Navigating Crypto: Industry Map

September 2024

BINANCE RESEARCH

Contents

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 project 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. The projects showcased are mapped according to their primary use cases.

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

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I. Infrastructure

Infrastructure
Vertical Spotlights

We identified 5 key areas of innovation.

Scalability and Fairness

As Layer-1 ("L1") chains see increasing adoption, many projects aim to make blockchains more scalable by batching transactions off-chain and more fair by implementing efficient distribution of Maximal Extractable Value ("MEV").

Data Usability and Tooling

Data generated on blockchain networks is far from being fully usable by developers. Data querying and indexing services are key innovation areas to improve 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

There are ongoing efforts to enhance L1 blockchains' connectivity and interoperability.

Infrastructure
Vertical Overview

	Zero-Knowledge ("ZK")	Optimistic	Maximal Extractable Value ("MEV") Solution
Scalability and Fairness			

	Remote Procedure Call ("RPC") Provider	Data Indexing	Smart Contract Automation
Data Usability and Tooling			

	Security Solution	Privacy Solution	Multisig Wallet
Security and Privacy			

	Cloud Computing	Content Delivery Network ("CDN")	File Storage
Cloud Networks			

	Cross-Chain Bridge	Oracle	Wireless Networks
Connectivity			

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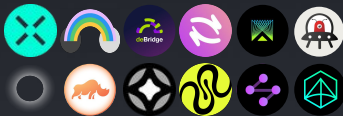
Infrastructure
Subcategory Description

## Zero-Knowledge ("ZK"):
Protocols that execute bundled transactions off-chain and verify it on-chain using zero-knowledge proofs.

	Linea is a zkEVM rollup solution developed by Consensys.
	Polygon zkEVM is an Ethereum L2 scaling solution that uses ZK proofs to offer validity and quick transaction finality.
	Scroll is a general-purpose zkEVM rollup solution.
	StarkNet is a decentralised, permissionless ZK rollup developed by Starkware.
	Zircuit is a zkEVM rollup with AI-enabled security at the sequencer level.
	zkSync Era is a ZK rollup solution addressing Ethereum scalability issues with minimized security compromises.

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

	Arbitrum is the largest optimistic rollup network on Ethereum by TVL.
	Base is an L2 network launched by Coinbase and built on the OP Stack.
	Blast is an L2 network with a feature of native ETH and stablecoin yield.
	Manta Pacific operates as an Optimistic Rollup on Ethereum, capitalizing on Manta Network's Universal Circuits, with plans to transition to zkEVM.
	Mantle is an optimistic L2 solution built on Ethereum.
	Mode is an L2 built on the OP stack that rewards users for growing the network via new economic mechanisms.
	OP Mainnet is a fast, stable, and scalable L2 solution built by Ethereum developers, for Ethereum developers.
	Taiko is a highly configurable, and permissionless (based) optimistic / ZK hybrid rollup which uses multi proofs.

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.

	Eden Network is an optional, non-consensus-breaking, transaction ordering protocol for Ethereum blocks.
	Flashbots works on mitigating the negative externalities of current MEV techniques and avoiding the risks that MEV causes to state-rich blockchains.
	Jito Labs builds high-performance systems to scale Solana and maximize validator rewards.
	Manifold is a block builder for users and validators on the Ethereum blockchain, aiding in the creation of MEV for all stakeholders.
	Shutter aims to prevent front-running and malicious MEV by using threshold encryption.
	Skip Protocol provides MEV infrastructure for blockchains and protocols such as Berachain, dYdX, Evmos, Injective, Juno, and Neutron.

Infrastructure
Subcategory Description (cont.)

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

	Alchemy is a platform that enables developers to interact with the blockchain through API calls.
	Ankr connects developers, dApps, wallets, exchanges, and all other use cases to blockchains via their RPCs and APIs.
	Blockdaemon provides instant access to robust, customizable data sets with protocol specific endpoints.
	GetBlock is a Blockchain-as-a-Service (BaaS) platform that provides a fast and easy API connection to full nodes from leading blockchain platforms.
	Infura offers a development suite which provides instant, scalable API access to the Ethereum and IPFS networks.
	Pocket Network provides a decentralised RPC infrastructure with high uptime, cost-effective access, and low latency.
	QuickNode is a platform for developers to scale blockchain applications.

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

	Gelato Network enables users to automate smart contract functions on Ethereum.
	OpenZeppelin Relay sends transactions via HTTP API, automating smart contract operations securely.

Data Indexing:
Platforms that provide network data indexing and querying services.

	0xScope is a protocol that aims to standardize Web2 and Web3 data by building a knowledge graph.
	Covalent is a unified API that brings data from different chains and other searchable endpoints.
	SubQuery offers data indexing on Polkadot, Cosmos, Avalanche, Algorand, NEAR, Ethereum, and more.
	The Graph is an indexing protocol for querying networks like Ethereum.

Infrastructure
Subcategory Description (cont.)

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

✳	**Forta** is a real-time detection network for security and operational monitoring of blockchain activities.
☄	**Harpie** is the first on-chain firewall that protects users from scams, hacks, and theft.
◈	**ImmuneFi** is a leading bug bounty platform.
Ⓩ	**OpenZeppelin** provides security products to build and operate dApps.
◈	**Revoke.Cash** is a security management platform managing token approvals, protecting users against scams across 60+ networks.
◢	**SharkTeam** is a leading Web3 security service provider that offers smart contract audits, chain analytics, and emergency response services.
⊗	**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** is a platform to manage digital assets on Ethereum via smart accounts.
MSafe	**MSafe** developed the first multisig, non-custodial asset management solution for the Move ecosystem.
▣	**Squads** is a multisig management protocol for Web3-native teams.

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

◔	**Anoma** is an intent-centric, privacy-preserving protocol for decentralized counterparty discovery, solving, and multi-chain atomic settlement.
▲	**Automata** provides a blockchain-based authentication solution that secures access to accounts and protects users with an active defense.
h	**Hopr** is a data-centric privacy tool that prevents bots from accessing the metadata of wallets when users run transactions against a blockchain.
NYM	**Nym** is a decentralized and tokenized infrastructure that provides privacy from the network to the application layer.

Source: Binance Research, company websites.

Infrastructure
Subcategory Description (cont.)

Content Delivery Network ("CDN"):
CDNs are decentralized, distributed networks that provide fast delivery of internet content.

	Fleek is an open-source edge computing platform providing dynamic or static content acceleration.
	Livepeer Network is a protocol for developers who want to add live or on-demand video to their project.
	Media Network is a privacy-first and community-governed CDN.
	Meson Network is a bandwidth marketplace using blockchain to replace traditional sales models.
	Theta Network is a blockchain infrastructure for video and media.

Source: Binance Research, company websites.

Infrastructure
Subcategory Description (cont.)

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

	Akash Network is a decentralized cloud computing network that allows users to delegate spare GPU resources for purposes such as artificial intelligence.
	Aethir provides distributed cloud compute infrastructure by aggregating enterprise-grade GPU chips for end users to access.
	AIOZ is a decentralized network for AI computation, data storage, and seamless media and video streaming.
	Flux provides a fully decentralized computational network providing simple compute power for databases or censorship resistant content delivery.
	Golem Network is decentralized peer-to-peer marketplace for distributed computing resources.

	io.net offers a decentralized network that provides cost-efficient access to distributed cloud clusters optimized for machine learning and AI projects.
	Render Network is a decentralized cloud computing platform that allows anyone to share spare GPU resources and is typically used in rendering graphics.

Source: Binance Research, company websites.

Infrastructure
Subcategory Description (cont.)

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

	Arweave offers permanent and decentralized storage in an open ledger.
	BNB Greenfield is a decentralized storage infrastructure that simplifies the process of storing and managing data access.
	Filecoin is an decentralized, peer-to-peer cloud storage network for monetizing, storing, and retrieving data.
	Sia is a decentralized cloud storage platform that enables trustless interactions between renters and hosts.
	Storj is a decentralized cloud storage solution prioritizing security and privacy.
	Zus is a 3-layer security multi-cloud storage with no vendor lock-in and free egress.

