



stader

LITEPAPER



Stader Litepaper

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Executive Summary

The market capitalization of Proof-of-Stake (PoS) coins is at \$325 billion (USD). In comparison to Proof-of-Work (PoW), PoS has numerous advantages which position it to grow manifold.

Across PoS blockchains, the three main stakeholders face several challenges:

1. **PoS networks** face stake-centralization issues.
2. **Delegators** face complexity surrounding discovery and stake management.
3. **Node Operators** struggle to get the right visibility and delegations.

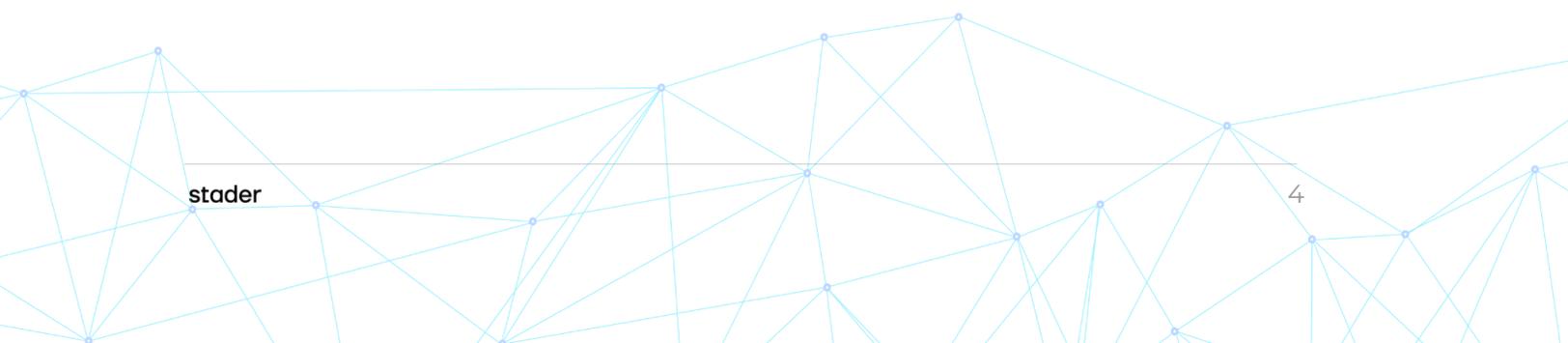
While solving the above challenges is paramount for the PoS ecosystems, there are several multi-billion dollar opportunities on top of staking in the short- to mid-term including:

1. L1 tokens safely staked and strategies like Launchpads, DeFi, etc. built with rewards.
2. Liquid staking and its associated DeFi possibilities.
3. Gaming powered by staking rewards.
4. Customized staking for Institutions, VCs, Crypto exchanges and Fintechs.

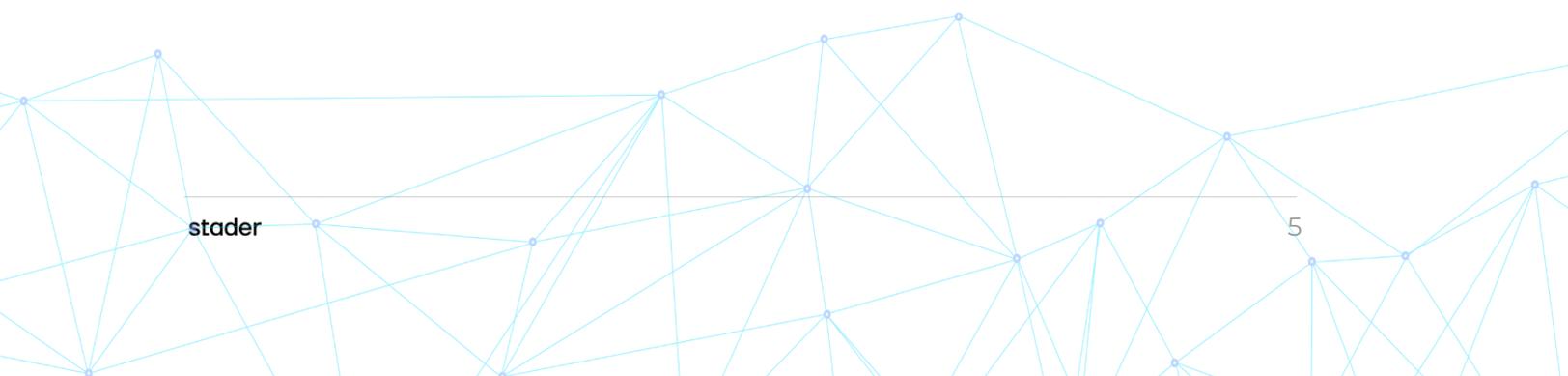
Stader is building the key staking middleware infrastructure layer for multiple PoS networks that will power the above staking-related opportunities while solving the key challenges. We are taking an extremely modular approach to building our contracts so third parties can leverage our components to build several staking solutions on top of it.

In the short term, Stader is building native staking smart contracts across multiple chains including Terra, Solana, among others, and building an economic ecosystem to grow and develop solutions like YFI-style farming with rewards, launchpads, gaming with rewards, liquid staking solutions, and more.

In the long term, Stader is focused on unlocking the platform approach and nurturing third parties to develop several staking-related applications on top of Stader infrastructure.



Several notable venture funds, blockchains and angel investors have supported Stader in this journey. Find a list of our partners [here](#).

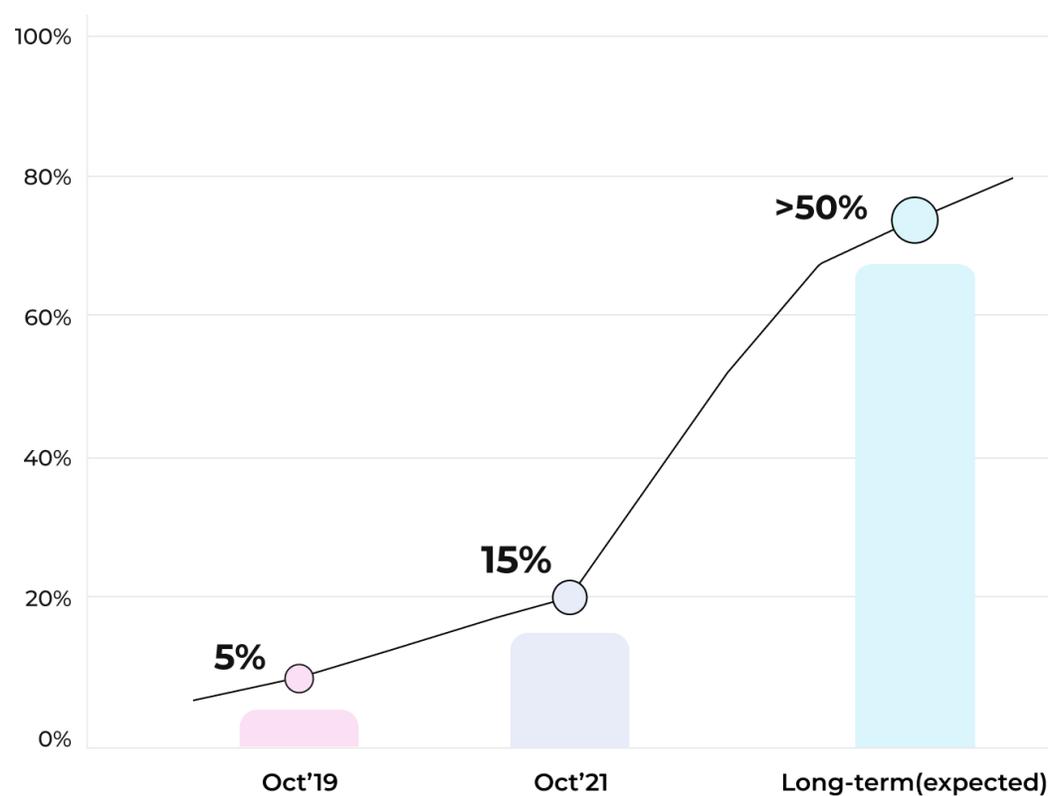


Background

a. Staking Today

The staking economy has exploded with over \$240 billion (USD) currently staked in the market. In the last year alone, the PoS market cap has grown by more than 15x from \$21 billion (USD) to \$325 billion (USD) in October 2021*, which has resulted in PoS market cap increasing significantly as a percentage of the total crypto market cap.

