OPENVERSE VRC-11 Bluepaper

Enterprise-level stable currency solutions

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Index

Openverse VRC-11 Protocol (Privcurrency) Bluepaper Enterprise-level/Country stable currency solutions

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Abstract:

In the era of deep integration between blockchain technology and financial innovation, the cryptocurrency market is evolving at an unprecedented pace. However, the limitations of the traditional monetary system are becoming increasingly evident, with its centralized issuance model, lagging regulatory mechanisms, and insufficient adaptability to specific economic scenarios failing to meet the diverse financial needs of businesses and individuals. Meanwhile, Mr.Hayek's theory of free money, proposed in "The Denationalization of Money," provides a theoretical foundation for the diversification of currency issuance. Openverse Network Based on this theory, combined with the advantages of blockchain technology, the VRC-11 protocol has been launched, aiming to build a new Privcurrency issuance and circulation system. This initiative seeks to provide more flexible enterprise-level stable currency solutions for businesses and individuals, driving innovation and transformation in the global financial ecosystem.

Keywords: Privcurrency, VRC-11 protocol, The Non-Statehood of Money

1.Industry pain points

1.1.Blockchain application efficiency and cost dilemma

1.1.1.The low efficiency and high cost of cross-chain interaction

As the blockchain ecosystem continues to flourish, various blockchain networks are sprouting up like mushrooms after rain. Each network operates independently, and the need for cross-chain interaction is becoming increasingly urgent. However, in reality, cross-chain operations face numerous obstacles and are extremely inefficient. Different blockchains have vastly different consensus mechanisms, data structures, and cryptographic algorithms. Bitcoin uses the Proof of Work (PoW) mechanism, which requires substantial computational power to compete for the right to record transactions, leading to long transaction confirmation times, with an average of one block every 10 minutes. Ethereum, while transitioning to Proof of Stake (PoS), still experiences transaction congestion during high-concurrency scenarios. These differences make cross-chain interactions complex and cumbersome, involving data format conversion and consensus coordination. A single cross-chain transaction often involves multiple intermediary steps and long wait times, making it difficult to meet real-time trading demands.

From a cost perspective, the cost of cross-chain interactions remains high. On one hand, cross-chain transactions require validation and coordination across different blockchain networks, with each network charging substantial fees. On the other hand, to ensure the security and reliability of cross-chain transactions, significant computational and storage resources must be invested in complex cryptographic verification and data storage. For example, in some cross-chain bridge projects, multiple calls to node resources on different chains are required to verify transaction authenticity, leading to a significant increase in transaction costs. This greatly limits the scale and frequency of cross-chain transactions, hindering the broader application and expansion of blockchain technology.

1.1.2.The adaptation problem of traditional blockchain protocol in enterprise application

Enterprise-level applications have extremely stringent requirements for blockchain performance, which traditional blockchain protocols struggle to meet. In terms of transaction processing capabilities, mainstream protocols like Bitcoin and Ethereum have significant shortcomings. Bitcoin has limited transaction processing capacity, with each block carrying only a small number of transactions, making it difficult to handle the high-frequency trading needs of enterprises; while Ethereum has made some improvements, it still experiences severe network congestion and noticeable transaction delays when dealing with large-scale transaction scenarios

such as e-commerce promotions and financial settlements, significantly impacting business continuity and user experience.

Corporate business logic is complex and ever-changing, with extremely high security requirements. Traditional blockchain protocols 'smart contracts fall short in addressing these challenges. Writing and deploying smart contracts requires specialized expertise, and once deployed, they are difficult to modify, which contradicts the need for companies to quickly respond to market changes. Corporate business rules often change due to market conditions and strategic adjustments, making it hard for traditional smart contracts to adapt flexibly. In terms of data security and privacy protection, companies have a lot of sensitive data, and the transparent nature of traditional blockchains can easily lead to risks of commercial secrets and customer privacy leaks, conflicting with the company's strict requirements for data confidentiality.

In addition, companies often have well-established information systems, such as Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) systems. Integrating blockchain into existing systems requires overcoming differences in data formats, interface standards, and communication protocols between systems. The technical modifications and system integration are challenging and costly, significantly raising the threshold and risk for companies to adopt blockchain technology.

1.2. Stablecoin existing problems

1.2.1. The centralization risk and regulatory risks of fiat currency collateralized stablecoin

Legal tender collateralized stablecoins are a crucial component of the current stablecoin market. They issue a corresponding amount of stablecoins by pledging legal tender, aiming to maintain currency stability. However, these stablecoins carry significant centralization risks. Taking USDT as a typical example, its issuance and management are highly concentrated in specific institutions. This means that these institutions hold key powers such as issuing and redeeming stablecoins. If internal management has loopholes, suffers from external attacks, or engages in dishonest behavior, the value stability of the stablecoin will be severely impacted. If the issuing institution misappropriates funds or has unclear accounts, it may result in the inability to fully redeem the stablecoin, causing market panic.

From a regulatory perspective, fiat-collateralized stablecoins face numerous risks. They involve the interaction between fiat and cryptocurrencies, spanning traditional finance and emerging crypto sectors, making regulation challenging. Regulatory policies for fiat and cryptocurrencies vary significantly across different countries and regions, and compliance risks are particularly prominent in cross-border transactions. Some countries enforce strict regulations on the issuance and trading of stablecoins, requiring detailed financial disclosures and regular audits; while other areas have lax or no regulations at all. This makes it difficult to coordinate the circulation and regulation of stablecoins globally, potentially leading to money laundering, illegal financing, and other unlawful activities.

1.2.2. The risk of value fluctuations in crypto asset collateralized stablecoins

Crypto-asset collateralized stablecoins are issued with cryptocurrencies as collateral, aiming to leverage the value of crypto assets to support the price of the stablecoin. However, the cryptocurrency market itself is highly volatile, which becomes a fatal flaw for such stablecoins. Take MakerDAO's DAI as an example; it primarily uses Ethereum as its collateral asset. The price of Ethereum is influenced by various factors including market supply and demand, macroeconomic conditions, and regulatory policies, leading to significant price fluctuations. When the price of Ethereum drops sharply, the value of the collateral decreases. If the collateral is not promptly replenished or if the stablecoin issuance mechanism is not adjusted, the stability of DAI's value will be difficult to maintain, potentially leading to a break from the peg, causing it to deviate from its target anchor value (such as 1 USD), and affecting its functions in the market, including payment and valuation.

At the same time, to address the risk of fluctuations in the value of collateral assets, crypto asset-backed stablecoins typically set high collateral ratios. This, to some extent, reduces the efficiency of capital utilization. For example, if the collateral ratio is set at 200%, it means that users need to pledge assets worth $200 to issue a stablecoin worth $100. A large amount of capital is locked up in the collateral process, limiting liquidity and effective allocation of funds, and increasing costs and operational complexity for market participants.

1.2.3. Algorithmic stablecoin market trust crisis

Algorithmic stablecoins abandon the traditional asset collateral model, relying on algorithmic mechanisms to regulate the supply and demand of stablecoins to achieve price stability. However, such stablecoins have faced severe market trust crises in practice. Take Basis Cash and other algorithmic stablecoin projects as examples; they use algorithms to repurchase and destroy stablecoins when market prices fall below the anchor value, and issue additional stablecoins when prices rise above the anchor value to adjust supply and demand. Yet, during periods of intense market volatility, the effectiveness of these algorithms is severely tested. When market confidence in stablecoins declines, many holders sell off their holdings, and the algorithm may not respond promptly or effectively, leading to a continuous decline in stablecoin prices, which can trigger market panic and further

exacerbate the trust crisis.

The operation of algorithmic stablecoins relies on complex economic models and smart contracts, with relatively low transparency and interpretability. Market participants find it difficult to fully understand the logic behind the algorithms and potential risks, making investors more cautious when choosing to hold algorithmic stablecoins. Once negative news or abnormal price fluctuations emerge in the market, investor confidence can easily collapse, making it hard for algorithmic stablecoin projects to maintain a foothold in the market, severely impacting their reputation and development prospects in the stablecoin market.

1.3.Industry compliance challenges

1.3.1.Fragmentation and uncertainty in global regulatory policy

The global nature of the blockchain industry and the differences in regulatory policies across countries have led to a fragmented regulatory landscape. Different countries and regions have varying perceptions, attitudes, and regulatory focuses regarding blockchain. In terms of cryptocurrency regulation, the U.S. Securities and Exchange Commission (SEC) treats certain cryptocurrencies as securities, imposing strict oversight on their issuance and trading, requiring compliance with securities registration and other relevant regulations; in contrast, some European countries adopt a relatively open stance toward blockchain technology applications but enforce stringent rules in areas such as consumer protection and anti-money laundering. In Asia, China has banned all virtual currency-related business activities, emphasizing that blockchain technology should serve the real economy; Singapore, on the other hand, is actively exploring a regulatory sandbox model, providing a testing ground for blockchain innovation projects.

