Avalanche (AVAX) is a next-generation smart contracts platform that’s structured as a publicly-owned crypto network protocol. Ava Labs supports the Avalanche protocol in its mission to build a high-performing, secure, and energy-efficient cryptonetwork for decentralized applications ("dApps"), novel financial primitives, and new interoperable blockchains. Using its innovative technology approach, the Avalanche protocol is creating a new crypto-native economy for frictionless real-world and digital asset exchange, composable financial application primitives and derivatives, Web 3.0 privacy-focused data and social applications, and more.

- **Next wave of the Web.** Crypto networks like Avalanche are next-generation internet application platforms. The internet continues to evolve. Web 1.0 PC networks connected us online and gave us access to information and e-commerce payment gateways. Web 2.0 mobile-first social networks connected us to online communities while algorithms used our data to optimize user experience. Web 3.0 cryptonetworks consist of trustless community-owned protocols like Avalanche that give users back control of their data and privacy with natively embedded DeFi applications (Slide 6).

- **Third era of crypto innovation.** Early crypto networks enabled globally decentralized digital money. The second wave of platforms built upon this core technology to enable the creation of programmable dApps, enabling DeFi products, NFTs, and other yield-generating apps. However, due to high transaction fees and slow processing speed, these platforms have served a limited set of use cases. A third wave of cryptonetworks aims to support a wider range of dApps on cheaper and faster blockchains, and usher in a multi-chain world in which there exist several ecosystems that compete on speed, security, and customization (Slide 7).

- **Novel technology architecture.** Avalanche leverages its novel consensus mechanism and unique architecture to deliver a fast and scalable solution. Avalanche is a proof-of-stake ("PoS") network that uses a probabilistic consensus to validate transactions in a secure manner without sacrificing throughput and scalability (Slide 10). Avalanche’s unique multi-chain framework enables Avalanche to become a platform for blockchains, with separate “subnets” serving very different user needs. This structure allows for core functions native to different subnets to interoperate seamlessly, without performance degradation as witnessed in networks that pile all activity onto one chain (Slide 11).

- **Competitive network performance.** Base-layer distributed network technology protocols seeking to host a wide range of applications and build a robust digital economy are aiming to deliver an ideal mix of decentralization, security, and scalability with low transaction fees. Avalanche’s mainnet offers a transaction settlement layer with characteristics that are highly competitive with the leading proof of work and proof of stake crypto networks across various metrics (Slide 18).

- **Rapid early adoption is promising.** Avalanche’s features have made the platform ideal for many third-party developers who are rapidly deploying new DeFi products on the Avalanche C-Chain. dApps already span decentralized exchanges, liquidity mining, lending, synthetic assets, and more. As a result, the network is seeing rapid growth of assets, applications, and custom implementations on subnets tailored to enterprises and institutions being launched in a short period of time since mainnet went live (Slide 22). This growing usage has been driving a steady rise in transaction fee revenue to the network, which helps underpin the tokens’ economic value (Slide 27).

- **What are the risks?** Failure to execute on its product roadmap, slow distribution of network governance, slowing of developer interest, dApps don’t gain material demand, competing crypto networks take share, usage and transaction fee revenue doesn’t materialize, crypto volatility, regulatory risks (Slide 30).

**Bottom line:** Avalanche offers a completely new method of consensus and a level of customization that other existing layer 1 protocols don’t currently provide. While the network is young, its level of adoption is a promising indicator that developers are taking notice of its benefits and are hoping that Avalanche can deliver on its promise of a scalable and interoperable digital economy.
Avalanche is an open-source platform for launching decentralized applications and enterprise blockchain deployments in one interoperable, highly scalable ecosystem. Ava Labs is a New York-based technology company supporting the development of the Avalanche consensus protocol and platform. The company was founded in 2018.

Project Objectives

- Democratize financial markets and bridge all blockchain platforms together into one interoperable ecosystem
- Create the highest performance, most secure, and most energy efficient decentralized protocol
- Next generation blockchain platform enabling anyone to digitize, create, and exchange assets

Value Proposition

- Developers who build on Avalanche can easily create powerful, reliable, and secure applications and custom blockchain networks with complex rulesets or build on existing private or public subnets
- Avalanche gives developers complete control on both the network and application layers—enabling them to build anything they can imagine

Financing History

- The project is well capitalized, having raised $54 million over two token sales
- Ava Labs has raised $6 million in a Series A financing round with backing from leading investment firms including a16z, Initialized Capital & Polychain Capital

Source: FSInsight, Ava Labs, Avalanche Foundation
Ava Labs Spun Out Of Cornell And IC3, Tech & Finance Expertise
A diverse team bringing a scientific mindset to the blockchain

Figure: Key Team Members

<table>
<thead>
<tr>
<th>Dr. Emin Gün Sirer</th>
<th>John Wu</th>
<th>Kevin Sekniqi</th>
<th>Ted Yin</th>
<th>Lee Schneider</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO &amp; Founder</td>
<td>President</td>
<td>COO</td>
<td>Chief Protocol Architect</td>
<td>General Counsel</td>
</tr>
</tbody>
</table>

