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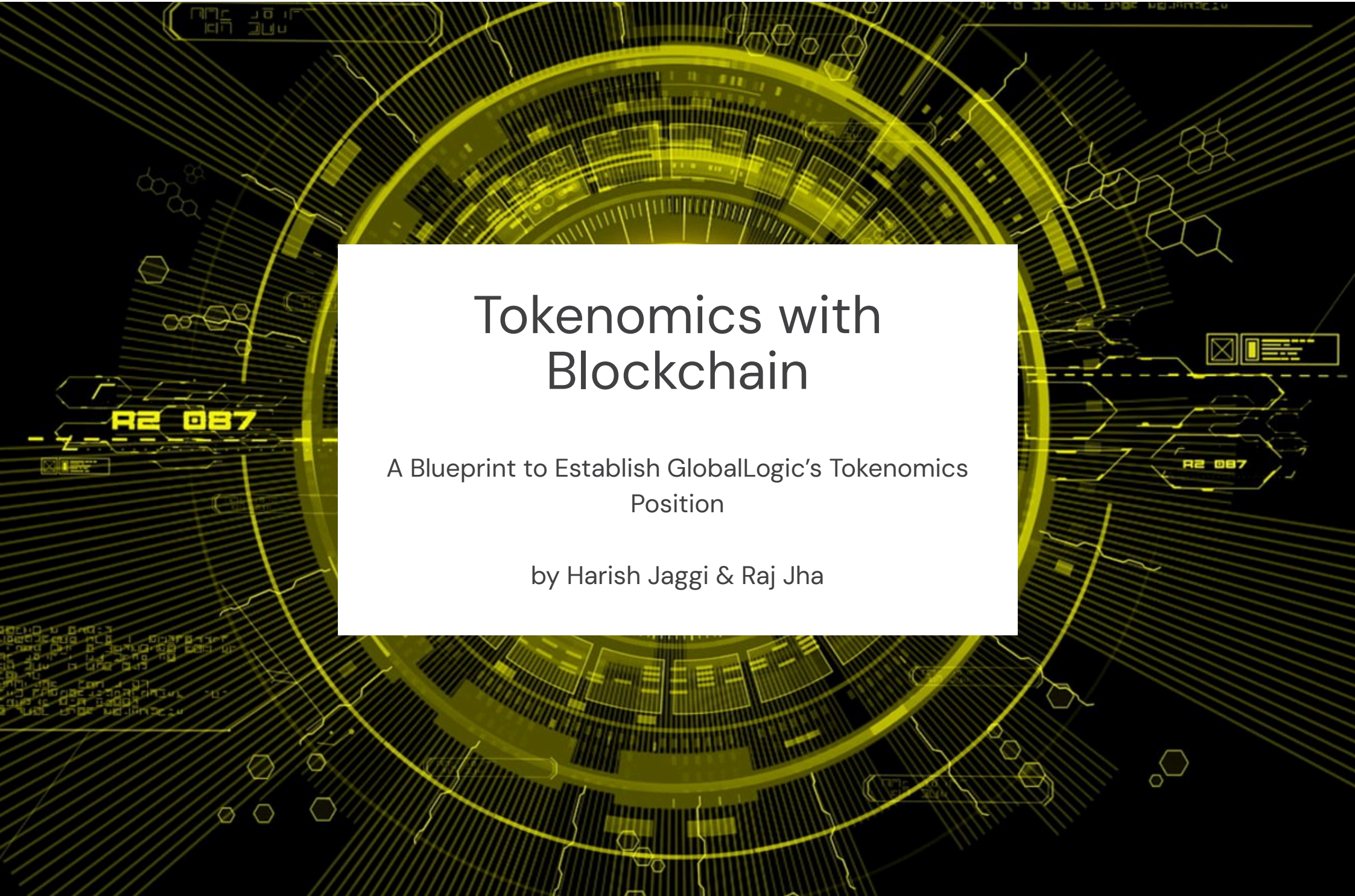


