CoinDesk Indices

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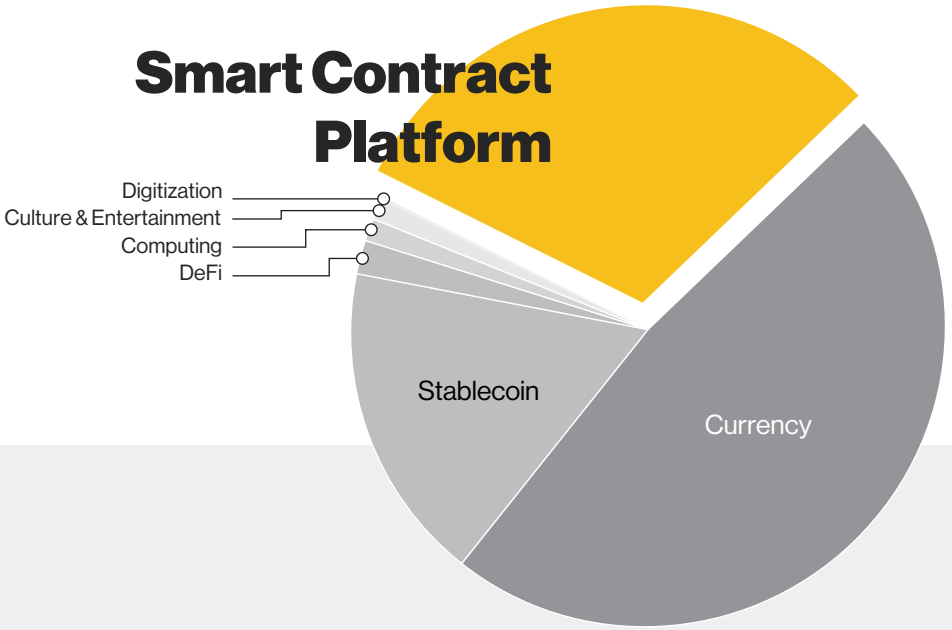
What Is So Smart About Smart Contract Platforms?

A Primer on the Smart Contract Platform Sector



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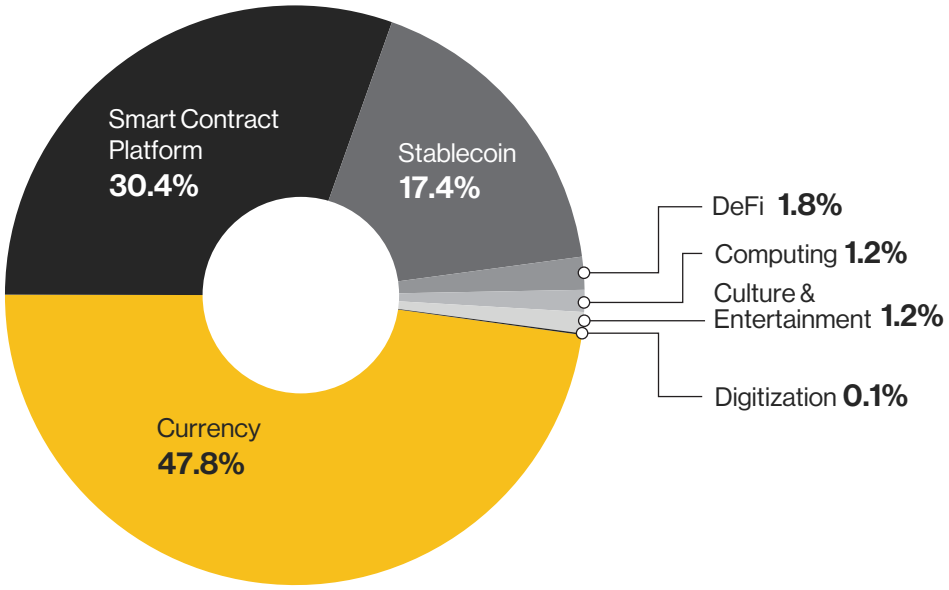
Introduction

In December 2021, CoinDesk Indices launched its Digital Asset Classification Standard (DACS) to set the standard for defining the industries of digital assets. Every one of the top 500 digital assets by market capitalization is assigned to an industry, defined by DACS, then at least one industry is assigned to an industry group, and finally, at least one industry group is assigned to a sector.