The fragmentation of regulatory policies makes blockchain projects face a complex compliance environment when expanding globally. A project may have to comply with vastly different legal requirements in various countries, increasing the difficulty and cost of operations. At the same time, the uncertainty of regulatory policies poses significant challenges to industry development. Regulatory policies are dynamically adjusted in different countries, making it difficult for blockchain projects to accurately predict policy trends. This leads to numerous concerns in strategic planning and business layout, preventing large-scale resource investment and limiting the industry's innovative vitality and growth rate.

1.3.2.Technical and management difficulties in the compliance operation of blockchain projects

From a technical perspective, blockchain projects must meet regulatory requirements for data privacy protection and traceability, which pose significant challenges to technology implementation. In terms of data privacy protection, the public ledger nature of blockchain conflicts with regulatory demands for user data privacy. To comply with regulations, projects need to employ advanced encryption techniques and zero-knowledge proofs to encrypt sensitive data, ensuring its security during storage and transmission on the chain. Regarding traceability, regulators require blockchain projects to provide complete and accurate transaction record tracing functions, enabling rapid identification and verification in case of illegal activities. This necessitates optimizing the blockchain data structure and storage methods to ensure data integrity and immutability, while also building efficient query and traceability systems.

In terms of management, blockchain projects need to establish a comprehensive compliance management system. This includes formulating internal rules and regulations that meet regulatory requirements, setting up dedicated compliance management positions and teams, and conducting regular compliance training and audits. Given the rapid development of the blockchain industry and the continuous updates in regulatory policies, project teams must stay abreast of policy developments and promptly adjust their internal management strategies to ensure that project operations always comply with the latest legal requirements. However, many blockchain project teams are primarily composed of technical personnel who lack experience in compliance management, making it difficult for them to quickly establish an effective compliance management system, which increases the project's compliance risks.

2.Stablecoin theory system

2.1.The evolution of stablecoin development

2.1.1.The iteration from fiat collateral to algorithmic stablecoins

The development of stablecoins has undergone significant transformations. Initially, fiat-collateralized stablecoins emerged, such as USDT, which issued tokens by collateralizing fiat currency, providing stable value to the crypto market and enabling users to hedge against price volatility in cryptocurrencies, thus driving the growth of crypto trading. However, due to the trust issues associated with centralized management and the constraints of the fiat system, these models faced challenges. Later, asset-collateralized stablecoins gained prominence, like DAI, which uses crypto assets as collateral and employs excess collateral to counteract price fluctuations. Today, algorithmic stablecoins leverage algorithms to adjust supply and demand, maintaining their value, aiming to break free from the limitations of asset collateralization, marking a new breakthrough in the evolution of stablecoins.

As blockchain technology advances, stablecoins continue to innovate. From the simple model of relying on fiat reserves, to leveraging the value of crypto assets, and then to depending on algorithmic mechanisms, the evolution of stablecoins aims to address price stability issues. Fiat-pegged stablecoins laid the foundation for the stablecoin framework; crypto-asset-pegged stablecoins explored stablecoin models within the crypto ecosystem; algorithmic stablecoins opened up a new direction without collateral, with each iteration making the stablecoin system more robust.

2.1.2. Technical and economic characteristics of stablecoins at different stages

Legal tender collateralized stablecoins technically rely on centralized legal tender reserve management and token issuance mechanisms. Their economic characteristics are pegged to fiat currency, ensuring value stability. This makes them a bridge between the crypto market and the fiat system. However, centralized management brings trust risks and high regulatory compliance costs. If the issuing institution encounters issues, the value of the stablecoin will be affected.

Crypto-asset collateralized stablecoins manage collateral and issuance through blockchain smart contracts, economically leveraging the value of crypto assets. However, due to their high price volatility, they require a high collateral ratio to ensure stability, leading to low capital utilization efficiency. Algorithmic stablecoin technology relies on complex algorithms and smart contracts, aiming to build a decentralized, externally collateral-free system with high flexibility. Yet, it demands extremely sophisticated algorithm design and market mechanisms; algorithm vulnerabilities or market anomalies can trigger value fluctuations.

2.2. Value stability theory model

2.2.1. Anchor asset selection and value support principle

The key to the stability of stablecoin value lies in the anchor asset. The fiat currency collateralized stablecoin is anchored by legal tender, such as the stablecoin linked to the US dollar, which has an equivalent amount of US dollar reserves behind it, and its value is directly supported by legal tender. Users trust the stablecoin because of the stability and wide acceptance of legal tender.

Crypto-asset collateralized stablecoins choose cryptocurrencies as the anchor asset and use over-collateralization. Taking the issuance of stablecoins backed by Ethereum as an example, even if the price of Ethereum falls, as long as the decline is within the collateral ratio range, the value of the stablecoin can be maintained. Algorithmic stablecoins do not have actual collateral assets; their value support relies on economic models constructed by algorithms, which adjust supply based on price signals to bring prices back to the anchored value, depending on the effectiveness of the algorithm and the trust of market participants.

2.2.2. The mechanism of the balance between supply and demand on the stability of stablecoin value

Supply and demand balance is the core of stablecoin value stability. Stablecoins that are pegged to fiat currencies maintain supply and demand through deposits and withdrawals of fiat currency and issuance and redemption of stablecoins. When market demand increases, users deposit fiat currency to obtain more stablecoins, increasing supply; when demand decreases, they redeem stablecoins for fiat currency, reducing supply. This process helps maintain a fixed exchange ratio with fiat currency and ensure value stability.

The supply and demand of crypto-asset collateralized stablecoins are influenced by the price of the collateral assets and the collateral ratio. When demand rises, users pledge their crypto assets to obtain stablecoins, increasing the supply; if the price of the collateral asset falls, the liquidation mechanism is triggered, leading to the redemption of stablecoins and a decrease in supply. Algorithmic stablecoins, on the other hand, rely entirely on algorithms to regulate supply and demand. They issue more when the price exceeds the anchor value and repurchase or burn when it falls below the anchor value, automatically balancing supply and demand to stabilize the token value. However, the accuracy of the algorithm and its adaptability to market conditions are crucial.

3.VRC-11 Protocol (Privcurrency) details

3.1.Name and theoretical basis of the agreement

3.1.1.Privcurrency

Privcurrency, an abbreviation of "Privcurrency" (we indirectly created a new English word), represents a new concept as a monetary solution tailored for specific groups, scenarios, or organizations, rather than the general public domain. Unlike the widespread applicability of public domain currencies, private domain currencies aim to meet the unique needs of specific entities in economic activities. Their issuance, circulation, and usage rules are typically customized based on the business logic and requirements of specific groups.

The stablecoin system built by the VRC-11 protocol is a typical representative of Privcurrency. In the current complex and volatile economic environment, enterprises and small countries are faced with many monetary and financial problems.

For companies, issues such as exchange rate fluctuations in cross-border operations, high transaction fees, and delayed fund arrival significantly impact operational costs and capital flow efficiency. In terms of internal financial management, the traditional monetary system also fails to meet the company's need for efficient and precise financial processes. The VRC-11 protocol's stablecoin offers a customized solution. Companies can use it for internal fund management, automating and streamlining processes like expense reimbursement and salary disbursement; during intercompany transactions, the stablecoin enables real-time settlement, drastically reducing transaction fees and enhancing capital utilization efficiency.

Small countries often face challenges in currency issuance management and financial system construction. The value of their currencies is easily affected by international economic fluctuations, and their financial infrastructure is weak, making cross-border financial transactions extremely difficult. The VRC-11 protocol provides small countries with a reliable method for currency anchoring and ideas for low-cost financial infrastructure development. Based on this protocol, small countries can issue stablecoins, which can stabilize the domestic currency value, enhance competitiveness in international economic interactions, and promote the improvement and development of their financial systems.

Stablecoins under the VRC-11 protocol, as private domain currencies, realize stable storage, efficient transfer and convenient transaction of value in a specific group, fill the deficiency of public domain currencies in a specific scenario, and are a powerful practice of innovation for specific needs in the cryptocurrency field.

3.1.2.Enterprise Privcurrency naming specification

Under the framework of VRC-11 protocol, in order to ensure that the Privcurrency issued by enterprises has clear identification and is easy for the market to understand and accept, we have formulated a set of guiding naming norms. It is recommended that enterprises adopt the naming method similar to StarUSD and MicroUSD.

This naming structure primarily consists of two parts: the prefix and the base currency identifier. The prefix, such as "Star" or "Micro," is typically a representative term customized by the company, reflecting its brand image, business characteristics, or target audience. For example, if an innovative and excellence-driven tech company issues a Privcurrency, "Star" can symbolize its leading position in the industry and its shining qualities, conveying the unique value proposition of the Privcurrency from the outset. On the other hand, "Micro" may be suitable for companies focused on serving micro-enterprises or providing refined financial services, implying the specificity of their service targets or the detailed nature of their business.