Tokenomics with Blockchain

A Blueprint to Establish GlobalLogic's Tokenomics Position

by Harish Jaggi & Raj Jha

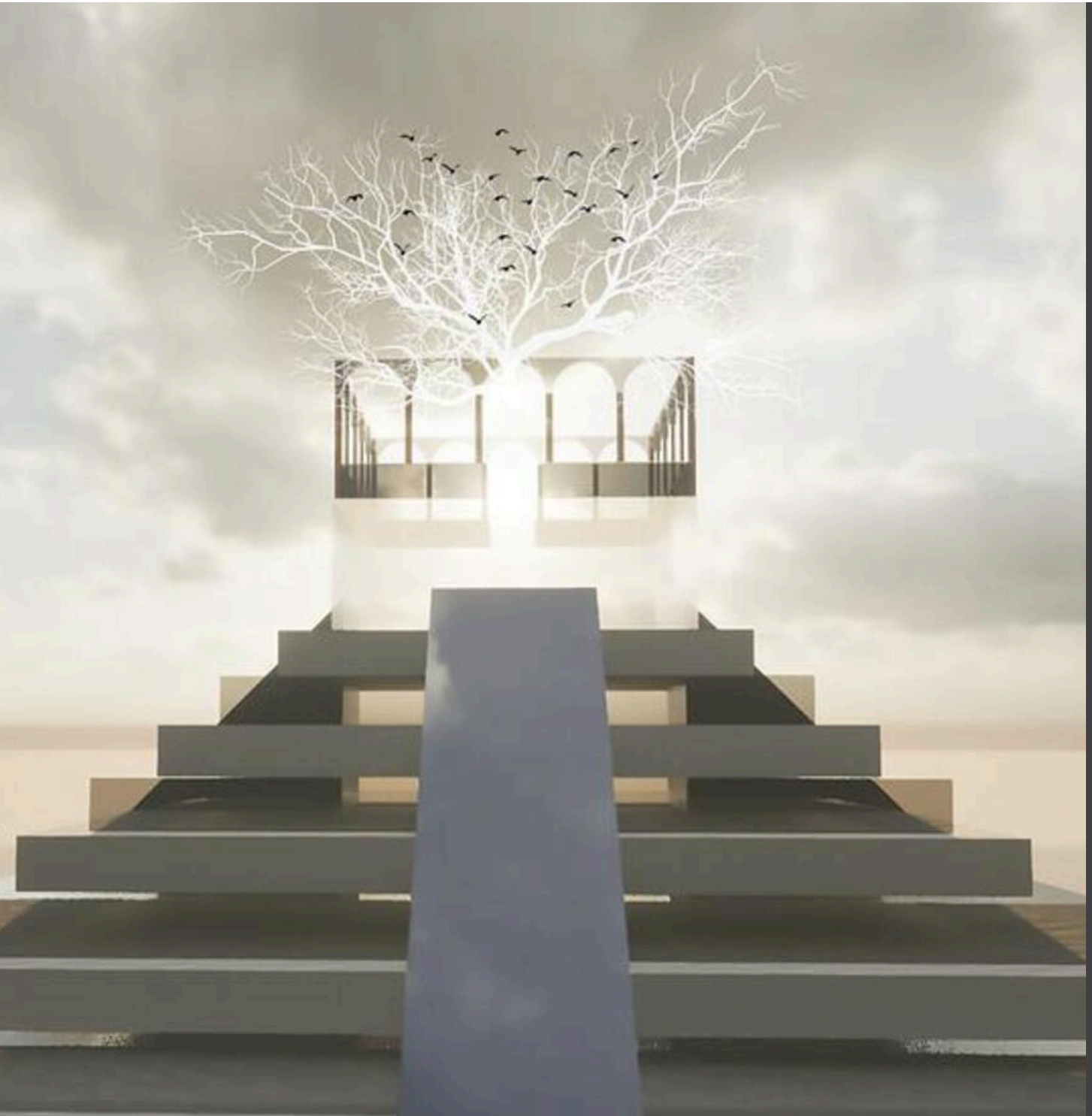
Table of Contents

Or, navigate directly to a section of your choice.

Abstract

This paper is a blueprint to establish GlobalLogic's tokenomics position and develop an accelerator others can emulate in various token-based utilities. We'll discuss tokenomics principles, their importance in the current environment, challenges, key levers, design principles, and GlobalLogic's vision for tokenomics.

We've compiled the accelerator architecture, technology stack, details of key ERC standards, and potential benefits for everyone's benefit. These initiatives can be useful for blockchain practice and raise GlobalLogic's stature to the next level of excellence in blockchain.



