White Paper

Minoan Perpetual Exchange

Introduction:

The Minoan Perpetual Exchange is a groundbreaking initiative that aims to revolutionize the trading of real-world assets by leveraging the power of blockchain technology and decentralized governance. Traditional financial systems often suffer from inefficiencies, lack of transparency, and limited accessibility. The web 3 project seeks to address these challenges by providing a secure, efficient, and inclusive platform for perpetual trading.

At its core, the project introduces a Virtual AMM (Automated Market Maker) mechanism that allows users to trade real-world stocks without the need for physical asset transfers. Through the use of smart contracts, balances are adjusted between users and the pool, ensuring seamless and trustless transactions. The index price, representing the real-world price, is updated in real-time as users interact with the Virtual AMM contract, ensuring that the market price accurately reflects the underlying asset's value.

The governance model of the Minoan is based on the concept of decentralized autonomous organizations (DAOs). Liquidity providers, represented by Ariadne DAOs, have the power to make internal changes and vote on various parameters related to the loan pool, such as interest rates, minimum margin requirements, and trading fees. However, the Theseus DAO acts as a protocol DAO, setting the upper and lower bounds for these parameters, ensuring consistency and control across the project.

To facilitate the governance process, the project utilizes an off-chain voting mechanism. Proposals for changes are made through a decentralized application (dApp), stored on the blockchain and a database. Token holders are invited to sign the proposals, and if enough votes are collected, the proposal can be executed. This ensures that decisions are made collectively and transparently, with the weight of each vote determined by the token holdings of the voter.

Minoan Exchange also introduces a funding rate mechanism to incentivize traders to stay close to the index price. The funding rate is calculated based on the difference between the index price and the mark price, and it is applied to traders' accounts. This mechanism

encourages traders to take positions that balance the market price, ensuring a fair and accurate reflection of the underlying asset's value.

By participating Minoan Exchange, users and liquidity providers can expect various benefits. Liquidity providers can earn profits through interest payments and trading fees, while users can enjoy a transparent and efficient trading experience. The project also offers opportunities for staking and governance participation, allowing stakeholders to have a say in the project's future development.

In this white paper, we will delve deeper into the technical architecture, governance model, funding rate calculation, and the benefits offered by Minoan. We will explore the potential impact of this innovative platform on the financial industry and discuss the roadmap for future development. Join us on this journey as we reshape the way real-world assets are traded, bringing transparency, efficiency, and inclusivity to the world of finance.

Technical Architecture:

The technical architecture of Minoan is designed to ensure the secure and efficient operation of the platform. It leverages blockchain technology, smart contracts, and various components to enable perpetual trading of real-world assets. Here is an overview of the key elements of the technical architecture:

Blockchain: The project is built on a blockchain network, providing a decentralized and immutable ledger for recording transactions and storing data. The blockchain ensures transparency, security, and trust in the trading process.

Smart Contracts: Smart contracts play a crucial role in the web 3 project. They are self-executing contracts with the terms of the agreement directly written into code. Smart contracts automate the execution of trades, handle the calculation of funding rates, and enforce the rules and parameters of the platform.

Virtual AMM (Automated Market Maker): The Virtual AMM is the core mechanism of Minoan Exchange. It allows users to trade real-world assets without the need for physical asset transfers. The Virtual AMM contract adjusts balances between users and the pool, ensuring accurate and efficient trading.

Redstone Finance Oracle: The price feed used to gather accurate and up to date stock price data, is redstone finance. It allows a user to send a verifyable payload to our smart contracts which gets current price of a specified asset.

Index Price and Mark Price: The index price represents the real-world price of the underlying asset. It is updated in real-time as users interact with the Virtual AMM contract. The mark price is the market price reflected on the base and quote assets. The formula k = base * quote is used to calculate the mark price.

Funding Rate Calculation: The funding rate is a key component of Minoan's mechanism. It is calculated by taking the difference between the index price and the mark price, divided by the index price and the funding rate period. This calculation determines the funding rate applied to traders' accounts.

Governance Mechanism: The project employs a decentralized governance mechanism based on DAOs (Decentralized Autonomous Organizations). Liquidity providers are represented by Ariadne DAOs and have the power to vote on various parameters related to the loan pool. The Theseus DAO acts as the protocol DAO, setting the upper and lower bounds for these parameters.

