 billion in bitcoin transactions. The platform is truly global in nature, with currencies such as the Russian ruble and Venezuelan bolivar leading the way in terms of volume.



### A global marketplace for buying and selling bitcoin

<b>Category</b>	Marketplace
<b>Status</b>	Live
<b>Technology</b>	Bitcoin
<b>Governance</b>	Corporate
<b>Permissions</b>	Defined by local regulations
<b>Location</b>	Global

### Business case data

<b>Entity</b>	LocalBitcoins
<b>Business model</b>	Transaction fees
<b>Financing</b>	Privately owned and operated

### Resources and references

<b>Website</b>	<a href="https://localbitcoins.com">localbitcoins.com</a>
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4

# Non-financial applications and services

These are new crypto-native networks and applications for use cases outside of financial services.





# Rally

## Overview

Rally provides a platform for creators to launch and manage their own cryptocurrencies to power new forms of community and fan engagement.

Creators can use Rally's creator coins to build virtual economies and next generation "fan clubs" that align incentives between fans and creators.

## Project goals

While influencers, athletes and creators have millions of fans and followers across the world, their relationships with their fans are intermediated and controlled by large social media platforms.

This locks influencers into a single platform where the rules are controlled by platform owners and creators risk being de-platformed, which can destroy their livelihoods. It is difficult for creators to unify followers across many platforms and migrate them from one platform to another to mitigate their platform risk.

Issuing creator coins that can be bought or earned by loyal fans can help creators build a community that is independent from any single centralized platform. It also aligns incentives for fans with the creator's success and allows early fans and followers to profit as the creator's fan base and community grows.

## Implementation strategy

Rally provides "no-code" tools so that any creator can launch a creator coin for their communities without any technical knowledge or advanced understanding of cryptocurrency.

It also provides a template and set of rules around creator coin economies to ensure transparency in addition to a fiat to crypto on ramp and wallet for fans.

## Traction and key metrics

Rally has onboarded 25 streamers representing 1.2 million followers on Twitch in addition to a professional soccer star and a major league e-sports team that have issued creator coins.

It received \$35,000 in deposits in its first month in beta with a single streamer generating \$20,000.



**A blockchain platform that empowers creator-owned economies**

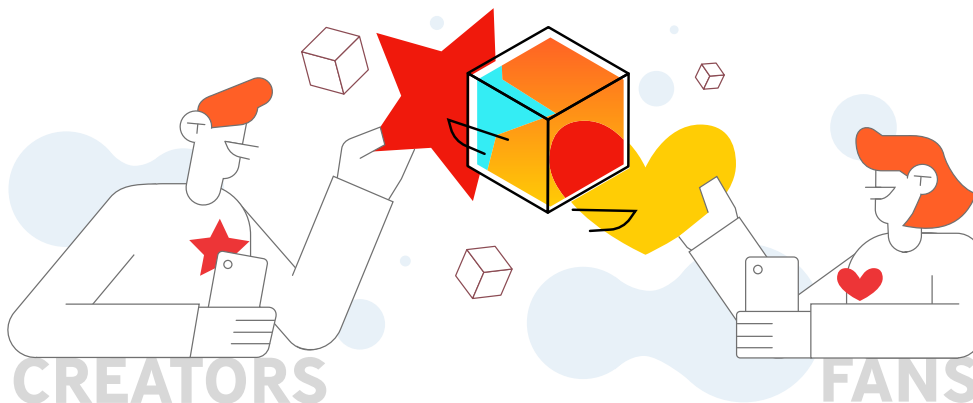
<b>Category</b>	Social media
<b>Status</b>	Live
<b>Technology</b>	Ethereum
<b>Governance</b>	RLY token holders
<b>Permissions</b>	Open source
<b>Location</b>	Global

### Business case data

<b>Entity</b>	Rally Network
<b>Business model</b>	Community funded and controlled treasury
<b>Financing</b>	\$10 million

### Resources and references

<b>Website</b>	<a href="https://rally.io">rally.io</a>
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# SuperRare

## Overview

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. You can think of SuperRare like Instagram meets Christies.

## Project goals

SuperRare's goal is to build the foundation for a global digital art market. Leveraging distributed ledgers, the platform allows artists to issue certificates of authenticity for digital artworks. By creating a permanent record of creation and ownership, provenance can be tracked in a decentralized and transparent manner.