Background

With the inception of and research around cryptography-based currencies and networks, there is a real need to devise an innovative, economic model based on game theory to bring intuitive incentives for network participants; for example, suppliers, buyers, sellers, and service providers.

This model is radically different from traditional ones. This new model is known as 'cryptonomics' and enables a decentralized network and the protocol to achieve two objectives:

- **Study and predict** network participant patterns over time.
- **Detect behavior** of external entities who can join the network as malicious nodes intending to sabotage the system.

Cryptonomics is limited to cryptocurrencies and does not include digital tokens built on decentralized platforms (except those based on cryptocurrencies). Examples include carbon emission, carbon sequestration, identity documents, contracts, usage rights, etc.

Broader Concepts of Tokenomics

To get a return on investment (ROI), the creators of a digital token should have a strategy to create value and demand for it. The right incentive and distribution model can make a token appealing to investors or users, driving up the token's price.

Incentive Model: Impacts actors and personas directly and is the primary factor in ensuring an ROI.

Distribution Model: Generates network effect. Creating a cascading impact and spreading the word about the decentralized system to bring more participants to the platform is critical.

Every token employs a different mechanism to generate demand and value due to its unique makeup to manage supply, fee, grant, stake, and reward tokens. The study of the economics of tokens is known as 'tokenomics.'

In this guide, we'll primarily focus on the tokenomics of endogenous tokens generated by decentralized platforms (blockchain), to settle transactions and generate value from underlying economic activities within the platform.

Home

Why Businesses Need Tokenomics

Businesses can create a self-governed microeconomy on a decentralized network with their own currency or tokens.

In the past few years, most of these artificial economies or initial coin offerings have failed because creators didn't study or analyze their tokenomics. Instead, there's been a race to generate buzz and make quick money.

This hasn't impressed investors, as the creators didn't try to create a management strategy for their currencies. Speculation-based returns are too risky and unstable, which is why these currencies failed.

Below are the prominent reasons supporting the need for tokenomics:

1. A micro-economy can have the same problems as a traditional economy, such as volatility, inflation, and crashes. These problems can impact the long-term viability of a decentralized network-based business.
2. Helps to predict the suitable incentive models for network participants.
3. Helps to predict the proper distribution model to generate network effects.
4. Automates the data collection on transactions to create matrices for the network, product, services, user adoption, the volume of transactions, etc.
5. Can generate the token fee, grant, and stake model.
6. Predicts the accurate price of the token.

Fundamental Challenges in Tokenomics

Tokenomics can be challenging for many reasons. Some of these include:

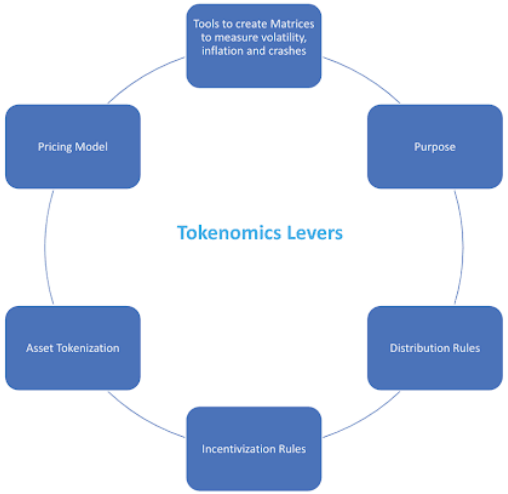
- Lack of standardization and institutionalization of techniques,
- models, and tools.
- Potentially expensive and cumbersome to construct bulletproof tokenomics for a network as this requires a team of mathematicians, economists, product specialists, architects, and programmers to run correctly.
- Identifying the proper consensus mechanism for a network.
- Conflicting incentive model design.
- Infrastructure investment.
- In the pre-ICO stages, economists generate tokenomics based on prediction as there aren't any users or clients available at this stage.

Home

Levers of Tokenomics

We have extensively researched several successful and unsuccessful token-based ICOs.

These are the major designing levers in tokenomics:



Lever: Purpose of Token

Description: The token needs meticulous planning and thorough analysis.

Design Principles: Different platforms use tokens for different purposes, as listed below.

1. To Provide Ownership to Users - These tokens enable users to own Voting, Contribution, and Access to products/services. Examples: Numerai, DigixDAO, FirstBlood, and Tezos.

