

# Classification of digital assets

Mapping the digital  
asset market and its  
statistical analysis

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## 2 Introduction

**Bitcoin** is a payment system that removes the middlemen of exchange. It has its own tender. Its biggest innovation is that transactions are written on a revolutionary type of digital ledger called a **blockchain**. Blockchain is primarily an efficient and reliable technology for bookkeeping.

Bitcoin was the first of its kind and still dominates the market. That is why people often confuse cryptocurrencies with bitcoin. But in the past decade many followers and challengers have emerged. As a pilot project, Bitcoin had certain shortcomings that other projects have tried to eliminate. Collectively, they are now referred to as „**digital assets**“.

The so-called blockchain trilemma is a concept that claims that it is impossible to achieve high levels of scalability, decentralization and security at the same time. Bitcoin is relatively secure and decentralized. But it suffers from low scalability. It is a relatively slow system that can process just around 7 transactions per second. The first alternative digital assets therefore focused on solving the problem of low transaction rates, allowing it to act as a full-fledged payment system capable of competing with traditional services like Visa.

However, it is no longer sufficient to think of digital assets as the result of different approaches to decentralization, security and scalability. Thanks to **smart contracts**, digital assets have become de facto programmable money. Their possibilities of use, the range of their functions, have thus expanded considerably.

Smart contracts allow the parties to agree on terms and conditions that, when fulfilled, will automatically trigger execution of the contract. These conditions can originate from the blockchain world, such as in staking, or from outside the blockchain world, from external data providers.

Smart contracts have been linked to blockchain since 2015, when they were introduced by the Ethereum network. They bring us beyond what was possible to do on the Bitcoin blockchain. **Decentralised applications** can emerge on networks that support smart contracts, with their own assets tailored to the purpose of the application. Depending on what purpose a given digital asset serves, subcategories of these have begun to form.

In this study, we reflect on the purpose of specific projects and the new service they bring to the market. Since different groups of projects have different purposes, these assets need to be categorized first.

The first step is to conduct a search where we will study the existing categorizations. In the next step, we will apply statistical analysis to our sample; we will track similarities using the tags that are assigned to projects on the largest price tracker of the Coinmarketcap website. The last step will be qualitative. We will assign assets from the observed sample to the created categories. We will probably adjust the categorization afterwards as needed. We also take into account that in a follow-up study we would like to assign metrics that are relevant to each category.

Majority of Bitterfly's clients are asset managers. Their predictions follow both speculative and fundamental sides of investor's behavior. This study deals only with the fundamental level. By categorizing digital assets, we step outside the environment of charts. We view projects using digital assets as firms offering a particular product. Whether they succeed in developing and selling this product should give a clue as to how successful they will be, especially in the medium and long terms.

The cryptocurrency industry is known for its high price volatility. Rapid market movements lead to uncertainty for traders. Increasing the proportion of longer-term strategies in their portfolios should help them achieve more consistent results.

## 3 Analysis parameters

This analysis is the first step in our effort to contribute to a better classification of the digital asset market. To do so, we will use a combination of qualitative and quantitative methods.

### 3.1 Main Objective

This analysis attempts to better **define segments of the cryptocurrency market based on the functionality of each project.**

This research is only a first step. It will serve as a foundation for another research where the categories will be coupled with set metrics specifically tailored to each of the categories.

### 3.2 Time horizon of the analysis

This market segmentation should serve as a tool for asset managers looking to invest over a horizon of approximately 5 years. Experience with the cryptocurrency market to date shows that it is heavily dependent on the so-called halving cycles of bitcoin. This period lasts 4 years. A period of one year longer will cover the full cycle and the reverberation of the phase the market was in at the beginning of the period under review. 5 years should be enough to observe how the market has transformed, how it is turning into a crypto winter despite the rapid price increases after halving.

We consider a successful project to be one that can maintain relevance over more than one cycle. Lynn Alden<sup>1</sup> likens the cryptocurrency market cycle to bodybuilding. During a bull market, there is unwarranted optimism and it is easy for many projects to raise investment capital. Likewise, when bodybuilders gain volume, they gain some fat along with their muscle. When competitions are coming up, they start to „sculpt“ their bodies and shed the fat. This is the role that the bear market plays in the case of cryptocurrencies. Lynn Alden made a comparison between December 2013 and December 2017 and shows that only 3 projects (Bitcoin, Ripple and Litecoin) have remained in the top 10 by market capitalization. 7 of the top 10 cryptocurrencies in 2013 are now completely irrelevant. If we extrapolate a similar logic to the next cycle, between 2017 and 2021, this would be true for 4 projects (Bitcoin, Ethereum, Ripple and Cardano).