The base currency identifier section uniformly adopts "USD," not directly linked to the US dollar. Instead, it leverages the widespread recognition of the US dollar in global financial markets to enable market participants to quickly understand the value measurement attributes of this Privcurrency, meaning it serves as a stable reference for value similar to the US dollar. Under the support of the VRC-11 protocol, although the corporate Privcurrency is not actually anchored to the US dollar, this naming convention can intuitively convey its stability and reliability to users.

Through such a naming specification, the Privcurrency issued by enterprises not only has a unique enterprise logo, but also has a clear value scale implication, which helps to quickly establish brand recognition in the market, facilitate enterprises, investors, partners and other relevant parties to identify and use, and promote the efficient circulation and application of Privcurrency among enterprises and in specific scenarios.

3.1.3.Description of the agreement name

In the VRC-11 protocol, "VRC" stands for the protocol standard system within the Openverse ecosystem, highlighting its core position and ecological attributes in the Openverse blockchain network; "11" serves as a unique identifier, distinguishing it from other protocols while also symbolizing its innovative and distinctive nature in terms of technology and functionality. The VRC-11 protocol focuses on enterprise-level stablecoin minting and is a critical technological support for Openverse to achieve decentralized value transfer and stable financial services.

3.1.4. Theoretical basis of agreement

The VRC-11 protocol is built on the foundation of blockchain decentralization and integrates the theory of stablecoin value stability to construct a unique operational system. In terms of decentralization, it relies on Openverse's Layer0 network architecture, using a distributed ledger and consensus mechanism to ensure that no centralized institution is involved in the protocol's operation, achieving transparency and fairness in asset minting and trading processes; in applying the theory of stablecoin value stability, it breaks through traditional stablecoin anchoring models by adopting an innovative mechanism where 38.2% of the value of Bitgold is staked. Through smart contracts, this mechanism automatically adjusts the minting and redemption of stablecoins, achieving dynamic balance in their value and mitigating market volatility risks, providing a reliable value carrier for enterprise-level applications.

3.2. Core mechanism of the agreement

3.2.1. Rules for staking and minting stablecoins

The VRC-11 protocol builds an innovative stablecoin pledge and minting rule system, the core of which is to mint enterprise-level stablecoins with 38.2% value of Bitgold (BTG). This rule design is ingenious, aiming to balance asset collateral and stablecoin issuance scale, laying a solid foundation for the value stability of stablecoins.

In the actual operation process, users first need to hold sufficient Bitgold in a wallet supported by the Openverse blockchain network. Then, users initiate a stablecoin minting request to the blockchain network through an application or interface compatible with the VRC-11 protocol. The request specifies the exact amount of stablecoins to be minted, which is then transmitted to the smart contract responsible for processing the minting operation. Upon receiving the request, the smart contract will accurately calculate the number of Bitgold corresponding to 38.2% of its value based on the real-time Bitgold price data updated on the blockchain. This calculation process leverages the transparency and openness of the blockchain to ensure the authenticity and reliability of the price data.

This pledge casting rule has multiple advantages. The 38.2% pledge ratio is not set arbitrarily but is derived from in-depth economic model analysis and market risk assessment. From a risk control perspective, this ratio ensures the stability of stablecoin value while reducing risks associated with Bitgold price fluctuations. When the Bitgold price falls, the pledged assets still have sufficient value to support the issuance of stablecoins, preventing significant fluctuations in stablecoin value due to insufficient pledged asset value. Analyzing from a market incentive standpoint, this ratio encourages user participation in stablecoin casting, providing ample liquidity for the market, while avoiding excessive pledging that could lead to insufficient Bitgold market circulation, thus maintaining the normal operation of the Bitgold market. Additionally, automating the pledge casting process through smart contracts significantly improves casting efficiency, reduces errors and delays caused by manual operations, enhances user experience, and increases market recognition and acceptance of the VRC-11 protocol's stablecoin.

3.2.2. Stablecoin redemption mechanism

The redemption mechanism of stablecoins is a crucial component of the VRC-11 protocol. When users need to redeem their stablecoins, they can initiate a redemption request to the smart contract. The smart contract will verify the user's redemption eligibility and stablecoin holdings according to predefined rules. Once confirmed as correct, the smart contract will unlock the user's staked bitcoins and return an equivalent amount of bitcoins to the designated wallet address based on the current exchange rate or value relationship. Throughout the redemption process, the blockchain's distributed ledger records each redemption transaction, ensuring the fairness and transparency of the redemption process and preventing malicious redemptions or errors. Additionally, to address potential large-scale redemptions, the protocol has established an emergency reserve mechanism to ensure that users' redemption needs are promptly met under extreme market conditions, maintaining the market credibility and user confidence in stablecoins.

3.2.3. Value anchoring and adjustment mechanism

The VRC-11 protocol ensures the stability of stablecoins through a unique value anchoring and adjustment mechanism. Stablecoins are closely anchored to Bitcoin, which serves as the base asset in the Openverse ecosystem. Its intrinsic value provides a solid foundation for the stability of stablecoins. When the market price of stablecoins deviates from the target value, the protocol's adjustment mechanism automatically activates. If the price is above the target value, the smart contract increases the supply of stablecoins, using market supply and demand dynamics to bring prices back to target; if the price is below the target value, it reduces the supply. This adjustment process primarily achieves its effect by controlling staking and redemption operations. For example, when the price is too low, users are encouraged to stake more Bitcoin to mint stablecoins, increasing the demand

for stablecoins in the market and driving up prices; conversely, when the price is too high, users are guided to redeem their stablecoins, reducing market supply and bringing prices down. Through this dynamic value anchoring and adjustment mechanism, the VRC-11 protocol effectively maintains the stability of stablecoin values, enhancing their trustworthiness and practicality in the market.

3.3.VRC-11 protocol functions

3.3.1.Create stablecoin functionality

The core feature of the VRC-11 protocol's stablecoin minting function is one of its key characteristics. Users need only hold sufficient Bitcoins in a wallet that meets the protocol's requirements to initiate a stablecoin minting instruction through relevant applications or interfaces on the Openverse network. The smart contract will respond promptly, calculating the required amount of Bitcoins to be staked based on real-time Bitcoin prices and predefined staking ratios. After confirming the compliance of the staking operation, the smart contract will create the corresponding number of stablecoins on the blockchain and distribute them to the user's wallet address. The entire minting process is efficient and quick, typically completed within minutes, with transaction records permanently stored on the blockchain to ensure traceability and security. This convenient minting function provides users with an easy and efficient way to obtain stablecoins, meeting the market's demand for stable value digital currencies and promoting economic activities within the Openverse ecosystem.

3.3.2.Cross-chain payment function

Based on the underlying technology architecture of Openverse, the VRC-11 protocol has achieved powerful cross-chain payment capabilities. By establishing interoperability mechanisms with other blockchain networks, users can use stablecoins based on the VRC-11 protocol to make fast and secure payments between different blockchains. During the cross-chain payment process, the VRC-11 protocol leverages its unique cross-chain communication protocol to accurately transmit payment instructions to the target blockchain network. At the same time, through collaboration with nodes across various blockchain networks, it enables asset transfers and value exchanges of stablecoins on different chains. The entire cross-chain payment process eliminates the need for cumbersome intermediaries and third-party institutions, significantly reducing payment costs and time, and improving payment efficiency. Whether on mainstream blockchain networks like Ethereum or Polkadot, or on other blockchains that support the Openverse cross-chain protocol, users can easily complete cross-chain payments of stablecoins, facilitating the free flow of value.

3.3.3.Interchange trading function with VRC-10, VRC-12 and VRC-20 protocols

The VRC-11 protocol has the function of exchanging with VRC-10, VRC-12, VRC-20, etc., which greatly expands its application scenarios and asset liquidity in the Openverse ecosystem. On the decentralized trading platform of Openverse, users can easily exchange tokens between different protocols.

When users initiate swap transactions, smart contracts automatically calculate the reasonable exchange ratio based on the real-time prices and supply-demand relationships of tokens in various protocols on the market, quickly completing the token exchange process. For example, users can convert stablecoins from the VRC-11 protocol to homogenized tokens from the VRC-20 protocol for use in scenarios such as corporate equity or points systems; they can also convert public currencies from the VRC-10 protocol to stablecoins from the VRC-11 protocol to meet different trading needs. This swap transaction function facilitates the circulation and integration of various digital assets within the Openverse ecosystem, providing users with more diverse investment and trading options.

3.3.4.Chain consumption function

In the Openverse ecosystem, VRC-11 protocol's stablecoins offer rich on-chain consumption features. Users can use these stablecoins to make purchases in various decentralized applications (DApps), spanning finance, entertainment, gaming, and more. In DeFi applications, users can borrow, invest, and mine liquidity with stablecoins, earning corresponding returns; in blockchain games, stablecoins can be used to purchase game items and participate in in-game transactions; in the digital rights market, stablecoins can be used to buy copyrights or usage rights of digital works.