2. As Value Exchange Unit - These Tokens are used to exchange value within the platform ecosystem. Users can earn a token either by completing real work or by sharing data. Examples: Numerai, Steemit, Kik, Tezos, and Augur.

3. Pay Per Use - Used to pay freeway toll, security deposits, etc. Examples: Gnosis, Augur, Melonport.

4. To provide Incentive - Provides an incentive to join a network with proper onboarding processes. Examples: Dfinity, Steemit, Civic.

5. Token as Currency - Used for frictionless transactions within closed ecosystem. Examples: Dfinity, Steemit, Civic.

6. Others - Earning sharing Token, Loan Token, etc.

Lever: Distribution Rules

Description: The token distribution model is crucial for the token's genesis and its lifecycle.

Design Principles: Token distribution methods include those below.

1. ICO – ICO is an unregulated mechanism where the startup platform raises funds against their product/services whitepaper. The whitepaper defines the product/services, fund requirement, ICO time period, etc. Investors get platform tokens as 'shares' for their investment.

2. Auction - Dutch auction-based token distribution driven by sellers.

3. Token Farming - Platform rewards liquidity providers with their own platform token in proportion to the amount of liquidity each provider commits.

4. Community Sale - Token holders can get access to a particular community or society based on the decentralized network with intuitive perks and rewards.

Level: Asset Tokenization

Description: There must be a strategy for tokenizing the platform's assets that is in line with the long-term vision of the investors.

Design Principles: The most prominent mechanisms to tokenize assets are:

1. NFT - Non-fungible token, where tokens are unique (non-interchangeable and non-divisible).

2. FT - Fungible tokens are employed for payment and settlement currency. Here the value lies in the token's utility.

Lever: Incentive Rules

Description: Incentive rules generate buzz among participants, programmers, users, and personas.

Design Principles: Platforms can define their own incentive rules. For example:

1. Management should reward appropriate user behavior, and inappropriate behavior must be penalized.

2. The reward scheme should include network referrals.

3. If the personas use the platform beyond the stipulation, you can reward this as a motivational tool.

4. Suppose the user is ready to use native tokens instead of other currencies, especially fiat. In that case, incentives significantly raise curiosity in favor of a new token offering.

Lever: Pricing Model

Description: Pricing a token is the most challenging part of tokenomics since it's not only dependent on apparent but also on non-apparent factors.

Design Principles: Some factors which can directly influence the price of a token include:

1. Fair launch vs. Pre-mined: Fair launch projects are owned and governed by the community. Pre-mined projects are the allocation of tokens to private exclusive addresses.

2. Token Supply and Demand.

3. Token Burning.

4. Regulation and Legal.

5. Incentive Model.

6. Utility of Token.

7. Lockup or Vesting Period of Tokens.

Lever: Tools to Create Matrices to Handle Volatility, Inflation, and Node Crashes

Description: Inflation, volatility, and crashes can affect the long-term viability of decentralized network-based businesses; hence proactive safeguards are needed.

Design Principles: Mechanisms to control and measure volatility, inflation, and crashes include:

1. Robust crash fault tolerance network infrastructure can prevent network node crashes. A platform should invest in infrastructure before platform launch.

2. A platform should establish tools and mechanisms to generate matrices for velocity, user adoption, and traded volumes to keep an eye on volatility and inflation.