Infrastructure
Subcategory Description (cont.)

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

	Across Protocol: Ethereum, Polygon, Base, ZkSync, and 4 other chains
	Celer cBridge: Ethereum, BNB Chain, Arbitrum, Aptos, Sui, and 40 other chains
	Debridge: Ethereum, BNB Chain, Polygon, Solana, and 8 other chains
	Hop Exchange: Ethereum, Arbitrum, Base, and 6 other chains
	Multibit: Bitcoin, Ethereum, BounceBit, Solana, Polygon, and 4 other chains
	Orbiter Finance: Ethereum, Base, Arbitrum, 35 other chains
	Portal Bridge: Ethereum, BNB Chain, and 23 other chains
	Rhino.fi: Ethereum, BNB Chain, opBNB, 18 other chains

	Stargate: Ethereum, BNB Chain, Arbitrum, and 23 other chains
	Squid Router: Ethereum, BNB Chain, 68 other chains for V1, Ethereum, BNB Chain, 15 other chains for V2 (Beta)
	Synapse: Ethereum, BNB Chain, Arbitrum, and 18 other chains
	zKbridge: Ethereum, BNB Chain, opBNB, Scroll, and 6 other chains

Source: Binance Research, company websites.

Infrastructure
Subcategory Description

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

	API3 is a first-party oracle network.
	Band Protocol is a cross-chain data oracle platform that aggregates and connects real-world data to smart contracts.
	Chainlink decentralized oracle networks provide tamper-proof inputs, outputs, and computations to support smart contracts.
	Pyth delivers real-time, high-fidelity, high-frequency market data for DeFi applications.
	RedStone Oracle is a modular oracle delivering cost effective data for DeFi.
	Supra Oracles is a cross-chain oracle network that runs on Distributed Oracle Agreement.
	UMA's Optimistic Oracle allows contracts to request and receive data.

Decentralized Wireless Networks:
Protocols that leverage blockchain technology to offer seamless internet connection.

	Helium Mobile is a decentralized wireless infrastructure project enabling to deploy and operate mobile networks and 5G.
	Karrier One is global carrier-grade mobile network running on decentralized telecommunications infrastructure that operates on Sui.
	Roam by Metablox is a decentralized WiFi roaming network that enables global connectivity via its routers.
	Wicrypt is a decentralized hotspot sharing and token mining network.
	XNET is a decentralized, neutral host mobile network that leverages Wi-Fi Passpoint and 3GPP cellular technologies.

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, restaking and collateralized debt positions ("CDPs") 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 ("DEXs").

◆

Risk Management

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

DeFi
Vertical Overview

Issuance

Synthetic Assets

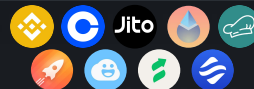Options/Structured Products

Yield

Liquidity

Lending

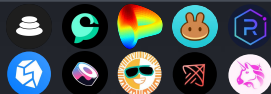Liquid Staking

Collateralized Debt Position ("CDP")

Restaking

Liquid Restaking

Trading

Decentralized Exchange ("DEX")

Prediction Market

Derivatives

Other

Security Analytics

Launchpad

Insurance

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DeFi
Subcategory Description

Synthetics: Protocols that incorporate cryptocurrencies and traditional derivative assets, essentially tokenized derivatives.

		Alchemix is a DeFi protocol that allows the creation of synthetic tokens that represent the future yield of a deposit.
		Metronome allows users to post multi-collateral assets from their portfolio and create a multitude of synthetic assets.
		Synthetix is the largest derivatives liquidity protocol, allowing users to trade a wide array of derivatives in DeFi.
		Youves is a decentralized DeFi platform that facilitates the creation and management of synthetic assets.

Source: Binance Research, company websites.

DeFi
Subcategory Description (cont.)

Options/Structured Products: Yield optimizers, yield tranching, automated LP managers, options trading, etc.

	Aevo is a derivatives L2 focusing on options and perpetuals trading.
	Deri Protocol is a derivatives protocol providing futures, options, powers, and gamma trading products.
	Katana is a yield generation protocol on Solana designed to generate sustainable yield from automated option strategies.
	Lyra Finance is a self-custodial exchange operating on its own L2, Lyra Chain, providing perpetuals, options and spot trades.
	Thetanuts Finance offers on-chain options and automated strategies for users to earn and optimize their yields.
	Typus Finance is a yield infrastructure that offers options and options vault on Sui Network.

DeFi
Subcategory Description (cont.)

Yield: Projects providing yield strategies such as tokenized yield, yield boosting, etc

	Aura is a protocol built on Balancer to provide maximum incentives to Balancer liquidity providers and BAL stakers (into veBAL).
	Convex allows Curve liquidity providers to earn trading fees and claim boosted CRV without locking CRV.
	Hyperlock is a yield and metagovernance protocol built on Thruster, providing boosted rewards to Thruster LPs and THRUST stakers.
	IPOR fixes lending and borrowing rates using an interest rate swap with the liquidity pool as a contract counterparty.
	Magpie is a Multi-chain DeFi platform providing Yield & veTokenomics boosting services
	Pendle is a protocol that enables the trading of tokenized future yield on an AMM system.

Source: Binance Research, company websites.

DeFi
Subcategory Description (cont.)

Lending: Protocols that allow users to lend and borrow assets.

	Aave is the largest decentralized liquidity market that allows users to borrow and lend assets, earning interest on their deposits.
	Compound is an algorithmic, autonomous interest rate protocol built for developers to unlock open financial applications.
	Fluid is a decentralized lending platform with innovative features including its liquidity layer, automated limits, lending and vault protocols, robust oracle system, and DEX protocol
	JustLend is a decentralized money market on TRON that allows users to lend, borrow, and earn interest on their deposits.
	Kamino Finance is a DeFi protocol on Solana offering lending, borrowing, and liquidity provision on a single platform.
	Morpho is a peer-to-peer modular lending protocol with isolated lending markets.
	SparkLend is a lending platform that leverages a credit line from MakerDAO to offer predictable rates for DAI.
	Venus is an algorithmic money market protocol on BNB Chain, for lenders and borrowers with borderless stablecoins.

Source: Binance Research, company websites.

DeFi
Subcategory Description (cont.)

Liquid Staking Providers: Protocols that allow users to unlock liquidity through LSDs while keeping networks secure.

	Binance provides users who stake ETH and SOL with WBETH and BNSOL, which is yield-bearing in nature.
	Coinbase allows users to stake ETH for cbETH through their wallet.
	Jito is a liquid staking protocol on Solana offering yield through SOL staking and MEV strategies.
	Lido is a liquid staking protocol for proof-of-stake cryptocurrencies like ETH and MATIC.
	Marinade is a Solana liquid staking platform that delegates to 100+ of the best-performing validators.
	Rocket Pool is a decentralised liquid staking protocol for the Ethereum (ETH) ecosystem.
	Sanctum is a liquid staking platform on Solana providing a unified liquidity layer for SOL LSTs.

	Stader is a multichain liquid staking protocol, supporting Ethereum, BNB Chain, Polygon, and more.
	Swell is a non-custodial ETH liquid staking protocol.

Source: Binance Research, company websites.

DeFi
Subcategory Description (cont.)

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

	crvUSD is a collateralized-debt-position (CDP) stablecoin pegged to the US Dollar.
	JustStables enables the minting of USDJ on TRON with TRX as collateral.
	ListaDAO is a MakerDAO fork on BNB Chain which enables the minting of lisUSD against crypto assets like BNB, ETH, LSTs, LRTs,, and stablecoins.
	Liquity enables the generation of the stablecoin LUSD against ETH as a collateral.
	MakerDAO enables the generation of the largest decentralized stablecoin DAI against crypto collateral assets.

Source: Binance Research, company websites.

DeFi
Subcategory Description (cont.)

Restaking: Protocols that leverage staked assets to secure a designated network of participants.