Figure 1: PoS market cap as % of total crypto market cap



*Source- <https://www.stakingrewards.com/journal/2021-staking-ecosystem-report/>

Staking is primarily available as “plain staking” in which the assets are locked-up and “liquid staking” in which users receive a liquid token against their staked assets, further enabling participation in DeFi.

b. Outlook & Opportunities

Over the next five years, staking is expected to proliferate even more. The cryptocurrency landscape will have hundreds of blockchain networks across L1s, L2s, NFTs, gaming, and metaverses. PoS and staking will be the fundamental layers that power these networks. There will be an explosive growth in innovative staking solutions built on top of the PoS chains.

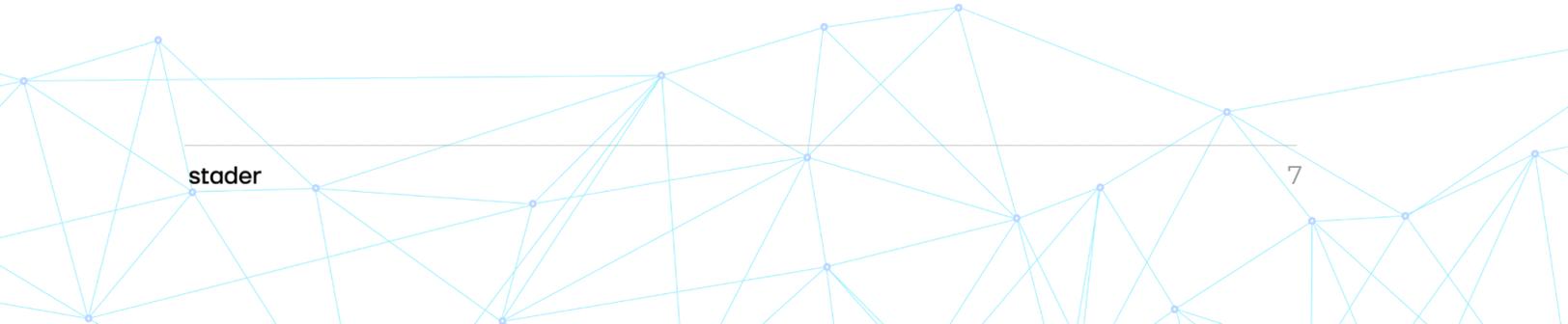
On the demand side, we are already seeing multiple segments emerge within the crypto space:

- 1. Retail (crypto-native and users on exchanges).
- 2. Institutions and venture funds with a long-term holding horizon.
- 3. Hedge funds.

Figure 2: Opportunity size across different customer segments

Customer Segment	Potential Opportunity Size	Risk Tolerance
Retail (Crypto native)	Medium	Medium-High
Retail (Exchange/Mainstream)	Large	Low-Medium
Institutions/Funds	Very Large	Low-Medium
Hedge Funds	Medium	High

The “next billion” entering crypto would demand access to convenient and innovative staking solutions embedded in apps they are already using. However, the risk appetite, goals, and aspirations of these segments are different. Hence, the staking product features that appeal to these segments would be equally diverse.



Stader envisions five major groups of staking products that can cater to the majority of the demand:

1. Protect principal assets and build an ecosystem around rewards.
2. Decentralized Liquid staking tokens of various types.
3. Leverage staking rewards for entertainment.
4. Staking platforms for institutions.
5. All-in-one staking APIs for exchanges.

Figure 3: Opportunity size across different product groups

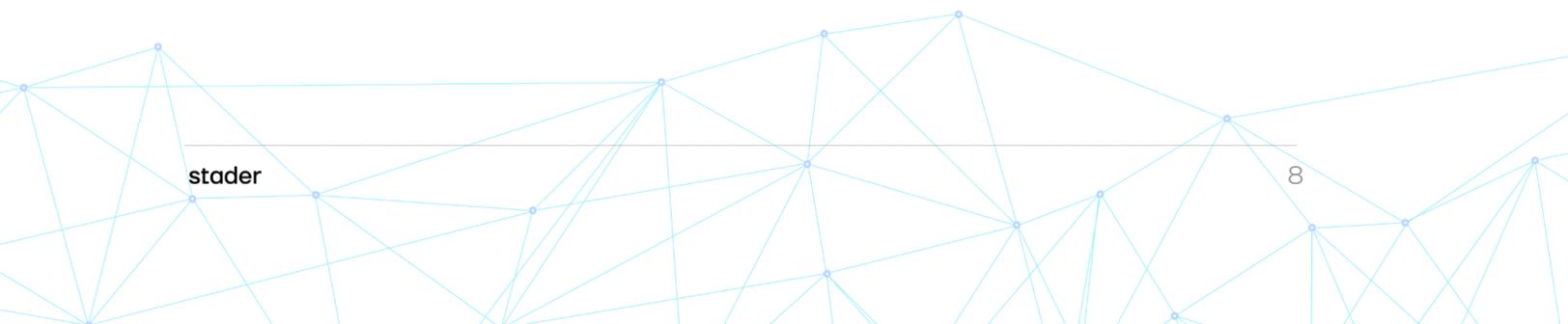
Product Group	Potential Opportunity Size
Protect principal in base asset and build an ecosystem around rewards	Medium - Large
Decentralized Liquid staking tokens of various types	Large
Leverage staking rewards for entertainment	Medium
Staking platforms for institutions	Large
All-in-one staking APIs for exchanges	Large - Very Large

Below mentioned are further details about each opportunity.

1. Principal protection in base assets and ecosystems built around staking rewards

\$12.5 billion (USD) worth of rewards will be paid in 2021 alone. Most crypto users would like to hold and stake their PoS assets long term while leveraging rewards to either fund expenses or amplify yields.

- **Passive income** strategies (e.g., funding expenses, subscriptions, etc.).
- **Launchpads** for new projects, NFTs, and games, built on staked assets using rewards, and preferential allocations for stakers.
- **Amplify yields** via liquidity/yield farming of rewards on DeFi.
- **Derivatives strategies** to hedge base token price and yields.



2. Decentralized liquid tokens of various types

- Basic **rebasing** liquid tokens (e.g. stEth, sdEth).
- Liquid token on **principal assets** while rewards are directed towards other DeFi strategies (e.g., Anchor-style liquid token).
- Liquid tokens that increase in price (e.g., stake pool tokens on Solana).
- Liquid tokens **based on refraction** of base token into principal and yield token.

