

# Piccolo Research

Independent research on blockchain startups and ICO's

## An independent review of **Jura Network** (JURA)

3 September 2018 - Lennard Neo

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# JURA NETWORK (JURA)

## A Fusus DAG structure with dynamic sharding for widespread adoption of dApps

### Summary

Jura is seeking to create a highly scalable protocol for the next generation of blockchains. It uses a multi chain approach that includes blockchain, block lattice and DAG (Directed Acyclic Graph) model to create the FUSUS data structure, which promises dynamic capabilities to entice commercial scale adoption.

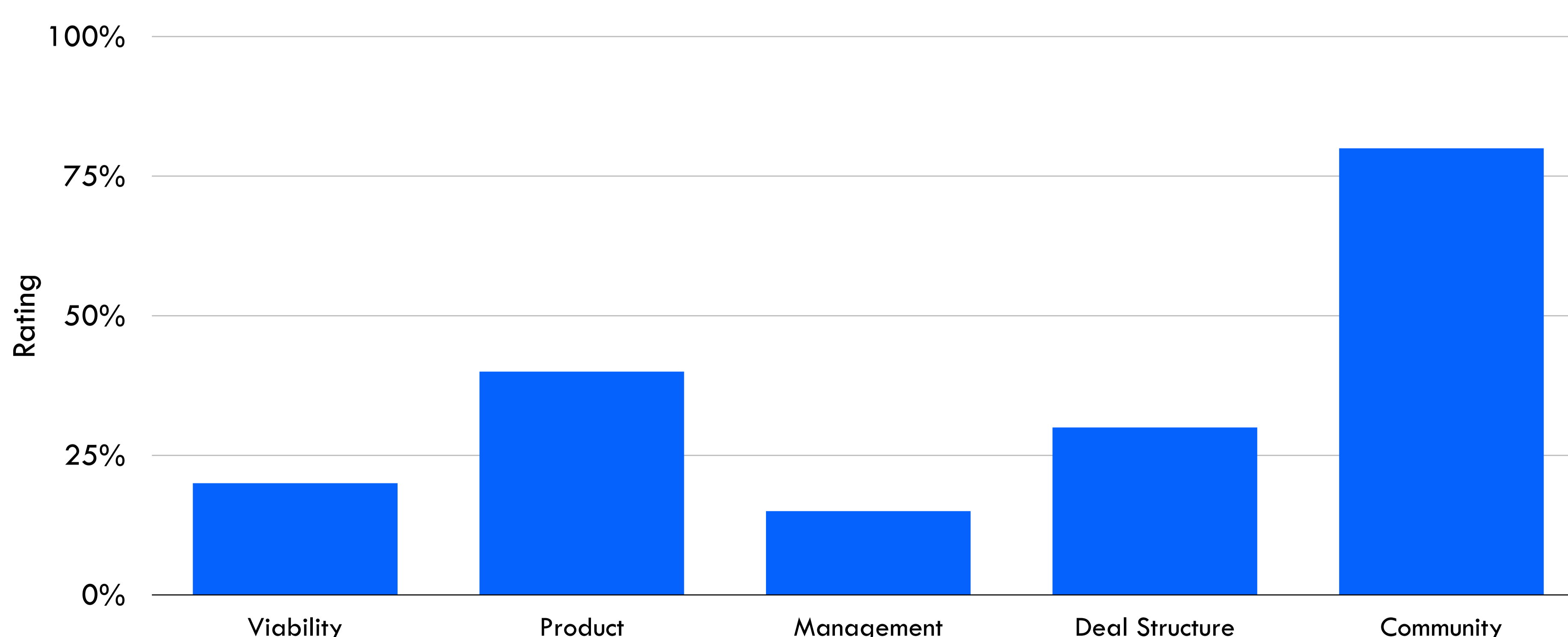


### Company overview

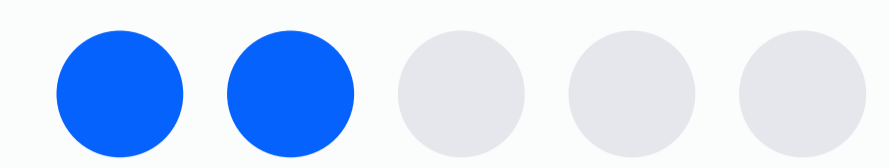
JURA network is incorporated in Singapore with an aim to build an ultrafast, feeless, decentralised protocol. The platform is designed to be used by all industries varying from IoT to finance to supply chain. A robust system utilising various features will be built to balance the tradeoffs between decentralisation and scalability. Several issues Jura seek to resolve includes:

- The slow confirmation times on blockchains that prevents instant finality
- Limitations of current blockchain that could impede the future scalability of the technology
- Improving current DAG structures that are vulnerable to attacks

### Birds-Eye View



Avoid



#### General

|              |                            |
|--------------|----------------------------|
| Ticker:      | JURA                       |
| White Paper: | <a href="#">Click here</a> |
| Sale Period: | September 2018             |
| Website:     | <a href="#">Click here</a> |

#### Sale info

|              |                |
|--------------|----------------|
| Pricing:     | TBA            |
| Accepted:    | ETH            |
| Min Goal:    | NA             |
| Cap:         | \$20m          |
| Token Sale % | 20%            |
| Escrow:      | Smart Contract |
| Bonus:       | NA             |

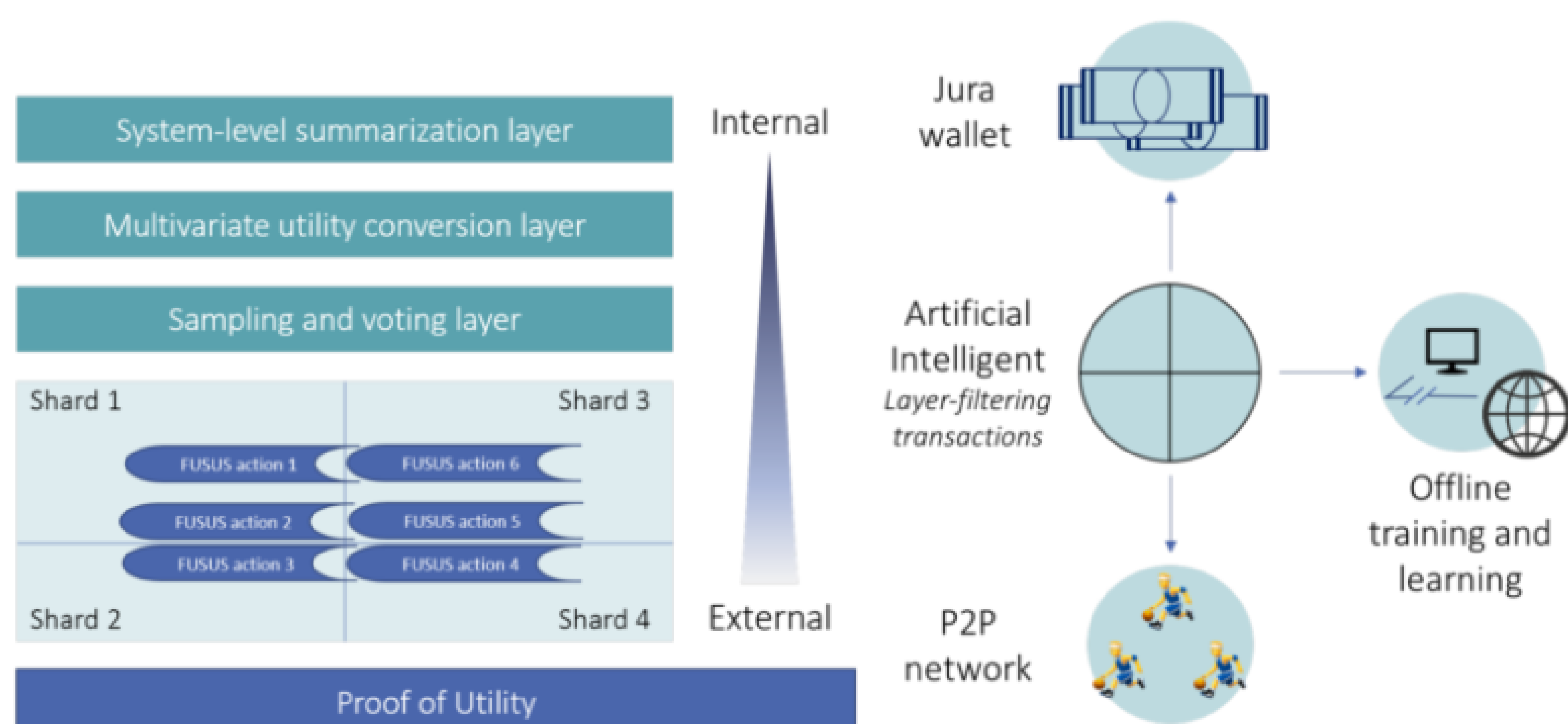
#### Checklist

|             |   |
|-------------|---|
| Management: | ⚠ |
| Product:    | ⚠ |
| Commercial: | ⚠ |
| Interest:   | ✓ |
| Fulfilment: | ⚠ |

## Commercial & Technical Strategy

Jura is building a proprietary protocol using a suite of different technologies that includes sharding, DAG data structure, dynamic PoS (Proof of Stake) algorithm, and A.I. capabilities. The product will be highly scalable, reliable, and able to achieve quick finality. Built for commercial adoption, Jura will be a genuinely decentralised platform with customizable functionality. Several core elements include:

- **Fusus Data Structure** – A proprietary Directed Acyclic Graph (DAG) structure that is dynamically adjusted according to traffic volume. Fusus adopts a chain like structure during low volumes and DAG like structure during high volumes. The ability to prioritise receiving and sending of transactions allow the rehashing and pruning of historical data, which in turn enhances efficiency. Proof of Verifiable Random Time (PoVRT) is also integrated to prevent malicious spamming attacks.
- **Proof of Utility (PoU)** – A dynamic PoS consensus algorithm that utilises 4 variables (stake size, the age of account, average staking time, last staking time) to determine the score of a user. PoU scores are determined by a cumulative density function, which makes it difficult for hostile users to game the system.