Off-chain Voting: The governance process involves off-chain voting through a decentralized application (dApp). Proposals for changes are made through the dApp, stored on the blockchain and a database. Token holders are able to sign the proposals, and if enough votes are collected, the proposal can be executed.

Security Measures: Minoan implements robust security measures to protect user funds and data. Audits and security assessments are conducted to identify and address vulnerabilities. The use of blockchain technology ensures the immutability and tamper-proof nature of transactions.

ERC20 Token: The project utilizes an ERC20 token, specifically USDC, as the constant pair for assets. This means that all assets traded on the platform are paired with USDC for liquidity provision and trading purposes. USDC is implemented as a custom ERC20 token for the testnet project.

ERC1155 Token: Minoan utilizes an ERC115 token, for the use in staking in the various DAO's. This means all stakes can be tracked from one ERC1155 contract. Tokens are minted and burned proportionally to the ERC20 tokens in their respective pools compared to the new investment / withdraw.

The technical architecture of Minoan combines blockchain technology, smart contracts, and decentralized governance to create a secure, transparent, and efficient platform for perpetual trading of real-world assets. By leveraging these components, the project aims to revolutionize the financial industry and provide users with a seamless and inclusive trading experience.

Security and Auditing:

Security is of paramount importance in Minoan to ensure the protection of user funds, data, and the overall integrity of the platform. The project implements robust security measures and undergoes regular audits to identify and address potential vulnerabilities. Here are the key aspects of security and auditing in the web 3 project:

Security Measures:

Code Review: The project's smart contracts and underlying code are thoroughly reviewed by experienced developers and auditors to identify any potential security vulnerabilities or coding errors.

Secure Development Practices: The development team follows best practices for secure coding, including input validation, proper handling of user data, and protection against common attack vectors such as reentrancy and integer overflow/underflow.

Multi-signature DAO: The project utilizes multi-signature DAO's to secure sensitive operations and ensure that critical actions require multiple authorized parties to sign off.

Two-Factor Authentication (2FA): Two-factor authentication is implemented for key accounts and administrative access to add an extra layer of security. Utilizing next auth a user must sign in with their respective wallet to even access sensative data or to sign proposals.

Regular Security Assessments: The project conducts regular security assessments and penetration testing to identify and address any potential vulnerabilities or weaknesses in the system.

Code Review by Community: The project encourages the community to review and audit the codebase, allowing for additional scrutiny and identification of potential issues by a wider range of experts and stakeholders.

Transparency and Disclosure: The project maintains transparency by publicly sharing the results of security audits and addressing any identified vulnerabilities promptly. This ensures that users and stakeholders are aware of the security measures in place and any potential risks.

Continuous Improvement:

The project is committed to continuous improvement in security practices. It actively monitors industry best practices, stays updated with the latest security advancements, and incorporates them into the platform's security measures.

Regular updates and patches are deployed to address any newly identified vulnerabilities or security risks.

By implementing robust security measures, conducting regular audits, and actively engaging with the community, the web 3 project aims to provide a secure and trustworthy platform for users to engage in decentralized trading. The project's commitment to security ensures the protection of user assets and fosters trust among the community.

Tokenomics:

The tokenomics of Minoan Exchange a crucial role in incentivizing participation, facilitating governance, and ensuring the sustainability of the platform. The native token,test USDC, serves as the backbone of the ecosystem and has various functions and utilities. Here are the key aspects of the tokenomics:

USDC:

> *Utility*: USDC token has multiple utilities within the Minoan ecosystem. It can be used for trading feesand staking.

> *Trading Fees*: When users engage in trading activities on the exchange, the trading fees are collected in USDC tokens. These tokens are then distributed to liquidity providers as a reward for their contribution to the liquidity pool. This incentivizes users to provide liquidity and ensures the continuous availability of assets for trading.

> *Staking*: Users can stake their USDC tokens to participate in the governance process and earn additional rewards. By staking tokens, users gain voting power and can actively contribute to decision-making regarding platform parameters, upgrades, and improvements. Stakers are also eligible to receive a portion of the trading fees generated on the platform.

> *Token Distribution*:To get our test USDC, a user must go to our Dapp and locate the mint button on the top right of the screen. $2,000 USDC will be minted and distrubted to the user, once the gas is payed.

Ariadne:

Utility: Ariadne tokens have a few utilities within our protocol. It can be used for showing ownership of asset pools, voting, and participating in governance decisions. Holding Ariadne's tokens grants users certain privileges and benefits within the platform.