3. Leverage staking rewards for entertainment

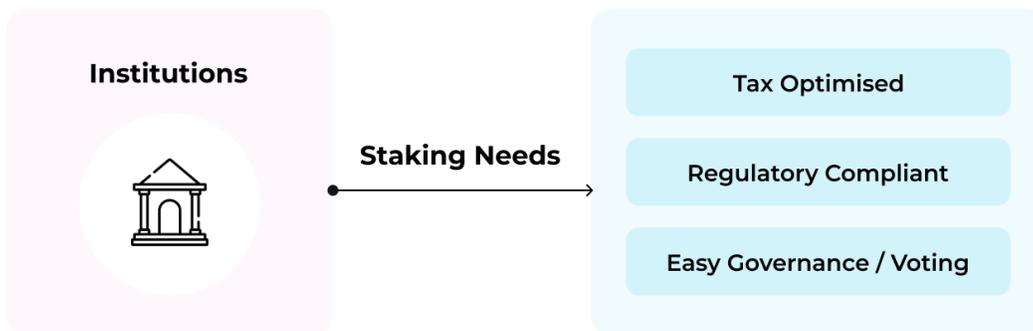
Crypto games today don't have an inherent way to generate yields. People can participate in crypto games while maintaining their principal position in crypto assets. Meanwhile, gaming protocols can leverage staking yields to fund prizes and rewards. Examples of types of games that could be powered include:

- No-loss lotteries
- Prediction markets
- Fantasy leagues
- Complex games

4. Staking platforms for institutions

Adoption of crypto by institutional segment will skyrocket in the next few years and they will need a simple staking platform that is optimized for taxation and regulatory compliances while helping them manage governance and voting.

Figure 4: Institutional staking landscape



5. All-in-one staking APIs for exchanges

As the next billion consumers enter crypto via mainstream apps and exchanges, they would like to get the value-added services right in these apps. There emerges an opportunity for an API service that provides access to all staking solutions with a single integration.

Lastly, there will emerge a need for a staking infrastructure layer that enables **multi-chain staking** with several staking applications being built on top which can cater to these different segments of delegators. In the long run, Stader aims to be the platform that will enable users to discover these opportunities while empowering third parties to build applications on top of Stader's infrastructure.

c. Problems Today

Stader has deeply assessed the problems faced by the three key stakeholders of the PoS networks - Delegators, Networks, and Validators.

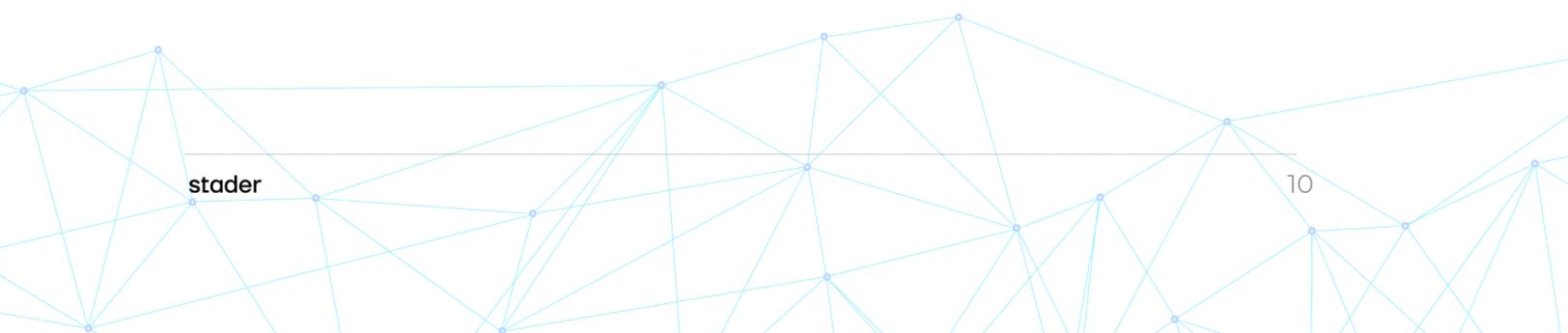
1. **PoS networks** face stake-centralization issues.
2. **Delegators** face complexity surrounding discovery and stake management.
3. **Node Operators** struggle to get the right visibility and delegations.

You can find further insights from our research [here](#).

While focusing on solving the ecosystem challenges was the starting point, we now firmly believe that the addressable market opportunity for staking is easily multi-trillion USD in the next few years.

Our belief is that though individual solutions might address some of the challenges in the staking ecosystem, there is a need to take a holistic view across the three stakeholders to create products that can drive the adoption and sustainable growth of PoS ecosystems in the long run.

At the core, Stader aims to solve the staking ecosystem challenges in its **modular architecture**, which allows us and third-parties to seamlessly build staking products and rapidly increase the pace of innovation.



Introducing Stader

Stader's vision is to onboard the "next billion" into the staking ecosystem.

Serving several segments that have varied staking needs and aspirations isn't possible for a single application to do. Hence, Stader will build the **staking lego blocks** to be the **infrastructure middle layer** that enables anyone to build staking and related products.

The founding team of Stader have been in the crypto world for many years and have deep experience in staking and building mining optimizers. We have seen first-hand how difficult and effort-intensive it is to choose a mining pool and we see the same happening in staking. We aspire to make staking effortless while unleashing several innovations on staking. While we embark on the journey of building cross-chain staking lego blocks, it is critical for us to first demonstrate the success of the platform. We started our journey with Terra and Solana.

As a starting point, we have built our staking smart contracts on Terra. Stader's smart contracts, to be launched in a few weeks, have the following capabilities:

1. Staking with any group of validators (validator index) in a single transaction; monitoring validators' performance and rebalance across validators for optimal performance.
2. Deploying staking rewards on any protocol, claim airdrops with one click.
3. Liquid staking token issuance (will be launched a few weeks after v1 launch).

As we successfully capture market share on Terra and Solana, Stader will focus on unleashing the platform play by:

1. Enhancing contract modularity that can be leveraged by third parties to build further applications on Stader.
2. Building robust validator monitoring and rebalancing infrastructure to help networks and other protocols manage their staked assets well.
3. Enabling staking lego blocks on other PoS blockchains. In the future, we imagine a world where every upcoming blockchain will leverage Stader to build their staking infrastructure, unlocking several applications on top of staking from day zero.

Stader's Modular Approach

Given the countless possibilities on staking, Stader is building a modular platform which allows anyone to use Stader's pre-existing components to build their own staking solutions.

As staking evolves over the next few years, our architecture allows flexibility to grow and incorporate new features day in and day out. Extensibility is woven into Stader's technical blueprint, with a system of highly-interactive smart contracts. Incorporating a new strategy or pool would just require a few changes in a specific independent contract.

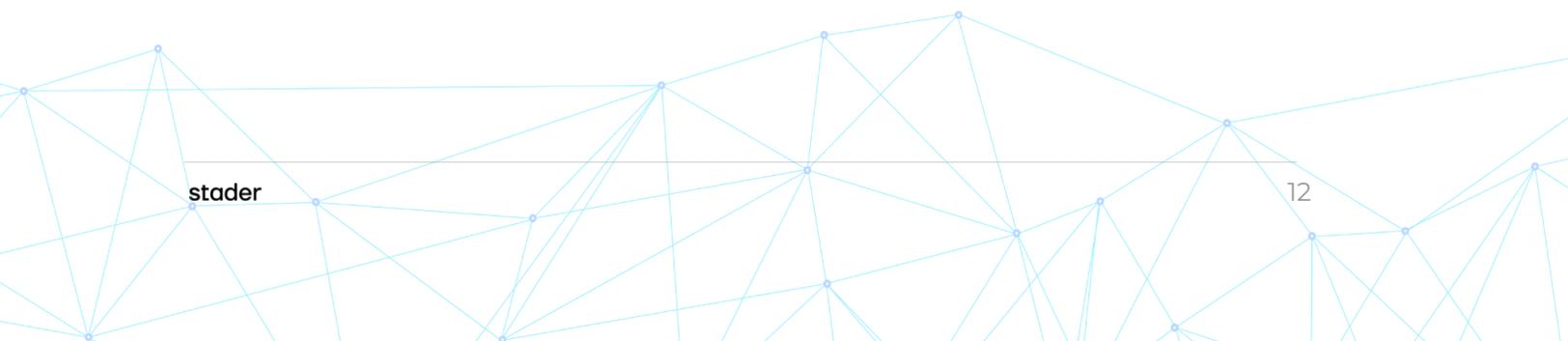
Stader separates the base capital and the rewards with different contracts. This ensures that the **base capital staked is always isolated** from the interactions with other protocols.