- **Dr. Emin Gün Sirer**
  - Associate Professor (on leave) from Cornell University
  - Creator of first PoW based currency Karma, Bitcoin-NG, Bitcoin Covenants
  - Author of seminal Bitcoin Selfish Mining Paper
  - In 2003, published the first cryptocurrency that uses distributed mint based on PoW

- **John Wu**
  - Former CEO of the Digital Assets Group at SharesPost
  - Founder of $500 million hedge fund, Sureview Capital
  - Former portfolio manager at Kingdom Capital and analyst at Tiger Management
  - Received MBA from Harvard Business School and BS from Cornell University

- **Kevin Sekniqi**
  - Cornell PhD Candidate 2021 (currently on leave)
  - Former researcher and software engineer at Microsoft
  - Former researcher and software engineer at NASA Jet Propulsion Laboratory

- **Ted Yin**
  - Cornell PhD Candidate 2021
  - First author of Hotstuff Consensus Protocol Paper, used by Facebook Libra Blockchain
  - Former research assistant at Vmware, SpeechLab of Shanghai Jiao Tong University, and the Institute for Infocomm Research

- **Lee Schneider**
  - Former General Counsel at Block.One, where he played a key role in that company’s token sale
  - Former Counsel at Debevoise & Plimpton
  - Co-founded Global Blockchain Convergence

Source: FSInsight, Ava Labs, Avalanche Foundation
Ava Labs History And Avalanche Protocol Development

In its short history, Avalanche achieved significant historic milestones

- Avalanche Consensus was initially outlined in a whitepaper by a pseudonymous group called Team Rocket in 2018, an idea Sirer and his colleagues were also pursuing. With those proofs, Sirer, Sekniqi, and Yin began Ava Labs to develop a novel layer-one blockchain based on the proposed breakthroughs.
- Since its founding, the project has raised $60 million, launched three testnets and the public mainnet of the protocol.

Figure: Avalanche Historic Milestones

**May 2018:** Cornell University professor and blockchain researcher Emin Gün Sirer launches Ava Labs in stealth to build a new cryptonetwork that offers high throughput, fast confirmation times, and decentralization for a wide range of dApps.

**June 2020:** Avalanche Foundation closed a $12 million private sale of its AVAX token led by Galaxy Digital, Initialized Capital, NGC Ventures, and Dragonfly Capital.

**August 2020:** Everest public testnet was launched, which was a fully-featured version of the network before mainnet. It added NFT support, more advanced smart contract utility, and network fees.

**May 2019:** Ava Labs comes out of stealth and launches private testnet of the Avalanche protocol that was first proposed in 2018.

**May 2020:** Denali incentivized public testnet was launched, distributing two million tokens to contributors.

**July 2020:** Avalanche Foundation raised $42 million during a 4.5 hour public sale of its AVAX token. The proceeds of the raise are used to continue growth and development of the network.

**September 2020:** Avalanche mainnet is launched to support a wide range of projects including stablecoins, lending, and swaps.
Cryptonetworks Are Platforms For The Next Era Of The Web

Web 3.0 promises to give users back control of their data & privacy

- The internet continues to evolve. Web 1.0 PC networks connected us online and gave us access to information and e-commerce payment gateways. Web 2.0 mobile-first social networks connected us to online communities while algorithms used our data to optimize user experience. Web 3.0 cryptonetworks consist of trustless protocols giving users back control of their data and privacy with DeFi applications natively embedded.

Figure: Evolution of the Web

<table>
<thead>
<tr>
<th>Web 1.0</th>
<th>Web 2.0</th>
<th>Web 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E-Commerce</strong> boom</td>
<td><strong>Social</strong> platforms</td>
<td><strong>Trustless</strong> DApps</td>
</tr>
<tr>
<td><strong>Financial</strong> capabilities</td>
<td><strong>Fintech</strong> meets Big Tech</td>
<td><strong>DeFi</strong> integrated crypto</td>
</tr>
<tr>
<td><strong>Browser</strong> data tracking</td>
<td><strong>Mobile</strong> always on big data</td>
<td><strong>Private</strong> user data &amp; governance</td>
</tr>
<tr>
<td><strong>Dedicated</strong> PC infrastructure</td>
<td><strong>Cloud</strong> centralized infrastructure</td>
<td><strong>Blockchain</strong> edge infrastructure</td>
</tr>
</tbody>
</table>

Value Captured

- 1990: $1.1 trillion
- 2030: $8.3 trillion

Source: FSInsight, Fabric Ventures Inspired. (1) Internet companies market cap as of 2000, (2) Big Tech market cap as of 2/9/2021
Avalanche Aims To Develop A Fully Internet-Native Economy

Avalanche may solve technical issues to support full range of dApps

- Early cryptocurrencies offered global, decentralized, non-sovereign, digital money. The second wave of crypto platforms built on the core technology and enabled the creation of ecosystems of programmable dApps. These dApps included DeFi products, NFT collectibles, and other yield-generating apps and use cases. However, these platforms proved to be slow and expensive, ushering in the third wave of cryptonetworks supporting a wider range of dApps.