The projects that survive to the next cycle are those that survive the period of stagnation, the so-called crypto winter, which comes after price peaks. Those that did not survive either failed to fulfill the technological potential they promised, failed to manage the project or were purely speculative in nature. We expect that as the market continues to mature, it will stabilize and more and more projects that actually bring value to their users will be at the top of the overall market capitalization charts. With this assumption in mind, we will be grading selected digital assets as representatives of projects behind them.

### 3.3 Selection of digital assets

We operate with digital assets that are registered on the **Bitsamp** and **Kraken** exchanges. We have focused on these two traders because they are regulated exchanges; the former in the EU, the latter in the UK. They are also exchanges that have long been in the top 20 exchanges by trading volume. They have also been on the market much longer than the current market leader, **Binance**.

**Bitstamp** is an exchange based in Luxembourg. It was founded in 2011 by Slovenians Nejc Kodrič and Damijan Merlak. In April 2013, they moved its registration to the UK and subsequently to Luxembourg. Bitstamp is the first crypto exchange to become a fully regulated payment institution in Europe.<sup>2</sup> As such it was licensed in Luxembourg and this license is passportable (transferable) to the other 27 EU countries. It was sold with this license to the Belgian investment company NXMH in 2018.

**Kraken** Exchange was founded in 2011 by American Jesse Powell. It is headquartered in the USA in San Francisco, its parent company is Payward Inc. Kraken is regulated by FinCEN in the US, FINTRAC in Canada, AUSTRAC in Australia and the FSA in Japan. In the United Kingdom, it was registered as Payward Limited as a crypto firm with the Financial Conduct Authority (FCA) as of November 16, 2021. This means it can offer services as a digital asset exchange and custodian.

1 <https://www.lyndalden.com/digital-alchemy/>

2 <https://digital-luxembourg.public.lu/stories/bitstamp-first-fully-regulated-crypto-payment-institution>

In addition, Kraken also acquired Crypto Facilities Ltd.<sup>3</sup> in early 2019. This is a cryptocurrency futures trading platform registered<sup>4</sup> in November 2021 as a Multilateral Trading Facility also with the FCA in the United Kingdom. It offers its services to financial institutions.

Despite Brexit, these companies can continue to offer their services to EU citizens.

We deliberately did not operate with assets listed on **Binance**, the current market hegemon, which, despite trying to undertake steps towards legalizing its business, is still not a clearly geographically anchored entity. The generally under-regulated process of listing digital assets on exchanges here is therefore even less transparent.

In the future, it would be beneficial to add assets traded on **Coinbase** (these already largely coincide with our selection), which, as a listed company, is subject to the most oversight of all crypto exchanges.

## 4 Selected digital assets

### 4.1 What are digital assets?

By digital assets we mean an all-encompassing designation for units of exchange that are used on decentralized ledgers such as blockchain, tangle or hashgraph. Digital asset is a term superior to the terms cryptocurrency and token.<sup>5</sup>

**Cryptocurrency** is a digital asset that has its own blockchain, such as Ether on the Ethereum network and Bitcoin on the Bitcoin blockchain. A cryptocurrency is a currency and therefore has the same functions: unit of account, transfer (exchange) and store of value. Cryptocurrency of sad blockchain is used to pay fees and block reward to validators and miners.

**Token** is a cryptocurrency token created on a platform that allows smart contracts, such as Ethereum. Tokens gain value by representing something else on the blockchain. It can be other digital assets, physical objects, digital objects or even a service in a decentralized ledger. For example, Wrapped Bitcoin (WBTC) is a token on the Ethereum network; the token serves as a container for Bitcoin. Tokens are often connected to a decentralized application.

### 4.2 Selected assets in figures

There are **109 digital assets** listed on the **Kraken** exchange at the time of writing and **52 digital assets** listed on **Bitstamp**. In total, **128 unique cryptocurrencies and tokens** can be traded on both exchanges. 34 digital assets are sold on both exchanges. **59 of the top 100 cryptocurrencies by market capitalization** are traded on these exchanges. In terms of market capitalization, **together they account for 89.4% of the market capitalization of top 100 cryptocurrencies** and tokens. In terms of functionality, they represent the entire spectrum of cryptocurrencies.