Here's a look at a few core smart contracts that are the building blocks of Stader infrastructure currently:

1. **Delegator Contract** - Delegators' funds will be deposited and can be withdrawn from this contract.
2. **Validator Contract** - Stakes the delegator funds. Claims rewards and airdrops.
3. **Pools Contract** - Overseer of validator contract. Manages stake across each validator pool and supports multiple pools.
4. **Strategies Contract** - Leverages staking rewards and synthetic assets to interact/integrate with other DeFi/ Gaming protocols to amplify yields.

With Stader's smart contracts designed in a modular way, it opens up opportunities for third parties to interact with any of our smart contracts and build additional staking use-cases. Below are a few examples of what this unlocks:

1. Creation of customized products to meet requirements of specific delegator groups, such as institutions, can be rapidly built.
 - A third party can leverage **Stader Pools' contract** to build their own pool with validators of their respective geography for tax and regulatory compliance, while enabling one-click staking to their users.



- Venture funds can create customized **Strategies contracts** that deposit staking rewards into their LP wallets to avoid multiple taxation.
2. Networks can leverage the **Pools contract** and include a very high number of validators (e.g. Solana stake pools) in the pool and incentivise stakers to delegate to this pool by potentially paying higher staking rewards.
 3. Fintech applications (e.g, Robinhood, Revolut) can use Stader's **Delegator contract** to enable one-click staking right within their app, opening up Staking as a service to all their users.
 4. Any DeFi protocol or gaming app can integrate with the **Strategies contract**.

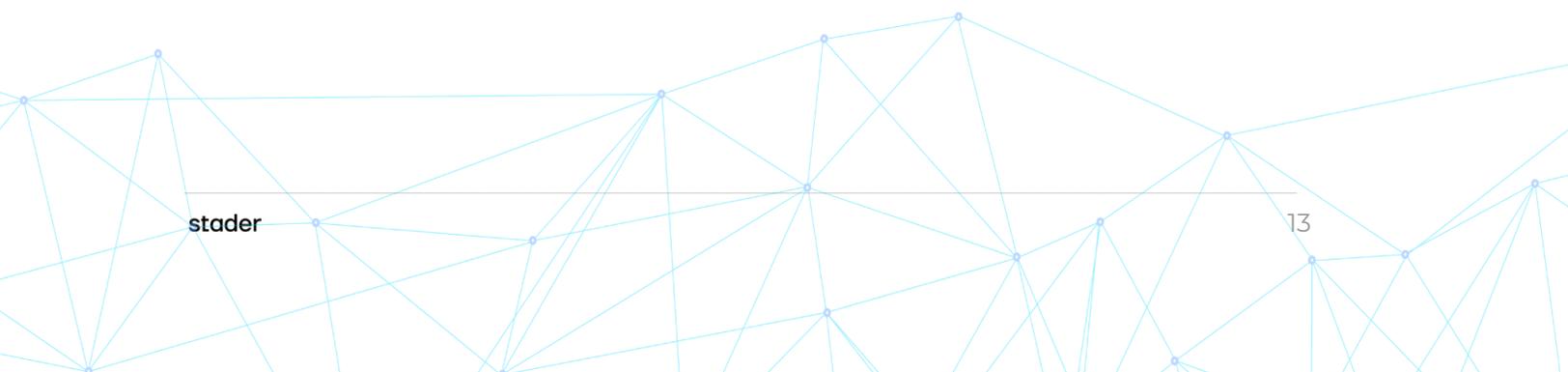
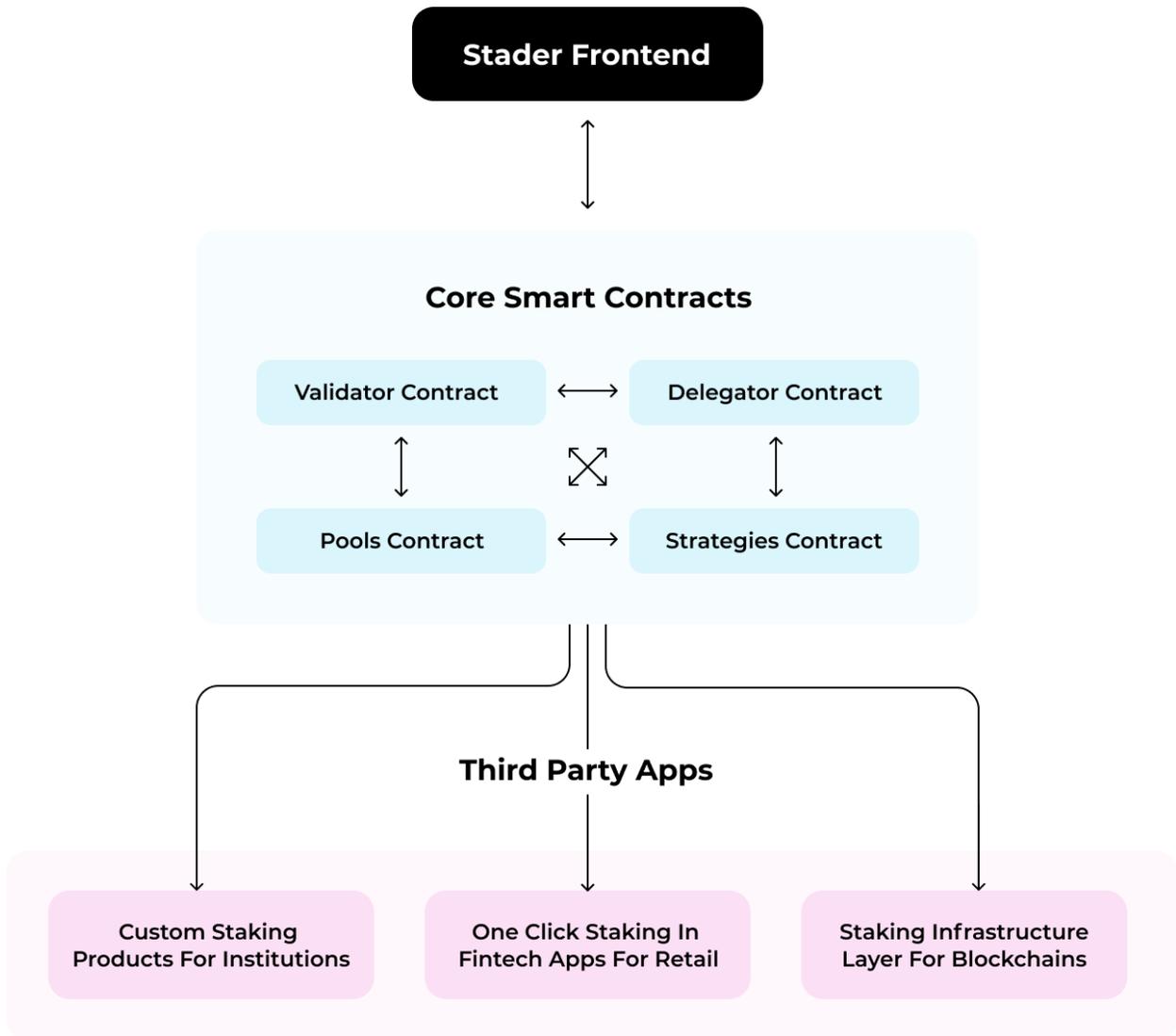
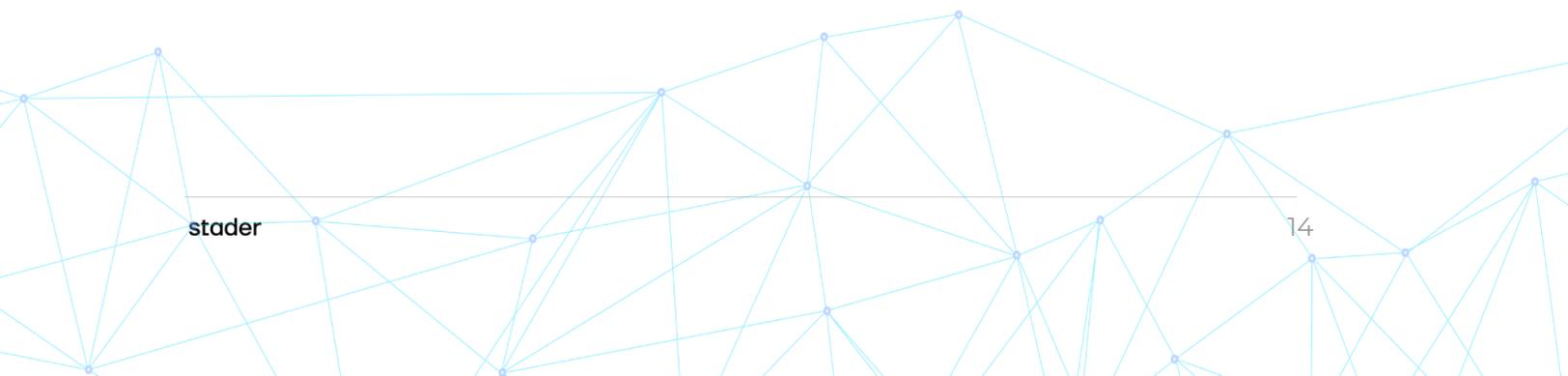