- **Dynamic Monitored and Distributed Sharding (DMDS)** – Like other typical sharding techniques, shards are created to enhance horizontal scalability of the network. DMDS consists of 3 layers namely a routing layer (assigns incoming transactions), a validation cache layer (authorisation layer) and a monitor layer (moderator).
- **A.I. Security** – Artificial intelligence is added to enhance the safety of the network. The framework is built based on 3 modules, namely; online logging module, offline training module, and online serving module.



## **Roadmap**

The roadmap presented by the team only includes technical developments. There is currently no MVP nor GitHub code available. Here, we cite some significant milestones:

- Q3 2018 – ICO launch, development of PoU based consensus and Fusus framework
- Q4 2018 – Integrate sharding, Testnet launch
- Q1 2019 – Embed data storage and smart contracts
- Q2 2019 – Mainnet launch, VM beta

## **Token Sale**

JURA is the utility token powering the platform. A total of 1b JURA tokens will be minted, with a hardcap of \$20m. 20% of total tokens will be sold, which translates to a diluted market cap of \$100m should the project hits its intended hardcap.

## **Token Lock-up**

Tokens sold during seed and private rounds will have a 1-year vesting schedule.

## **Token Use**

The main token functionalities of Jura tokens are 4 folds:

- Currency/ payment transaction – Jura tokens circulated will operate as a medium of exchange between service providers and end users
- Coordinator (Staking/ Mining) – Users will be able to earn Jura tokens by locking up their tokens in the network. They function as moderators of the system to monitor the information in the shards
- Storer – Jura tokens are rewarded to users who provide data storage and high bandwidth for the execution of transactions
- Judger – Highest PoU scores will become the final decision makers in the event of misbehaviours

## **Investors**

The team has not released any information on investors details. More details will be released soon.