	Eigenlayer is a protocol that enables staked ETH or LSTs to extend cryptoeconomic security to Actively Validated Services (AVS) on the network in return for additional yield.
	Karak enables users to repurpose their staked assets to extend Ethereum as well as other trust networks' security to other applications.
	Picasso is the first censorship-resistant, trust-minimized interoperability solution (Cross-Ecosystem IBC Hub), and also a platform for the first Generalized Restaking Layer.
	Solayer is a shared validator network that secures other Solana-integrated systems.
	Symbiotic is a generalized shared security system enabling decentralized networks to bootstrap powerful, fully sovereign ecosystems.

Source: Binance Research, company websites.

DeFi
Subcategory Description (cont.)

Liquid Restaking: Protocols that enable liquid positions of restaked assets.

	Ether.fi is a liquid restaking platform that allow users to deposit ETH or LSTs which will be natively restaked on Eigenlayer for yield, providing a liquid restaking token (eETH) in return.
	Kelp DAO provides a liquid restaking token (rsETH) solution for Eigenlayer on Ethereum.
	Mellow Protocol enables permissionless LRT creation allowing for unlimited risk profiles by working with diverse set of AVSes and operators.
	Puffer Finance is a Native Liquid Restaking Protocol (nLRP) built on the innovative EigenLayer, offering a dynamic staking platform for Ethereum users.
	Renzo is a Liquid Restaking Token (LRT) and Strategy Manager for EigenLayer.
	Swell is a liquid staking / restaking provider, allowing users to earn yield without the constraint of locking up capital.

Source: Binance Research, company websites.

DeFi
Subcategory Description (cont.)

Spot Decentralized Exchange ("DEX"): A peer-to-peer marketplace for trading various assets in a non-custodial manner.

	Uniswap is the largest DEX by volume, allowing users to swap, earn, and build on its platform.
	Curve is a multi-chain AMM-based DEX that allows users to trade at the lowest slippage.
	PancakeSwap is the leading decentralized exchange on BNB Chain.
	Balancer is an automated portfolio manager and trading platform on Ethereum.
	Cetus is a DEX and concentrated liquidity protocol focusing on Move-based ecosystems like Aptos and Sui.
	Raydium is an on-chain order book AMM on Solana.
	STON.fi is a decentralized AMM built on the TON blockchain providing virtually zero fees, low slippage, an extremely easy interface, and direct integration with TON wallets.
	SushiSwap is a fork of Uniswap, functioning as a community-driven DEX for traders and liquidity providers.

	SUNSwap is a TRON-based decentralized trading protocol for automated liquidity provision
	Thruster is the leading DEX and core liquidity layer on Blast L2.

BINANCE RESEARCH   *Source: Binance Research, company websites.*

DeFi
Subcategory Description (cont.)

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

	Polymarket is an information markets platform that lets users trade on the world's most highly-debated topics.
	Augur is a prediction market allowing users to trade world outcomes including sports, crypto, politics, and current events.
	Azuro is an infrastructure/liquidity layer for on-chain predictions.

DeFi
Subcategory Description (cont.)

Derivatives: Protocols that enable users to trade perpetual futures contracts with leverage

æ	**Aevo** is a derivatives L2 focusing on options and perpetuals trading.
	Drift is an onchain spot and perpetual trading platform on Solana.
dYdX	**dYdX** is an open perpetual DEX allowing for margin trading on perpetual contracts.
	GMX is a decentralized spot and perpetual exchange providing low swap fees, zero price impact trades, and leverage positions.
	Hyperliquid is an orderbook perpetual DEX operating on its own Layer 1, the Hyperliquid L1.
	Jupiter is a DEX aggregator on Solana which offers a perpetual trading product.
	RabbitX is a global permissionless perpetuals exchange powered on Starknet.
	Vertex is a vertically-integrated DEX on Arbitrum featuring spot, perpetual, and integrated money markets.

Source: Binance Research, company websites.

DeFi
Subcategory Description

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

	Certik is a security-focused audit and ranking platform.
	Chainalysis provides blockchain analysis for government agencies, projects, and financial institutions.
	Gauntlet is a financial modeling platform that optimizes capital efficiency, ensures the systemic health of protocols, and mitigates platform risks.
	Zokyo is a Web3 firm that builds, secures, and funds crypto and DeFi projects.

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

	Four.meme is a streamlined, low-cost memecoin launchpad that enables token deployment on BNB chain.
	PinkSale is a decentralized launchpad that allows users to launch their own token and create their own initial token sale
	Pump.fun is a token launchpad that allows users to deploy tokens on Solana without having to seed liquidity, using bonding curves.
	Team Finance is a toolkit that helps founders create tokens to raise funds from investors.
	UNCX Network is a one-stop-shop for DeFi solutions and services, including token lockers, liquidity locking, minting, crowdfunding, and more.

Source: Binance Research, company websites.

DeFi
Subcategory Description

Insurance: Protocols that aim to provide users with insurance coverage to hedge risks.

	Nexus Mutual is the largest decentralized insurance protocol that covers against smart contract failures.
	InsurAce is a leading multi-chain DeFi insurance protocol that is the first to issue cross-chain portfolio-based covers.
	Solace is a decentralized insurance protocol that provides portfolio coverages for individuals, protocols, and DAOs across multiple chains.

Source: Binance Research, company websites.

III. Non-Fungible Token ("NFT")
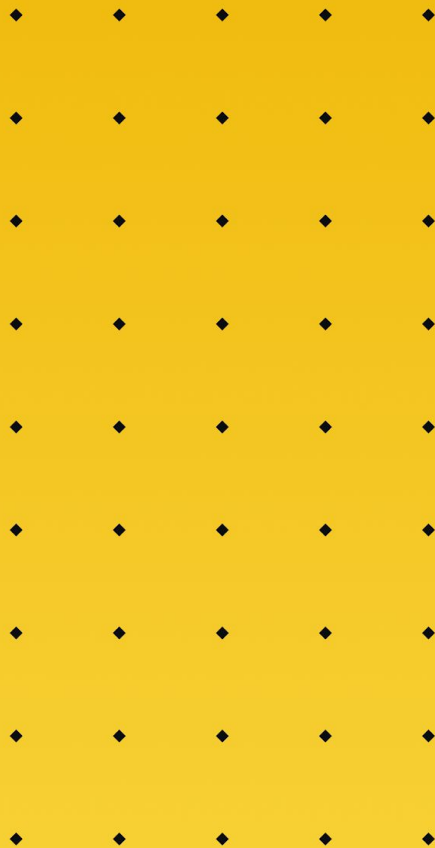
NFT
Vertical Spotlights

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 listings, 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.

◆

Services

An increasing number of projects are helping users improve their experiences 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

Curated Marketplace

Aggregator

Financialization

Lending

Fractionalization

Buy Now, Pay Later

Derivatives

Options

Rental

Services

Portfolio Analytics and Appraisal

Membership and Content Gating

Storage

Launchpad

Safety

NFT
Subcategory Description

Open Marketplace: Platforms that allow for any NFTs from any brands to be sold.

BLUR	**Blur** is a NFT marketplace and aggregator designed for pro traders offering 0% marketplace fees.
X	**Immutable X** is a NFT marketplace built on the Immutable X blockchain.
ME	**Magic Eden** is a multichain NFT marketplace with 0% listing fees.
👁	**LooksRare** is a decentralized NFT marketplace offering community rewards for participating.
🌊	**OpenSea** is a digital marketplace for crypto collectibles and non-fungible tokens.
••	**Pallet** is an NFT marketplace built on the Sei Network.
)S(	**Sudoswap** is an AMM protocol enabling NFT-to-token swaps and vice versa.
⬍	**Tensor** is an advanced NFT marketplace and aggregator on Solana.
Ƨ	**Unisat** is a marketplace on Bitcoin supporting the trading of Ordinals and other Bitcoin assets.

Source: Binance Research, company websites.

NFT
Subcategory Description (cont.)

Aggregator: Platforms that allow users to easily trade NFT collections from different marketplaces in one central destination.