Currently, there are seven sectors defined by DACS, including Currency, Computing, DeFi (Decentralized Finance), Digitization, Entertainment, Smart Contract Platform, and Stablecoin. The Smart Contract Platform sector is the second largest sector in DACS, with 92 assets representing 30.4% of the digital asset market and a market capitalization of approximately $243 billion as of December 2022.

Exhibit 1

CoinDesk Indices DACS



Source: CoinDesk Indices. 1/13/2023. Market capitalization data is based on 12/31/2022.

In this paper, we describe the Smart Contract Platform sector in further detail by discussing its definition, constituents and significance in the broader digital asset space.

Defining the Smart Contract Platform Sector

A smart contract platform is a blockchain that provides the fundamental backbone for building decentralized applications (dapps). These dapps run when predetermined conditions are met and are thus paramount to the operation and flourishing of Decentralized Finance (DeFi) and other blockchain applications. There are two important features that enable a Smart Contract Platform: first, compatibility with developer-friendly programming languages so that they can build custom smart contracts. Second, a consensus mechanism, maintained by a network of nodes that periodically validate blocks to ensure transaction finality and the security of the overall network.

The DACS Glossary defines the Smart Contract Platform sector as follows:

Smart contracts are computerized blockchain protocols that execute terms of a contract. Smart contracts represent computer codes that ensure when both parties meet the terms of the contract, they will execute automatically, allowing for trustless peer-to-peer transactions. Smart Contract Platform assets are designed for the building of decentralized applications, layer 2 scaling solutions, Decentralized Autonomous Organizations (DAOs), and other custom protocols. Every platform has a unique open-source user and miner incentive structure that utilizes BFT consensus mechanism. Every platform utilizes a native token for the payment towards building on the platform, providing liquidity and allowing interoperability between the native token and the newly created tokens built on the platform.

Industry Groups Inside the Smart Contract Platform Sector

The industry groups in the Smart Contract Platform sector are differentiated by their primary function. There are three industry groups in the Smart Contract Platform sector: Layer 0, Layer 1, and Layer 2.

Layer 0 smart contract platforms act as the foundational layer for blockchain ecosystems. They serve as blockchain builders and relayers, facilitating interoperability between multiple chains on the same network. Layer 0s allow multiple blockchains on the same network to communicate and transact with each other.

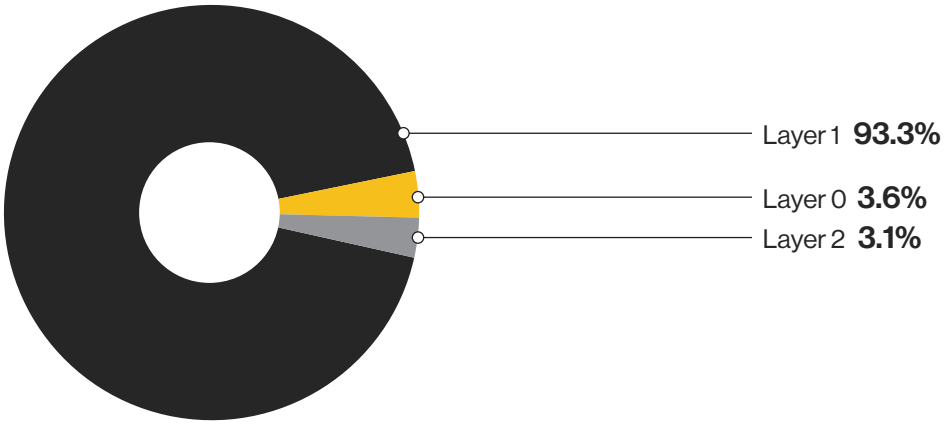
Layer 1 smart contract platforms act as the primary settlement layer of a blockchain and decentralized application (dapp) ecosystem. Most on-chain transactions and smart contract activities take place on Layer 1.

Layer 2 smart contract platforms are designed as scaling solutions for Layer 1 blockchains. Layer 2s allow for significantly less expensive transactions, faster settlement and higher throughputs. This system facilitates processes that would otherwise be too costly on a Layer 1 such as high-frequency trading, and more complex smart contract capabilities.