Figure: Cryptonetwork Progression & Attributes

Source: FSInsight
Third-party developers are rapidly deploying new DeFi products on the Avalanche (Contracts) C-Chain. These decentralized applications span decentralized exchange, liquidity mining, lending, synthetic assets, and more.

Since its launch February 9th, Pangolin Exchange had $2.4B+ in total trading volume and $324M+ total liquidity. As tooling and DeFi primitives continue to be built, we expect more developers will flock to the Avalanche platform.

Figure: DeFi & Web3 Ecosystem Projects

Source: FSInsight, Ava Labs, Avalanche Foundation, Pangolin Exchange
Executive Summary

Technology Design

Avalanche Ecosystem

Investment Opportunity

Appendix Information
Avalanche May Offer A Solution To Network Congestion

Avalanche consensus is built to be fast, secure, and scalable

- Avalanche consensus does not require proof-of-work (PoW) but instead, uses proof-of-stake (PoS). Avalanche PoS is designed to offer strong probabilistic safety guarantees against adversarial actors without sacrificing throughput and scalability while being more energy efficient and green vs. PoW networks.

Figure: Avalanche Consensus Overview

### Avalanche Consensus Protocol

1. **Transaction (Tx) Issued**
2. **Validator Receives Many Tx’s**
3. **Confirm Tx is Valid**
4. **Valid?**
   - Yes: **Add Tx to List of Valid Tx’s**
   - No: **Ignore**
5. **Select K Random Validators (Weighted by Stake)**
6. **Query K Validators on Preferred Tx’s**
7. **Update Tx Confidences**
8. **Confidence Threshold Met?**
   - Yes: **Accept**
   - No: **Reject Any Tx’s In Conflict With Accepted Tx**

---

**Avalanche Consensus Protocol**

Avalanche offers a unique consensus protocol that combines classical consensus mechanisms with Nakamoto consensus methods to create an infrastructure layer that is both **secure** and **scalable**. In simple terms, the validator nodes on the main Avalanche network communicate their respective findings about the state of the network with each other to achieve a probabilistically-driven consensus. This dynamic facilitates transactions at speeds that are favorable compared to other layer 1 protocols.

### Classical vs. Nakamoto vs. Avalanche

<table>
<thead>
<tr>
<th>Feature</th>
<th>Classical</th>
<th>Nakamoto</th>
<th>Avalanche</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalable</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Highly Decentralized</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Low Latency</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>High Throughput</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Lightweight</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Green, Sustainable</td>
<td>✓</td>
<td>-</td>
<td>✓</td>
</tr>
</tbody>
</table>
Avalanche Architecture Enables Platform To Scale With Usage

Subnets can be launched to optimize for specific use cases

- Avalanche features three built-in blockchains (subnets) which are all validated and secured by the Primary Network. A subnet is a dynamic set of validators working together to achieve consensus on the state of a set of blockchains.
- Subnets are highly customizable blockchains, allowing for the creation of networks with unique properties and predefined rules such as type of virtual machine, governance, membership parameters, and regulatory compliance.

Figure: Avalanche Network Architecture Diagram

### Primary Avalanche Network
The Primary Network is a special subnet, and the members of all custom subnets must be a member of the Primary Network by staking at least 2,000 AVAX. The Primary Network validates the three built-in blockchains.

### Exchange Chain (X)
The X-Chain is the default asset chain on Avalanche and enables the creation of new assets, exchanging between assets, and cross-subnet transfers.

### Platform Chain (P)
The P-Chain is the metadata chain on Avalanche and coordinates validators, keeps track of active subnets, and allows for the creation of new subnets.

### Contracts Chain (C)
The Contract Chain is the default smart contract chain on Avalanche and enables the creation of any Ethereum-compatible smart contracts.

X-Chain use cases can also occur on C-Chain

Source: FSInsight, Ava Labs, Avalanche Foundation
Avalanche Token Overview

AVAX token accrues value as usage of the network increases

- AVAX is the native token of the network. It’s required to be staked for consensus security, provides the basic unit of account for the blockchain’s usage, and is used to pay transaction fees, which are burnt to accrue value to holders.
- Approximately 50% of the token distribution is allocated as staking rewards and the remaining 50% is split between public and private sale investors, the Avalanche Foundation, the Ava Labs team, grant program, and token airdrop.