BLUR	**Blur** is a NFT marketplace and aggregator designed for pro traders offering 0% marketplace fees.
	Opensea Pro, formerly known as Gem, is a low-fee NFT marketplace aggregator. Gem was acquired by OpenSea.
	Element is a community-driven, aggregated marketplace for NFTs across 15 chains.

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

	Foundation is a curated, decentralized NFT marketplace.
TOZ FU끼	**tofuNFT** is a NFT marketplace focused on GameFi.
	Zora is an NFT marketplace for creators and brands, allowing the minting and trading of NFTs.

Source: Binance Research, company websites.

NFT
Subcategory Description (cont.)

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

	BendDAO is a decentralized peer-to-pool-based NFT liquidity protocol.
	Blend by Blur enables NFT owners to borrow ETH against their assets with a buy now, pay later feature for NFT purchases.
	JPEG'd is a decentralized lending protocol on the Ethereum network that enables holders to borrow using NFTs as collateral.
	MetaStreet is a liquidity scaling protocol for NFT credit markets.
	NFTfi is a peer-to-peer lending protocol.

Source: Binance Research, company websites.

NFT
Subcategory Description (cont.)

Fractionalization:
Protocols that allow users to create and trade fractionalized NFTs.

	NFTFY offers tools for NFT fractionalization and a marketplace of fractionalized NFTs.
	Floor Protocol allows people to fractionalize their NFTs into micro-tokens called μ-Tokens.
	Fractional increases accessibility to popular NFTs by enabling collective ownership.

Derivatives:
Protocols that allow users to trade NFT derivatives.

	Nftperp is a perpetual futures DEX for NFTs.

Options:
Protocols that allow NFT holders to earn yields on their NFTs and engage in options trading.

	Hook is an NFT-native options protocol.
	Wasabi is an Ethereum-based, decentralized, NFT option trading protocol.

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

	Blend by Blur enables NFT owners to borrow ETH against their assets with a buy now, pay later feature for NFT purchases.
	Cyan offers buy now, pay later for NFT purchases with a 25% down payment.
	Teller is an oracle-less lending protocol that has a buy now, pay later system with as little as a 25% down payment.

Source: Binance Research, company websites.

NFT
Subcategory Description (cont.)

Rental:
Protocols that allow users to rent NFTs.

	Double Protocol is an NFT rental protocol.
	reNFT is a multi-chain NFT rental protocol that enables uncollateralized renting, lending, and reward sharing.
	Taker Protocol is a platform that allows users to rent NFTs based on their risk profiles.

NFT
Subcategory Description (cont.)

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

	CryptoSlam is the leading NFT aggregator, collecting and analyzing data for millions of NFTs across 15+ Blockchains.
	Nansen provides users with crypto and NFT insights through a set of blockchain analytics tools.
	NFTGo is an NFT data aggregator with analytic tools.
	Rarity Sniper is a platform allowing users to track the rarity of NFT collections.

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

	Audius is a music streaming and sharing platform that puts power back into the hands of content creators.
	Collab.land is an NFT token gating bot for Telegram and Discord with over 8M verified wallets.
	Moongate is a no-code toolkit to create and adopt NFT-gated memberships for brands and events.

Storage:
Solutions for storing NFT data.

	Filebase is a storage platform that allows on-ramp to IPFS and decentralized file storage networks.
	Nft.storage is a long-term storage service designed for off-chain NFT data powered by IPFS and Filecoin.
	Pinata is an IPFS solution for creators and developers.

NFT
Subcategory Description

Launchpad:
Platforms for projects to launch their own NFTs.

	Dropspace is a full-service minting platform that provides the technology to help founders launch their NFTs.
	Mintbase enables users to build their own minters, markets, and NFT redeeming systems.
	NFT Launch is a launchpad for upcoming NFT projects.

Safety:
Modules that offer security measures to protocols.

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

Source: Binance Research, company websites.

IV. Gaming

Gaming
Vertical Spotlights

We identified 4 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 offerings ("IGOs") 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 the player experience by lowering the barriers to exploring and onboarding in crypto-based games.

◆

Analytics

Developments in analytics tools continue to remain pivotal for game developers to make informed decisions.

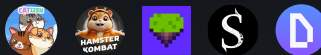◆ BINANCE RESEARCH

Gaming
Vertical Overview

Games

Metaverse

Play-to-Earn

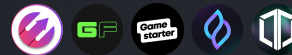
Game Development

Game Studio

Toolkit

Launchpad

Player Experience

Gaming Guild

Gaming NFT Marketplace

Analytics

Analytics Tools

Gaming
Subcategory Description

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

	Otherside is a gamified, interoperable metaverse currently under development that blends MMORPG mechanics with web3-enabled virtual worlds.
	Decentraland is a 3D virtual world where users can create and monetize content.
	The Sandbox is currently the largest metaverse project where players can build, own, and monetize their gaming experiences.
	Illuvium is the world's first Interoperable Blockchain Game (IBG) including an open-world exploration game, industrial city builder, and autobattler on Ethereum.
	StarryNift is an AI-powered co-creation metaverse, offering users a 3D virtual experience for play, creation, and socialization.

Source: Binance Research, company websites

Gaming
Subcategory Description (cont.)

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

	Catizen is a hypercasual play-to-earn game on Telegram where players manage a virtual cat city.
	Hamster Kombat is a tap-to-earn game on Telegram involving strategic decisions and the management of a virtual crypto exchange.
	Pixels is a Web3 social gaming platform on the Ronin Network, blending farming, exploration, and community building in an open-world universe.
	Seraph is an action role-playing game (ARPG) with hack-and-slash combat mechanics, allowing for item customization tailored to user playstyles.
	World of Dypians is a massive multiplayer online role-playing game (MMORPG) set in a vast digital realm.

Gaming
Subcategory Description (cont.)

Game Studio:
Studios that specialize in developing crypto-based games. The games listed are not meant to be exhaustive.

🟣 Dapper	**Dapper:** CryptoKitties, NBA Top Shot, NFL All Day, UFC Strike, etc.
	Gala Games: Champions Arena, Eternal Paradox, Meow Match, etc.
	Immutable: Gods Unchained, Guild of Guardians, Shardbound, etc.
	Nakamoto Games: Brawler Master, Naka Connect, Naka Rider, etc.
	Vulcan Studios: Berserk, Hexenagos, Vulcan Runner, etc.

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

Game starter	**Gamestarter** is a Web3 gaming hub pioneering a dynamic ecosystem to empower the next wave of gaming.
GF	**Gamefi** is a game-dedicated launchpad that conducts Initial Game Offerings (IGO) for game projects to get first access to game assets and engage with the GameFi community.
	TrustPad is a decentralized multi-chain fundraising platform enabling projects to raise capital and promise safety to early stage participants.
	Seedify is a leading Web3 Gaming Incubator and Launchpad for Web3 projects focusing on innovative technologies such as DeFi, AI, Big Data, NFTs and Web3 Gaming.
	Enjinstarter is a metaverse and Web3 gaming launchpad offering advisory, IDOs, incubation, and fundraising services for projects.

Source: Binance Research, company websites.

Gaming
Subcategory Description (cont.)

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

	CARV Protocol is a modular data layer that facilitates data exchange and value distribution across the gaming and AI sectors.
	Enjin offers a suite of integrated products that make non-fungible tokens (NFTs) easy for individuals, businesses, and game developers
	Moralis Unity SDK provides full wallet and blockchain integration for Unity Games.
	Mud is an engine for building multichain autonomous 3D worlds.

Gaming
Subcategory Description (cont.)

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

	AirNFTs is a cross-chain gaming NFT marketplace on BNB Chain, Fantom, Polygon and Ethereum.
	Atomic Hub is an NFT marketplace on Wax, Immutable and EOS networks.
	dMarket enables secure buying, selling, and trading of in-game NFTs.
	Immutable Marketplace is a leading NFT marketplace on Immutable X for NFT and blockchain gaming.
	TokenTrove is a premier NFT marketplace on Immutable X.