Only a small fraction of the world participates in the opaque and exclusive traditional art market. SuperRare is working to make a new art market accessible to anyone with an internet connection.

## Implementation strategy

At its core, SuperRare is a set of open source of smart contracts and standards for digital art. Numerous third parties have integrated the SuperRare smart contracts.

Additionally, SuperRare maintains a consumer application that focuses on improving the UX for collecting and displaying digital art.

## Traction and key metrics

- Over \$4.5 million in primary and secondary market transactions
- Over 600 artists from countries around the world
- 150X growth in gross monthly volume in the past 12 month.

# SuperRare

A decentralized digital art collecting platform

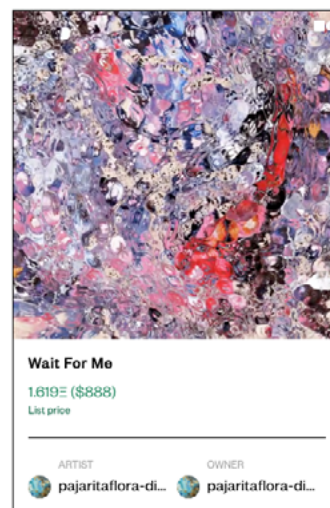
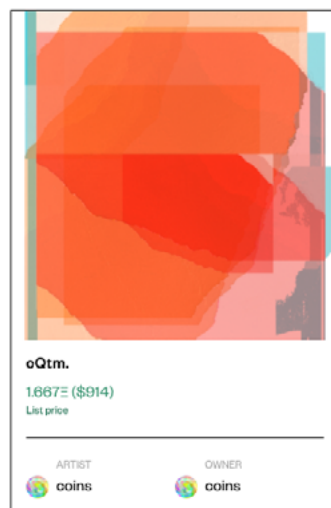
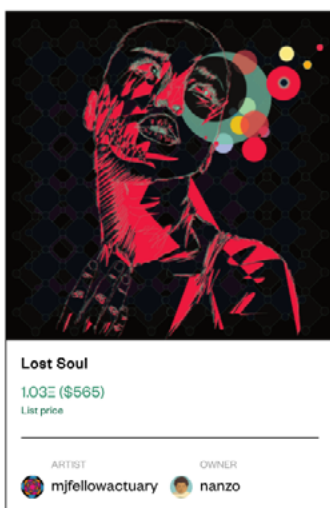
<b>Category</b>	Art and collectibles
<b>Status</b>	Live
<b>Technology</b>	Ethereum
<b>Governance</b>	N/A
<b>Permissions</b>	Open source
<b>Location</b>	Global, US-based team

### Business case data

<b>Entity</b>	Pixura, Inc. BDA SuperRare
<b>Business model</b>	Marketplace
<b>Financing</b>	Venture backed

### Resources and references

<b>Website</b>	<a href="https://superrare.co">superrare.co</a>
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# UNICEF CryptoFund

## Overview

In October 2019, UNICEF launched the CryptoFund, a new financial vehicle allowing the UN agency to receive, hold and disburse cryptocurrencies to fund companies and projects in emerging markets.

The CryptoFund, which is part of the UNICEF Innovation Fund, is a pooled fund of bitcoin and ether that makes early-stage investments in startups working on open-source solutions. The CryptoFund also provides product and technology assistance, support with business growth, and access to a network of experts and partners to maximize scale and growth.

## Project goals

The goal of the CryptoFund is to leverage the transparent and efficient nature of cryptocurrencies while making early-stage investments, denominated in bitcoin or ether, in startups.

The CryptoFund aspires to use the public nature of the bitcoin and Ethereum blockchain to create visibility for donors and the public, adding a layer of transparent accounting to the donation and disbursement process. Crypto transfer to startups can be done in under a few minutes and for under a few dollars, compared to traditional methods that rely on several intermediary banks and may take multiple days and cost a material amount of money.

## Implementation strategy

The UNICEF CryptoFund follows the same investment criteria as the UNICEF Innovation Fund: investing in startups based in emerging or developing economies that are using emerging technologies to solve local challenges.

In the two years leading up to the launch of the CryptoFund, UNICEF worked with internal stakeholders to establish new accounting, operational and technological capabilities.

UNICEF has taken a staggered approach to cryptocurrency exploration. At first, investments were made in smaller amounts to companies who had previously graduated from the Innovation Fund. UNICEF is now offering both fiat and crypto funding as part of its regular funding rounds.

