Navigating Crypto:
Industry Map

BINANCE
— RESEARCH

June 2023

Contents

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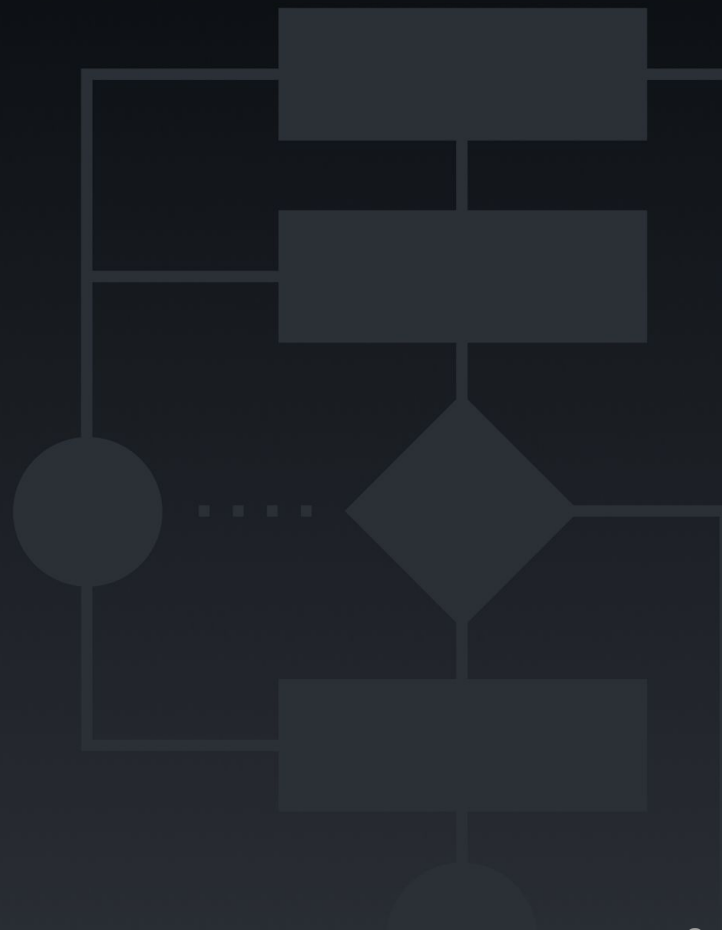
About the Industry Map

The Industry Map provides an overview of the crypto ecosystem. In this report, we break down different verticals into subcategories and lay out a few projects in each of them. Additional details in terms of projects' descriptions and relevant metrics can be found in the following slides.

This map is compiled based on publicly available data, research, and qualitative analysis. It is not intended to be an exhaustive list of projects in the industry. Certain verticals, subcategories, or projects may or may not have been included as we aim to share a variety of key leaders as well as emerging players. Projects showcased are mapped according to their primary use cases. For suggestions, please provide your feedback here.

The mention of specific projects does not constitute endorsement or recommendation by Binance.

BINANCE RESEARCH

I. Infrastructure

Infrastructure
Vertical Spotlights

We identified 5 key areas of innovation.

Scalability and Fairness

As L1s see increasing adoption, more projects aim to make blockchains more scalable by batching transactions off-chain and fairer by implementing efficient distribution of Maximal Extractable Value.

Data Usability and Tooling

Data generated on blockchain networks are far from being fully usable by developers. Data querying and indexing services are key innovation areas for improving the current developer experience.

Security and Privacy

The rising demand for network security and privacy has resulted in the emergence of projects aiming to prevent malicious data tracking, smart contract hacks, etc.

Cloud Networks

We see more projects focusing on providing users with access to web-based services that may entail storage, computing, and content delivery through decentralized infrastructure.
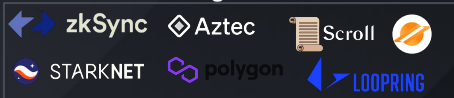
Connectivity

Layer-1 blockchains are far from being fully connected and interoperable. Numerous cross-chain solutions are being developed to improve the current on-chain user experience.

Infrastructure
Vertical Overview
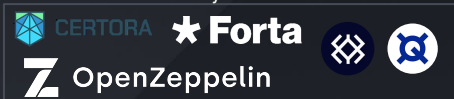
Scalability and Fairness

Zero-Knowledge ("ZK") Solution

Optimistic Rollup Solution

Maximal Extractable Value ("MEV") Solution

Data Usability and Tooling

Remote Procedure Call ("RPC") Provider

Data Indexing

Smart Contract Automation

Security and Privacy

Security Solution

Privacy Solution

Multisig Wallet

Cloud Networks

Cloud Computing

Content Delivery Network ("CDN")

Storage

Connectivity

Cross-chain Bridge

Oracle
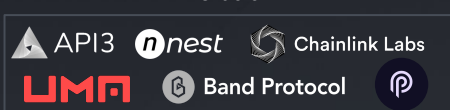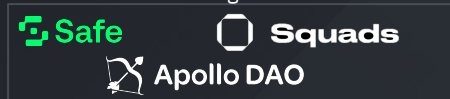
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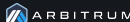# Infrastructure
Subcategory Description

Zero-Knowledge ("ZK") Solution:
ZK Rollups / Validium protocols that prove the validity of transactions before combining them to execute off-chain.

zkSync	zkSync is a ZK rollup solution addressing Ethereum scalability issues with minimized security compromises.
Aztec	Aztec Network is the first ZK rollup on Ethereum.
STARKNET	StarkNet is a permissionless ZK rollup.
LOOPRING	Loopring is a ZK rollup solution primarily for trading and payment.
polygon	Polygon has multiple ZK rollup solutions (Hermez, Zero) designed to reduce computational costs of generating validity proofs through recursive proofs.
Scroll	Scroll is an Ethereum L2 solution leveraging ZK rollups.
	ZKSpace, previously ZKSwap, is a Layer 2 platform based on ZK-Rollups.

Optimistic Rollup Solution:
Protocols that assume the validity of transactions and then combine them to execute off-chain.

OP	Optimism is a L2 Optimistic rollup network.
ARBITRUM	Arbitrum is an Ethereum Optimistic rollup solution.
boba	Boba Network is a L2 scaling solution and a hybrid compute platform.
	Metis will be a Layer-2 scaling protocol that uses optimistic rollup technology.

Source: Binance Research, company websites.

Infrastructure
Subcategory Description (cont.)