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

	Avocado DAO focuses on investing in NFT assets within games and emergent metaverses, NFT platforms, and P2E games.
	Good Games Guild is a leading gaming hub for blockchain-based games.
	GuildFi is an interconnected Web3 ecosystem of games, NFTs and communities across the metaverse.
	Merit Circle is A DAO developing a Web3 ecosystem for gaming, offering tools like Beam, a specialized blockchain for gaming, and various applications for enhanced gaming experiences.
	Yield Guild Games is a play-to-earn gaming guild for investing in non-fungible tokens (NFTs) used in virtual worlds and Web3 games.

Gaming
Subcategory Description

Gaming Analytics:
Platforms that provide data insights on the Web3 gaming landscape.

	Chainplay.GG is a one-stop hub for all things blockchain gaming.
	DappRadar is an analytics platform that offers the latest data on various Dapps.
	P2E Analytics is an NFT gaming research hub that provides on-chain and off-chain data on Web3 games.

V. Consumer Crypto

Consumer Crypto
Vertical Spotlights

We identified 2 key areas of innovation.

Infrastructure

By utilizing chain, wallet, and gas abstraction, these infrastructure providers lay the groundwork for a seamless and enhanced user experience on the front end, minimizing direct blockchain interaction for consumers.

Applications

Consumer-facing applications refer to Web3 products that users habitually engage with, featuring familiar onboarding processes and intuitive user interfaces to cement a hassle-free digital experience.

Consumer Crypto

Infrastructure

Blockchains

Wallet Service Providers
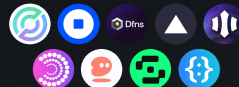
Gas Solutions
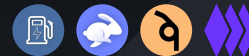
Applications

Payments

Gambling / Prediction Markets
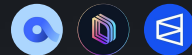
Social

Identity

Games

Collectibles

Telegram Trading Bots

◆ 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.*
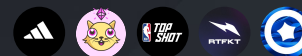
Consumer Crypto
Subcategory Description

Blockchains:
Blockchain infrastructure that utilizes chain abstraction to enhance user experience with improved interoperability, seamless onboarding, and smooth usage.

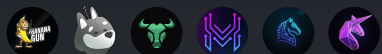|	
	Abstract is a L2 network built Ethereum, designed to securely support consumer-facing applications at scale with native account abstraction funtionalities.
	Near Protocol is a L1 blockchain emphasizing chain abstraction, offering features such as native account abstraction, email-based onboarding, gasless transactions, and multi-chain signatures.
	Particle Network is a modular L1 network unifying chains through universal accounts and chain abstraction.
	Socket Protocol is a chain abstraction protocol leveraging Modular Order Flow Auctions (MOFA) to allow developers to Compose with any app, users, and asset across chains.
	TON is a decentralized Layer 1 blockchain developed by Telegram, designed for scalable transactions and consumer dApps, with seamless integration with the Telegram app.
	ZetaChain is a public blockchain designed to enable omnichain smart contracts and messaging across any blockchain, facilitating a seamless multi-chain ecosystem for users and developers.

Consumer Crypto
Subcategory Description

Wallet Service Providers:
Essential infrastructure for managing digital assets, with account abstraction, social logins, gasless transactions, and one-click solutions.

	Circle provides programmable wallets with flexible and secure infrastructure for blockchain applications, enabling the creation of in-app wallets for users.
	Coinbase Smart Wallet offers seamless onboarding directly in the browser without requiring downloads, featuring passkey onboarding, the ability to use exchange balances, and gasless transactions through account abstraction.
	Dfns provides a wallet-as-a-service platform for organizations to easily create, embed, and manage digital asset wallets.
	Fireblocks Wallet-as-a-Service (WaaS) is an API-based solution featuring highly secure MPC wallets, allowing users to create, manage, and secure wallets for any number of users with ECDSA and EdDSA signatures.
	Magic provides SDKs that enable passwordless authentication, non-custodial wallets, customizable wallet UI, and compatibility with 30+ blockchains for any web or mobile application.
	Particle Wallet is a modular, customizable universal wallet for facilitating account interaction with Web2 social logins and Web3 wallets across multiple blockchains.

	Privy is a wallet toolkit for embedded self-custodial wallets, featuring social logins, batch transactions, and gas sponsorship across multiple chains.
	Safe is a multi-signature wallet provider offering smart account infrastructure on Ethereum, with advanced security and user experience features like counterfactual deployment, transaction simulation, risk assessment, and social recovery.
	ZeroDev is a Smart Wallet-as-a-Service provider enabling the creation of self-custodial wallets powered by account abstraction, with features like gasless transactions, transaction bundling, and programmable security policies.

Consumer Crypto
Subcategory Description

Gas Solutions:
Solutions that improve user experience by refueling or sponsoring gas tokens through alternative assets in users' wallets, bypassing the need for direct gas token usage.

	Gas.zip.is a one-stop gas refuel bridge for over 225+ chains, allowing users to instantly bridge to multiple blockchains with a single inbound transaction, using a deposit contract deployed on various networks to split and settle deposits across selected destination chains.
	Rabby is a non-custodial wallet supporting EVM chains, with a gas top-up feature allowing users to buy gas tokens using their other available assets.
	SmolRefuel enables anonymous wallet refueling offering multi-chain and asset versatility for swaps and gas top-ups.
	Tokeny's Gas Tank continuously monitors MATIC levels in wallets, detects those running low, and tops up the MATIC provision in those specific wallets.

Source: Binance Research, company websites.

Consumer Crypto
Subcategory Description

Payments:
Applications that allow users to spend cryptocurrency at traditional merchants or facilitate seamless transfers between users.

	Binance Pay is a secure, contactless, and borderless cryptocurrency payment service, enabling users to shop with crypto at merchants or send it to friends and family globally.
	BasedApp enables users to spend, send, and invest in crypto with gasless transactions and social logins, highlighting a Visa debit card as its key product.
	Coinbase Card is a Visa debit card providing users with the option to spend cash or crypto, while earning crypto back on each purchase.
	Ether.fi Cash is a non-custodial crypto credit card that enables users to take stablecoin loans against their staked assets on Ether.fi for real world transactions and repaying them using yield.
	Gnosis Pay is a self-custodial debit card linked to a Safe smart account.
	Mercuryo Spend is a multi-chain debit card allowing users to spend crypto directly from their self-custodial wallets.
	Metamask Card is a Mastercard payment card that allows users to spend crypto directly from their self-custodial Metamask wallets.

Source: Binance Research, company websites.

Consumer Crypto
Subcategory Description

Prediction Markets:
Platforms that enable users to place bets or make predictions on various outcomes, often using cryptocurrency for transactions.

	Azuro Protocol is a decentralized betting layer with prediction apps built on with its tooling kits.
	Bet by Drift is a capital-efficient prediction market allowing users to place trades and automatically earn yield on them.
	Polymarket is a decentralized prediction market platform that allows users to place bets on world events.

Consumer Crypto
Subcategory Description

	Fantasy.top is a trading card game on Blast featuring crypto influencers on X.
	Farcaster is a decentralized, open-source social network designed for the development of social media applications, emphasizing user sovereignty, privacy, and social interoperability.
	Friend.tech is a social media platform that enables users to buy and sell shares of their online presence, monetizing social interactions and content.
	Mirror is a decentralized publishing platform that allows writers to create, share, and monetize their content, providing tools for crowdfunding, NFTs, and community engagement.
	Lens Protocol is a decentralized social graph built on Polygon, designed to enable the development of social media applications with enhanced user control, data ownership, and interoperability across different platforms.

Consumer Crypto
Subcategory Description

Identity:
Decentralized identity solutions that facilitate the authentication, authorization, and provision of user identities across various platforms and services.