3. Stabilization of the token through third-party stable coin frameworks.

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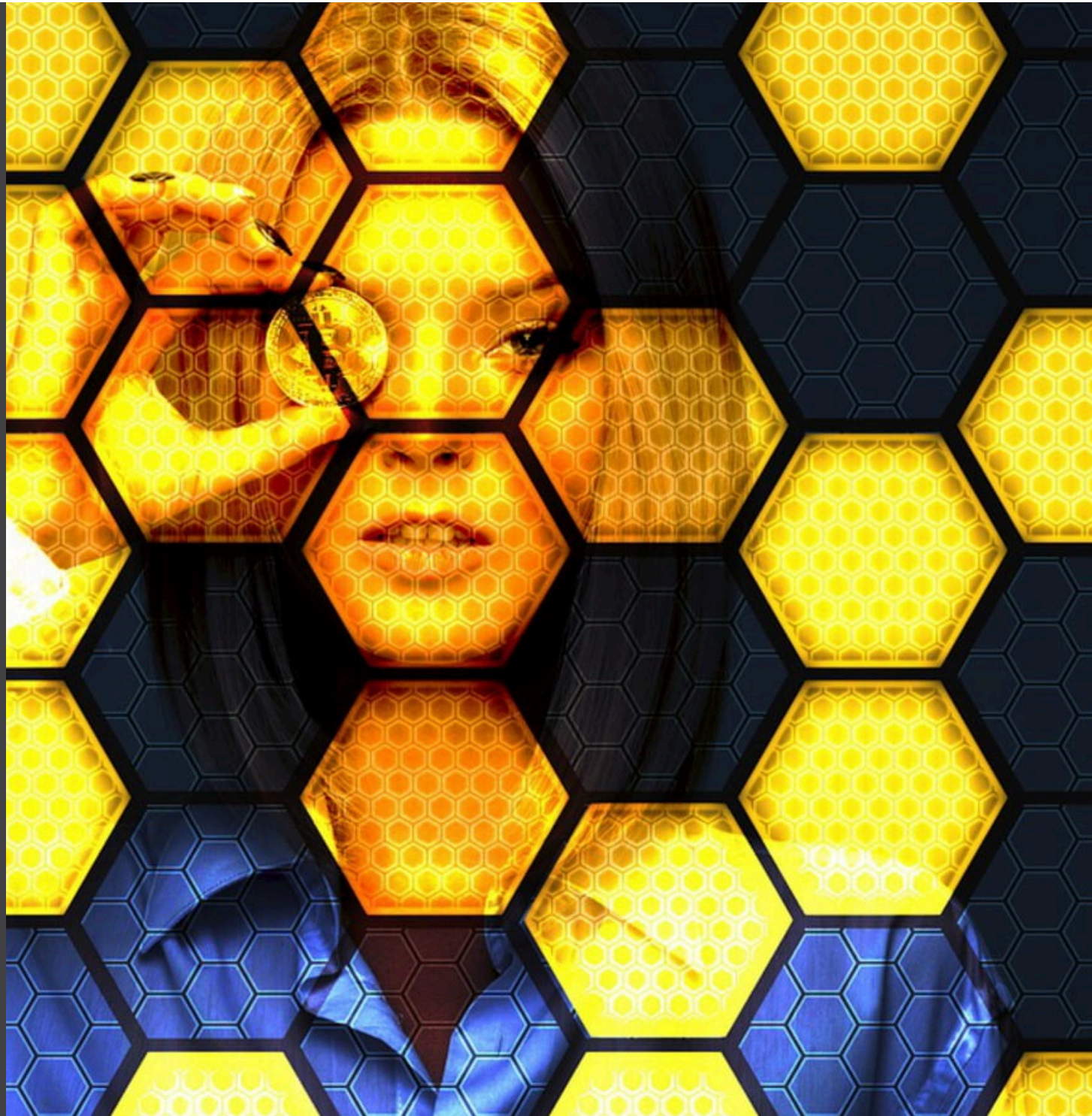
Tokenomics: A Golden Opportunity for GlobalLogic



Opportunity Size

1. The forecasted tokenization market size is $4.8 Billion USD.

2. Hitachi has established a blockchain and tokenization framework to expand the pie.

3. The industry is getting a lot of traction from existing clients around blockchain tokenization and tokenomics.

4. With blockchain and smart contracts capability, GL can employ mathematicians and economists to develop tokenomics for our clients.

Technology Stack

1. Smart Contract Languages - Solidity, GoLang, Rust, NodeJS, Python/ Java

2. Blockchain Frameworks - Algorand, Ethereum, Hyperledger, Besu, Quorum

3. Wallet - Metamask, Algorand wallet

The Opportunity at Hand

GlobalLogic must develop an accelerator to establish a ready-to-use token framework we can customize for real clients.

Users can employ the accelerator for any tokens based on either ERC-20 or ERC-721 standards established on Ethereum with little development effort.

Examples: SCMToken for Supply Chain, CarbonToken for Carbon Sequestration. These can be developed on the core accelerator.

Thereafter, we can extend utility use cases to create a micro-economy within GlobalLogic extended to our partners or clients.