Governance Participation: Ariadne token holders have the right to participate in the governance process of the Minoan Exchange loan pool DAO's. They can propose changes, vote on proposals, and influence the direction of the platform's development. The voting power of each token holder is proportional to the number of Ariadne tokens they hold, ensuring a fair and democratic decision-making process.

Token Distribution: The initial distribution of Ariadne tokens can be conducted through a fair and transparent process, such as a token sale or airdrop. This ensures wider participation and decentralization of token ownership. Any user can stake USDC tokens into a pool and recieve Ariadne tokens. The amount of tokens a staker will receive is rerpresented by this equation

$$uint \_denominator = \_poolTotalUsdcSupply > 0 ? \_poolTotalUsdcSupply : 1;$$

$$uint \_porportion = (\_amount * 1e6) / \_denominator;$$

Token Burning: To maintain the scarcity and value of Ariadne tokens, a token burning mechanism can be implemented. This involves when a token holder withdraws their usdc staked the protocol burns the token amount.

The tokenomics of the Minoan are designed to align the interests of users, liquidity providers, and token holders. By providing incentives for participation, governance, and contribution to the ecosystem, the project aims to create a sustainable and thriving platform for perpetual trading of real-world assets.

Governance Mechanism:

The governance mechanism of the exchange is designed to ensure decentralized decision-making and active participation from token holders. It empowers the community to collectively shape the future development and direction of the platform. Here are the key elements of the governance mechanism:

Decentralized Autonomous Organizations (DAOs): Minoan utilizes DAOs as the foundation of its governance structure. There are two types of DAOs involved: Ariadne DAOs and Theseus DAO.

Ariadne DAOs: Ariadne DAOs represent liquidity providers within the ecosystem. They have the power to vote on various parameters related to the loan pool, such as interest rates, minimum margin requirements, and trading fees. Ariadne DAOs play a crucial role in determining the operational aspects of the platform.

Theseus DAO: Theseus DAO acts as a protocol DAO, setting the upper and lower bounds for the parameters voted on by Ariadne DAOs. Theseus DAO ensures consistency and control across the project, preventing extreme parameter values that could negatively impact the stability and functionality of the platform.

Voting Rights: Token holders of the Ariadne or Theseus, have voting rights within the governance mechanism. The number of votes a token holder possesses is proportional to the number of respective tokens they hold. This ensures that larger stakeholders have a greater influence on the decision-making process.

Proposal Submission: Any token holder can submit a proposal for consideration within the governance mechanism. Proposals can cover a wide range of topics, such as changes to platform parameters, upgrades, new features, or improvements. The proposal should be well-documented and clearly explain the intended change or action.

Voting Process: Once a proposal is submitted, token holders have the opportunity to vote on it. The voting process can be conducted through the Minoan Exchange decentralized application (dApp). Token holders can cast their votes, indicating their support to the proposal. The voting period is typically defined, allowing sufficient time for token holders to participate.

Quorum and Threshold: To ensure the legitimacy of the voting process, a minimum quorum and threshold may be set. The quorum represents the minimum number of tokens that need to be actively participating in the vote for it to be considered valid. The threshold represents the minimum percentage of votes required for a proposal to be approved.

Execution of Approved Proposals: If a proposal receives sufficient votes and meets the quorum and threshold requirements, it is considered approved. The code is executed the approved proposal, making the necessary changes or taking the specified action. The execution of approved proposals is transparent and auditable.

Transparency and Auditability: The governance mechanism of minoan is designed to be transparent and auditable. All proposals, votes, and outcomes are recorded on the blockchain, ensuring immutability and transparency. This allows token holders to track the decision-making process and hold the project accountable.

The governance mechanism empowers token holders to actively participate in shaping the platform's future. By allowing for decentralized decision-making, the project ensures that the interests of the community are represented and that the platform evolves in a way that aligns with the collective vision.

Roadmap and Future Development:

The Minoan has an ambitious roadmap for future development, aiming to continuously enhance the platform's functionality, expand its user base, and explore new opportunities in the realm of decentralized trading. Here is an example of a roadmap and future development plan:

Phase 1: Platform Launch and Initial Adoption (Q1 2023 - Q2 2023)

Complete the development of the core platform, including the Virtual AMM mechanism, governance framework, and off-chain voting mechanism.