Figure: AVAX Token Overview and Token Distribution

<table>
<thead>
<tr>
<th>AVAX Token Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
</tr>
<tr>
<td>Native Platform</td>
</tr>
<tr>
<td>Primary Purpose</td>
</tr>
<tr>
<td>Price</td>
</tr>
<tr>
<td>52 Wk Range (High/Low)</td>
</tr>
<tr>
<td>Market Cap ($M)</td>
</tr>
<tr>
<td>24H Volume</td>
</tr>
<tr>
<td>Circulating Supply</td>
</tr>
<tr>
<td>Initial Supply (Locked &amp; Unlocked) / Fully Diluted Supply</td>
</tr>
<tr>
<td>Supply Staked ($M) / % Initial Supply Staked</td>
</tr>
<tr>
<td>Supported Exchanges</td>
</tr>
<tr>
<td>Node / Staking Services</td>
</tr>
</tbody>
</table>

AVAX Token Distribution
Allocations to various stakeholders

- Staking Rewards
- Public Sale
- Team
- Foundation
- Community and Dev. Endowment
- Strategic Partners
- Private Sale
- Seed Sale
- Airdrop
- Testnet Incentive Program

Not Time-locked: 105.83 AVAX
Time-locked: 254.17 AVAX

Source: FSInsight, Ava Labs, Avalanche Foundation, Coinbase, Avascan
AVAX Token Supply Issuance Schedule
Supply cap of 720M with initial mainnet supply of 360M at launch

- AVAX token follows a programmatic supply issuance schedule. The team believes the rate of issuance is slow enough to avoid overly rapid native token inflation. Transaction fees, which are burned, can offset new issuance, and potentially create a deflating supply, if fees reach a sufficient level that exceed staking rewards.

Figure: AVAX Issuance Schedule and Initial Token Distribution

AVAX will reach its supply cap of 720M at a rate determined by the quantity of AVAX that is staked. The issuance rate can be amended by a vote of token holders.

AVAX has a burn and mint model in which user transaction fees are burned and newly minted tokens are rewarded to validators. The network may once day have a deflationary supply if tokens from fees burned exceed newly issued AVAX.

Source: FSInsight, Ava Labs, Avalanche Foundation, Avascan
AVAX Incentivizes Token Lockup With High Staking Rewards

Staking reduces circulating supply & allows the network to function

- Validators play a crucial role in processing transactions and securing the network. They must stake at least 2,000 AVAX to participate and receive token rewards based on proof-of-uptime and proof-of-correctness.

- AVAX also has governance properties and network nodes can vote on certain protocol parameters by staking. These may include specific protocol developments and the inflation/reward rate within pre-established boundaries.

**Figure: Competing Layer 1 Staking Rewards and % of Supply Staked**
Date: 5/16/2021

<table>
<thead>
<tr>
<th>Source: FSInsight, Avascan, Ava Explorer, StakingRewards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total AVAX Staked / Value Staked ($USD)</td>
</tr>
<tr>
<td>Staking Rewards (annualized)</td>
</tr>
<tr>
<td>Staking Ratio (% of Supply)</td>
</tr>
<tr>
<td>Total Active Validators / Delegators</td>
</tr>
</tbody>
</table>
Avalanche-Ethereum Bridge (AEB) Overview
The AEB brings interoperability to the network

- The goal of the AEB is to increase liquidity on the Avalanche platform and increase portability of projects across disparate blockchain ecosystems.
- Since the AEB was launched, the price of AVAX has performed well, commensurate with the post-bridge-integration performance of several other tokens.

“Bridges will play an increasingly important role in the evolution of DeFi, and the emergence of the first wave of DeFi applications and assets that function across chains….With this bridge so close to launch, we’ll soon see many new and familiar assets moving between these two ecosystems, providing users with more choice and opportunities for yield.” – Kevin Sekniqi, COO of Ava Labs.

Source: FSInsight, Ava Labs, Avalanche Foundation, Coinbase
Avalanche-Ethereum Bridge (AEB) Overview
The AEB brings interoperability to the network

- The AEB offers users of decentralized apps an alternative to the Ethereum blockchain using ChainSafe’s ChainBridge technology. Users can transfer ERC-20 and ERC-721 tokens from the Avalanche C-Chain to Ethereum, and back, creating an open channel between the two chains.

Figure: Avalanche-Ethereum Bridge Overview

Steps to Transfer Assets From One Blockchain to Another:
1. An event is emitted from a watched contract on the source chain
2. A handler function parses the event into a general bridge message, including destination chain ID
3. The message is passed to the router which forward it to the destination chain’s writer
4. The writer parses the message into a valid transaction and submits it to the chain

The Bridge is secured by Avalanche partners: Protofire, Hasquark, POA Network, and Avascan. Relayers approve and reject transfers based on a vote. If the vote passes a majority, the token transfer is approved.

Source: FSInsight, Ava Labs, Avalanche Foundation, ChainSafe
Ethereum Bottleneck Is Pricing Out Users & Transactions
New protocols may enable products requiring cheaper transactions

- As users dive into new DeFi products, transaction fees on the Ethereum blockchain have skyrocketed. High transaction fees can limit certain use cases and price out smaller users/transactions from the network.
- Ethereum has shown it is useful and has established significant network effects. However, new layer-one protocols focused on scalability and low fees could grow complementary ecosystems and enable novel use cases.