	Ethereum Name Service is a decentralized domain name service on Ethereum that maps human-readable names to blockchain addresses.
	Galxe ID is a decentralized identity solution that enables users to manage and verify their digital credentials across multiple platforms.
	Gitcoin Passport is a unique identity verification application from Gitcoin that enables users to authenticate their identity without revealing personal information.
	Polygon ID allows users to create and manage a self-sovereign digital identity, proving access rights and reputation without revealing personal information, and handling verifiable claims and private proofs for digital interactions.
	Space ID is a universal name service network with a one-stop identity platform to discover, register, trade, manage web3 domains

	Worldcoin is a global digital identity and financial network aiming to provide universal access to the digital economy
	zkPass is a decentralized, privacy-focused authentication solution using zero-knowledge proofs to securely and anonymously verify legal identities without file uploads or excessive disclosure of private information.

Consumer Crypto
Subcategory Description

Games:
Digital games offering seamless onboarding and casual gameplay on familiar platforms.

	Catizen is a hypercasual play-to-earn game on Telegram where players manage a virtual cat city.
	Hamster Kombat is a tap-to-earn game on Telegram involving strategic decisions and the management of a virtual crypto exchange.
	Notcoin is a tap-to-earn Telegram game where players earn by tapping and enhance earnings with in-game upgrades.
	Parallel is a free-to-play digital trading card game built in a thrilling sci-fi universe.
	YOLO Games is an on-chain gaming platform built on Blast, rewarding players for participating in high-octane crypto games and completing various in-game tasks.

Source: Binance Research, company websites.

Consumer Crypto
Subcategory Description

Collectibles:
Unique, verifiable digital assets, often represented as non-fungible tokens (NFTs), that can be bought, sold, and traded online.

	Adidas Metaverse is a digital platform where users can explore, purchase, and interact with virtual Adidas products, including NFTs and exclusive virtual fashion items, within immersive virtual environments.
	CryptoKitties is a game where players can collect, breed, and trade unique virtual cats as NFTs.
	NBA Top Shot is a platform where users can buy, sell, and trade officially licensed NBA collectible highlights, known as Moments.
	RTFKT is a digital fashion company that creates and sells virtual sneakers, apparel, and collectibles as NFTs.
	Sorare is a fantasy football game where players can buy, sell, trade, and manage a virtual team using officially licensed digital player cards represented NFTs.

Consumer Crypto
Subcategory Description

Telegram Trading Bots:
Bots developed to simplify and enhance the on-chain trading experience.

	Banana Gun Bot is a Telegram trading bot on Solana which allows users to trade and snipe upcoming token launches, with MEV-protection features.
	BONKbot is a Telegram trading bot on Solana with MEV-protection features.
	BullX is a multichain trading terminal and Telegram trading bot with advanced features.
	Maestro provides a suite of multi-chain Telegram bots for on-chain trading, including a Buy Bot, Sniper Bot, Wallet Bot, and Whale Bot (wallet tracker).
	Trojan is a Telegram trading bot on Solana with copy trading, sniping, MEV-protection, and DCA features.
	Unibot is an onchain trading terminal with a web application and Telegram bot, supporting multiple chains with copy trading, sniping, and MEV-protection features.

VI. Decentralized Physical Infrastructure Network ("DePIN")

DePIN
Vertical Spotlights

We identified 4 key areas of rapid innovation within the infrastructure sector.

◆

Compute Networks

The rising demand for artificial intelligence / machine learning has spurred growth for projects in this sector.

◆

Decentralized Wireless Networks

Decentralized wireless networks are gaining traction due to their competitive fees and real-world use case which could see more adoption moving forward.

◆

Storage Networks

We see more projects focusing on providing users with access to cheap, decentralized data storage.

◆

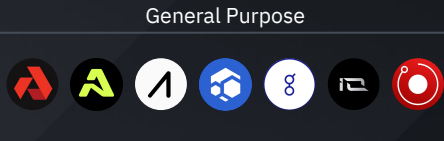### Sensor Networks

Sensor networks that are leveraging blockchain technology are also gaining popularity specifically in the areas of smart city, mapping and environmental.
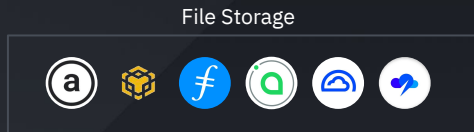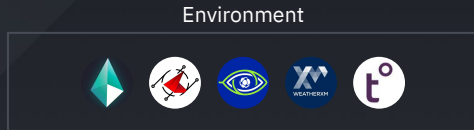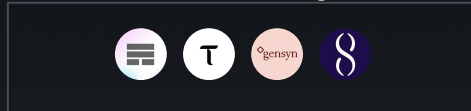
DePIN
Vertical Overview

Compute Networks

General Purpose

Machine Learning

Connectivity Networks

WiFi / Mobile

IoT

Internet

Storage Networks

File Storage

Sensor Networks
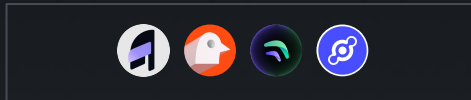
Environment
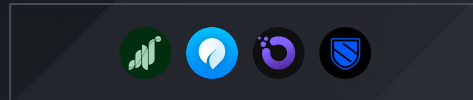
Energy
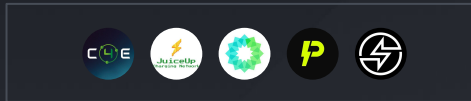
Mapping

DePIN
Subcategory Description

General Purpose:
Projects provide computing resources, managing diverse tasks such as running apps, handling data, and more.

	Akash Network is a decentralized cloud computing network that allows users to delegate spare GPU resources for purposes such as artificial intelligence.
	Aethir provides distributed cloud compute infrastructure by aggregating enterprise-grade GPU chips for end users to access.
	AIOZ is a decentralized network for AI computation, data storage, and seamless media and video streaming.
	Flux provides a fully decentralized computational network providing simple compute power for databases or censorship resistant content delivery.
	Golem Network is decentralized peer-to-peer marketplace for distributed computing resources.
	io.net offers a decentralized network that provides cost-efficient access to distributed cloud clusters optimized for machine learning and AI projects.
	Render Network is a decentralized cloud computing platform that allows anyone to share spare GPU resources and is typically used in rendering graphics.

Source: Binance Research, company websites

DePIN
Subcategory Description (cont.)

Machine Learning:
A subset in artificial intelligence that focuses on training computer systems to make inferences based on data and algorithms.

	Autonolas is a decentralized network for creating and deploying autonomous AI agents.
	Bittensor is a decentralized machine learning network enabling the exchange of machine learning capabilities and predictions among participants.
	Gensyn Network is a machine learning compute protocol that unites underutilised devices such as consumer GPUs, custom ASICs and SoC devices capable of training neural networks.
	SingularityNET is a decentralized AI marketplace enabling the sharing of AI services across domains such as image, video, speech, text, time-series, bio-AI, and network analysis

DePIN
Subcategory Description (cont.)

WiFi /Mobile:
Protocols that provide access to wireless internet connections and mobile cellular networks.

IoT:
Internet of Things (IoT) is a network of interconnected devices that communicate and exchange data with each other over the internet.

	Helium Mobile is a decentralized wireless infrastructure project enabling to deploy and operate mobile networks and 5G.
	Karrier One is global carrier-grade mobile network running on decentralized telecommunications infrastructure that operates on Sui.
	Roam by Metablox is a decentralized WiFi roaming network that enables global connectivity via its routers.
	Wicrypt is a decentralized hotspot sharing and token mining network.
	XNET is a decentralized, neutral host mobile network that leverages Wi-Fi Passpoint and 3GPP cellular technologies.

	Aydo is a decentralized network empowering users to own, control, and verifiably stream different IoT device data from diverse vendors.
	Chirp is a unified, decentralized wireless network for IoT, mobile, and broadband.
	Crankk is a decentralized Proof-of-Network-Participation IoT network of LoRa gateway nodes.
	Helium is a diverse ecosystem of decentralized networks, with utility for IoT, mobile networks, and energy.

DePIN
Subcategory Description

Internet:
Projects focused on the decentralization and sharing of web data, internet bandwidth, and privacy solutions.