Maximal Extractable Value ("MEV") Solution:
Solutions that prevent validators from unfairly profiting by including, excluding, or reordering transactions in a block.
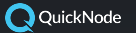
	Flashbots works on mitigating the negative externalities of current MEV techniques and avoiding risks that MEV causes to state-rich blockchains.
	Jito Labs builds high-performance systems to scale Solana and maximize validator rewards.
	Eden is an optional, non-consensus breaking transaction ordering protocol for Ethereum blocks.
	Rook enables users, protocols, and smart contracts to own MEV.
	Manifold is a multi-protocol middleware solution to improve connectivity between DeFi products.
	Skip Protocol is a MEV infrastructure for blockchains and protocols, currently serving Juno, Evmos, and Osmosis.

Source: Binance Research, company websites.

Infrastructure
Subcategory Description (cont.)

Remote Procedure Call ("RPC") Provider:
RPC is the most direct interface in which developers can communicate with the blockchain system.

0x	0x is a protocol that enables the decentralized exchange of tokens on Ethereum.
alchemy	Alchemy is a platform enabling developers to interact with the blockchain mainly with API calls.
INFURA	Infura provides Ethereum API, IPFS API and Gateway, and ETH nodes-as-a-service.
moralis	Moralis provides a suite of APIs for developers to seamlessly integrate blockchain into their dApps.
QuickNode	QuickNode is a platform for developers to scale blockchain applications.
Ankr	Ankr enables developers to build upon a distributed network of nodes.
POKT	Pocket Network provides RPC access to Ethereum, Polygon, etc.
NODEREAL	NodeReal is a one-stop blockchain infrastructure and services provider.

Smart Contract Automation:
Platforms that enable users to automatically execute smart contracts.

Gelato Network Web3's Automation Protocol	Gelato enables users to automate smart contract functions on Ethereum.
Keep3r.network	Keep3r enables users to deploy bots to perform operations on-chain.

Data Indexing:
Platforms that provide network data indexing and querying services.
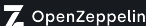
the graph	The Graph is an indexing protocol for querying networks like Ethereum.
Coherent	Coherent connects to a wallet address and gets information about that address in a digestible way.
0xScope	0xScope is a protocol that aims to standardize web2 & web3 data by building a knowledge graph.
SubQuery	SubQuery offers data indexing on Polkadot, Cosmos, Avalanche, Algorand, NEAR, and Flare Networks.

Source: Binance Research, company websites.

Infrastructure
Subcategory Description (cont.)

Security Solution:
Protocols that contribute to the security of blockchains.

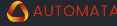|	
CERTORA	Certora aims to ensure smart contract and code security.
★ Forta	Forta is a real-time detection network for security and operational monitoring of blockchain activities.
Z OpenZeppelin	OpenZeppelin provides security products to build and operate dApps.
	ImmuneFi is a leading bug bounty platform.
	QuantStamp provides security for hire, protecting over $200B in digital asset risk from hackers.

Multisig Wallet:
Cryptocurrency wallets that require two or more private keys to sign and send a transaction.

Safe	Safe is a platform to manage digital assets on Ethereum.
Apollo DAO	Apollo Safe is a front end for the CW3 multisig contract.
Squads	Squads is a multisig management protocol for web3-native teams.

Privacy Solution:
Projects that contribute to the protection of user privacy.

NYM	Nym is a decentralized and tokenized infrastructure providing privacy from the network to the application layer.
anoma	Anoma is an intent-centric, privacy-preserving protocol for decentralized counterparty discovery, solving, and multi-chain atomic settlement.
AUTOMATA	Automata provides a blockchain-based authentication solution that secures access to accounts and protects users with an active defence.
	Alter Network provides private and secure messaging across the blockchain.

Infrastructure
Subcategory Description (cont.)

Content Delivery Network ("CDN"):
CDNs are decentralized, distributed networks that provide fast delivery of internet content.
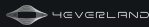
MESON.NETWORK	Meson Network is a bandwidth marketplace using blockchain to replace the traditional sales model.
Media Network	Media Network is a privacy-first and community-governed CDN.
THETA	Theta Network is a blockchain infrastructure for video and media.
livepeer	Livepeer Network is a protocol for developers who want to add live or on-demand video to their projects.

Source: Binance Research, company websites.

Infrastructure
Subcategory Description (cont.)

Computing:
Projects that provide users with access to computing services based on a decentralized infrastructure.

4EVERLAND	4EVERLAND is a cloud computing platform that integrates storage, computing, and network core capabilities.
Flux	Flux is a scalable decentralized cloud infrastructure.
LATITUDE BLOCKCHAIN SERVICES	Latitude helps developers deploy dedicated servers globally through the bare metal cloud platform.
Akash	Akash is a decentralized computing marketplace built for public utility.
Render	Render Network provides decentralized GPU based rendering solutions.

Storage:
Projects that provide users with access to computing services based on a decentralized infrastructure.

Filecoin	Filecoin is an open-source cloud storage marketplace, protocol, and incentive layer.
Swarm	Ethereum Swarm is a decentralized storage and communication system.
sia	Sia is a trustless storage marketplace allowing direct transactions without third parties.
Storj	Storj offers low-cost cloud storage with zero-trust security.
a	Arweave offers permanent and decentralized storage in an open ledger.

Infrastructure
Subcategory Description (cont.)

Cross-chain Bridge:
Protocols that bridge tokens from one blockchain to another.

Project	Total Value Locked	Description
Multichain	US$1.3B	Fantom, Ethereum, BNB Chain, Polygon, etc.
PORTAL	US$374M	Ethereum, Solana, BNB Chain, etc.
	US$283M	Ethereum, BNB, Polygon, Avalanche, etc.
Synapse	US$184M	Ethereum, BNB Chain, Polygon, Arbitrum, etc.
orbit	US$128M	Ethereum, Ripple, BNB Chain, Polygon, etc.
Celer cBridge	US$118M	Ethereum, Arbitrum, BNB Chain, etc.
ChainPort	US$11M	Ethereum, BNB Chain, etc.

Infrastructure
Subcategory Description (cont.)

Oracle:
Protocols that connect off-chain with on-chain data.

Chainlink Labs	Chainlink decentralized oracle networks provide tamper-proof inputs, outputs, and computations to support smart contracts.
UMA	UMA's Optimistic Oracle allows contracts to request and receive data.
API3	API3 is a first-party oracle network.
nest	NEST Protocol is a stochastic computer based on PVM.
Band Protocol	Band Protocol is a blockchain-agnostic decentralized oracle.
	Pyth delivers real-time, on-chain market data.