## Team

The team compromise of 7 employees, all of whom graduated from top-notch universities. Some notable members include:

**Iris Yang (Founder)** – Iris had a total of 2 years of experience and was previously an investment researcher with Fortune Ventures. She holds a bachelor's degree in applied mathematics from Columbia University.

**Donglin Wu (Co-Founder)** – Has over 8 years of experience that includes investment banking with Galileo Global Securities and a serial entrepreneur having found QuanziCRM, INVITE social network and Dimensional Strategies hedge fund. He holds a bachelor's degree in global business and mathematics from the University of Redlands.

**Xiang Ma (Co-Founder)** – He has over 5 years of experience as a software engineer, and has worked for companies such as Google, Yahoo and Microstrategy. He holds a master's degree in computer science from Columbia University.

**Seter Kwok (Co-Founder, Chief Protocol Engineer)** – Previously a software engineer at Google for 1 year before joining Jura. He holds a bachelor's degree in computer science from Peking University.

**Alex Dang (Co-Founder, Director of Enterprise Partnerships)** – He has over 3 years of experience as an external consultant with a law firm. He holds a PhD in bioengineering and biomedical engineering from Columbia University.

**Jonathan Hsu (Co-Founder)** – Experience in randomised theories, algorithms and distributed systems and was a research assistant at MIT. He holds a PhD in computer science from MIT.

**Cameron Wang (Chief Cryptographer and Systems Architect)** – He was a teaching assistant at Princeton University for 3 years before joining Jura. He holds a PhD in Mathematics from Princeton University.

## Advisors

There is currently 1 advisor for the project.

**Jia Tian (Advisor)** – Chief Scientist @ Cortex Labs, Advisor @ Lambda, CNN Blockchain, DDEX, IOST

## Partnerships

**Cortexlabs.ai** – Cortex is a machine learning firm, which will help Jura to develop the security AI layer of the platform

## Competitor Analysis

There are several strong competitors within the block lattice DAG segment. We have identified two projects that portray significant similarities within Jura's competitive landscape.

| Project Name                         | Jura                                    | Nano                                      | QLC Chain                                 |
|--------------------------------------|---|---|---|
| <b>Infrastructure Type</b>           | FUSUS DAG                               | Block-Lattice DAG                         | Multidimensional Block Lattice            |
| <b>Symbol</b>                        | JURA                                    | NANO                                      | QLC                                       |
| <b>Consensus Algorithm</b>           | PoU                                     | DPOS                                      | DPOS + Shannon Consensus                  |
| <b>Transaction per Seconds (TPS)</b> | Theoretical: Unlimited<br>Practical: NA | Theoretical: Unlimited<br>Practical: 7000 | Theoretical: Unlimited<br>Practical: 3500 |
| <b>Product Stage</b>                 | Proof of Concept                        | Mainnet                                   | MVP                                       |
| <b>Initiation Year</b>               | 2018                                    | 2015                                      | 2017                                      |
| <b>Fund Raising Amount</b>           | \$20m                                   | No ICO                                    | \$19.3m                                   |
| <b>Token Sale Proportion</b>         | 20%                                     | NA  | 40%                                       |
| <b>Current Token Price</b>           | NA                                      | \$2.93                                    | \$0.075                                   |
| <b>Market Cap Valuation</b>          | \$100m (Intended diluted mkt cap)       | \$391m                                    | \$17.9m                                   |
| <b>Returns since ICO (vs USD)</b>    | NA                                      | 320x <sup>1</sup>                         | 0.72x                                     |

Figures as of report date, source: Coinmarketcap, ICOdrops

<sup>1</sup>: Returns upon exchange listing

## Strengths

- A Fusus DAG structure that is dynamic and adjusts accordingly to network volume, thus increasing efficiency
- A governance model with verifiable random time mechanism to safeguard against double spending and spam attacks
- A well thought of PoU consensus algorithm using several time variate metrics to determine credibility