Figure 5: Modular design of Stader Smart Contracts



With the ability to interact with individual contracts, we envision an explosion of applications built on top of Stader contracts in the near future.



Roadmap

Stader V1

Stader's V1 contracts are currently undergoing extensive testing post audit. We tentatively plan to launch the first version (V1) on Terra mainnet by mid-November. More details regarding the V1 launch will be communicated very soon.

Here's a look at the key features of Stader's V1:

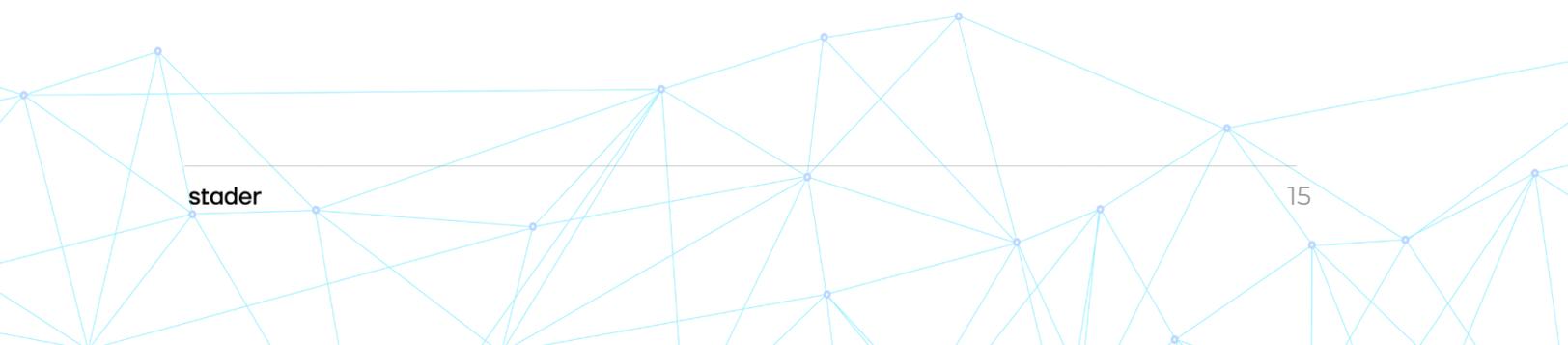
1. Multiple (4-5) validator pools for delegators to minimize slashing risks and encourage network decentralization (*Validator selection criteria explained in Appendix [here](#)).
2. Auto-compounding of rewards (conversion of stablecoins to LUNA and restaking) leading to higher returns.
3. One-click airdrops claiming for Stader stakers enabling much lower transaction costs.

Why Terra?

Stader started with Terra because of the ecosystem's focus on staking, bringing mainstream users to blockchain, and the strong developer community. Terra also has a mature DeFi ecosystem that can be leveraged to build strategies with staking rewards. We believe Terra will be one of the largest crypto ecosystems.

Launch Details:

Stader V1 will be launched with a community farming event. We will reserve a percentage of the total SD token supply for community farming. More details regarding community farming will be shared soon on our social channels.



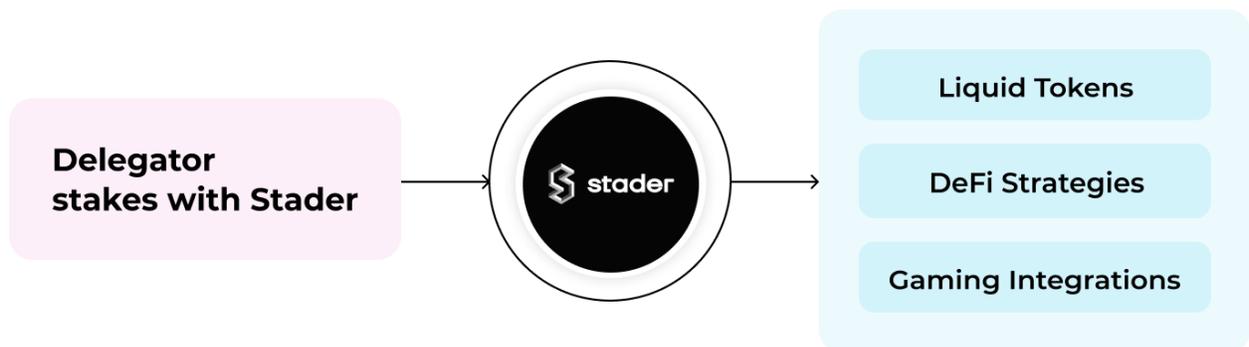
Stader V2

Stader's V2 will unlock more possibilities for staked assets. We plan to launch a liquid staking token on the staked LUNA and add multiple ecosystem integrations to power strategies on top of staking rewards and airdrops. Timelines for the V2 launch will be shared soon. Participants of V1 will get access to most features of V2 as well.