Source: Binance Research, company websites.

II. Decentralized Finance ("DeFi")

DeFi
Vertical Spotlights

We identified 4 key areas of innovation.

◆

Issuance

We see the emergence of a more diverse suite of financial products in the DeFi space, such as synthetic assets, options, and structured products.

◆

Liquidity

Liquidity staking and collateralized debt position ("CDP") are becoming more prominent, exposing users to a variety of on-chain liquidity opportunities.

◆

Trading

More diverse financial products are being traded on decentralized exchanges ("DEX").

◆

Risk Management

There are more projects focusing on providing users with monetary protection and other security measures against hacks, scams, and technical loopholes.

◆ BINANCE RESEARCH

DeFi
Vertical Overview

Issuance

Synthetic Assets

ALCHEMIX · youves · SYNTHETIX

Liquidity

Lending

Compound · TECTONIC

Collateralized Debt Position ("CDP")

MAKER · Helio

Trading

Spot Decentralized Exchange ("DEX")

Curve · PancakeSwap · SUN · UNISWAP · SushiSwap · Balancer

Prediction Market

Polymarket · azuro

Risk Management

Insurance

UNSLASHED · Nexus Mutual

Security and Stress Testing

ZOKYO. · GAUNTLET · CERTIK · Chainalysis

Other

Stream Pay

Sablier · Superfluid

Launchpad

team by TrustSwap · DxSale · PinkSale

DeFi
Subcategory Description

Synthetic Assets: Protocols that tokenize the derivative of an underlying asset.

Project	Total Value Locked	Description
SYNTHETIX	US$381M	Synthetix leverages pooled collateral model that generates fees to SNX collateral providers from trades between Synths.
ALCHEMIX	US$68M	Alchemix offers same-asset loan products and accepts deposits in the form of either yield-bearing-assets or underlying collateral assets.
youves	US$28M	Youves is a decentralised, non-custodial and self-governed platform for the creation and management of synthetic assets.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

DeFi
Subcategory Description (cont.)

Lending: Protocols that allow users to lend assets.

Project	Total Value Locked	Description
	US$5.6B	Aave allows users to earn interest, borrow assets, and build applications.
	US$3.9B	JustLend is a decentralized lending protocol that allows users to supply, borrow, and earn.
Compound	US$1.9B	Compound is an algorithmic, autonomous interest rate protocol built for developers to unlock open financial applications.
	US$688M	Venus is a DeFi algorithmic money market protocol on BNB Chain.
TECTONIC	US$125M	Tectonic is a cross-chain money market for earning passive yield and accessing instant backed loans.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

DeFi
Subcategory Description (cont.)

Collateralized Debt Position ("CDP"): Protocols that use collaterals to mint stablecoins.

Project	Total Value Locked	Description
MAKER	US$6.3B	MakerDAO enables the generation of stablecoin Dai.
	US$1.3B	JustStables enables the generation of USDJ.
	US$229M	Abracadabra enables the generation of MIM.
Helio	US$44M	Helio Protocol is an open-source liquidity protocol for borrowing and earning yield on HAY —a BNB backed over-collateralized destablecoin.

DeFi
Subcategory Description (cont.)

Spot Decentralized Exchange ("DEX"): DEXs for trading assets.

Project	Total Value Locked	Description
UNISWAP	US$4.1B	Uniswap is a cryptocurrency exchange which uses a decentralized network protocol.
Curve	US$3.9B	Curve is an exchange liquidity pool on Ethereum.
PancakeSwap	US$1.6B	PancakeSwap is the leading decentralized exchange on BNB Chain.
Balancer	US$1.0B	Balancer is an automated portfolio manager and trading platform on Ethereum.
SUN	US$589M	SUN is a platform for stablecoin swaps, stake-mining and self-governance on TRON.
SushiSwap	US$368M	Sushi is a platform for users to swap, earn, stack yields, lend, borrow, and leverage.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

DeFi
Subcategory Description (cont.)

Prediction Market: Protocols that enable users to wager, bet, and buy based on future outcomes.

Project	Total Value Locked	Description
Polymarket	US$5M	Polymarket allows users to build portfolios based on their forecasts.
azuro	US$4M	Azuro offers decentralized betting.

Stream Pay: Payment modules that allow continuous settlement via token streaming.

Sablier	US$6M	Sablier is a token streaming protocol powered by Ethereum smart contracts.
Superfluid	US$2M	Superfluid handles composable stream of value with continuous settlement.

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Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

DeFi
Subcategory Description (cont.)

Insurance: Protocols that aim to provide users with monetary protection.

Project	Total Value Locked	Description
Nexus Mutual	US$277M	Nexus Mutual allows users to share insurance risk together.
UNSLASHED	US$34M	Unslashed provides insurance for decentralized finance projects.

Launchpad: Composable modules for token issuance, liquidity, etc.

PinkSale	US$191M	PinkSale allows users to launch tokens and create their initial token sale.
team by TrustSwap	US$95M	Team Finance is a toolkit that helps users create and grow their tokens.
DxSale	US$49M	DxSale is an Initial DEX Offering ("IDO") launchpad.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

DeFi
Subcategory Description (cont.)

Security and Stress Testing: Modules that stress test or offer other security measures to protocols.

Project	Description
CERTIK	Certik is a security-focused audit and ranking platform.
Chainalysis	Chainalysis provides blockchain analysis for government agencies, projects, and financial institutions.
ZOKYO.	Zokyo builds, secures, and funds crypto and DeFi projects.
GAUNTLET	Gauntlet is a financial modeling platform that uses battle-tested techniques to inform protocol management.

Source: DeFi Llama, Binance Research, company websites.

III. Non-Fungible Token ("NFT")

NFT
Vertical Spotlights

We identified 3 key areas of innovation.

Marketplace

We see the emergence of NFT marketplaces targeting a variety of use cases, such as chain-specific listing, aggregators, and thematic curations. Users gain access to a wider range of buyer experiences.

Financialization

There are more diverse NFT-based financial products and services, such as staking, lending, derivatives, fractionalization, etc. Users are exposed to liquidity opportunities for their previously illiquid NFT assets.
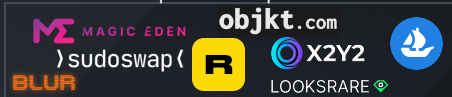
Service

An increasing number of projects are helping users improve their experiences of purchasing NFTs and managing portfolios. Other projects provide services to help creators launch, secure, and store their NFTs more seamlessly.