Figure: Ethereum Network 7-day Rolling Average Transaction Fee and Median Transfer Value
Date: 5/16/2020 – 5/16/2021

Average Transaction Fee
7-day Rolling Average

Median Transfer Value
7-day Rolling Average

Source: FSInsight, CoinMetrics
Avalanche Consensus aims to deliver optimal performance tradeoffs

- Blockchain base-layer protocols seeking to host a wide range of applications and build a robust digital economy are aiming to deliver an ideal mix of decentralization, security, and scalability with low transaction fees.
- Avalanche’s mainnet already offers a transaction settlement layer with characteristics that are highly competitive with the leading staking networks and proof-of-work cryptocurrencies across these metrics (defined in Appendix).

### Figure: Comparative Key Network Metrics

**Date:** 5/20/2021

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Scalability (TPS)</th>
<th># of Validators</th>
<th>Finality (Settlement Sec)</th>
<th>Transaction Fees ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalanche</td>
<td>4,500</td>
<td>971</td>
<td>3600</td>
<td>$0.46</td>
</tr>
<tr>
<td>Bitcoin</td>
<td>7</td>
<td>11</td>
<td>120</td>
<td>$9.69</td>
</tr>
<tr>
<td>Ethereum</td>
<td>1,000</td>
<td>50</td>
<td>22</td>
<td>$8.96</td>
</tr>
<tr>
<td>Algorand</td>
<td>1,000</td>
<td>100</td>
<td>7</td>
<td>$0.001</td>
</tr>
<tr>
<td>Cosmos</td>
<td>1,500</td>
<td>125</td>
<td>60</td>
<td>$0.05</td>
</tr>
<tr>
<td>Polkadot</td>
<td>1,000</td>
<td>297</td>
<td>6</td>
<td>$0.0001</td>
</tr>
<tr>
<td>Ripple</td>
<td>1,000</td>
<td>40</td>
<td>5</td>
<td>$0.0001</td>
</tr>
<tr>
<td>Stellar</td>
<td></td>
<td>40</td>
<td></td>
<td>$0.00002</td>
</tr>
</tbody>
</table>

PoW & PoS are somewhat apples and oranges; Bitcoin & Ethereum represent mining pools that control a majority of hashing power, which some view as a comparable measure for PoW vs. PoS decentralization.
Building Ecosystem In Fastest Growing Crypto Segments
New partnerships support efforts for rapid adoption and growth

- Since the platform’s inception, the Avalanche ecosystem has grown at a rapid pace. In all, 168 projects have been developed on, or integrated with, Avalanche in the past 7 months. The Avalanche Foundation continues to invite applicants developing DeFi products to participate in its grant program.
- In May 2021, A&T Capital, OKEx Blockdream Ventures, Blockwater, IOSG, Kernel Ventures, SNZ, SevenX Ventures, Tripara, and NGC Ventures announced a $20 million independent fund named AVATAR, launched with the mission to grow Avalanche’s presence in DeFi, NFTs, infrastructure, and tooling.

Figure: Avalanche Ecosystem Historical Growth & Future Growth Drivers
The grant program is designed to kickstart growth and provide resources for developers and other participants to grow the Avalanche ecosystem. 7% of the total token supply (~50 million AVAX) will be allocated to the Community & Developer Endowment, of which the Avalanche-X program is part.

To date, the program has funded critical infrastructure and applications including block explorers, payment and trading products, an educational platform, and node and wallet infrastructure, amongst other tooling.

---

**Eligibility**
The Avalanche Foundation will consider all applications, whether the applicant is new to the space or a seasoned developer, as long as they want to help grow the Avalanche ecosystem.

**Project Requirements**
All projects must contribute to the growth of Avalanche, as a fully open-source and decentralized ecosystem.

**Grant Size**
The grant amount depends on the complexity and scope of the project. The maximum limit is $250,000 unless otherwise stated for specific grants.

---

**Cohort 1**
May 19, 2020

- Applications
  - NoTex
- Financial Products
  - Protocoh
  - Jelly Swap
- Tooling / Infra
  - AVADO
  - Figment
  - KURTOSIS

---

**Cohort 2**
October 6, 2020

- User Services
  - ablock
  - Magic
- Block Explorers
  - VSCOUT
  - AVASCAN
- Tooling / Infra
  - TESSERACT
  - HALBORN

---

Source: FSInsight, Ava Labs, Avalanche Foundation
Beyond DeFi and Web 3.0, the Avalanche Foundation and Ava Labs are building out tooling and infrastructure to support a wide range of crypto products and use cases.

Integrations with the leading crypto exchanges, wallets, stablecoins, and asset tokenization projects could fast track adoption and incentivize users to engage with the Avalanche network.