Some key features of Stader V2:

- 1. Liquid tokens:** A liquid staking token that enables instant unlocking of staked LUNA along with:
 - Leveraging liquid token as collateral on lending protocols
 - Access to staking rewards and continue to **earn airdrops**
 - Potential LP pool provision on DEXs
- 2. DeFi strategies:** Integrations with one DeFi protocol and one Launchpad on Terra to amplify APY
- 3. Gaming integrations:** Integrations with at least one gaming protocol powered by rewards

Figure 6: Stader V2 unlocks more possibilities for staked assets



Beyond V2, Stader's expansion will be focused across two dimensions:

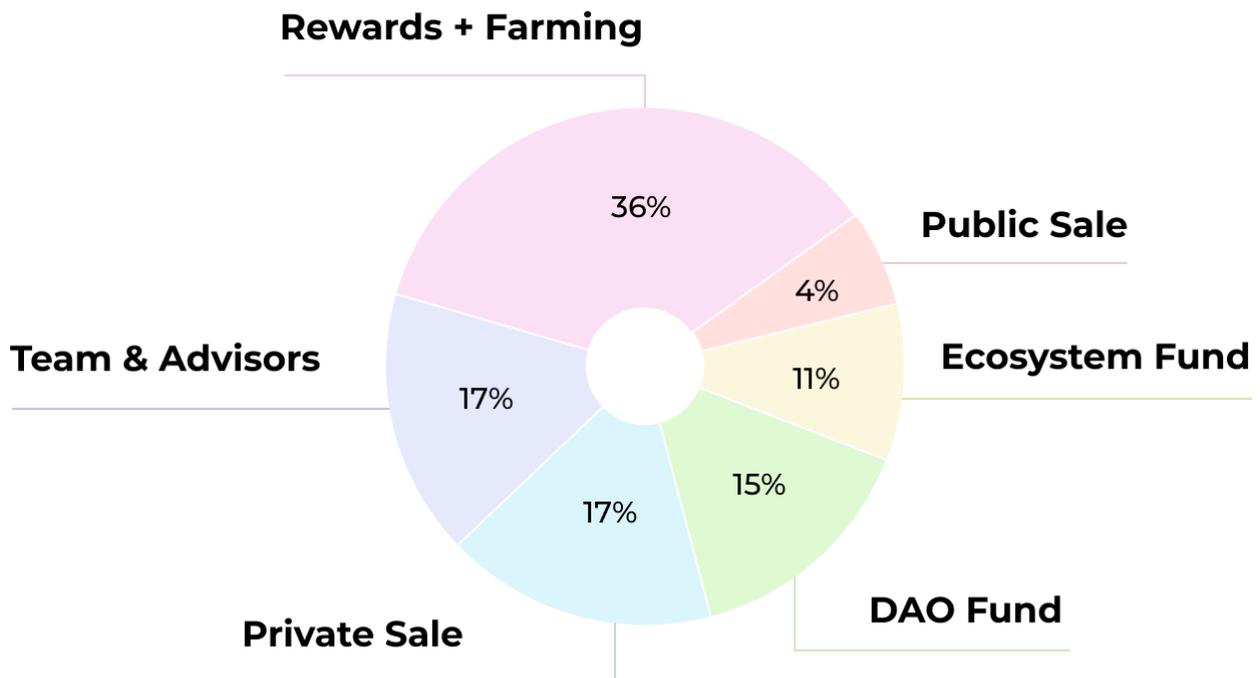
1. Additional third-party app integrations and innovations on Terra.
2. Launching and integrating other blockchains (Solana, NEAR, EVM chains, etc.).

Tokenomics

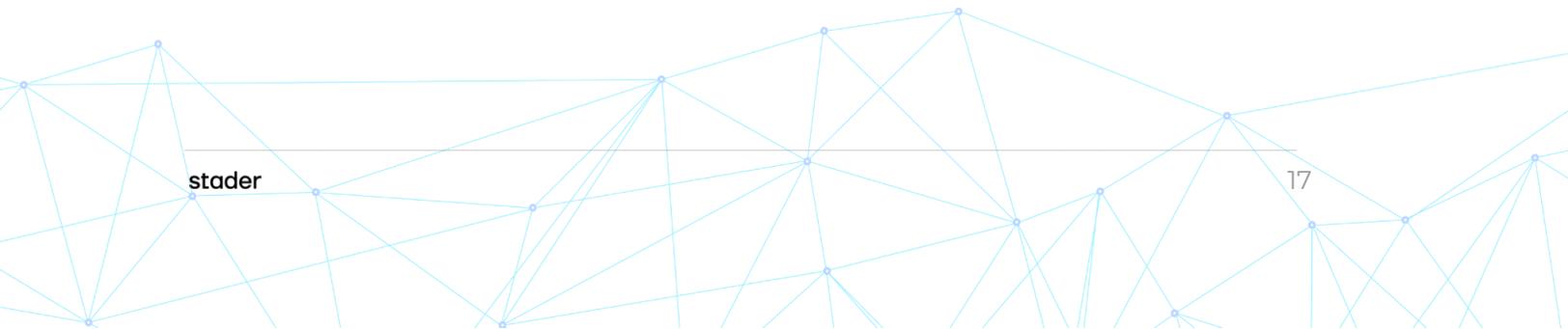
We have carefully designed the protocol's tokenomics to encourage long-term sustainability of the Stader platform. The total supply of Stader tokens will be limited to 150 million.

The distribution of Stader tokens has been planned to incentivize the community to own a majority of the network while also reserving a suitable portion of Stader tokens to incentivize third parties to build on the Stader platform.