Home

Proposed Solution: Tokonomics the GlobalLogic Way

Based on our research, we have accumulated the result sets and tried to develop GlobalLogic tokenomics, with an approach for a custom accelerator.

The Purpose of a GlobalLogic Token

Initially, GlobalLogic can create one unique token to employ internally for multiple use-cases and increase its value organically. Over time, when the token's value grows with a sound network effect, GlobalLogic can invite its client partners to join our network and use the token for their use cases.

With increasing network participants and use cases over time, the token will generate cascading network effects and qualify as coins to sell and exchange on third-party platforms. This will put us in a unique strategic position on the blockchain bandwagon.

Three Initial Use Cases

1. As a Value Exchange Unit

- Use tokens for internal crowdfunding of niche ideas on solutions and accelerators.
- Practices can use tokens for innovations. Through tokens, investors can invest in practices, enablers, ideas, and solutions. Initially, we can use internal stakeholders as investors.

2. Token as Currency

- Individuals can use a token to propagate frictionless transactions. For example, employees, investors, and other participants can use tokens to make fractional payments and micro-payments to generate a new micro-economy with Globallogic and between network participants.
- Token holders can use GlobalLogic's token to invest in GlobalLogic's micro-economy OR sell/purchase items from GlobalLogic-owned or channel partners' marketplaces.

3. Donation Token

- Develop a crowdfunding ecosystem where employees and partners can fund CSR activities.

All use cases will ensure 100% transparency and trust using a blockchain technology-driven decentralized network that will render the highest satisfaction and value for money to investors and employees.

Distribution Rules

GlobalLogic can choose the right distribution rules for tokens based on use cases.

Author Recommendation on Distribution Rules:

1. It should be ICO (Initial Coin Offerings) for Donation Token and Currency Token.
2. Value Exchange token - Admin will distribute tokens.

Asset Tokenization

GlobalLogic can choose the right Tokenization method based on use cases.

Author Recommendation for Asset Tokenization:

1. Fungible Token for all use cases as mentioned above.

Incentive Rules

Incentive rules for network participants must be defined for GlobalLogic's token.

Author Recommendation on Incentive Rules:

1. Personas can earn an incentive for their accomplishments (awards, ideas, innovations).
2. Investors will get platform tokens as shares for their investment in innovation projects.

Pricing Model

The pricing model for GlobalLogic's token must be pegged to one currency.

Author Recommendation on GlobalLogic's Token Pricing Model:

1. The token can serve the purpose with fixed priced model and hence should be pegged with INR or USD or any other FIAT currency (based on the geographical location where the use case will be executed).

The GlobalLogic Accelerator

1. Our accelerator will have wrappers implemented for ERC20 and ERC721 that will encompass the below events and functions:

```
Transfer(address indexed _from, address indexed _to, uint256 indexed _tokenId);
Approval(address indexed _owner, address indexed _approved, uint256 indexed
_tokenId);
ApprovalForAll(address indexed _owner, address indexed _operator, bool _approved);
balanceOf(address _owner) external view returns (uint256);
ownerOf(uint256 _tokenId) external view returns (address);
safeTransferFrom(address _from, address _to, uint256 _tokenId, bytes data) external
payable;
safeTransferFrom(address _from, address _to, uint256 _tokenId) external payable;
transferFrom(address _from, address _to, uint256 _tokenId) external payable;
approve(address _approved, uint256 _tokenId) external payable;
setApprovalForAll(address _operator, bool _approved) external;
getApproved(uint256 _tokenId) external view returns (address);
isApprovedForAll(address _owner, address _operator) external view returns (bool);
name() returns (string)
symbol() returns (string)
decimals() returns (uint8)
totalSupply() returns (uint256)
balanceOf(address _owner) returns (uint256 balance)
transfer(address _to, uint256 _value) returns (bool success)
transferFrom(address _from, address _to, uint256 _value) returns (bool success)
approve(address _spender, uint256 _value) returns (bool success)
allowance(address _owner, address _spender) view returns (uint256 remaining)
Transfer(address indexed _from, address indexed _to, uint256 _value)
Approval(address indexed _owner, address indexed _spender, uint256 _value)
```

2. Mechanism to convert ICO into tokens:

After deploying to the network, we can set up a bridge to allow users to convert their ERC20 tokens to native coins. Example: poa.net can be used as a bridge technology that offers a credible technique to convert ICO into tokens.