Figure: Avalanche Ecosystem (As of 5/14/2021)
Pangolin: Decentralized Exchange for Avalanche
A DEX that leverages Avalanche’s unique engine and architecture

Figure: Pangolin Overview

<table>
<thead>
<tr>
<th>Project Overview</th>
<th>Project Features</th>
</tr>
</thead>
</table>
| **Project:** Pangolin | **Community Governance**
| **Website:** pangolin.exchange | Pangolin does not have investors, team members, or other such stakeholders, and therefore development decisions are made by the entire community. Pangolin governance will enable modifications to the liquidity pools and a fee switch which diverts a portion of swap fees to a designated address.
| **Token:** PNG | **PNG Distribution**
| **Primary Purpose:** Native governance token | PNG is capped at a supply of 538 million tokens. The first 95% of tokens will fund liquidity mining, while the remaining 5% will be distributed in a community airdrop.
| **Price:** $2.47 | **Fast and Inexpensive Trading**
| **52 Wk Range (High/Low):** $2.06 / $4.75 | Pangolin is an AMM, which relies on a mathematical formula to price assets. The application sits atop Avalanche, which enables users to swap assets with sub-second finality and transaction fees as low as a few cents.
| **Market Cap:** $52.8M |    |
| **Creator:** N/A |    |
| **Industry Segment:** Decentralized Exchange |    |
| **Project Description:** Pangolin is a decentralized exchange (DEX) running on Avalanche. It uses the same automated market-making (AMM) model as Uniswap and features a native governance token called PNG. Pangolin is capable of trading all tokens issued on Ethereum and Avalanche. |    |

Source: FSInsight, Ava Labs, Avalanche Foundation, Pangolin.exchange, Avax Projects

For exclusive use of FSInsight clients only July 29, 2021 Slide 23
Polyient Games: Decentralized NFT Exchange for Avalanche
A non-custodial DEX with NFT capabilities

<table>
<thead>
<tr>
<th>Project Overview</th>
<th>Project Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project:</strong></td>
<td>Polyient Games Marketplaces</td>
</tr>
<tr>
<td><strong>Website:</strong></td>
<td>Polyient Games DEX will be featured in the Polyient Games Marketplace, which features unique offerings ranging from exclusive NFT auctions and a peer-to-peer NFT exchange system, as well as more liquid NFT trading products.</td>
</tr>
<tr>
<td><strong>Company:</strong></td>
<td>Polyient Games Marketplace</td>
</tr>
<tr>
<td><strong>Token:</strong></td>
<td>Token</td>
</tr>
<tr>
<td><strong>Primary Purpose:</strong></td>
<td>The DEX is powered by a utility token (PGT) representing a 1:1000 fraction of PGFKs, the membership and rewards NFT for the Polyient Games Ecosystem. PGT functions as a transactional unit and will act as the main trading pair for all fungible tokens on the Polyient Games DEX.</td>
</tr>
<tr>
<td><strong>Price:</strong></td>
<td>$173.98</td>
</tr>
<tr>
<td><strong>52 Wk Range (High/Low):</strong></td>
<td>$74.09 / $2,087.67</td>
</tr>
<tr>
<td><strong>Market Cap:</strong></td>
<td>$3.5M</td>
</tr>
<tr>
<td><strong>Founder &amp; CEO:</strong></td>
<td>Brad Robertson</td>
</tr>
<tr>
<td><strong>Industry Segment:</strong></td>
<td>Decentralized Exchange, NFTs</td>
</tr>
<tr>
<td><strong>Project Description:</strong></td>
<td>Polyient Games, the industry's first investment firm focused on non-fungible tokens (NFTs) and blockchain gaming, has partnered with Ava Labs to build a dedicated NFT decentralized exchange (DEX) on Avalanche</td>
</tr>
</tbody>
</table>

Source: FSInsight, Ava Labs, Avalanche Foundation, Polyient.games, Avax Projects
## Initial Litigation Offerings: Tokenizing a New Asset Class

Avalanche is bringing an emerging asset class to the blockchain

**Figure: ILO Overview**

<table>
<thead>
<tr>
<th>Project Overview</th>
<th>Project Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project:</strong></td>
<td><strong>Industry</strong>&lt;br&gt;Avalanche is bringing the estimated $10.0 billion litigation financing industry to the blockchain. Litigation financing arises from the need for certain plaintiffs in civil cases to obtain economic resources in a civil case.</td>
</tr>
<tr>
<td><strong>Website:</strong></td>
<td><strong>How it Works</strong>&lt;br&gt;Avalanche will offer tokens to the public to raise capital for a plaintiff. The plaintiff will use this capital to litigate their civil case. Each token will represent a claim on any monetary remedy once the case has been fully litigated.</td>
</tr>
<tr>
<td><strong>Company:</strong></td>
<td><strong>First Case</strong>&lt;br&gt;The first ILO scheduled to take place on Avalanche will be Apothio, LLC vs, the Kern County Sheriff's Office (“KSCO”). The plaintiff in the case, Apothio, LLC, is a California-based industrial hemp research, development, and commercialization company focused on hemp derivatives such as CBD. Apothio alleges that KSCO deliberately and wrongfully destroyed 500 acres of the plaintiff’s hemp farm, estimated to be valued at over $1.0 billion. The ILO is expected to be issued in 2021 and will allow investors to participate in any windfall from a victory in the case.</td>
</tr>
<tr>
<td><strong>Founded:</strong></td>
<td><strong>Project Description:</strong>&lt;br&gt;Ava Labs, Roche Cyrulnik Freedman LLP and Republic Advisory Services are bringing the Initial Litigation Offering (“ILO”) token into existence. Purchasers of the ILO token will fund civil cases in which a claimant requires additional resources, and the token holder will retain a legal claim on any potential financial recovery from the resulting decision of the legal proceedings. The ILO tokens will be issued on Avalanche.</td>
</tr>
<tr>
<td><strong>Industry Segment:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Project Description:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Website:</strong> ryval.market</td>
<td></td>
</tr>
</tbody>
</table>
Recent Platform Upgrades And Performance
Metrics indicate increased adoption following recent updates