Within the Smart Contract Platform sector, Layer 1 is the largest industry group, with 67 assets and comprising 93.3% of the market capitalization, largely due to the dominance of ether. However, there are 16 digital assets in the Layer 0 industry group, representing 3.6% of the sector market capitalization, with rising demand for interoperability. Finally, there are nine assets in the Layer 2 industry group, representing 3.1% of the total market capitalization, as scaling solutions become increasingly prevalent.

Exhibit 2

Smart Contract Platform Sector breakdown by Industry Group



Source: CoinDesk Indices. 1/13/2023. Market capitalization data is based on 12/31/2022.

Exhibit 3

Industry Groups under Smart Contract Platform Sector

Industry Group	Market Cap ($)	No. of Assets	% of Market Cap
Layer 1	226,795,668,485	67	93.3%
Layer 0	8,666,543,296	16	3.6%
Layer 2	7,491,363,777	9	3.1%

Source: CoinDesk Indices. 1/13/2023. Market capitalization data is based on 12/31/2022.

Industries Inside the Smart Contract Platform Sector

Within the Smart Contract Platform sector, only the Layer 2 industry group currently consists of multiple industries: Rollups and Sidechains.

Rollups are a form of scaling solution that leverages the security and consensus mechanisms of the parent Layer 1 chain. Rollups batch and compress transactions, which are then validated and settled separately on Layer 1. This significantly reduces the computational burden on the Layer 1 network, freeing up bandwidth for other processes and reducing overall costs associated with gas fees. There are currently two types of rollups: Optimistic and Zero Knowledge (ZK).

Sidechains are a type of de facto scaling solution where an independent blockchain forms a symbiotic partnership with a Layer 1 smart contract platform via a two-way bridge. Though sidechains cannot benefit from the main Layer 1's security and consensus, they are not bound by the rules that govern that Layer 1 and are thus free to operate the blockchain in any way they see fit. Typically, sidechains also focus on higher throughputs, faster transaction speeds and lower costs.

The Sidechain is considerably larger, taking up 92.5% of the Layer 2 industry group. Rollups represent only 7.5%, however, expectations are high that this industry will become larger in the near future.

Exhibit 4

Industries under Layer 2 Industry Group

Industry Group	Market Cap ($)	No. of Assets	% of Market Cap
Sidechains	6,931,217,357	5	92.5%
Rollups	560,146,420	4	7.5%

Source: CoinDesk Indices. 1/13/2023. Market capitalization data is based on 12/31/2022.

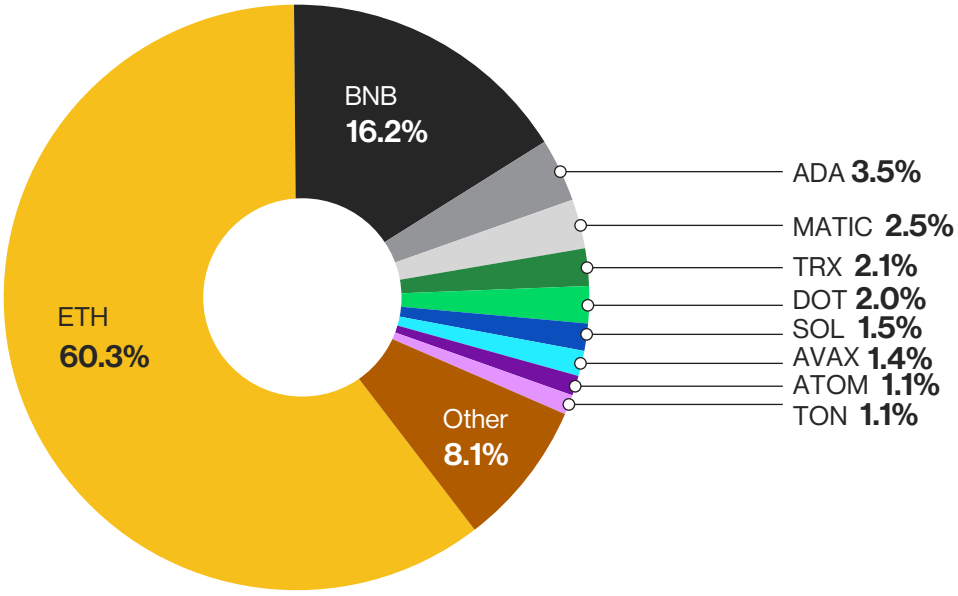
Major Assets Inside the Smart Contract Platform Sector