Due to the relatively stable value of stablecoins, they avoid the risks associated with cryptocurrency price fluctuations, making users feel more secure when consuming on the chain. At the same time, blockchain's smart contract technology ensures the safety and reliability of the consumption process, with every transaction traceable, safeguarding the rights of both consumers and merchants.

3.3.5.Offline payment function

The VRC-11 protocol actively expands offline payment scenarios, providing users with a more convenient payment experience. By collaborating with offline merchants, QR codes or payment terminals supporting VRC-11 stablecoin payments are gradually becoming widespread. In shopping, dining, and other offline consumption scenarios, users only need to use a wallet that supports the VRC-11 protocol to scan the merchant's collection QR code, or enter the payment amount and password on the payment terminal to complete the offline payment of stablecoins.

This offline payment method is similar to traditional electronic payment methods but offers unique advantages of blockchain technology. On one hand, the payment process is fast and convenient, with no need to worry about network latency or payment failures; on the other hand, the decentralized nature of stablecoins means that payments are not restricted by location or banking systems, providing a new option for global offline transactions. Additionally, data from offline payments will be recorded synchronously on the blockchain, ensuring transparency and security in transactions.

3.3.6. Dapp on the chain, payment function

The payment support for on-chain Dapps in the VRC-11 protocol brings numerous conveniences to developers and users. For developers, integrating the payment function of the VRC-11 protocol is simple and convenient, allowing them to quickly add stablecoin payment options to their Dapps, attracting more users. When using various Dapps, whether participating in decentralized financial services, playing blockchain games, or using other types of Dapps, users can directly use the stablecoins from the VRC-11 protocol for payments.

During the payment process, smart contracts automatically verify the validity of payments and ensure the secure transfer of assets. Compared to traditional payment methods, the on-chain DApp payment feature of the VRC-11 protocol not only reduces transaction fees but also enhances payment security and privacy. Users do not need to worry about their personal payment information being leaked, while still enjoying a smoother DApp experience, which promotes the thriving development of the blockchain DApp ecosystem.

3.4. Analysis of the advantages of the agreement

3.4.1. Decentralization has increased

The VRC-11 protocol fully embodies the concept of high decentralization in its design and operation. From the staking and minting of stablecoins to transactions and payments, all processes rely on Openverse's decentralized blockchain network. The automatic execution mechanism of smart contracts eliminates reliance on centralized institutions, allowing users to operate without trusting any specific third party, thereby reducing trust risks.

3.4.2. Cost efficiency optimization analysis

In terms of cost, the VRC-11 protocol effectively reduces transaction costs by optimizing technical architecture and operational mechanisms. During the stablecoin minting process, simplified staking procedures and efficient smart contract execution cut down on intermediary steps, reducing labor and time costs. The cross-chain payment feature avoids the cumbersome bank transfers and high fees associated with traditional cross-border payments, saving users a significant amount of money.

From an efficiency perspective, the VRC-11 protocol processes transactions quickly, whether it's minting stablecoins, cross-chain payments, or making payments within Dapps, all can be completed in a short time. The automated execution of smart contracts also enhances business processing efficiency, reducing delays and errors caused by human operations. Moreover, the protocol's design fully considers scalability, ensuring efficient and stable operation as user numbers and transaction volumes increase, meeting the growing market demand.

3.4.3. Risk control ability enhanced

The VRC-11 protocol has implemented various measures in risk control, effectively enhancing the stability and security of the system. In terms of value stability, through close anchoring with Bitcoin and a dynamic adjustment mechanism, the value fluctuations of stablecoins are kept within a small range, reducing the impact of market risks on stablecoins. The over-collateralization and real-time verification in the staking, minting, and redemption mechanisms ensure that the issuance and circulation of stablecoins have sufficient value support, preventing insolvency.

In terms of cybersecurity, the encryption technology and distributed node verification mechanism of Openverse network effectively resist hacker attacks and malicious online activities. Smart contracts have undergone rigorous auditing and testing, reducing the risk associated with code vulnerabilities. Furthermore, the protocol has established a risk warning and emergency response mechanism. Once an abnormal situation is detected, swift measures can be taken to address it, ensuring the safety of user assets and the smooth operation of

the protocol.

3.4.4.The golden ratio and the beauty of mathematics

In the VRC-11 protocol, 38.2% of the value of Bitgold is pledged to mint stablecoins. The choice of this pledge rate contains a clever use of the golden ratio, showing unique mathematical beauty and profound economic connotation.

The golden ratio, approximately 0.618, is a proportion with significant aesthetic and practical value in mathematics, evident in various aspects of nature and human society. From the architectural proportions of the Parthenon in ancient Greece to the aesthetic proportions of human anatomy, the golden ratio is ubiquitous, symbolizing harmony, stability, and beauty. The number 38.2% is precisely half of the reciprocal of the golden ratio, closely linked to this proportion.

In the economic system of the VRC-11 protocol, a 38.2% staking ratio holds significant importance. Mathematically, it establishes a precise balance between stablecoin minting and Bitgold value. When the market is in normal fluctuation, the staked Bitgold value can stably support the issuance of stablecoins. For example, when market conditions change, the staked Bitgold provides a reliable foundation for the value of stablecoins, preventing significant fluctuations in their value and ensuring stability in the market.

From an economic perspective, this collateral ratio design has significant advantages. On one hand, it endows stablecoins with high credibility. Market participants, recognizing the value of Bitgold and the value support system built by the collateral ratio, have confidence in the value of stablecoins and are willing to use them widely. On the other hand, a 38.2% collateral ratio does not excessively consume Bitgold resources, maintaining market liquidity. Compared to higher collateral ratios, it frees up more Bitgold for other economic activities, enhancing market activity; compared to lower collateral ratios, it effectively mitigates market risks and ensures the stability of stablecoin values.

In addition, the setting of the collateral ratio based on the golden ratio adds a touch of rational beauty to the VRC-11 protocol. This beauty is not only reflected in the ingenious construction of the mathematical model but also in the scientific rigor it brings to the entire economic system. It sets the protocol apart in the market, attracting more participants and laying a solid foundation for the long-term stable operation and widespread application of the VRC-11 protocol, driving the Openverse ecosystem toward greater stability and efficiency.

4.Application scenarios

4.1.Financial applications

4.1.1.Cross-border payment and settlement

In the traditional cross-border payment and settlement system, there are numerous pain points, such as high fees, long settlement cycles, and significant exchange rate fluctuation risks. The complex clearing processes between banks and the involvement of intermediaries mean that each cross-border transaction incurs substantial costs, with funds typically taking 2-3 working days or even longer to arrive. Real-time exchange rate fluctuations can also result in losses for both parties involved in the transaction.

Stablecoins based on the VRC-11 protocol bring innovative solutions for cross-border payments and settlements. Due to their pegging to fiat currencies, stablecoins maintain relatively stable values, eliminating the need for both parties in a transaction to worry about exchange rate fluctuations. With the support of the Openverse network, cross-border payments can be made in real-time, significantly reducing settlement times. The decentralized nature of these stablecoins reduces intermediary steps and lowers transaction fees. For example, if a Chinese company pays its American supplier, traditional bank transfers could incur fees as high as 2-3% of the transaction amount and take about three days for funds to arrive. However, using stablecoins based on the VRC-11 protocol for payment can reduce fees to below 0.1%, with funds arriving within minutes, greatly improving the efficiency of fund flow and reducing transaction costs for businesses.

4.1.2.Supply chain finance services

Supply chain finance aims to address the issues of difficult and expensive financing for small and medium-sized enterprises (SMEs) in the supply chain. However, traditional models suffer from problems such as lack of transparency and an imperfect trust mechanism. The information asymmetry between core enterprises and upstream and downstream SMEs makes it challenging for financial institutions to accurately assess the

creditworthiness of SMEs, leading to financing difficulties for these companies. Additionally, the circulation efficiency of paper bills is low, and there is a risk of forgery.

The VRC-11 protocol of Openverse brings new opportunities to supply chain finance. Through blockchain technology, transaction information in the supply chain is recorded in real-time and cannot be tampered with, enhancing transparency. Stablecoins based on the VRC-11 protocol can serve as payment and financing tools for supply chain finance. Core enterprises can use stablecoins to pay suppliers or provide stablecoin-based financing services to suppliers. The application of smart contracts automates the financing process; when suppliers meet predefined financing conditions, the smart contract automatically executes the loan disbursement, reducing credit risk. For example, in the automotive supply chain, when component suppliers face cash flow issues, core automakers can use stablecoins to provide short-term financing, ensuring rapid fund availability and helping suppliers solve production funding problems, thus maintaining the stable operation of the supply chain.

4.1.3. Decentralized lending

Traditional lending markets rely on centralized financial institutions, which come with high thresholds, cumbersome procedures, and opaque information. Many individuals and small to medium-sized enterprises struggle to obtain loans due to insufficient credit records or limited asset sizes. Financial institutions require complex procedures and lengthy approval cycles when approving loans, and interest rates are not transparent.