	Grass is a decentralized network for public web data and unused internet bandwidth, designed for AI training.
	MASQ is a privacy browser incorporating a decentralized multi-hop VPN, web3 app library, and earning ecosystem.
	Orchid is a decentralized marketplace for unused internet bandwidth, providing private internet access through its VPN.
	Sentinel is a decentralized bandwidth marketplace powering dVPNs and data acquisition for AI training.

Source: Binance Research, company websites.

DePIN
Subcategory Description

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

	Arweave offers permanent and decentralized storage in an open ledger.
	BNB Greenfield is a decentralized storage infrastructure that simplifies the process of storing and managing data access.
	Filecoin is an decentralized, peer-to-peer cloud storage network for monetizing, storing, and retrieving data.
	Sia is a decentralized cloud storage platform that enables trustless interactions between renters and hosts.
	Storj is a decentralized cloud storage solution prioritizing security and privacy.
	Zus is a 3-layer security multi-cloud storage with no vendor lock-in and free egress.

Environment:
Projects that receive inputs from the physical environment and communicate this information to others.

	AquaSave ses IoT and blockchain technologies to analyze and track the status of the planet's water resources.
	Fry Foundation is a decentralized network for weather data collection.
	PlanetWatch focuses on environmental monitoring by decentralizing the collection of air quality data for analysis.
	WeatherXM is a community-powered weather network that rewards weather station owners and provides accurate weather services to Web3 enterprises.
	WeatherFlow is a decentralized network delivering hyper-local weather forecasts and real-time updates from personal weather stations.

Source: Binance Research, company websites.

DePIN
Subcategory Description

Energy:
Projects that provide decentralized energy networks, including storage, applications, and data tracking.

	Chain4Energy is a decentralized L1 focusing on peer-to-peer energy trading, decentralized energy tracking, and green energy certificate creation.
	JuiceUp is a decentralized network of community-owned power bank stations.
	Powerledger is a blockchain-based platform for tracking, and trading renewable energy.
	PowerPod is a decentralized EV charging network for smart and efficient charging use.
	Starpower is a decentralized energy network using virtual power plant (VPP) technology and distributed energy resources (DERs) such as solar panels, wind turbines, and energy storage systems.

Mapping:
Decentralized networks that provide accurate geographical information.

	Hivemapper is a decentralized global mapping network that rewards contributor through its Drive-to-Earn model.
	MapMetrics is a Drive-to-Earn navigation app utilizing web3 technology.
	Natix provides an AI-powered dynamic map through its Drive-to-Earn model.

Source: Binance Research, company websites.

VII. Real-World Assets ("RWA")

Real-World Assets ("RWA")
Vertical Spotlights

We identified 2 key areas of innovation.

◆

RWA Rails

These projects provide the regulatory, technical, and operational rails upon which real-world assets are brought into crypto.

◆

Tokenized Asset Providers

Asset providers are focused on originating and creating demand for tokenized RWAs that maintain a specific underlying asset class.

Real-World Assets ("RWA")
Vertical Overview

RWA Rails

Blockchains

Securitization

Regulatory

Tokenized Asset Providers

Treasuries

Credit

Real Estate

Stablecoins
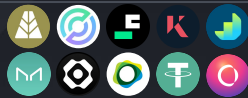
Commodities

Marketplaces

Climate

Public Equities and Fixed Income

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.

Real-World Assets ("RWA")
Subcategory Description

Blockchains:
Permissioned or permissionless blockchains tailored specifically for RWAs.

	MANTRA is an RWA-focused L1 blockchain capable of adherence to real world regulatory requirements.
	Plume is a modular L2 blockchain for RWAs that simplifies onchain asset deployment while fostering a composable ecosystem through DeFi applications.
	Polymesh is an institutional-grade permissioned blockchain built specifically for regulated assets.
	re.al is a permissionless, modular L2 solution built using Arbitrum Orbit, with a focus on tokenized real-world assets.
	Realio Network is an interoperable Layer-1 multi-chain Web3 ecosystem focused on the issuance and management of digitally native real-world assets.
	Stellar is a L1 blockchain for efficient payments and asset tokenization, offering built-in features and controls for quick and cost-effective real world asset tokenization.

Source: Binance Research, company websites.

Real-World Assets ("RWA")
Subcategory Description

Securitization:
Converting real-world assets into legally compliant digital securities.

	Bitbond is a bank-grade tokenization platform for regulated financial institutions and large issuers.
	Chintai is a Monetary Authority of Singapore (MAS) regulated Blockchain-as-a-Service (BaaS) platform for RWA tokenization, issuance and trading.
	Polymath is an institutional-grade platform for real-world asset digitization, providing tools for the entire token lifecycle, from issuance and management to investor onboarding.
	Securitize is a fully digital, regulatory compliant platform for issuing and trading digital asset securities.
	tZERO is a blockchain-based platform offering transformative market-based solutions such as capital raising, digitizing of public and private assets, and secondary market trading.

Source: Binance Research, company websites.

Real-World Assets ("RWA")
Subcategory Description

Regulatory:
Services to ensure investor and issuer compliance.

	Quadrata is a Web3 identity solution providing blockchain-verified KYC and AML screening for users to participate in DeFi in a privacy-preserving and legally compliant way.
	Tokeny provides an enterprise-grade infrastructure to allow companies and financial actors to compliantly issue, transfer, and manage assets on blockchain.
	Verite is a collection of standardized protocols for decentralized identity verification.
	Spruce is a toolkit for digital identity and can be used to reference investor and issuer compliance when transacting RWAs.

Real-World Assets ("RWA") Subcategory Description

Treasuries:
Products offering tokenized real-world treasuries (including fixed income products and yield-bearing tokens).

BlackRock	**BlackRock USD Institutional Digital Liquidity Fund (BUIDL)** is the largest tokenized treasury fund on Ethereum.
	DigiFT is a regulated exchange for on-chain real-world assets, such as equities, bonds, treasuries, and money market funds.
	Fortunafi provides an investment fund protocol that deploys investor funds into real-world assets ranging from publicly traded and private assets.
FRANKLIN TEMPLETON	**Franklin Onchain U.S. Government Money Fund (FOBXX)** includes fixed, floating and variable rate securities, as well as repurchase agreements collateralized fully by U.S. government securities or cash.
	Hashnote is an institutional on-chain asset management firm offering USYC, the on-chain representation of Hashnote's Short Duration Yield Fund (SDYF).
	Matrixdock is an real-world asset tokenization platform focusing on U.S. Treasury Bills.

	Midas is a custodial CeDeFi investment management platform offering mTBILL, which provides investors with on-chain exposure to the Federal Reserve's risk-free rate.
	Ondo Finance is a platform tokenizing institutional-grade financial products such as U.S. Treasuries.
	OpenEden provides a U.S. Treasury Bills vault with direct exposure to a pool of short-dated U.S. Treasury Bills.
	Superstate is an asset management firm offering the Superstate Short Duration U.S. Government Securities Fund (USTB) which offers U.S. Qualified Purchasers access to short-duration Treasury Bills and Agency securities.

Real-World Assets ("RWA")
Subcategory Description (cont.)

Credit:
Projects connecting on-chain investors with real world private credit deals.

	Centrifuge is a platform providing the infrastructure for tokenized real-world assets investment and on-chain credit.
	Clearpool is a decentralized credit marketplace for unsecured institutional liquidity.
	Credix is a decentralized credit marketplace on Solana connecting investors with FinTechs in emerging markets.
	Goldfinch is a decentralized, globally accessible credit protocol connecting on–chain investors to real world borrowers.
	Maple is an institutional capital network that provides the on-chain infrastructure connecting institutional lenders and borrowers.
	Truefi is an on-chain credit protocol connecting borrowers, lenders, and portfolio managers.

Real-World Assets ("RWA")
Subcategory Description

Real Estate:
Projects providing the fractionalization and/or tokenization of real estate for collective investment or trading.