## Traction and key metrics

As of October 2020, UNICEF has made twelve investments in startups located in eight countries, totaling 1225 ether and 1 bitcoin, worth approximately \$500,000.

The public record of all donations and investments related to the UNICEF CryptoFund can be viewed on its website.



### A cryptocurrency-denominated venture fund within the United Nations

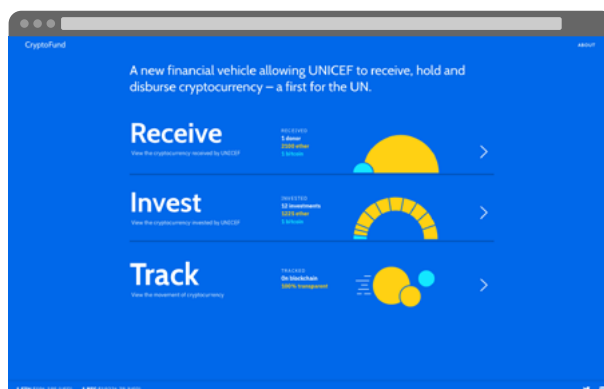
<b>Category</b>	Public sector
<b>Status</b>	Live
<b>Technology</b>	Bitcoin, Ethereum
<b>Governance</b>	UNICEF Innovation Fund
<b>Permissions</b>	Defined by UNICEF Innovation Fund
<b>Location</b>	Global

### Business case data

<b>Entity</b>	UNICEF
<b>Business model</b>	Non-equity investments in startups; return is open-source tech
<b>Financing</b>	Donor supported

### Resources and references

<b>Website</b>	<a href="https://cryptofund.unicef.io">cryptofund.unicef.io</a>
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# World Food Programme

## Overview

The World Food Programme (WFP) is using cryptocurrency networks to expand refugees' choices in how they access and spend their cash assistance. WFP's Building Blocks programme aims to understand how cryptocurrencies and public blockchain networks can make cash transfers more efficient, secure and transparent.

## Project goals

WFP is the largest agency delivering humanitarian cash, and in 2019, the agency distributed \$2.1 billion, reaching over 28 million people in 64 countries. Direct cash transfers to those in need can be the most effective and efficient way to distribute humanitarian assistance, while also supporting local economies.

However, in many areas where WFP operates, financial service providers are either insufficient or unreliable. In others, refugees face restrictions in opening bank accounts. The WFP started its Building Blocks programme to evaluate how public blockchain networks could enable direct, secure and fast transactions between participants and WFP without requiring a financial intermediary like a bank to connect the two parties.

## Implementation strategy

Prior to the use of blockchain, families sometimes needed to wait days for transfers from local banks, and their identifying information was vulnerable at those institutions. By using blockchain infrastructure, cash value from WFP or other partners is stored in a beneficiary 'account' maintained on the blockchain. This allows WFP to offer beneficiaries choice and control over how and when they receive and spend their cash benefits – in retail shops, at ATMs, via mobile money and more. WFP also aims to explore how the platform can support wider unrestricted cash distributions, starting with mobile money inside the refugee camps.

## Traction and key metrics

WFP has been using blockchain to deliver food assistance more effectively to 106,000 Syrian refugees in Jordan.

So far, more than \$23.5 million worth of entitlements have been transferred to refugees through 1.1 million transactions. For WFP, it has the additional benefits of saving 98% of bank transaction fees.



**Using blockchain technology to empower people to meet their essential needs**

<b>Category</b>	Humanitarian aid
<b>Status</b>	Live
<b>Technology</b>	Ethereum
<b>Governance</b>	Private
<b>Permissions</b>	Permissioned
<b>Location</b>	Jordan

### Business case data

<b>Entity</b>	World Food Programme
<b>Business model</b>	Donor-based
<b>Financing</b>	Grant-funded initiative

### Resources and references

<b>Website</b>	<a href="https://innovation.wfp.org/project/building-blocks">innovation.wfp.org/project/building-blocks</a>
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Photo: WFP/Farman Ali

# Acknowledgements

This booklet of use cases is an output of the Global Future Council on Cryptocurrencies, the World Economic Forum's first-ever body exclusively focused on cryptocurrencies.

Sincere thanks are extended to all Council Members who contributed their insights and expertise in compiling this overview. The cryptocurrency projects highlighted herein do not necessarily correspond to each individual contributor.

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