The decentralized lending platform supported by the VRC-11 protocol has changed this situation. On a decentralized lending platform, users can borrow and lend using stablecoins. The borrower and lender reach an agreement through smart contracts, eliminating the need for centralized financial institutions, thus lowering the borrowing threshold. Smart contracts automatically execute the lending process according to predefined rules, including disbursement, repayment, and interest calculation, ensuring transparency in the lending process. For example, individual users can use their held stablecoins as collateral to obtain a corresponding loan amount on a decentralized lending platform, which they can use for personal consumption or investment. The entire lending process is efficient and convenient, with interest rates automatically adjusted based on market supply and demand, enhancing the efficiency of capital allocation.

4.2. Enterprise applications

4.2.1. Employee salary payment

In the process of salary distribution, traditional methods have many inconveniences. Using bank transfers for payroll can incur certain handling fees for companies, and employees may receive their salaries later due to the speed of bank processing. Moreover, multinational corporations face issues such as currency conversion and differences in banking systems when distributing salaries to global employees.

Stablecoins based on the VRC-11 protocol offer businesses a new option for payroll distribution. Companies can use stablecoins to directly deposit salaries into employees' digital wallets, allowing employees to receive their pay in real-time without waiting for bank processing. The value of stablecoins is stable, preventing salary erosion due to exchange rate fluctuations, especially for employees of multinational corporations, ensuring their actual income. For example, a multinational tech company with employees from different countries uses stablecoins for payroll, ensuring that the value of the received salaries remains stable and can be credited quickly, enhancing employee satisfaction and corporate management efficiency.

4.2.2. Internal financial management

Enterprise internal financial management involves many links such as capital budget, cost control and expense reimbursement. Under the traditional mode, there are problems such as complicated process and untimely information. The lack of smooth information communication between departments leads to difficulties in financial data statistics and analysis, which affects the accuracy of enterprise decision-making.

Openverse's VRC-11 protocol helps optimize internal financial management within enterprises. Stablecoins serve as a value measurement and payment tool for internal use, making financial data clearer and more consistent. Smart contracts can automate financial processes, such as expense reimbursement. After employees submit reimbursement requests, smart contracts automatically review and pay stablecoins according to predefined rules, improving reimbursement efficiency and reducing the workload and error rate of manual reviews. At the same time, the traceability of blockchain allows financial data to be queried and audited at any time, enhancing transparency and standardization in internal financial management.

4.2.3. Inter-enterprise transaction settlement

Transactions between companies typically involve large amounts of capital flow, and traditional settlement methods come with high risks and low efficiency. Paper bill settlements carry the risk of forgery, while electronic payments may fail due to bank system malfunctions or network issues. Moreover, different companies use varying

payment systems and settlement cycles, adding to the complexity of transactions.

The VRC-11 protocol's stablecoin offers a safer and more efficient solution for inter-enterprise transaction settlements. The decentralized and tamper-proof nature of stablecoins ensures the security of transactions. Using stablecoins for inter-enterprise transactions can achieve real-time settlement, avoiding the cost of capital tied up due to long settlement cycles. For example, when two companies conduct a goods transaction using stablecoins, funds are immediately credited upon delivery, enhancing transaction efficiency and reducing transaction risks.

4.3. Small and medium-sized countries apply

4.3.1. Currency and financial pain points in small and medium-sized countries

Many small and medium-sized countries face severe challenges in managing currency issuance. On one hand, the lack of an effective anchoring mechanism for currency issuance leads to unstable currency values, making them susceptible to international economic fluctuations. The currencies of some small and medium-sized countries lack credibility in the international market, with volatile exchange rates causing numerous destabilizing factors for their domestic economies. On the other hand, the management systems for currency issuance are inadequate, leading to issues such as over-issuance or under-issuance. Over-issuance can trigger inflation, eroding public wealth; under-issuance, on the other hand, can restrict economic development and result in insufficient market liquidity.

In terms of financial system construction, small and medium-sized countries generally suffer from weak financial infrastructure. Insufficient bank branch coverage means that many residents in remote areas cannot access basic financial services. Payment and settlement systems are inefficient, and cross-border financial transactions face numerous challenges, hindering economic exchanges between these countries and international markets. Moreover, the limited financial regulatory capacity of small and medium-sized countries makes it difficult to effectively prevent financial risks, and market order is prone to disruption.

4.3.2. Openverse Project solutions

The VRC-11 protocol for the Openverse project offers innovative solutions to currency issuance management and financial system issues in small and medium-sized countries. In terms of currency issuance, the VRC-11 protocol provides a reliable method of monetary anchoring through a mechanism that stably issues Bitgold-backed stablecoins worth 38.2% of its value. Small and medium-sized countries can issue stablecoins that align with their national economies based on this mechanism. The stablecoin's peg to Bitgold ensures relative stability in value, reducing the impact of international economic fluctuations on their own currencies.

In terms of financial infrastructure construction, the decentralized nature of Openverse networks can help small and medium-sized countries build more efficient and cost-effective financial infrastructures. Through blockchain technology, these countries can establish nationwide digital payment networks, enabling residents in remote areas to access convenient financial services. Stablecoins based on the VRC-11 protocol can be used for cross-border payments and settlements, breaking down barriers to cross-border financial transactions and promoting economic integration between small and medium-sized countries and international markets.

In terms of financial regulation, Openverse's blockchain technology provides transparent and traceable transaction records, which helps small and medium-sized countries strengthen their financial oversight. Regulatory bodies can monitor financial transaction data in real time, promptly identify and prevent financial risks, and maintain market order. At the same time, the Openverse project can also offer technical support and training for financial regulation to small and medium-sized countries, enhancing their regulatory capabilities.

5. Application case

5.1. Cross-border trade enterprise case

5.1.1. Case background

ABC Company is a cross-border trading enterprise headquartered in China, primarily engaged in the import and export of electronic products. It has established long-term cooperative relationships with suppliers and customers in multiple countries around the world. Under traditional trade models, ABC Company faces numerous challenges. In terms of cross-border payments, using traditional bank transfer methods incurs high fees, with each transaction typically costing about 2-3% of the transaction amount, and the funds take a long time to arrive,

usually requiring 3-5 working days. This not only increases the company's transaction costs but also affects the efficiency of capital turnover. Exchange rate fluctuations pose another significant challenge. Due to the instability of international exchange rate markets, ABC Company often suffers from exchange rate losses during settlement processes, with average annual losses due to exchange rate fluctuations accounting for approximately 5%-8% of total profits. Additionally, trade financing is difficult, as banks have strict approval processes for cross-border trading companies. When ABC Company encounters difficulties in capital turnover, it struggles to quickly obtain sufficient financing support.

5.1.2. Application implementation expectations

After learning about Openverse's VRC-11 protocol, ABC Company decided to introduce a stablecoin based on this protocol for cross-border trade. First, the company created a digital wallet on the Openverse network and converted part of its idle funds into Bitgold for staking, minting an equivalent amount of stablecoins. In transactions with suppliers, ABC Company uses stablecoins for payment. For example, when purchasing raw materials from Southeast Asia, they previously settled in US dollars, which involved complex foreign exchange processes and exposed them to currency risk. Now, ABC Company directly pays suppliers using stablecoins, and upon receiving the stablecoins, suppliers can exchange or use them within the Openverse ecosystem according to their needs. In settlements with customers, ABC Company also accepts stablecoins as payment for goods. For financing needs, ABC Company leverages Openverse's decentralized lending platform, using held stablecoins as collateral to quickly obtain the required funds, alleviating financial pressure.

5.1.3. Expected application effects

After implementing the stablecoin based on the VRC-11 protocol, ABC Company's cross-border trade business has achieved significant results. In terms of costs, transaction fees have been significantly reduced, with each transaction fee dropping to 0.1%-0.3% compared to before, saving approximately $500,000-$800,000 annually in fee costs. The efficiency of capital turnover has greatly improved, with payments and settlements now processed in real-time, reducing the average capital turnover cycle from 30 days to 1-2 days, significantly enhancing the efficiency of fund utilization. Exchange rate fluctuation risks have been effectively mitigated, preventing the company from suffering losses due to exchange rate volatility and increasing profit stability. In terms of financing, through a decentralized lending platform, ABC Company can more conveniently obtain financing, with costs reduced by about 20%-30%, effectively alleviating financial pressure and supporting further business expansion. Overall, the company's market competitiveness has significantly improved, with business volume growing by approximately 20% within a year.

5.2. Supply chain finance case

5.2.1. Case scenario description

A car manufacturing supply chain includes the core automaker X, numerous component suppliers, and dealers. Under traditional supply chain finance models, component suppliers face severe cash flow issues. Due to the dominant position of the core automaker in the supply chain, component suppliers often need to advance funds for production and then receive payment after a considerable period. For example, supplier Y provides critical components to automaker X, with a production cycle of 2 months and a payment settlement cycle of up to 4 months. This results in significant capital occupation for supplier Y, often leading to financial shortages when expanding production or upgrading technology. Meanwhile, financial institutions, due to their difficulty in accurately assessing suppliers 'creditworthiness, impose strict loan approval processes, limit loan amounts, and charge high interest rates, further exacerbating the suppliers' financial burdens.