In the following section, cryptocurrencies and tokens are listed according to the exchange they are on.

3 <https://www.cryptofacilities.com/>

4 <https://register.fca.org.uk/s/search?predefined=CA>

5 <https://www.gemini.com/cryptopedia/cryptocurrencies-vs-tokens-difference#section-what-is-a-digital-asset>

### 4.3 Bitstamp

There are 52 cryptocurrencies and tokens listed on Bitstamp, 17 of which are not traded on the Kraken exchange. Their listing is in the table below.

**Table 1 List of digital assets available on Bitstamp**

Ox	Curve	Chainlink	Stellar Lumens
AAVE	DAI	Chiliz	Storj
Algorand	dYdX	Cyber Network	SushiSwap
Alpha Finance	Enjin Coin	Litecoin	Swipe
Amp	Ether	Maker	Synthetix
Audius	Ethereum 2.0	OMG Network	Tether
Axie Infinity	Euro Tether	Paxos Standard	The Graph
Basic Attention Token	The Phantom	Perpetual Protocol	The Sandbox
Bitcoin	Fetch.ai	Polygon	UMA
Bitcoin Cash	FTX Token	Rari Governance Token	Uniswap
Cardano	Gala	SKALE Network	USD Coin
Celsius Network	Gemini Dollar	Smooth Love Potion	XRP
Compound	Hedera Hashgraph	Songbird	yearn.finance

### 4.4 Kraken

The Kraken exchange allows trading of 109 cryptocurrencies and tokens. 75 are not on the Bitstamp exchange. There are also two tokens that represent bitcoin (tBTC and Wrapped Bitcoin) on other blockchains and are therefore a bit redundant.

**Table 2 List of digital assets available on Kraken**

Ox	Curve	Litecoin	Serum
1inch	Dai*	Livepeer	Shiba Inu
Aave	Dash	Loopring	Shiden
Aavegotchi	Decentraland	Maker	Siacoin
Acala	Dogecoin	Mango	Solana
Akash	dYdX	Mina	Star Atlas
Algorand	Energy Web Token	Mirror Protocol	Star Atlas DAO
Ankr	Enjin Coin	Monero	Stellar Lumens
Aragon	Enzyme Finance	Moonbeam	Step Finance
Astar	EOS	Moonriver	Storj
Augur	Ethereum ("Ether")	Nano	Sushi
Augur v2	Ethereum Classic	Ocean	Synthetix
Avalanche	Filecoin	OmiseGO	tBTC
Axie Infinity	Flow	Orca	Terra
Badger DAO	Gnosis	Orchid	Tether*

Balancer	Chainlink	Origin Protocol	Theses
Bancor	Chiliz	Oxygen	The Graph
Band Protocol	ICON	PAX Gold	The Sandbox
Basic Attention Token	Injective Protocol	Perpetual Protocol	Tron
Bifrost	Karura	Phala	Uniswap
Bitcoin	Coffee	Polkadot	USD Coin*
Bitcoin Cash	Keep Network	Polygon	WAVES
Bonfida	KILT	Qtum	Wrapped Bitcoin
Cardano	Kin	Rarible	Yearn Finance
Cartesi	Kintsugi	Raydium	Zcash
Compound	Kusama	REN Protocol	
Cosmos	Cyber Network	Ripple	
Covalent	Lisk	Saber	

#### 4.5 On both Kraken and Bitstamp

The following 34 digital assets are traded on both of these exchanges. An overview of the available cryptocurrencies and tokens is provided in the table below.

**Table 3 List of coins and tokens available on Kraken and Bitstamp**

Ox	Curve	Maker	Synthetix
Aave	DAI	OmiseGO	Tether
Algorand	dYdX	Perpetual Protocol	The Graph
Axie Infinity	Enjin Coin	Polygon	The Sandbox
Basic Attention Token	Ether	Ripple	Uniswap
Bitcoin	Chainlink	Star Atlas DAO	USD Coin
Bitcoin Cash	Chiliz	Stellar Lumens	Yearn Finance
Cardano	Cyber Network	Storj	
Compound	Litecoin	Sushi	



if you are interested in the study at full length,  
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