Figure 6: SD token distribution*



*Updated on 13th January 2022



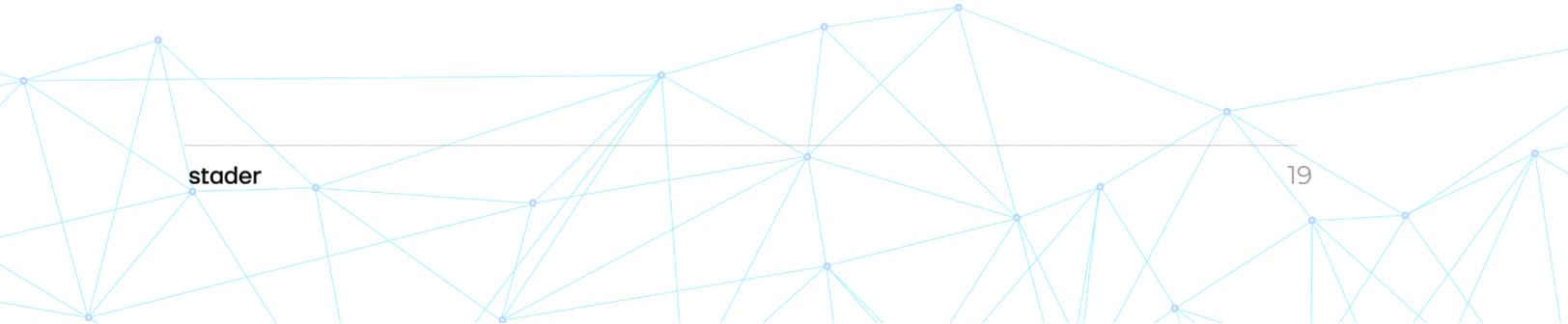
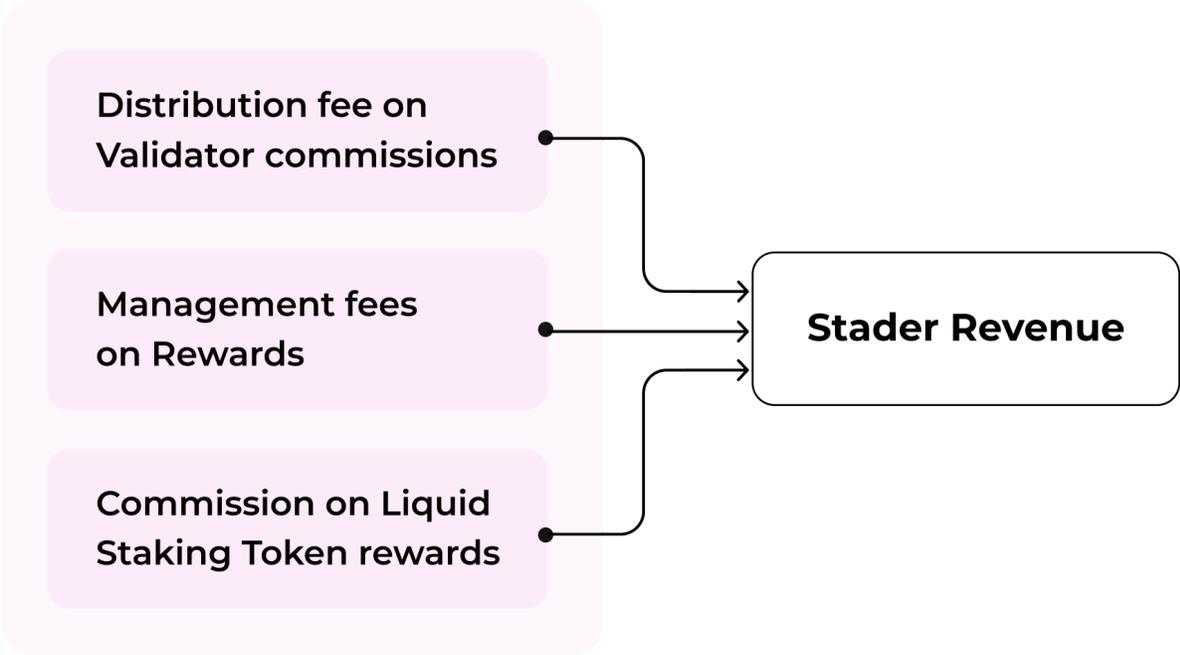
Segment	Total Supply in %	Release Schedule
Rewards + Farming	36%	Release schedule based on individual rewards program as determined via governance
Team & Advisors	17%	6 month cliff followed by linear vesting for 36 months
Private Sale	17%	TGE Unlock: 0-5% of allotment unlocked at TGE Vesting: Linear vesting across 36 months post TGE
DAO Fund	15%	To be determined through governance
Ecosystem Fund	11%	0.5% - 1.5% to be unlocked at TGE. Remaining to be determined via governance.
Public Sale	4%	Refer sales structure above
Total	100%	

How will Stader make revenue?

In the short- to medium-term, Stader tokens will earn revenue in three ways:

- 1. **Distribution commission from validators:** 10-20% distribution fees on validator commissions, if elected by governance stakers.
- 2. **Commission on reward strategies:** 2-10% management fees on rewards, if elected by governance stakers.
- 3. **Commission on liquid staking tokens:** 5-10% commission on staking rewards, if elected by governance stakers.

Figure 7 : Stader revenue



Stader Token Utility

Stader token has several utilities across the Stader ecosystem. Core utilities of the Stader token for key stakeholders include:

1. Preferential delegations and Insurance:

- **Preferential Delegations:** Validators will stake a minimum amount of Stader tokens and percentage of delegations to the pool will be proportionately allocated based on Stader tokens staked.
- **Slashing Insurance** will be provided by validators via the Stader tokens staked.

2. Rewards and discounts:

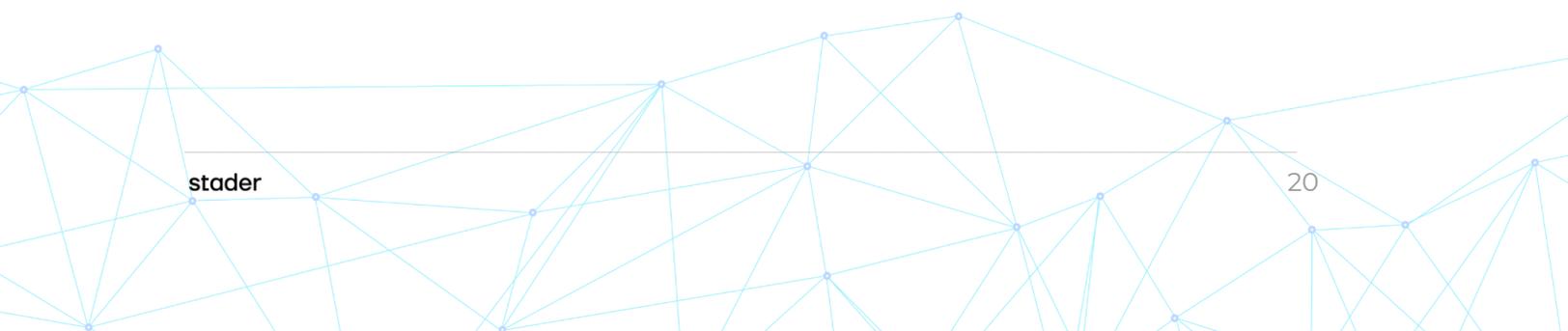
- **Liquidity Pool Rewards:** Liquidity provider incentives for stakers of **SD <> UST/ Luna, SD <> Liquid Luna (LunaX)** pools where SD is the base token of all pools.
- **Discount Tokens:** SD Stakers get a discount on fees charged on Stader solutions.
- **Withdrawal Fee:** A portion of the withdrawal fee from Stader pools would be redistributed among governance stakers.

3. Governance:

- **Governance Tokens:** Governance stakers can propose and vote on policies related to validator pool selection, validator selection, changes in methodologies, and more.

4. Leverage Stader infrastructure:

- **Development Access:** Protocols/builders to stake SD tokens to access Stader infrastructure/smart contracts.



Long-term Opportunities

Stader aims to integrate with the top 7-10 PoS blockchains over the next one-two years. In the long term, there are several multi-billion dollar opportunities Stader can explore, as detailed below:

- 1. Institutional-grade staking:** Many institutions and funds find it hard to manage their staked portfolio due to complex tax and regulatory issues. Stader's staking infrastructure can be leveraged to build customized staking vaults for institutions and funds that are optimized for
 - Returns and risks while enabling easier Governance
 - Tax implications across geographies
 - Regulatory compliance
 - Institutional-grade security
- 2. API layer:** The next 500 million to 1 billion users will be onboarded to crypto via exchanges and mainstream fintech applications like Robinhood, Revolut, and others. These users will demand value-added solutions like staking, DeFi, etc. within these platforms. Stader's staking vaults can be used to build the Web-3 equivalent of an API layer to connect these applications.
- 3. Staking infrastructure for upcoming blockchains:** Upcoming blockchain networks, including L2s and side-chains, desire to build their staking infrastructure already optimized for the staker's experience. Stader can be the go-to provider of staking middleware for newer blockchains. Conversations with upcoming blockchains are ongoing.
- 4. Staking ETFs:** Investment-grade products like staking ETFs can be built leveraging native Stader vaults. For example a user can deposit 100 USD on Stader to get exposure to a staking ETF composed of 50% EtH, 20% LUNA, 20% SOL etc.
- 5. DApp Staking:** Stader staking infrastructure can be leveraged for DApp staking to enable easier staking, governance delegation, unlocking liquidity, and tax-efficient rewards management.