5.2.2. Solution design

To address the supply chain finance issue, the VRC-11 protocol of Openverse was introduced. Core automaker X uses its Bitgold as collateral to mint stablecoins and establishes a new cooperation model with suppliers through the Openverse network. When supplier Y has financing needs, they can apply to automaker X. Based on historical transaction data and credit assessment, automaker X provides advance payment financing using stablecoins. Both parties agree on repayment methods and times via smart contracts, such as within a certain period after the supplier delivers components, the supplier repays the financing amount using the stablecoins from sales proceeds. At the same time, during the supply chain transactions, all parties use stablecoins for payments and settlements, enhancing transparency and efficiency.

5.2.3. Evaluation of benefits

To address the supply chain finance issue, the VRC-11 protocol of Openverse was introduced. Core automaker X uses its Bitgold as collateral to mint stablecoins and establishes a new cooperation model with suppliers through the Openverse network. When supplier Y has financing needs, they can apply to automaker X. Based on historical transaction data and credit assessment, automaker X provides advance payment financing using stablecoins. Both parties agree on repayment methods and times via smart contracts, such as within a certain period after the supplier delivers components, the supplier repays the financing amount using the stablecoins from sales proceeds. At the same time, during the supply chain transactions, all parties use stablecoins for payments and settlements, enhancing transparency and efficiency.

5.3.Digital asset trading platform case

5.3.1.Platform requirements analysis

As the digital asset market rapidly develops, digital asset trading platforms face numerous demands. On one hand, users are increasingly demanding higher levels of security and stability in transactions. Issues such as the risk of hacker attacks, asset theft, and transaction lag on traditional trading platforms severely impact user experience. On the other hand, the convenience and cost of transactions are also critical factors. Users hope to be able to trade between different digital assets quickly and at low cost. Furthermore, the market is placing higher demands on the functionality of trading platforms, such as supporting the trading of multiple types of digital assets, providing comprehensive market analysis tools, and having robust asset management capabilities.

5.3.2.Protocol application practice

A digital asset trading platform XYZ has introduced the Openverse's VRC-11 protocol for upgrades and renovations. In terms of security, it leverages Openverse's blockchain technology, employing multi-signature and encrypted storage methods to safeguard user assets. For transaction convenience, stablecoins supported by the VRC-11 protocol serve as the medium of exchange, allowing users to quickly convert other digital assets using these stablecoins. Transaction fees have been reduced by approximately 30%-50%, and transaction confirmation times have been shortened to just a few seconds. The platform also utilizes the cross-chain functionality of the VRC-11 protocol to enable interoperable transactions of digital assets across different blockchains. In terms of functional expansion, intelligent trading strategy tools have been developed based on the VRC-11 protocol, enabling users to automatically execute trading orders according to market conditions. Additionally, the platform offers wealth management services based on stablecoins, allowing users to manage their idle stablecoins for profit.

5.3.3.Market feedback and results

After the platform upgrade, it received positive market feedback. The number of users increased by about 50% within half a year, with user activity significantly improving and average daily transaction volume growing by approximately 80%. Users gave high praise to the platform's security and trading experience, leading to a notable improvement in its reputation. In industry competition, the XYZ platform stood out thanks to its innovative features and excellent user experience, increasing its market share from 5% to 12%, making it one of the leading platforms in the digital asset trading sector.

5.4.Small and medium-sized country application cases

5.4.1.Case of small and medium-sized countries with trade orientation

Singapore is a typical small to medium-sized country with a trade-oriented economy, heavily reliant on import and export trade. Under traditional trading models, Singapore faces issues such as high trade settlement costs and significant exchange rate volatility risks. When Singaporean companies conduct trade with countries worldwide, they use traditional currencies for settlement, which incurs high fees. Moreover, due to the Singapore dollar's sensitivity to international market fluctuations, businesses often suffer from exchange rate losses in trade. Additionally, cross-border trade financing is challenging, making it difficult for companies to obtain adequate financial support when facing cash flow difficulties.

After introducing the VRC-11 protocol of Openverse, Singapore's trading companies began using stablecoins based on this protocol for cross-border trade settlement and financing. Companies minted stablecoins by staking Bitgold and used them directly in transactions with suppliers and customers, avoiding exchange rate fluctuations and reducing transaction fees. At the same time, they leveraged Openverse's decentralized lending platform to obtain financing with stablecoins as collateral, alleviating financial pressure. These measures have enhanced the competitiveness of Singapore's trading companies, expanded trade volumes, and increased the trade surplus by about 10% within a year.

5.4.2.Resource-based small and medium-sized country case

Kazakhstan is a resource-based small to medium-sized country, primarily relying on the export of oil, minerals, and other resources. In resource trade, Kazakhstan faces issues such as low transaction settlement efficiency and slow capital recovery. Due to the massive amounts involved in resource transactions, traditional settlement methods require multiple intermediary steps, leading to long payment times that affect corporate cash flow and resource development progress. Moreover, frequent price fluctuations in international markets pose significant price risks for Kazakhstan's resource companies.

The VRC-11 protocol of Openverse has brought about a transformation in Kazakhstan's resource trade. In terms of transaction settlement, the use of stablecoins enables real-time arrival, significantly accelerating capital recovery and reducing the capital turnover cycle by about 40%. Through the value stability of stablecoins, resource companies can mitigate the risk of price fluctuations to some extent. In financing, companies can leverage stablecoins on Openverse's decentralized lending platform to secure funding for resource development and equipment upgrades. This has promoted the growth of Kazakhstan's resource industry, with resource exports increasing by approximately 15% over two years.

5.4.3.Examples of small and medium-sized countries with emerging technology

Estonia is a small and medium-sized country with emerging technological capabilities, actively developing its digital economy and blockchain technology. In this process, Estonia faces issues such as insufficient regulations for digital asset trading and limited financial service innovation. The domestic digital asset trading market lacks unified standards and norms, leading to higher transaction risks. At the same time, traditional financial institutions provide limited financing support to emerging tech companies, which hinders their innovative development.

The Estonian government has introduced the Openverse's VRC-11 protocol to promote the standardized development of the domestic digital asset trading market. Based on the VRC-11 protocol, a compliant digital asset trading platform has been established, standardizing the transaction processes and standards for digital assets. Emerging tech companies can use stablecoins on the platform for digital asset trading and financing. This not only boosts the prosperity of the digital asset trading market but also provides more financing channels for emerging tech companies. With the support of the protocol, Estonia's emerging tech companies have gained more development funds, continuously enhancing their innovation capabilities and competitiveness in the international market. The share of the digital economy in the country's GDP increased from 10% to 18% within three years.

6.Regulation and compliance

6.1.Global blockchain regulatory environment

6.1.1.Regulatory policies of major countries

The United States adopts a sector-specific and multi-agency collaborative model for blockchain regulation. The Securities and Exchange Commission (SEC) treats most tokens as securities, requiring project parties to strictly adhere to the Securities Act. If a token issuance is deemed a securities offering, it must complete registration; otherwise, severe penalties will be imposed. The Commodity Futures Trading Commission (CFTC), on the other hand, focuses on regulating the market for crypto derivatives.

The EU has implemented the Market in Crypto Assets (MiCA) Regulation, establishing a unified regulatory framework that covers stablecoin issuance and exchange operations. It emphasizes consumer protection and anti-money laundering requirements, mandating that stablecoin issuers maintain adequate capital reserves and risk buffer mechanisms. China has completely banned virtual currency-related business activities but strongly supports the compliant application of blockchain technology in the real economy. The country encourages companies to apply blockchain technology in scenarios such as supply chain management and copyright protection, and has introduced several policies to promote the development of blockchain industrial parks and the formulation of technical standards. Japan has established a comprehensive registration system for virtual currency traders, conducting rigorous reviews of the security and compliance of trading platforms. It also requires these platforms to provide asset insurance to users, safeguarding investors' rights.

6.1.2.Regulatory trend analysis

Global blockchain regulation is showing a trend from ambiguity to clarity, and from fragmentation to unification. As the application scenarios of blockchain technology continue to expand, regulatory bodies in various countries are deepening their understanding and beginning to formulate more targeted and operational regulatory guidelines. At the same time, international regulatory cooperation is strengthening, aiming to jointly address cross-border financial risks and data security issues brought about by blockchain technology, and to prevent regulatory arbitrage. The focus of regulation is gradually shifting from merely restricting virtual currency transactions to guiding the compliant and innovative development of blockchain technology, encouraging exploration of blockchain applications in fintech, supply chains, and government services. It also involves increasing regulatory efforts on user privacy protection, anti-money laundering, and counter-terrorist financing (AML/CFT) to ensure that the blockchain industry develops on a safe and compliant path.