3. Token Swap and Exchange:

Create a model based on Metamask and AirSwap, as these have protocols for exchange and tokenization. With this, personas can easily swap cryptocurrencies directly without paying double the fees required on most platforms.

With these events or functions implemented, exchange built, and ICO into tokens conversion mechanism, they can develop any custom token on the base accelerator with at least two months of effort saved. But, more than the effort saved, a huge opportunity to expand the pie will finally be possible.

Technology Recommendations

Technology	Recommendations
Blockchain network	Hyperledger Besu
Smart Contract Language	Solidity
Backend	Python, NodeJS
Front-end	React and React-Native (Mobile)

Open full table in browser:

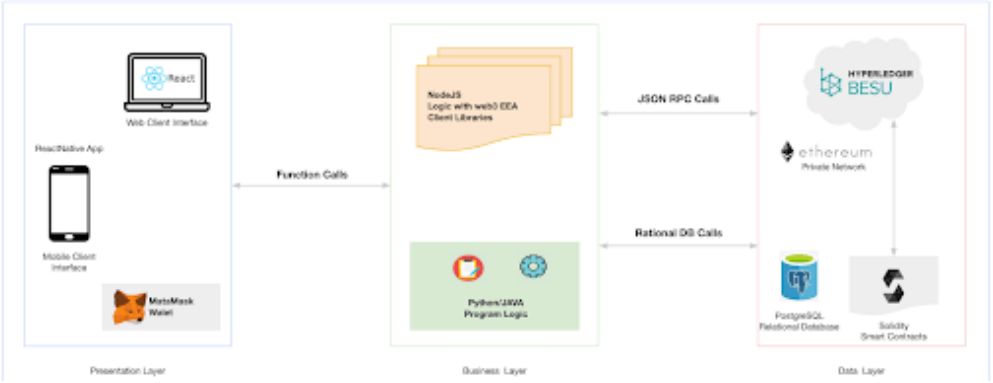
https://insights.globallogic.com/story/tokenomics-with-blockchain/page/8/4

Architecture

Presentation Later: This layer encompasses user interfaces for web [ReactJS], Mobile [React Native], and browser-based wallet [Metamask].

Business Layer: This layer is responsible for handling [client] business logic from blockchain in the form of JSON-RPC calls [web3 EEA (Enterprise Ethereum Alliance)] and business logic derived from relational Databases in the form of HTTP calls.

Data Layer: This layer consists of Blockchain network [Hyperledger Besu], Relational database [Postgres], and Smart contract layer [Solidity language based].



Home

Conclusion

Tokenomics is a misunderstood concept wherein the way ICOs grew and vanished tells the real story.

Without a strong foundation of economic principles, tokenomics is a rudderless ship. Speculative opportunities negatively affect real opportunities in the blockchain world by overshadowing them.

Therefore, there is a dire need to invest in strong economic principles, standards, and protocols to reap the right potential.

GlobalLogic tokenomics can be a game changer.

With an accelerator, GlobalLogic can play a pivotal role in putting us in the driver's seat and tapping into a lucrative market. It can also be the beginning of becoming a guiding entity in the industry by providing more insight into models, protocols, and custom offerings.

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References & About the Authors

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Our sincere thanks to researchers and authors whose work inspired us. We admire your work in taking the blockchain bandwagon forward. Our sincere apologies for any resources we inadvertently may have missed.

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About the Authors

Harish Jaggi is a writer, speaker, researcher and blockchain technology evangelist. He has over 20 years of extensive experience in Information Technology and has 12 diverse certifications, including three on blockchain technology. He has extensively worked on Ethereum, Hyperledger and Solidity in diverse domains. He has spearheaded blockchain projects, advisories, and initiatives since 2015. He is a regular speaker in prominent forums and meetups on blockchain technology. His blockchain book named 'Rendezvous with Practical Solidity' is one of the best rated books on Solidity.

Raj Jha is an author, researcher, open-source contributor, and blockchain architect with several successful blockchain implementations to his credit. He carries 15 years of diverse experience in the Information Technology industry. He has played a coveted role in blockchain projects, advisories, and initiatives for years. His expertise lies in the Blockchain, Cloud, Metaverse, and Spatial web technologies. Many of his papers/books/articles have been published by leading media houses.

Home