- On March 31, 2021, Avalanche launched its first major network upgrade, Apricot, to reduce fees and create an overall more dynamic fee structure. Since that time, usage has increased as evidenced by the growth in aggregate burned fees.
- Since the AEB launched in February, the network has executed approximately 2.5 million smart contract transactions on its C-chain.

Figure: Performance Metrics Overview

**Smart Contract Transactions**

**Cumulative Fees Burned (AVAX)**

Avalanche is becoming a novel destination for DeFi developers now that there is an on and off ramp to the Ethereum blockchain.

Fees burned have continued to rise, despite the reduction in per transaction fee rates, illustrating market demand for more highly scalable low-cost decentralized applications.

Source: FSInsight, Ava Labs, Avalanche Foundation
Since launching its Mainnet in September 2020, Avalanche has experienced rapid adoption and user growth as evidenced by the daily fees transacted on the network.

### Assessing Performance

**Capital Staked**
In any proof-of-stake environment, it is important to assess the amount of capital invested on the platform in the form of staked assets. Per the statistics displayed on slide 18, the amount of Avalanche staked as a percent of total market capitalization is greater than any other competing Layer 1 protocol.

**Fees Generated**
The amount of aggregate daily fees generated on the platform is #4 among all layer 1 protocols (See charts to the right). This indicates organically growing demand among developers and users and signifies demand for block space, a finite resource.

**Projects**
As shown on slide 22, there are already 168 projects built on/integrated with the Avalanche platform with new partnerships being announced daily.

---

**In comparing early network usage of the top Layer 1 Protocols, AVAX outpaces both BTC and ETH**

<table>
<thead>
<tr>
<th>Name</th>
<th>1 Day Fees</th>
<th>7 Day Avg. Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ethereum</td>
<td>$60,761,293.14</td>
<td>$70,674,003.32</td>
</tr>
<tr>
<td>2. Bitcoin</td>
<td>$3,532,286.03</td>
<td>$4,700,515.34</td>
</tr>
<tr>
<td>3. Dogecoin</td>
<td>$73,450.45</td>
<td>$119,115.53</td>
</tr>
<tr>
<td>4. Avalanche</td>
<td><strong>$46,146.10</strong></td>
<td><strong>$52,751.29</strong></td>
</tr>
<tr>
<td>5. Cardano</td>
<td>$26,558.51</td>
<td>$19,405.81</td>
</tr>
</tbody>
</table>

Only 7 months old, Avalanche is the fourth highest usage Layer-1 by aggregate daily fees.
• AVAX is a young token powering a nascent decentralized platform. Given the early-stage nature of this project, it is important to consider the qualitative factors that differentiate this Layer 1 Protocol from others vying for the same developer timeshare.

Value Proposition
Avalanche boasts a novel technology and a world-class team

- **Technological**
  - **Novel Approach to Consensus**
    Avalanche offers a unique protocol that achieves consensus differently than any existing classical or Nakamoto-style protocol. The scale and utility of this technology is potentially greater than any existing distributed computing platform available.

  - **Flexible Architecture**
    Avalanche’s architecture offers users a platform of platforms. Developers can use Avalanche’s subnets to build a wide array of projects, from permissioned private enterprise blockchains to permissionless decentralized exchanges (i.e. Pangolin).

  - **Wide Range of Use Cases**
    Thanks to the points noted above, Avalanche can house a vast range of projects including DeFi, CBDC, Private Blockchains, NFTs, and ILOs, among others.

- **Personnel**
  - **Team**
    It is important to highlight the world-class talent supporting Avalanche. Ava Labs founder, Emin Gun Sirer is a pioneer in the distributed systems space. He is surrounded by a growing team of business and science-oriented professionals with decades of relevant experience.

  - **Institutional Backing**
    The project is well capitalized by well-known investors in the crypto space such as Andreesen Horowitz, Initialized Capital, and Polychain Capital.

Build on Avalanche. Build without limits.

Source: FSInsight, Ava Labs, Avalanche Foundation
Risks To Consider
Potential risks to keep an eye on as the nascent platform grows

• The same factors that may make Avalanche a promising investment also carry risk that the team and developer community will need to address as the platform matures.

Figure: Risks to Consider in Evaluating the Avalanche platform

Risks

Market Risk
Although our prevailing view is that there will be several layer 1 protocols operating concurrently at scale, there remains a healthy competition in the layer 1 space for developer timeshare. Avalanche will need to attract a sufficient number of developers and users to help the platform grow. Often, it is not the best products that succeed, but the ones that achieve mass adoption first.