6.2. Openverse Compliance strategy

6.2.1. Construction of compliance framework

Openverse has established a multi-level, comprehensive compliance framework. In terms of legal compliance, it conducts in-depth research and adheres to the blockchain regulatory policies of major countries and regions worldwide, ensuring that project operations comply with local legal requirements; in technical compliance, it adopts advanced encryption and identity verification technologies to meet data privacy protection and anti-money laundering regulatory needs, establishing a transaction monitoring system to monitor abnormal trading activities in real time; in the field of business compliance, it formulates strict rules for token issuance and trading, clarifies user admission criteria, and conducts rigorous qualification reviews for companies and individuals participating in the project. Additionally, a dedicated compliance management department is set up to regularly review the project's compliance status, promptly update compliance policies, and ensure that the compliance framework dynamically adapts to the regulatory environment.

6.2.2. Risk response measures

In response to potential compliance risks, Openverse has developed comprehensive strategies. A risk warning mechanism has been established, utilizing big data analysis and artificial intelligence technology to monitor regulatory policy changes and market dynamics in real time, identifying potential compliance risks in advance. Emergency plans have been formulated for different types of risks; for instance, when faced with significant regulatory policy adjustments, business models and technical solutions can be quickly adjusted to ensure continuous compliance in operations. Internal compliance training has been strengthened to enhance team members' awareness of compliance and their ability to respond to risks. Regular compliance drills are organized to test and optimize the effectiveness of risk response measures. Additionally, proactive purchase of compliance insurance is encouraged to mitigate economic losses caused by potential risks.

6.3. Interaction with regulators

6.3.1. Communication and cooperation mechanism

Openverse Established a regular regulatory communication and cooperation mechanism. A dedicated regulatory affairs team was set up to regularly communicate with regulatory bodies in various countries, proactively reporting project progress, technical features, and compliance status, and promptly understanding regulatory policy directions and requirements; actively participating in seminars and symposiums organized by regulatory bodies, offering advice for regulatory policy formulation, and promoting the establishment of industry standards; collaborating on joint research projects with regulatory bodies to explore innovative applications of blockchain technology in compliance areas, and jointly addressing regulatory challenges in blockchain development.

6.3.2. Policy adaptation programmes

In the face of constantly evolving regulatory policies, Openverse has developed flexible policy adaptation plans. A policy research team has been established to conduct in-depth analyses of how changes in regulatory policies impact projects and to swiftly formulate adjustment plans; tailored operational strategies have been adopted to address regulatory differences across countries and regions, maximizing project development space while meeting local regulatory requirements; cooperation with industry associations and other blockchain projects has been strengthened to collectively tackle regulatory challenges and enhance overall compliance through industry self-regulation; continuous optimization of project technology and business models ensures rapid adaptation to regulatory policy adjustments, guaranteeing compliant operations globally.

7.Competition comparison (compared with USDT)

7.1.Technology architecture comparison

7.1.1.Differences in issuance mechanisms

USDT is a typical fiat-collateralized stablecoin, centrally issued by Tether. Its issuance mechanism is based on fiat reserves; theoretically, for every USDT issued, one dollar must be deposited in a bank account as collateral, with the company responsible for managing and auditing these reserves. This method of issuance is relatively straightforward, but it carries significant centralization risks. If Tether encounters financial issues or engages in improper operations, the value stability of USDT could be threatened.

The stablecoin issuance under the VRC-11 protocol adopts a Bitgold staking method, which is a decentralized issuance mechanism. Any individual with Bitgold can participate in the staking and minting process, which is automatically executed through smart contracts. By staking 38.2% of the value of Bitgold, one can mint the corresponding stablecoin. This issuance mechanism avoids the credit risk associated with a single issuer, enhances the transparency and credibility of the issuance process, and does not rely on the credit endorsement of a centralized institution.

7.1.2.Security countermeasure

The security of USDT primarily relies on the internal management and auditing of Tether. Although Tether claims to regularly audit fiat reserves, the lack of an open and transparent audit mechanism makes it difficult for outsiders to accurately understand the true state of its reserves. Moreover, the centralized management model makes it vulnerable to hacker attacks; should the company's systems be compromised, user asset security would be at risk.

The VRC-11 protocol is based on blockchain technology, employing a decentralized distributed ledger and consensus mechanism, such as POS (Proof of Stake). Under this mechanism, transaction records are jointly maintained and verified by numerous nodes, making them difficult to tamper with. Meanwhile, smart contracts undergo rigorous security audits, significantly reducing the risk of code vulnerabilities. Additionally, the VRC-11 protocol uses advanced encryption techniques during data storage and transmission, ensuring the security of users' assets and transaction information, offering higher security and resistance to attacks compared to USDT.

7.1.3.Degree of technological innovation

The technology of USDT mainly revolves around fiat currency collateral and token issuance, with relatively limited technological innovation. It mainly relies on the fiat currency reserves of the traditional financial system to maintain value stability, and its application of blockchain technology is relatively basic, lacking in deep integration and innovative exploration of emerging blockchain technologies.

The VRC-11 protocol has introduced multiple technological innovations. It features a unique Bitgold staking mechanism, integrating blockchain smart contracts and cross-chain technology to achieve decentralized issuance and multi-scenario applications of stablecoins. By interacting with other blockchain networks such as Ethereum and Polkadot, it expands the application scope and functionality of stablecoins. Additionally, the VRC-11 protocol continues to explore and innovate in consensus mechanisms and privacy protection technologies to adapt to evolving market demands and technological trends.

7.2.Economic model comparison

7.2.1.Value anchoring

The USDT is anchored to the US dollar and tries to maintain a 1:1 exchange ratio. Its value stability depends on the adequacy and stability of fiat currency reserves. However, in the actual market, due to market volatility and trust issues, the price of USDT often briefly detaches from the US dollar.

The stablecoin of the VRC-11 protocol is anchored to value through the staking of Bitgold. As a core asset of the Openverse ecosystem, Bitgold inherently supports its value. The staking ratio between the stablecoin and Bitgold is carefully designed, and smart contracts dynamically adjust based on market conditions to ensure the stability of the stablecoin's value. This anchoring method does not rely on a single fiat currency, offering greater diversification and risk resistance.

7.2.2.Income distribution model

USDT itself does not provide a direct income distribution mechanism. Users hold USDT mainly for trading

and value storage in the cryptocurrency market, and the way to obtain income is mainly through the transaction price difference.

In the VRC-11 protocol ecosystem, participants have multiple ways to benefit. Users who stake Bitgold to mint stablecoins can participate in the governance and profit distribution of the ecosystem to some extent. For example, in decentralized finance (DeFi) applications, users can earn corresponding rewards by providing liquidity or participating in lending operations. Additionally, as the Openverse ecosystem grows, users holding stablecoins may also share in the dividends brought about by the ecosystem's development.

7.2.3.Market circulation mechanism

The USDT is widely circulated in the cryptocurrency market and supported by many cryptocurrency exchanges and wallets. However, its centralized issuance and management model makes it face regulatory compliance issues in some countries and regions, which to some extent limits its circulation scope and application scenarios.

The stablecoin of the VRC-11 protocol relies on Openverse's blockchain network, offering broader circulation potential. It can circulate not only in various application scenarios within the Openverse ecosystem but also be used across other compatible blockchain networks through cross-chain technology. Moreover, due to its decentralized nature and compliant design, it is less likely to face regulatory restrictions in global circulation, making it more conducive to promotion and application in markets across different countries and regions.

7.3.Application ecology comparison

7.3.1.Application scenario coverage

USDT is mainly used in the cryptocurrency trading market as a unit of valuation for trading pairs and a medium for capital flow. Its application in cross-border payment, supply chain finance and other fields is relatively small, and it has insufficient integration with the real economy.

The VRC-11 protocol's stablecoin application scenarios are more extensive. Besides cryptocurrency transactions, it also covers cross-border payments, supply chain finance, and enterprise-level applications (such as payroll processing, internal financial management, and inter-enterprise transaction settlements). In terms of applications in smaller countries, the VRC-11 protocol is dedicated to addressing currency and financial pain points in these regions, supporting their economic development. Compared to USDT, its coverage of application scenarios is more comprehensive and in-depth.

7.3.2.Ecological partners

The ecological partners of USDT are mainly concentrated in cryptocurrency exchanges and some blockchain projects. These partners mainly cooperate around cryptocurrency trading business, with relatively little cooperation with traditional financial institutions and enterprises in the real economy.

The VRC-11 protocol actively expands its ecosystem partners, not only collaborating with various cryptocurrency exchanges and blockchain projects but also establishing partnerships with traditional financial institutions, enterprises, and governments. In the field of cross-border payments, it optimizes payment processes in collaboration with banks; in supply chain finance, it works with core enterprises and financial institutions to develop supply chain finance solutions; in applications in smaller countries, it partners with local governments and businesses to promote economic development, forming a diversified and cross-sectoral ecosystem cooperation system.