NFT
Vertical Overview

Marketplace

Open Marketplace
MAGIC EDEN · objkt.com ·)sudoswap(· R · X2Y2 · LOOKSRARE · BLUR

Curated Marketplace
Foundation · Raresama

Aggregator
element · OpenSea Pro

Financialization

Lending
BendDAO WEB3 DATA LIQUIDITY · JPEG'd · BLUR · nftfi · FRAKT

Fractionalization
fractional · NIFTEX · unic.ly

Buy-Now-Pay-Later
Teller · CYAN · CEDAR

Derivatives
SOLV PROTOCOL · nftperp · MIMICRY

Options
hook · NiftyOptions · PUTTY.FINANCE

Service

Portfolio Analytics and Appraisal
Abacus · UPSHOT · NFT BANK
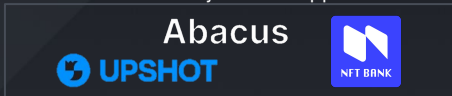
Rental
DOUBLE · {reNFT} · Renfter

Membership and Content Gating
AUDIUS · RareCircles · HIGHLIGHT

Storage
Pinata · NFT STORAGE

Launchpad
GigLabs · NIFTYBASE · Mintbase
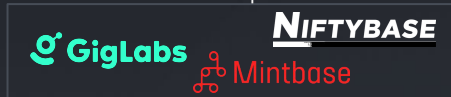
Safety
Doppel · Optic · Yakoa
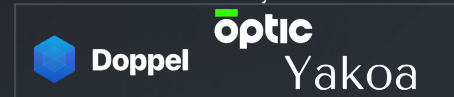
NFT
Subcategory Description

Open Marketplace: Platforms that allow for any NFT from any collection to be sold.

Project	Royalty Fees	Description
BLUR	Enforces a minimum royalty of 0.5%	Blur is an NFT Marketplace designed for Pro Traders.
OpenSea	Enforces a minimum royalty of 0.5%	OpenSea is historically the largest NFT Marketplace.
X2Y2	Compulsory	X2Y2 is an NFT Marketplace on Ethereum with 100% revenue shared with token stakers.
LOOKSRARE	Optional	LooksRare is an NFT Marketplace with rewards for participating.
objkt.com	Compulsory	Objkt is the largest NFT Marketplace on Tezos.
sudoswap	Optional	Sudoswap is a decentralized, on-chain NFT exchange based on an AMM model.
Rarible	Compulsory	Rarible is a low-fee NFT Marketplace.
MAGIC EDEN	Optional	Magic Eden is the largest NFT Marketplace on Solana.

NFT
Subcategory Description (cont.)

Aggregator: Platforms that allow users to easily trade NFT collections from different marketplaces.

element	Element allows users to optimize for liquidity.
OpenSea Pro	Gem is a low-fee NFT aggregator. Acquired by OpenSea.

Curated Marketplace: Selective platforms that focus on a certain type of NFT, aesthetic, or set of values.

▲●■ Foundation	Foundation is a curated, decentralized NFT Marketplace.
Raresama	Raresama allows users to create or browse NFT art collections and enjoy a diverse mix of artists.

Source: Binance Research, company websites.

NFT
Subcategory Description (cont.)

Lending: Protocols that allow users to collateralize NFTs for loans.

BLUR	Blur Lending is a perpetual NFT lending protocol.
BendDAO WEB3 DATA LIQUIDITY	BendDAO is a decentralized peer-to-pool based NFT liquidity protocol.
JPEG'd_	JPEG'd allows users to open CDPs using NFTs as collateral.
nftfi	NFTfi is an NFT liquidity protocol.
FRAKT	FRAKT allows users to buy, sell and earn yield and also get instant liquidity out of NFTs.

Source: Binance Research, company websites.

NFT
Subcategory Description (cont.)

Fractionalization:
Protocols that allow users to collectively own NFTs.

fractional	Fractional enables collective ownership and governance of NFTs.
NIFTEX	NIFTEX allows users to fractionalize NFTs.
unic.ly	Unic.ly allows users to combine, fractionalize, and trade NFTs.

Derivatives:
Protocols that allow users to trade NFT derivatives.

MIMICRY	Mimicry is a derivatives protocol to long and short NFTs.
nftperp	Nftperp is a perpetual futures DEX for NFTs.
SOLV PROTOCOL	Solv is a one-stop platform for creating and trading financial NFTs.

Options:
Protocols that allow staking NFTs into vaults for option strategies.

hook	Hook is an NFT-native options protocol.
NiftyOptions	NiftyOptions contracts allow users to create NFT options.
PUTTY.FINANCE	Putty is a decentralized NFT options marketplace.

Buy-Now-Pay-Later ("BNPL"):
Protocols that allow users to buy NFTs and pay for them later.

Teller	Teller supports NFT buyers to finance their next purchase.
CEDAR	Cedar offers buy-now-pay-later for NFT purchases.
CYAN	Cyan offers buy-now-pay-later for NFT purchases.

NFT
Subcategory Description (cont.)

Portfolio Analytics and Appraisal:
Tools that analyze or appraise NFTs.

Abacus	Abacus is a decentralised appraisal tool for NFTs.
NFT BANK	NFT Bank is an NFT portfolio management service.
UPSHOT	Upshot builds a scalable NFT pricing infrastructure.

Membership and Content Gating:
Tools that gate access to membership or content using NFTs.

AUDIUS	Audius is a music streaming and sharing platform that puts power back into the hands of content creators.
HIGHLIGHT	Highlight enables users to easily NFT-gate music, podcasts, videos, etc.
RareCircles	RareCircles enable businesses to introduce NFTs to engage high-value users.

Rental:
Protocols that allow users to rent NFTs.

DOUBLE	Double Protocol is an NFT rental protocol.
{reNFT}	reNFT is a multi-chain NFT rental protocol that enables uncollateralized renting, lending, and reward sharing.
Renfter	Renfter is an uncollateralized NFT rental protocol.

Storage:
Solutions for storing NFT data.

NFT STORAGE	Nft.storage is a long-term storage service designed for off-chain NFT data.
Pinata	Pinata is an IPFS solution for creators and developers.