Appendix

Press Coverage:

[The Block Crypto](#)

[CoinTelegraph](#)

[Investing.com](#)

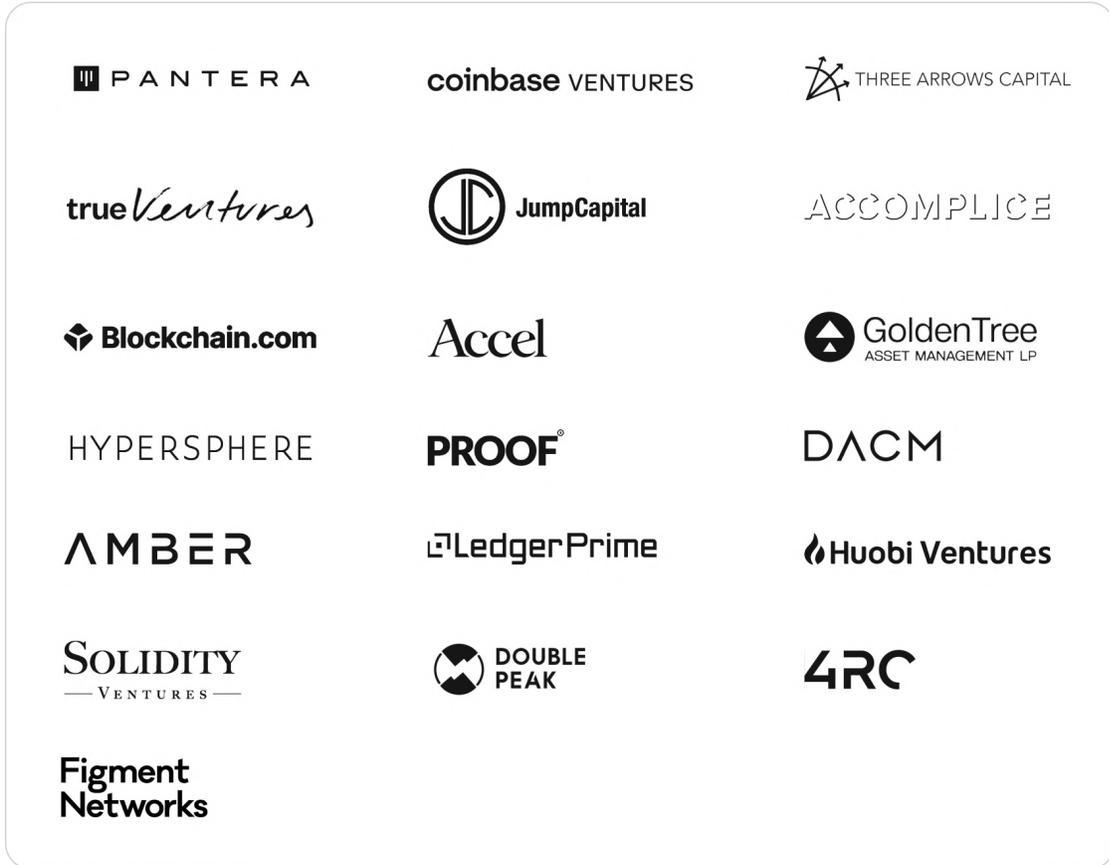
[VCCircle](#)

[The Block Beats](#)

[Chainnews.com](#)

Strategic Investors

Funds:



Blockchain Networks:



Angel Investors:

Diogo Monica

CEO, Anchorage

Tim Ogilvie

CEO, Staked

Jaynti Kanani

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Sandeep Nailwal

COO, Polygon

Aayush Gupta

Ecosystem lead, TFL

Jeff Kuan

BD Head, TFL

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Head of Crypto, Coinbase

Ahmed Al-Balaghi

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Aniket Jindal

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Harsh Rajat

CEO, EPNS

Sumit Gupta

CEO, Coin DCX

The Team

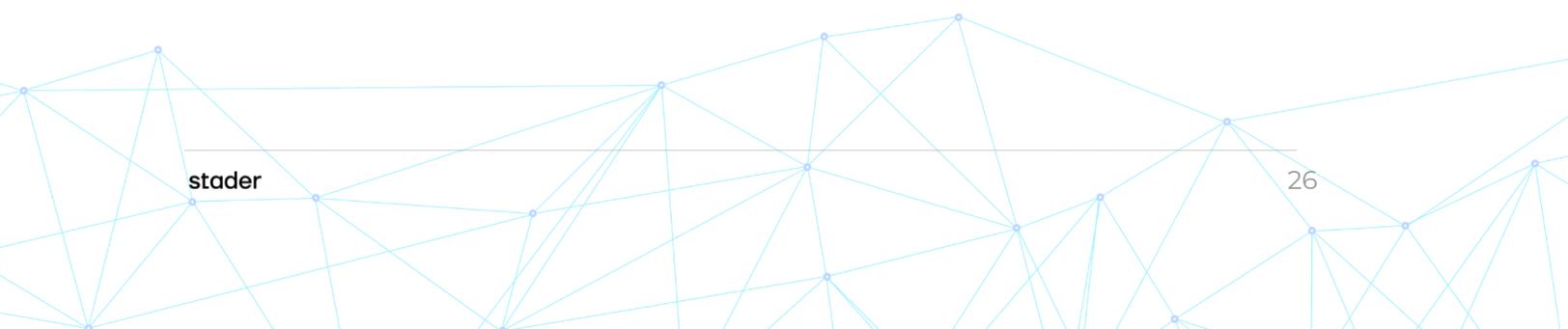
- 1. Amitej, CEO and Co-founder:** 10+ years with Strategy consulting and Start-up management | Ex Swiggy, ATKearney | IIT & IIM Alumnus.
- 2. Sidhartha, CTO and Co-founder:** Deep expertise in crypto mining | 10+ years building and scaling tech applications | Columbia and IIT Alumnus.
- 3. Dheeraj, Protocol Lead and Co-founder:** 10+ years of engineering in silicon Valley | Ex LinkedIn, Blend, PayPal | UT Austin and IIT Alumnus.
- 4. Vijay, Head of Product:** 10+ years across product management and operations | Ex Booking.com. IIT and NIT Alumnus.
- 5. Gautam, Incoming Head of Strategy & Expansion:** 10+ years across i-banking, consulting and investing | Ex Kearney, Deutsche Bank and JP Morgan | IIT and IIM Alumnus.

Validator Selection for pools (V1 and beyond)

Stader places utmost importance to ensure users' funds are staked with the best-in-class validators in the ecosystem. In order to be considered for Stader pools, validators need to meet threshold performance criteria.

E.g. For Terra - Uptime, Oracle Sign %, and Commission % are the key parameters used to curate validators. Each pool has a unique characteristic based on which validators are selected for that particular pool.

During the initial launch planned in November, each validator pool would have 3-8 validators. In the long run Stader would select the validators programmatically and rebalance delegations based on performance filters. Additionally, as the Stader platform is decentralized, governance will determine validator selection criteria, policies, and so on.



Research Insights on PoS ecosystem stakeholder challenges

PoS networks:

1. High centralization of stake and voting power among top validators.
2. Networks struggle to decentralize the stake using their current staking infrastructure.

Nakamoto Coefficient is the minimum number of validators that can have 1/3rd the voting power, which can break consensus and halt the network.

Details by blockchain

Blockchain	Nakamoto Coefficient	Total Validators
Avalanche	26	1001
Solana	18	849
THORChain	10	37
BSC	7	20
Terra	7	130
Cosmos	6	125
Fantom	3	45
Polygon	2	100

Source: (<https://news.earn.com/quantifying-decentralization-e39db233c28e>)

Delegators:

1. Limited awareness of staking-related metrics, such as Uptime.
2. Effort-intensive validator discovery and delegation process.
3. Manual tracking and management of staked assets, rewards and airdrops.

Validators:

1. Mid to long tail validators struggle to attract delegations, leading to high validator churn.