Conduct thorough security audits and testing to ensure the platform's robustness and reliability.

Launch the web 3 platform on the *GOERLI* and initiate a marketing campaign to attract initial users and liquidity providers.

Establish partnerships with reputable exchanges and liquidity providers to ensure sufficient liquidity and trading volume.

Phase 2: Expansion of Asset Offerings and User Base (Q3 2023 - Q4 2023)

Introduce support for a wider range of real-world assets, such as commodities, indices, and cryptocurrencies, to diversify the trading options available on the platform.

Collaborate with asset issuers and partners to onboard additional assets onto the platform, expanding the selection for users.

Implement user-friendly interfaces and improve the user experience to attract a broader user base, including both experienced traders and newcomers to the crypto space.

Launch targeted marketing campaigns to raise awareness and drive adoption among the trading community.

Phase 3: Advanced Trading Features, Rewards and Deeper Integration (Q1 2024 - Q2 2024)

Introduce advanced trading features, such as limit orders, stop-loss orders, and margin trading, to cater to the needs of professional traders and enhance the platform's functionality.

Introduce rewards for stakers, such as time based rewards based on pool profits. This is to incentivise stakers to keep their deposits in their respective pools.

Explore partnerships with decentralized finance (DeFi) protocols to enable seamless integration and interoperability, allowing users to leverage the benefits of other DeFi platforms within the web 3 ecosystem.

Enhance the governance mechanism by introducing new voting mechanisms, such as quadratic voting or delegated voting, to further democratize decision-making and increase community engagement.

Conduct regular audits and security assessments to ensure the platform's resilience against potential vulnerabilities and attacks.

Phase 4: Global Expansion and Adoption (Q3 2024 - Q4 2024)

Expand the reach of the web 3 platform to new geographical regions, targeting markets with high demand for decentralized trading solutions.

Localize the platform's interfaces and documentation to cater to users from different countries and language preferences.

Forge strategic partnerships with financial institutions, asset managers, and regulatory bodies to establish the web 3 project as a trusted and compliant trading platform.

Continuously gather user feedback and iterate on the platform's features and user experience to meet the evolving needs of the trading community.

Phase 5: Research and Innovation (Beyond 2024)

Invest in research and development to explore emerging technologies, such as layer 2 scaling solutions, cross-chain interoperability, and decentralized oracle networks, to further enhance the scalability, efficiency, and security of the web 3 platform.

Collaborate with academic institutions and industry experts to drive innovation in the field of decentralized trading and contribute to the broader blockchain ecosystem.

Stay updated with regulatory developments and adapt the platform's governance and compliance framework to ensure adherence to evolving regulations and industry best practices.

Research side chain adaptations, account abstraction and free gas fees.

Team and Partnerships:

The success of Minoan relies on the expertise and collaboration of a talented team and strategic partnerships. Here is an overview of the team and potential partnerships involved in the project:

Team:

Core Development Team: The project has a dedicated team of experienced developer(KDB), engineer, and blockchain specialist whom is responsible for the design, development, and maintenance of Minoan. They possess a deep understanding of blockchain technology, decentralized finance (DeFi), and smart contract development.

Product Manager: The project may have product manager who oversee the overall product strategy, roadmap, and user experience. He is the development team to ensure that the platform meets the needs of the target users and aligns with the project's vision.

Security Expert: The team may include a security expert who specialize in identifying and mitigating potential security risks and vulnerabilities in the platform. They conduct regular security assessments, audits, and penetration testing to ensure the platform's robustness.

Business Development and Marketing: The project may have a KDB be responsible for business development, partnerships, and marketing activities. They identify potential strategic partnerships, engage with liquidity providers, exchanges, and other stakeholders to drive adoption and awareness of the web 3 platform.

Partnerships:

Liquidity Providers: The project may establish partnerships with liquidity providers to ensure sufficient liquidity on the platform. These partnerships can include decentralized exchanges (DEXs), market makers, and liquidity pools that contribute to the trading ecosystem.

Exchanges: Collaborating with reputable centralized exchanges can help facilitate the listing and trading of the native token, Theseus, and increase its accessibility to a wider user base.

Asset Issuers: Partnerships with asset issuers, such as tokenized asset providers or real-world asset platforms, can expand the range of tradable assets on the web 3 platform. These partnerships enable users to access a diverse selection of assets, including commodities, indices, and cryptocurrencies.