NFT
Subcategory Description (cont.)

Launchpad:
Modules for projects to launch their own NFTs.

GigLabs	GigLabs enables brands to launch NFT projects.
Mintbase	Mintbase enables users to build their own minters, markets, and NFT redeeming systems.
NIFTYBASE	Niftybase is an NFT collection launchpad.

Safety:
Modules that offer security measures to protocols.

Doppel	Doppel is an IP protection platform for NFTs.
Optic	Optic monitors blockchains to reveal the origins of NFTs and how they have been reimagined, remixed, or copied.
Yakoa	Yakoa is an NFT fraud detection network.

Source: Binance Research, company websites.
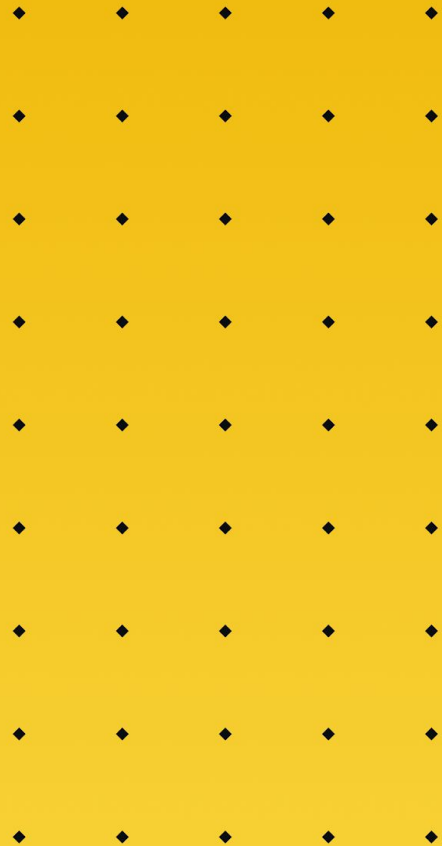
IV. Gaming

Gaming
Vertical Spotlights

We identified 3 key areas of innovation.

◆

Games

The question remains - what is the best way to most seamlessly implement crypto-based in-game economies without impacting gamer incentives in an unsustainable way?

◆

Game Development

We see the emergence of projects in the form of game studios, Initial Game Offering ("IGO") launchpads, and developer kits that aim to help creators smoothly develop and launch their games with crypto-based in-game economies.

◆

Player Experience

There are more diverse products and services that aim to improve player experience by lowering the barriers to explore and onboard into crypto-based games.

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Gaming
Vertical Overview

Games

Metaverse

THE SANDBOX
Decentraland   StarryNift

Play-to-Earn

AXIE INFINITY   SPLINTERLANDS   GALA GAMES   STEP'N
ALIEN WORLDS   Pixelgotchi   UFO Gaming   HOOKED

Game Development

Game Studio

Dapper   sorare
Immutable GAMES STUDIO   Vulcan Forged   MYTHICAL

Toolkit

FORTE   ULTRA   ENJIN

Launchpad

COCOS BCX   ROCO   Seedify
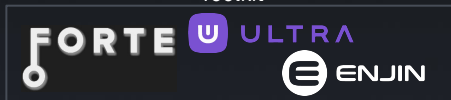
Player Experience

Gaming Guild

UNIX   Merit Circle   YIELD GUILD
GOOD GAMES GUILD   AVOCADO DAO

Game NFT Marketplace

AIRNFTS   DMARKET   FRACTAL   OCTOGAMEX
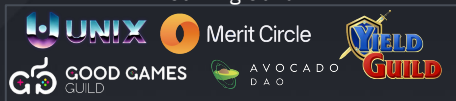
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Gaming
Subcategory Description

Metaverse:
Virtual worlds where users can engage in a variety of gaming experiences.

Project	Market Cap	Description
SANDBOX	US$787M	The Sandbox is a virtual world where players can build, own, and monetize their gaming experiences on the Ethereum blockchain.
Decentraland	US$704M	Decentraland is a 3D virtual world where lands can be bought as NFTs.
StarryNift	N/A	StarryNift is an immersive VR-supported metaverse.

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Source: CoinMarketCap, Binance Research, company websites. Data as of 22 June 2023.

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Gaming
Subcategory Description (cont.)

Play-to-Earn:
Games where users can monetize their gaming experiences in the form of cryptocurrencies.

Project	Market Cap	Description
Axie Infinity	US$641M	Players of Axie Infinity collect and mint NFTs which represent digital pets and engage in the crypto-based in-game economy.
GALA Games	US$555M	Players can earn GALA and limited-edition NFTs through playing games on the Gala platform.
STEP'N	US$210M	StepN is a Web3 lifestyle app that rewards users with NFTs for walking, jogging, and running outdoors.
HOOKED	US$56M	Hooked Protocol aims to provide streamlined and fun gamified learning mechanisms and experiences for new users.
Aavegotchi	US$51M	Aavegotchi is an open-source, community-owned NFT gaming protocol.
Alice	US$49M	My Neighbor Alice is a multiplayer builder game, where players can buy virtual islands, collect and build items, and meet new friends.
Alien Worlds	US$42M	Players can earn Trilium that gives them power in the Planet DAOs.
UFO Gaming	US$27M	UFO Gaming is a decentralized gaming platform bridging traditional games onto the blockchain.
Splinterlands	US$17M	Splinterlands is an NFT card game enabling players to play, trade, and earn.

Source: CoinMarketCap, Binance Research, company websites. Data as of 22 June 2023.

Gaming
Subcategory Description (cont.)

Game Studio:
Studios that specialize in developing crypto-based games.

|	
Dapper	NBA Top Shot, NFL All Day, UFC Strike, CryptoKitties, etc.
Immutable GAMES STUDIO	Gods Unchained (Strategy Cards), Guild of Guardians (Action RPG).
Vulcan Forged	Vulcan Verse (MMO RPG), Tartarus (Action Survival), etc.
MYTHICAL	NFL Rivals, Blankos Block Party, Nitron Nation, etc.
sorare	Football, NBA, MLB.

Launchpad:
Platforms that provide services to creators to launch games with crypto-based in-game economies.

COCOS BCX	Cocos-BCX aims to bridge more creators into crypto via GameFi incubation, investment, distribution, IGO, etc.
Seedify	Seedify is a launchpad and incubator for crypto games.
ROCO	Roco provides services to crypto game developers, content creators, and player communities.