Technology Risk
As promising as the technology is, Avalanche’s consensus protocol and unique architecture carry inherent technological risk since it is unproven at scale.

Centralization Risk
To be considered a solution for developers in the Web 3.0 world, a platform must be sufficiently decentralized. Approximately 42% of the network’s initial tokens were allocated to those that we would consider insiders (development team, private investors, strategic partners) and are subject to extensive lockup periods. In a PoS system, value accrues to users who stake their tokens. Therefore, in the network's current state, value disproportionately accrues to early tokenholders. This introduces risk from a governance and network participation perspective.

That being said, this is a risk that the majority of PoS networks face, and Avalanche’s unique architecture is conducive to mitigating this risk. The staking threshold to be a validator on the network is currently 2,000 AVAX and is expected to be reduced to 500 AVAX once governance is implemented, thus making Avalanche among the more accessible distributed platforms in existence. For instance, at the time of writing, 500 AVAX would equate to approximately 10% of the required value to stake on ETH 2.0. Nonetheless, the rate at which validating nodes enter the fold is something to monitor moving forward.

Source: FSInsight, Ava Labs, Avalanche Foundation, Avascan
## Appendix - Comparison of network stats, category descriptions and sources

<table>
<thead>
<tr>
<th></th>
<th>Scalability (TPS)</th>
<th># of Validators (Consensus Nodes)</th>
<th>Security (Settlement Sec)</th>
<th>Transaction Fees ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avalanche</td>
<td>4,500</td>
<td>971</td>
<td>2</td>
<td>$0.46</td>
</tr>
<tr>
<td>Bitcoin</td>
<td>7</td>
<td>11</td>
<td>3600</td>
<td>$9.69</td>
</tr>
<tr>
<td>Ethereum</td>
<td>15</td>
<td>50</td>
<td>120</td>
<td>$8.96</td>
</tr>
<tr>
<td>Algorand</td>
<td>1,000</td>
<td>100</td>
<td>22</td>
<td>$0.001</td>
</tr>
<tr>
<td>Cosmos</td>
<td>1,000</td>
<td>125</td>
<td>7</td>
<td>$0.05</td>
</tr>
<tr>
<td>Polkadot</td>
<td>1,000</td>
<td>297</td>
<td>60</td>
<td>$0.0001</td>
</tr>
<tr>
<td>Ripple</td>
<td>1,500</td>
<td>40</td>
<td>4</td>
<td>$0.001</td>
</tr>
<tr>
<td>Stellar Lumens</td>
<td>1,000</td>
<td>40</td>
<td>5</td>
<td>$0.00002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalability</td>
<td>Ava Labs</td>
</tr>
<tr>
<td>Throughput (transactions per second) capacity of the network</td>
<td>Avalanche Foundation</td>
</tr>
<tr>
<td></td>
<td><a href="https://ripple.com/xrp/">https://ripple.com/xrp/</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://avalscan.info/staking/validators">https://avalscan.info/staking/validators</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://polkadot.subscan.io/validator">https://polkadot.subscan.io/validator</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://www.etherchain.org/charts/topMiners">https://www.etherchain.org/charts/topMiners</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://www.blockchain.com/charts/pools">https://www.blockchain.com/charts/pools</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://stellarbeat.io/">https://stellarbeat.io/</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://xrpscan.com/validators">https://xrpscan.com/validators</a></td>
</tr>
<tr>
<td>Consensus Nodes</td>
<td><a href="https://burnedavax.com/">https://burnedavax.com/</a></td>
</tr>
<tr>
<td>Number of nodes/miner entities primary affecting technical network consensus (issuing ledger changes) in the last 24 hours</td>
<td><a href="https://polkadot.subscan.io/tools/charts">https://polkadot.subscan.io/tools/charts</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://ethgasstation.info/">https://ethgasstation.info/</a></td>
</tr>
<tr>
<td>Finality</td>
<td><a href="https://burnedavax.com/">https://burnedavax.com/</a></td>
</tr>
<tr>
<td>Number of seconds before a transaction is expected to be considered secure against double spend attempts based on historical precedent of reversed transactions</td>
<td><a href="https://polkadot.subscan.io/tools/charts">https://polkadot.subscan.io/tools/charts</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://ethgasstation.info/">https://ethgasstation.info/</a></td>
</tr>
<tr>
<td>Transaction Fees</td>
<td>Ava Labs</td>
</tr>
<tr>
<td>Average transaction fee on the network</td>
<td>Avalanche Foundation</td>
</tr>
<tr>
<td></td>
<td><a href="https://ripple.com/xrp/">https://ripple.com/xrp/</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://investorplace.com/2021/01/stellar-lumens-should-increase-in-value/">https://investorplace.com/2021/01/stellar-lumens-should-increase-in-value/</a></td>
</tr>
</tbody>
</table>
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Neutral (N): The analyst expects the performance of his or her industry/sector coverage universe over the next 6-18 months to be in line with the relevant broad market benchmark, being the S&P 500 for North America.

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