While there are 92 digital assets inside the Smart Contract Platform sector, the sector is highly concentrated, with Ethereum (ETH)[1] representing over half the sector, and the top ten assets representing 91.9% of the sector. Within the Layer 1 industry, significant assets beyond eth include bnb and ada, each with its own blockchain and dapp ecosystem. Polkadot (DOT)[2], the largest Layer 0 asset, is a relay chain that serves as a hub for other parachains. Polygon (MATIC)[3] is the largest Layer 2 asset and Sidechain, acting as a scaling solution for the Ethereum network while cultivating its own ecosystem of dapps and projects.

Exhibit 5

Top 10 Assets inside the DACS Smart Contract Platform Sector

CoinDesk Indices DACS Smart Contract Platform Sector Top 10 Assets
January 2023



Source: CoinDesk Indices. 1/13/2023. Market capitalization data is based on 12/31/2022.

Conclusion

The Smart Contract Platform sector tends to foster a rich environment for innovation that attracts a high level of development and resources. These platforms leverage network effects, decentralized consensus mechanisms and compatibility with various programming languages, thus allowing creative and innovative developers to build protocols for a wide range of purposes such as decentralized exchanges, lending platforms, and NFT marketplaces.

Smart Contract Platforms serve as the foundation for the digital economy as the dapps built on these platforms attract millions of users, empowering individuals to take greater ownership over their finances and transactions, thus creating a burgeoning economy with a wide range of opportunities. They also facilitate a positive reinforcement cycle through the network effect. As more dapps are built on the various smart contract platforms, the platform that acts as the transactional base settlement layer for each protocol running on its blockchain benefits from increased revenue and demand as new users purchase and spend native tokens to gain access to the network.

Relevant Indices

CoinDesk Cardano Price Index (ADX)

CoinDesk EOS Price Index (EOSX)

CoinDesk Ether Classic Price Index (ECX)

CoinDesk Ether Price Index (ETX)

CoinDesk Solana Price Index (SLX)

CoinDesk Tezos Price Index (XTX)

CoinDesk Market Index (CMI)

CoinDesk Market Plus Stablecoin Index (CMIP)

CoinDesk Market Select Index (CMIS)

CoinDesk Smart Contract Platform Select Ex ETH Index (SCPXX)

CoinDesk Smart Contract Platform Select Index (SCPX)

CoinDesk Smart Contract Platform Index (SMT)

CoinDesk Industry Group Select Equal Weight Index (DIGS)

References

1 Ethereum (ETH) – The largest smart contract platform, Ethereum, has been fundamental to the enormous growth in the DeFi space over the past few years. Ethereum's extensive developer resources, and its native programming language, Solidity, have enabled developers to build a massively successful ecosystem of dapps such as Aave, Uniswap, and OpenSea. These dapps leverage the security of Ethereum's decentralized Proof-of-Stake blockchain, as well as the network effect it has cultivated since its launch in 2015.

2 Polkadot (DOT) – Polkadot is the central "hub" of a multi-chain network of heterogeneous blockchains, interconnected via the Polkadot Relay Chain. The key function of Polkadot is to provide interoperability between these blockchains, while ensuring they all benefit from the same security offered by Polkadot's Proof of Stake consensus mechanism. Polkadot's Relay Chain also allows transactions on each chain to process in parallel, rather than in sequence, as is the case with typical single chain smart contract platforms.

3 Polygon (MATIC) – Polygon, a Proof-of-Stake blockchain, markets itself as "Ethereum's Internet of Blockchains." Polygon acts as an Ethereum sidechain, with the goal of enabling less expensive and faster transactions for Ethereum users. To achieve this, Polygon employs a "bridge," allowing users to migrate to and from Polygon's separately managed network. Polygon is actually comprised of several distinct blockchains, but Polygon PoS is its primary chain, where most transaction activity takes place.

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