Toolkit:
Tools for incorporating crypto-based economies into games.

FORTE	Forte is a game platform that enables game companies to create blockchain games and scale in-game economies.
ENJIN	Enjin offers a suite of products that make NFTs easy for individuals, businesses, and developers.
ULTRA	Ultra is a platform that brings games, digital assets, tournaments, and live streams to one place through a single login.

Source: Binance Research, company websites.

Gaming
Subcategory Description (cont.)

Game NFT Marketplace:
Platforms for gamers to trade in-game items in the form of NFTs.

AIRNFTS	AirNFTs is a game NFT Marketplace on BNB Chain, Fantom, and Polygon.
DMARKET	dMarket enables secure buying, selling, and trading of in-game NFTs.
OCTOGAMEX	OctoGamex is a gaming NFT trading platform.
FRACTAL	Fractal is an open marketplace for gaming NFTs.

Gaming Guild:
Gamer communities that collectively monetize the play-to-earn model and lower its entry barrier.

YIELD GUILD	YGG is a play-to-earn gaming guild.
Merit Circle	Merit Circle is a guild that rewards players for their performance.
AVOCADO DAO	Avocado uses a play-to-earn model to reward its players.
UNIX	UniX Gaming is a play-to-earn gaming guild.
GOOD GAMES GUILD	Good Games Guild is a play-to-earn gaming guild.

Source: Binance Research, company websites.

V. Artificial Intelligence
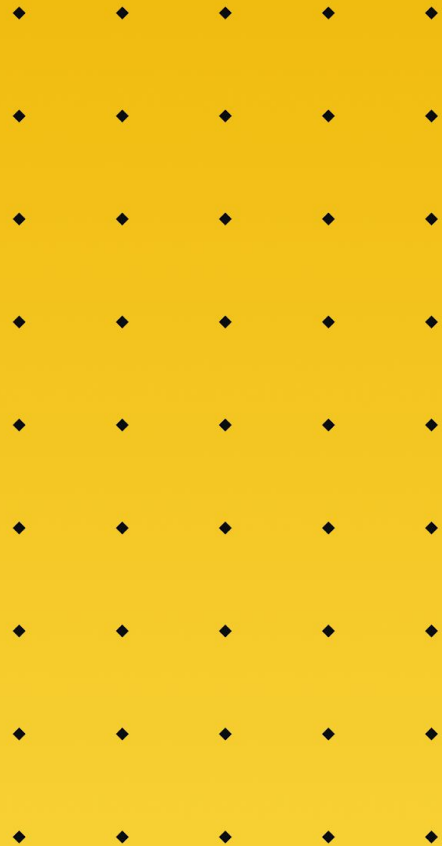
Artificial Intelligence
Vertical Spotlights

We identified 2 key areas of innovation.

◆

Smart Ledgers

Network that uses AI to automate tasks, and provide distributed ledger technology. This is used to create a blockchain dedicated to tracking those tasks.
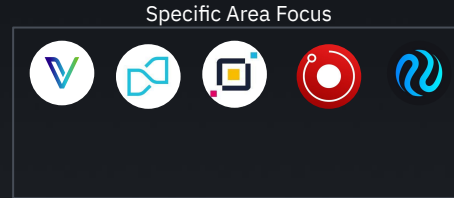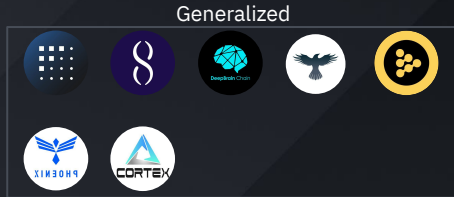
◆

AI-Powered Services

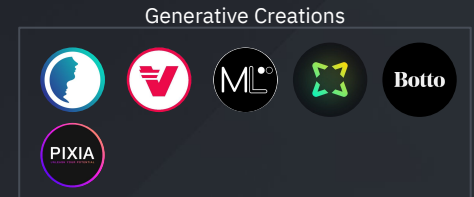Projects that use AI on the backend to provide a service to users.

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Artificial Intelligence
Vertical Overview

Smart Ledgers

Generalized

Specific Area Focus

AI-Powered Services

Data

Financial

Generative Creations

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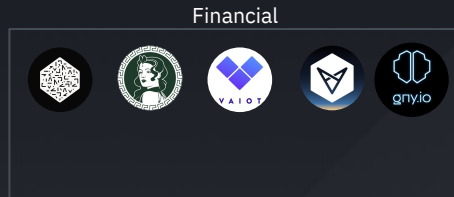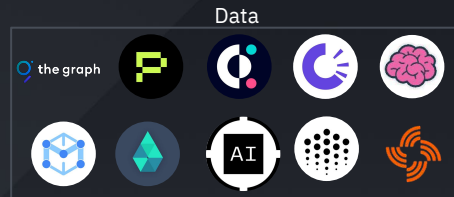
Artificial Intelligence
Subcategory Description

Generalized:
Smart ledger for multi-purpose AI data storage and applications.

	Fetch.ai's blockchain and artificial intelligence features enable users to link to and access private datasets while performing tasks autonomously.
	SingularityNET aims to make it simple for anyone to develop, distribute, and sell AI services using their blockchain technology.
	DeepBrain Chain is a blockchain-specific ecosystem for training, developing, and deploying AI models for a wide range of services and products.
	Raven is developing a distributed network of computer nodes for Artificial Intelligence and Machine Learning on BNB Chain.
	iExec RLC uses the capabilities of blockchain and secure computing to create an AI-driven environment for Requesters, Providers, and Developers.
	Phoenix is a blockchain infrastructure platform for decentralized AI and privacy-computation scaling, consisting of an L1, Computation Platform (L2), and Data Oracle.
	Cortex is an open-source platform which makes AI accessible and allows models and logic to integrate seamlessly with smart contracts and dApps.

Specific Area Focus:
Smart ledger for specific types of AI data storage and applications.
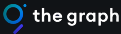
	VeChain is a blockchain platform that focuses on providing supply chain management solutions.
	dKargo aims to revolutionize the global logistics sphere by offering AI-powered route optimization.
	PlatON is a privacy-preserving AI blockchain network.
	Render network connects users who want to perform render tasks (mainly images) with individuals who have spare processors to process them.
	Injective is a layer-1 blockchain network that was created primarily for DeFi apps and offers AI "plug-and-play" financial components.

Source: Binance Research, company websites.