DeFi Protocols: Integration with other decentralized finance (DeFi) protocols can provide additional opportunities for users to leverage the benefits of yield farming, lending, or other DeFi services within the web 3 ecosystem. Collaborations with lending platforms, decentralized exchanges, or stablecoin projects can enhance the platform's functionality and user experience.

Regulatory and Compliance Partners: Collaborating with regulatory and compliance partners can help ensure that the web 3 project adheres to relevant regulations and industry best practices. These partnerships can provide guidance on legal and compliance matters, ensuring a compliant and trustworthy trading environment.

Academic and Research Institutions: Partnerships with academic institutions and research organizations can foster innovation and contribute to the development of the blockchain ecosystem. Collaborations can involve joint research projects, knowledge sharing, and talent acquisition.

Minoan Perpetual Exchange's team and partnerships play a crucial role in driving the project's development, expanding its user base, and establishing a strong presence in the decentralized trading space. The collective expertise and collaborative efforts of the team and partners contribute to the success and growth of the project.

Use Cases and Their Potential Impact

Use Case 1: Real-World Stocks Trading on VAMM

Description: Users on the platform can trade real-world stocks using the Virtual Automated Market Maker (VAMM) system. In this scenario, a trader decides to buy or sell a real-world stock listed on the platform.

Actor: A platform user acting as a trader.

Procedure: The user navigates to the trading interface on your platform, selects a real-world stock, inputs the amount they wish to buy or sell, and then confirms the transaction. The VAMM system updates the market price based on user interaction, updated price fee for the index price and changes balances accordingly.

Potential Impact: This use case provides a unique opportunity for traders to engage with real-world assets in a decentralized manner, potentially opening up new markets and trading possibilities. This can attract a significant number of traders to the platform, increasing liquidity and trading volume.

Use Case 2: Governance Model Based on Ariadne DAOs and Theseus DAO

Description: The governance model is largely decentralized, with Ariadne DAOs representing the liquidity providers. DAO has the power to vote on internal changes and parameters related to the loan pool.

Actor: A liquidity provider participating in the governance decisions.

Procedure: A proposed change surfaces. The liquidity provider participates in the vote by signing the transaction via the dApp. Once enough votes are collected, the proposal is executed on-chain.

Potential Impact: This use case highlights the decentralized governance aspect of your project, fostering a sense of ownership among participants. The voting system enhances transparency and fairness, potentially increasing the trust and involvement of liquidity providers and users into the platform.

Use Case 3: Calculation and Application of Funding Rate

Description: Traders on the platform will have the platform's calculated funding rate applied to their accounts based on the difference between the index price and mark price.

Actor: A trader participating in a trade.

Procedure: Trader initiates a trade. The funding rate period is noted for calculation against the taken position. After the completion of the funding rate period, the trader's balance is adjusted accordingly.

Potential Impact: This use case presents an innovative way to manage market price discrepancies and incentivize trading behavior on your platform. This not only helps maintain a balanced market but also offers interesting opportunities for traders who can strategically play long and short positions to their advantage.

Remember, the impacts listed above are potential impacts, the actual impact can vary depending upon various factors including, but not limited to, market acceptance, competitive response, and user behavior.

Conclusion

Minoan Perpetual Exchange presents a revolutionary approach to trading real-world assets in a decentralized manner. By leveraging the power of blockchain technology, we aim to provide a secure, efficient, and transparent platform for perpetual trading.

Our unique Virtual Automated Market Maker (VAMM) system allows users to trade real-world stocks without the actual assets leaving the 'vault' contract. This innovative mechanism, combined with our real-time index price updating, offers a seamless trading experience that closely mirrors the dynamics of real-world markets.

The governance model of our project, based on Ariadne DAOs and Theseus DAO, ensures a high level of decentralization. This model empowers our liquidity providers, giving them a say in key decisions and fostering a sense of ownership and community.

Our unique funding rate calculation method incentivizes traders to maintain a balance between long and short positions, thereby ensuring a stable and fair trading environment.

In conclusion, our project is more than just a trading platform. It's a comprehensive financial ecosystem that aims to democratize access to real-world asset trading. By providing a platform that is secure, transparent, and inclusive, we believe we can revolutionize the way people trade and interact with financial markets.

As we continue to develop and refine our platform, we look forward to the exciting possibilities that lie ahead. We invite you to join us on this journey as we reshape the future of trading.