	Blocksquare is a real estate tokenization infrastructure provider, with tools and modules for creation, issuance, sale, distribution, management, tracking and trade of tokenized properties.
	CitaDAO is a global marketplace for tokenized real estate built on the Ethereum ecosystem.
	Parcl is a decentralized perpetuals exchange for real estate synthetics, including global city indexes.
	Propy is a platform that automates real estate transactions via smart contracts and NFTs.
	Lofty is a fractional real estate marketplace on Algorand.
	Tangible is a real-world asset tokenization protocol and marketplace.

Real-World Assets ("RWA")
Subcategory Description

Stablecoins:
Issuers of stablecoins, which are tokens with values that are pegged 1:1 to another asset class such as fiat currency or gold, backed by real-world reserves.

	Circle is a financial technology firm specializing in payment and commerce, and the primary issuer of USD Coin (USDC) which is a fiat-backed stablecoin.
	Tether is the issuer of multiple fiat-backed stablecoins such as USDT, EURT, CNHT, MXNT, and XAUT which is backed by physical gold.
	MakerDAO is a protocol which generates DAI, a multi-collateral decentralized stablecoin backed by crypto assets through Collateralized Debt Positions (CDPs).
	Paxos is a financial institution specializing in settlement and asset tokenization services, issuing multiple stablecoins such as Pax Dollar (USDP), Paypal USD (PYUSD), Lift Dollar (USDL) and PAX Gold (PAXG) which is backed by physical gold.
	First Digital is the issuer of First Digital USD (FDUSD), which is a fiat-backed stablecoin.

	Agora is the issuer of AUSD, a fully collateralized stablecoin on Sui backed by fiat currency and cash equivalents
	Kinesis is the issuer of Kinesis Gold (KAU), and Kinesis Silver (KAG), which are stablecoins backed by precious metals.
	Mountain Protocol is the issuer of USDM, the first regulated and permissionless yield-bearing stablecoin backed by U.S. Treasuries.
	Usual Money is the issuer of a decentralized fiat-backed stablecoin, USD0.

Source: Binance Research, company websites.

Real-World Assets ("RWA")
Subcategory Description

Commodities:
Projects that provide exposure to real-world commodities through tokenization or indexes.

	Aurus is a trading platform for precious metals, enabling users to easily buy, trade, and earn tokenized gold, silver & platinum.
	Kinesis is the issuer of Kinesis Gold (KAU) and Silver (KAG), and a platform to trade such tokenized commodities and earn yield through its vaults.
	LandX is a decentralized protocol tokenizing agriculture, providing capital to real-world farmers in exchange for a legal share of their crop in perpetuity.
	Ostium is a decentralized perpetual exchange on Arbitrum enabling onchain price exposure to a suite of Real World Assets, including with forex, commodities, indices, and blue-chip crypto assets.

Source: Binance Research, company websites.

Real-World Assets ("RWA")
Subcategory Description

Marketplaces:
Platforms that facilitate tokenization and trading of real-world assets and items.

	Arkefi is a marketplace for trading and investment in fractional art, cars, and collectibles.
	Galileo is luxury marketplace for tokenized and fractional assets such as watches, cars, wine, sneakers and more.
	Polytrade is a decentralized trade finance platform focused on receivables financing.
	Watches.io is an on-chain luxury watch trading platform leveraging NFTs.

Source: Binance Research, company websites.

Real-World Assets ("RWA")
Subcategory Description

Climate:
Projects that originate and create demand for climate asset-backed RWAs.

	Regen Marketplace creates a place to buy, trade, and retire ecological credits in the digital carbon market.
	Frigg.eco works with a select group of project developers and helps them access refinancing via crypto by issuing green bonds on-chain.
	KlimaDAO is a DeFi protocol growing environmental commodity markets on-chain, as a means to efficiently and transparently accelerate climate financing at a global scale.
	PYSE is a green RWA tokenization platform on MANTRA, democratizing access to climate-focused solutions.
	Toucan Protocol is an infrastructure provider built to bring environmental assets like carbon credits on-chain, making them more accessible for markets and builders.

Real-World Assets ("RWA")
Subcategory Description

Public Equities and Fixed Income:
Projects that originate and create demand for public fixed income and equity-backed RWAs.

	Backed Finance is a protocol issuing tokenized structured products that track the value of publicly traded securities such as bonds and equities.
	Benji Investments by Franklin Templeton is a mobile app that allows investors to browse tokenized securities such as mutual and money market funds.
	BondbloX is a fractionalized bond exchange that offers an assortment of public corporate bond offerings.
	Dinari is a decentralized asset trading platform offering dShares, which are 1:1 backed Real World Asset tokens of stocks, ETFs, bonds, and other assets,
	Swarm Markets is a regulatory-compliant platform offering a unique tokenization and trading solution to the world of TradFi.

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

Binance Research provides institutional-grade analysis, in-depth insights, and unbiased information to all participants in the digital asset industry.

BTC / USDT	BNB / USDT	ETH / USDT	UNI / USDT
30,745 $30,745	**221** $221	**1,687** $1,687	**4.28** $4.28
+2.12% Volume: 1,107,144,397 USDT	+2.41% Volume: 100,260,231 USDT	+2.54% Volume: 557,307,226 USDT	+1.52% Volume: 9,560,450 USDT

Insights & Analysis

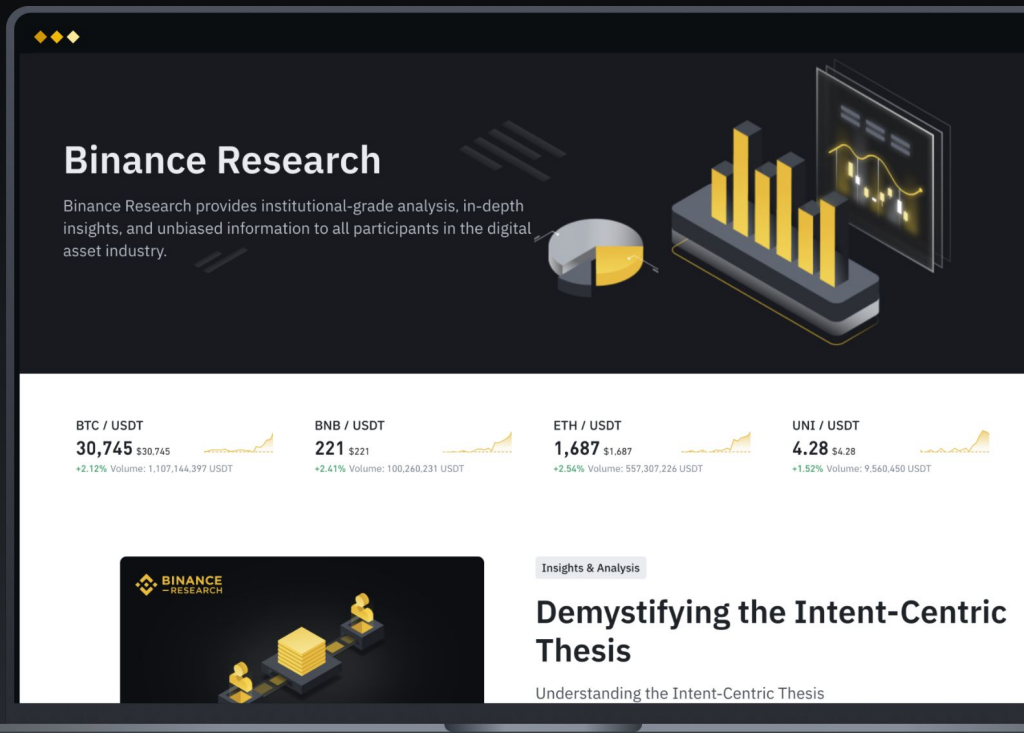## Demystifying the Intent-Centric Thesis

Understanding the Intent-Centric Thesis

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Contributors

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Kennard is currently working for Binance as a Macro Research Analyst intern. Prior to joining Binance, he worked as a DeFi research analyst at an RWA private credit protocol and a Web3 consulting firm. He is a junior at Singapore Management University ("SMU"), and has been involved in the cryptocurrency space since 2021.

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