Artificial Intelligence
Subcategory Description

Data:
Data services on the blockchain driven by the use of AI.

the graph	The Graph provides data from blockchains for AI developers planning to develop a model.		Ocean Protocol, a new AI crypto project, declared its goal to open data to the public, thereby decreasing the monopolistic control of organizations in the data and AI sectors.
	Phala Network provides access to privacy-preserving data for AI models.		Streamr Network is a fully decentralised and scalable protocol for many to many AI data pipelines, network analytics and instant messaging.
	Origin Trail is a decentralized knowledge graph - organizing AI-grade knowledge assets, making them discoverable and verifiable.		
	IQ.Wiki is a blockchain encyclopedia powered by AI.		
	Measurable Data Token (MDT) is a data-driven ecosystem.		
	Big Data Protocol is an AI-based protocol to source commercially valuable data from professional data providers, tokenize it, and make it liquid.		
	OraiChain is an AI Layer 1 for Data Economy & Oracle Services		

VI. Liquid Staking

Liquid Staking
Vertical Spotlights

We identified 2 key areas of innovation.

◆

Liquid Staking Tokens

Liquid staking tokens allow users to participate in staking with lower barriers to entry while also retaining the liquidity of staked assets.

◆

LSDfi / LSTfi

These protocols rely on the integration of DeFi and liquid staking tokens to create more sophisticated financial products that provide unique yield-bearing opportunities. This is the secondary layer built on top of existing DeFi protocols, highlighting the composability of the space.

BINANCE RESEARCH

Liquid Staking
Vertical Overview

Liquid Staking Tokens

DeFi Liquid Staking Providers

LIDO · Marinade · Frax Finance ⌀
ROCKETPOOL · stader · STAKE
STAKEWISE · ALCHEMIX · ankr

CEX Liquid Staking Providers

BINANCE · coinbase

LSDfi / LSTfi

Money Markets

Silo

Index LSTs

Index · UNSHETH

Yield Strategies

PENDLE · FLASHSTAKE · InstaDApp

CDP (LST-backed) Stablecoins

Curve · Raft · MAKER

BINANCE RESEARCH

Note: Map is not an exhaustive list of projects in the industry. Projects showcased are mapped according to their primary use cases.
The mention of specific projects does not constitute endorsement or recommendation by Binance.

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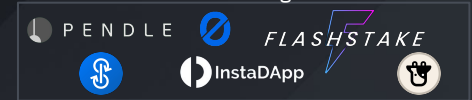
Liquid Staking
Subcategory Description

DeFi liquid staking providers: DeFi providers that enable users to partake in staking and receive liquid staking tokens in return.

Project	Total Value Locked	Description
LIDO	US$14.2B	Lido is a decentralized liquid staking platform for proof-of-stake cryptocurrencies (eg. ETH, SOL, MATIC)
ROCKETPOOL	US$1.9B	Rocketpool is a liquid staking platform which consists of permissionless nodes.
Frax Finance	US$827M	FRAX Ether (frxETH) is the liquid staking derivative for Frax Finance, which is loosely pegged to ETH.
STAKEWISE	US$182M	Stakewise enables users to stake ETH and receive ETH rewards in return.
ankr	US$146M	Ankr allows liquid staking across blockchains and provides the Ankr Bridge for cross-chain staking.
Marinade	US$111M	Marinade offers liquid staking on Solana.
stader	US$93M	Stader offers liquid staking on several blockchains such as BNB Chain, Polygon, and Hedera.
ALCHEMIX	US$69M	Alchemix enables self-repaying loans with ETH LSTs where users deposit staked ETH as a collateral to take a loan of alETH tokens (Alchemix's ETH derivative token).
pSTAKE	US$8M	pSTAKE finance is a multi-chain liquidi staking protocol that supports BNB, ATOM, XPRT and ETH.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

Liquid Staking
Subcategory Description

CEX liquid staking providers: Centralized exchanges ("CEXs") that offer liquid staking services.

Project	Total Value Locked	Description
coinbase	US$2.2B	Coinbase Wrapped Staked ETH (cbETH) is the LST for users who stake their ETH on the exchange.
BINANCE	US$137M	Binance ETH (BETH) is the wrapped token issued by Binance, pegged 1:1 to ETH.

Liquid Staking
Subcategory Description

Money Markets: Protocols which facilitate lending and borrowing activities using liquid staking tokens.

Project	Total Value Locked*	Description
AAVE	US$5.6B	AAVE V3 Ethereum supports LSDs (eg. stETH, cbETH, rETH, sfrxETH) as collateral for loans.
Silo	US$41M	Silo unlocks liquidity for holders to deposit and borrow stETH.

Index LSTs: Tokens which represent a stake in the basket of liquid staking tokens.

Project	Total Value Locked*	Description
Index	US$59M	Index Coop launched dsETH and icETH which are index tokens, enabling users to be exposed to a diversified pool of liquid staking tokens.
UNSHETH	US$31M	unshETH is a diversified liquid staking ETH basket with weighted exposures across the LSD protocols.

Liquid Staking
Subcategory Description

CDP (LST-backed) stablecoins: Protocols that allow users to mint stablecoins using liquid staking tokens as collaterals.

Project	Total Value Locked*	Description
MAKER	US$6.3B	MakerDAO enables users to borrow ETH or DAI by collateralizing stETH on the protocol.
Curve	US$5.6B	Curve Finance introduced crvUSD, a CDP stablecoin which accepts sfrxETH as collateral.
(Lybra)	US$185M	Lybra Finance is an interest-bearing stablecoin protocol where users deposit ETH/stETH as collateral to borrow the native stablecoin, eUSD.
Raft	US$56M	Raft is a DeFi protocol that enables users to borrow R stablecoin against stETH collateral.

Liquid Staking
Subcategory Description

Yield Strategies: Protocol that enables users to access additional yield opportunities.

Project	Total Value Locked*	Description
InstaDApp	US$2B	Instadapp offers the stETH vault which accepts stETH and iETH Vault which accepts ETH. This is then supplied to lending protocols to borrow more ETH, creating a leveraged position to increase interest rates.
	US$456M	Yearn Finance has vaults that support Curve stETH for users to deposit and borrow from. These deposits will then be deployed to strategy contracts to optimize returns.
	US$264M	Beefy helps users to optimize yield where users can deposit staked ETH on supported chains (eg. Ethereum, Optimism) to earn additional revenues.
	US$131M	Origin Protocol offers OETH which can be minted by depositing ETH or LSTs including stETH and frxETH. OETH is an ETH-based aggregator that optimizes yield between liquid staking tokens and DeFi pools.
PENDLE	US$112M	Pendle allows users to deposit their LSTs to receive principal and yield tokens for additional interest.
FLASHSTAKE	US$5M	Flashstake enables users to access interest from their LSTs instantly.