## Weaknesses

- Inexperience team on both commercial and technical front as compared to other similar projects
- Product development team relatively small
- Project is lacking a team of advisors
- Partnerships are limited with only 1 announced recently
- The whitepaper is incomplete with only half of the consensus mechanism explained
- No MVP or GitHub available
- The roadmap has limited visibility on the business development front of the project

## Opportunities

- **Resolving issues of DAG structures** – There are several underlying issues with DAG structures such as vulnerabilities to spam attacks, double spending, centralisation and lack of network traffic. With a Fusus data structure, Jura provides a scalable solution with a dynamically distributed ledger that adjusts itself base on network traffic. This enhances efficiency without compromising the security and decentralisation of the network.

## Threats

- The project is entering a highly saturated market overcrowded with block-lattice DAG based projects
- Utilizing several metrics embedded within the consensus algorithm would slow down the calculation speed, and eventually the TPS. Furthermore, calculating PoU scores on a daily or weekly basis might not be practical given that continuously changing stake sizes within the network
- The idea of creating new genesis blocks on a rolling basis has been explored in early 2017 on project forums such as DASH, IOTA, etc. Until now, there is still no known efficient solution able to tackle this concept in its entirety. Issues such as the efficiency of data propagation among nodes, verifying blocks in an environment where RTs are continually being processed, and the extended delay within the network between new genesis blocks, are yet to be explored practically

## Conclusion

In conclusion, Pico Research presents an **'Avoid'** rating on Jura Network. The project does not offer a unique niche that differentiates itself distinctly from other similar projects, crowning it is as yet another typical blockchain infrastructure project. Furthermore, gaining a foothold in adoption is a critical element in this competitive market, of which the project mentioned no specific business plans.

Overall, for the reasons listed below, Pico affirms its rating on Jura:

- The project is late in entering this space, which ranks it as a lagger amongst its competitors
- No significant partnerships formed that is crucial to network adoption in this highly saturated market
- It has been more than 9 months since the inception of the project with no MVP nor GitHub code available, casting doubt on the ability to achieve their milestones
- The team is lacking the depth regarding experience in comparison to its competitors
- No public information on technology and cryptography research thesis done by the PhD members of the team prior to the project
- Currently, there is only 1 member on the advisory board with no independent advisors
- Lack of conclusiveness in the whitepaper as details are incomplete. The consensus mechanism was only partially described, and the portion to penalise dishonest behaviours have not been discussed
- High valuation of \$100m is not justifiable comparative to the market cap of QLC chain (with an MVP) that currently has a market valuation of ~\$18m
- More established projects have been looking to explore similar technology since 2017, but no breakthrough has yet to be developed

Notwithstanding the above, Pico acknowledges that Jura is still in its early stages and that further developments are still underway. However, given the availability of current information presented by the company, it is difficult to disregard the concerns that have surfaced from our research.

In light of the preceding, we recommend an **'Avoid'** rating on Jura as we believe there are significant risks associated with the project.



## About the Analyst

Lennard specializes in fundamental and technical analysis in digital asset investments. He became acquainted with blockchain, cryptocurrency and ICOs in 2016, and recently decided to take a meaningful step away from traditional banking to join this industry. Previously, Lennard spent 3 years with an investment bank in forex and debt capital markets. Prior to this, he also had entrepreneurship experience working with an e-commerce startup and a local social enterprise. Lennard graduated with a master's degree in Applied Finance and is fluent in English, Chinese with a basic in Korean. He is a CFA level III candidate.

## Ratings Definition

**Avoid** – Investment is associated with high risk of losing capital

**Hold** – To maintain current levels of position until the next updated release

**Spec Buy** – A speculative opportunity for investors with higher risk tolerance

**Buy** – A high conviction buying opportunity

## Disclaimer

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### Contact us

w: [www.astronaut.capital](http://www.astronaut.capital) | [www.picoloresearch.com](http://www.picoloresearch.com)

e: [admin@astronaut.capital](mailto:admin@astronaut.capital)

a: 3 Fraser Street, DUO Tower, Level 5, Singapore 189352