VII. Derivatives

Derivatives
Vertical Spotlights

We identified 4 key areas of innovation.

◆

Perpetual Futures

Perpetual futures enable traders to adopt long or short positions on the underlying asset without expiry, maintained by the funding rate. We note that the volumes on these DeFi protocols have grown significantly over the past year.

◆

Options

Options have become more prominent enabling users to assume different types of risks and explore ways to hedge their exposure to assets.

◆

Fixed Yield & Swaps

Alternative yield trading opportunities enable users to have a leveraged exposure to the underlying assets.

◆

Structured Products

By packaging different instruments, users can participate in the ecosystem to adjust their risk exposures based on the basket supported.
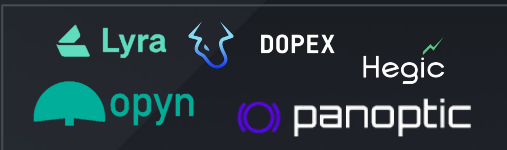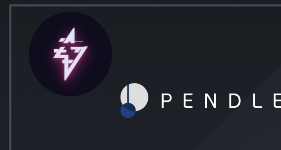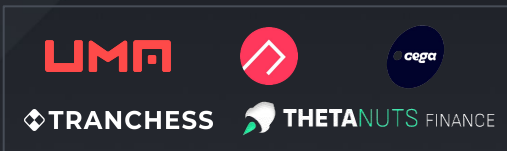
Derivatives
Vertical Overview

Perpetual Futures

dYdX · Perpetual Protocol · Gains Network · Metavault. Trade

GMX · Mycelium · KWENTA

Options

Lyra · DOPEX · Hegic · opyn · panoptic

Fixed Yield & Swaps

PENDLE

Structured Products

UMA · cega · TRANCHESS · THETANUTS FINANCE

Note: Map is not an exhaustive list of projects in the industry. Projects showcased are mapped according to their primary use cases.
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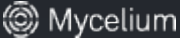
Derivatives
Subcategory Description

Perpetual Futures: Protocols that enable users to trade with leverage.

Project	Total Value Locked	Description
GMX	US$607M	GMX is a decentralized leverage trading platform deployed on Arbitrum and Avalanche, where users trade against a basket of assets (GLP).
dYdX	US$354M	dYdX is a platform that adopts central limit order books for users to trade perpetual contracts.
KWENTA	US$353M	Kwenta is a leverage trading platform on Ethereum which offers perpetual futures trading on Optimism.
Gains Network	US$54M	Gains Network is built on Polygon and Arbitrum, where users can trade cryptocurrencies, forex, and commodities with leverage.
MUX	US$48M	MUX offers leveraged trading with up to 100x leverage, and is available on Arbitrum, Avalanche, BNB Chain, Fantom and Optimism.
Perpetual Protocol	US$19M	Perpetual Protocol is an on-chain protocol which offers perpetual trading on Optimism.
Metavault. Trade	US$3M	Metavault trade is a decetranzlied perpetual trading exchange on Polygon.
Mycelium	US$1M	Mycelium (prev: Tracer DAO) enables users to trade with leverage on Arbitrum.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

Derivatives
Subcategory Description

Options: Protocols that allow for the staking of assets into vaults for option strategies deployment.

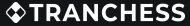| Project	Total Value Locked	Description
opyn	US$33M	Opyn allows for partially collateralized options, cash-settled European options, spreads, flash minting options, operators, and other option strategies.
Lyra	US$28M	Lyra offers cash-settled, European options and leverages Synthetix protocol assets (sUSD, sETH, sBTC, sLink) for collateral pools.
DOPEX	US$23M	Dopex is a maximum liquidity and minimal exposure options protocol.
Hegic	US$8M	Hegic is an options trading protocol on Arbitrum.
panoptic	N/A	Panoptic is a perpetual, instant-settlement options trading protocol on Ethereum that uses LP positions in Uniswap v3 as a fundamental building block for trading options.

Fixed Yields and Swaps: Buy and sell future interest rate yields of the underlying assets.

Project	Total Value Locked	Description
PENDLE	US$112M	Pendle Finance is a yield-trading protocol for traders to gain leveraged yield exposure to the underlying asset.
	US$3M	Voltz is an interest rate swap AMM that enables users to trade fixed or variable rates on stablecoins and ETH borrow markets.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

Derivatives
Subcategory Description

Structured Products: Yield optimizers, yield tranching, automated LP managers, etc.

Project	Total Value Locked	Description
◇TRANCHESS	US$74M	Tranchess offers a yield enhancing asset tracker with varied risk-return solutions.
	US$34M	Ribbon Finance provides a suite of DeFi products (i.e. vaults) for users to trade options on-chain. This includes Aveo for Altcoin options Trading.
cega	US$9M	Cega Finance offers exotic options structured products such as barrierrs options.
THETANUTS FINANCE	US$9M	Thetanuts Finance offers automated strategies through structured products for users to earn and optimize their yields.
UMA	US$9M	UMA enables users to create tokenized financial derivatives by over collateralizing to create the synthetic token.

Source: DeFi Llama, Binance Research, company websites. Data as of 22 June 2023.

About Binance Research

Binance Research is the research arm of Binance, the world's leading cryptocurrency exchange. The team is committed to delivering objective, independent, and comprehensive analysis and aims to be the thought leader in the crypto space. Our analysts publish insightful thought pieces regularly on topics related but not limited to, the crypto ecosystem, blockchain technologies, and the latest market themes.

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BINANCE RESEARCH

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Colin is currently an intern with Binance on the Macro Research team. Before joining Binance, he interned with Genesis Global Trading as a trader. Additionally, Colin has had experience as a data analyst, spending time with Paypal's Enterprise Architecture Team and Graticule Asset Management Asia's Digital Assets Team. He was also a Solidity developer at Morpheus Labs. Colin is an undergraduate at the National University of Singapore, studying Business and Computing (Information Systems). His interests primarily lie in DeFi and quantitative analysis.

Disclaimers

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