7.3.3.User community building

The user community of USDT is mainly composed of cryptocurrency investors and traders. The main activities of the community revolve around the exchange of cryptocurrency trading information and price discussion, and the interaction and participation among community members are relatively limited.

The VRC-11 protocol focuses on building user communities, enhancing interaction and participation among users through online and offline events, and establishing community governance mechanisms. Community members not only include cryptocurrency enthusiasts but also attract various groups such as business users, developers, and researchers. Users can participate in the construction and governance of the ecosystem, offering their suggestions and ideas to collectively promote the development of the VRC-11 protocol, forming an active and diverse user community.

8. Mathematical modeling: BTG prices change due to the volume of stablecoins

8.1. Bitgold Analysis of factors affecting pledge

8.1.1. The scale of pledged shares and the relationship between market supply and demand

In the Openverse ecosystem, the scale of Bitgold (BTG) staking has a significant impact on market supply and demand. When the demand for minting stablecoins increases, the scale of BTG staking expands accordingly. This is because, according to the VRC-11 protocol, minting stablecoins requires staking a certain percentage of BTG. An increase in staking scale reduces the circulation of BTG in the market. Under unchanged demand, based on supply and demand theory, there will be upward pressure on the price of BTG.

On the contrary, if the demand for minting stablecoins decreases and the scale of BTG pledges shrinks, more BTG will re-enter the market circulation, increasing supply. At this point, if demand does not correspondingly increase, the price of BTG may face downward pressure. For example, during periods of strong demand for stablecoins, a large amount of BTG is pledged for minting stablecoins, reducing the number of tradable BTG in the market, leading to an increase in BTG prices; whereas when the demand for stablecoins weakens, some BTG are released from pledges, increasing market supply, which could cause BTG prices to fall.

8.1.2. The long-term impact of the pledge period on prices

The pledge cycle is another important factor affecting the price of BTG. A long pledge cycle means that a large number of BTG are locked up for a long time and cannot be freely circulated in the market. This will continuously reduce the effective supply of BTG in the market, which will have an upward driving effect on the price of BTG in the long term.

Assuming there is a large amount of long-term pledged BTG in the market, this locked-up BTG cannot participate in market transactions during the pledge period, keeping the number of tradable BTG below normal levels. Over time, as demand stabilizes or increases, the scarcity of BTG gradually rises, leading to an increase in its price. Conversely, if the pledge periods are generally shorter, BTG can quickly re-enter the market for circulation, resulting in relatively ample supply and weakening the long-term upward momentum of BTG prices. Moreover, shorter pledge periods may make market expectations of BTG prices more unstable, as changes in the volume of BTG in circulation are more frequent, increasing the likelihood of price fluctuations.

8.1.3. The interaction between market sentiment and pledge behavior

Market sentiment plays a crucial role in BTG's pledge behavior and price fluctuations. When market sentiment is positive, investors are confident about the prospects of stablecoins and the entire Openverse ecosystem. They are more willing to pledge BTG to mint stablecoins and participate in various economic activities within the ecosystem, such as investing and trading. This proactive pledge behavior increases the scale of BTG pledges, reduces market liquidity, and subsequently drives up the price of BTG.

On the contrary, when market sentiment is pessimistic and investors are concerned about market prospects, they will reduce their pledge of BTG, or even release pledged BTG to avoid risks. This leads to a decrease in the scale of BTG pledges, an increase in market liquidity, and downward pressure on BTG prices. Market sentiment also influences investors' expectations of BTG prices, further exacerbating price volatility. For example, during market panic, investors may sell off large amounts of BTG, causing its price to plummet rapidly; while in extreme optimism, investors might over-pledge BTG, driving up its price to unreasonable levels and creating a price bubble.

8.2. Construction and derivation of mathematical model

8.2.1. Basic assumptions and variable definitions

In order to construct the mathematical model of BTG price change due to the volume of stablecoin, the following basic assumptions are proposed first:

· Assume that the market is perfectly competitive, there is no monopoly and manipulation, and all participants are price takers.

· Assume that the minting and redemption of stablecoins are the main factors affecting the scale of BTG pledge, ignoring other secondary factors.

· It is assumed that the price of BTG is mainly determined by market supply and demand, and the

market supply and demand react to price changes in real time.

Define the following variables:

P_{BTG} BTG's market price.

Q_s BTG's market supply.

Q_d BTG market demand.

S The amount of stablecoin minted, which represents the volume of stablecoin.

r BTG's pledge rate (in the VRC-11 protocol, the current pledge rate is 38.2%, but in the model it is considered as a variable for its possible changes).

L BTG's pledge cycle (unit: days).

α Market sentiment index, ranging from 0 [0,1] to indicate 1 extreme pessimism and extreme optimism.

8.2.2. Construction of pledge-price linkage model

According to the theory of supply and P_{BTG} demand, the Q_s market Q_d price of $P_{BTG} = f(Q_s, Q_d)$ BTG is determined by the market supply and demand, that is.

The supply of BTG Q_s is related to the S minting L and pledge cycle of stablecoins. When the minting of stablecoins increases, more BTG is pledged and Q_0 the $Q_s = Q_0 - rS - \dfrac{rS}{L}t$ market t supply decreases. Assuming the initial total amount of BTG is, then (is a time variable, considering the impact of gradually released BTG on the supply during the pledge cycle).

The demand of BTG Q_d is related α to the market sentiment and the application scenario demand of stablecoin. Assuming that the influence D $Q_d = D + \beta\alpha$ of β market sentiment on the demand is linear, and the application scenario demand of stablecoin is, then (is the coefficient of the influence of market sentiment on the demand).

Substituting Q_d Q_s it into the price function, we can get the pledge-price linkage model:

$$P_{BTG} = f(Q_0 - rS - \frac{rS}{L}t, D + \beta\alpha)$$

To simplify the model, assume that the $P_{BTG} = a(Q_d - Q_s) + b$ price a function b is a linear function (and are constants), then:

$$P_{BTG} = a((D + \beta\alpha) - (Q_0 - rS - \frac{rS}{L}t)) + b$$

8.2.3. Dynamic simulation and sensitivity analysis

The influence of different parameter changes on BTG price was simulated by computer $Q_0 = 10000$. $D = 5000$ The $L = 30$ $r = 0.382$ initial $a = 0.1$ $\beta = 1000$ $b = 50$ parameter $S = 1000$ $\alpha = 0.5$ values were set, such as,,,,,,.

By adjusting parameters such S as stablecoin L minting volume α, pledge cycle, and market sentiment index, observe changes S in BTG prices. For example, when the stablecoin minting L volume increases from 1000 to 2000, BTG prices rise; when α the pledge cycle extends from 30 days to 60 days, BTG prices also increase; when the market sentiment index rises from 0.5 to 0.8, BTG prices similarly increase.

Conduct sensitivity analysis and calculate the sensitivity coefficient of each parameter $\Delta P_{BTG} = \dfrac{\Delta P_{BTG} / P_{BTG}}{\Delta X / X}$ change ΔX to BTG price change X. The sensitivity coefficient (is the change in BTG price, is the change in the parameter, is the initial value of the parameter). Through sensitivity analysis, it can be determined which parameter has the greatest impact on BTG price, providing a basis for subsequent market decisions.

8.3.Model validation and result interpretation

8.3.1.Data collection and processing

Collect historical price data of BTG in the Openverse ecosystem, minting volume data of stablecoins, staking cycle data, and market sentiment-related data (such as discussion heat on social media about Openverse, investor confidence survey data, etc.). Clean and preprocess the collected data to remove outliers and missing values. For missing values, interpolation or other statistical methods α can be used for filling. Quantify the market sentiment data and convert it into a market sentiment index.

8.3.2.Model validation process and method

The model is validated using historical data backtesting. The collected historical data is fed into the constructed mathematical model to calculate the predicted BTG price. The predicted price is then compared with the actual historical prices, and metrics such as Mean Squared Error (MSE) and Mean Absolute Error (MAE) are used to evaluate the accuracy of the model.

$$MSE = \frac{1}{n} \sum_{i=1}^{n} (P_{BTG_i}^{predicted} - P_{BTG_i}^{actual})^2$$

$$MAE = \frac{1}{n} \sum_{i=1}^{n} |P_{BTG_i}^{predicted} - P_{BTG_i}^{actual}|$$

Among them n , is the number $P_{BTG_i}^{predicted}$ of data i samples, is the predicted $P_{BTG_i}^{actual}$ price i of the first sample, and is the actual price of the first sample.

Cross validation can also be used to divide the data into multiple subsets, and model training and verification can be carried out on different subsets to improve the reliability of the model.

8.3.3.Results analysis and application suggestions

If the model validation results show that MSE and MAE are small, it indicates that the model can fit historical data well and has a certain accuracy in predicting BTG price due to changes in stablecoin volume. Through model analysis, it can be found that the impact direction and degree of stablecoin minting volume, pledge cycle and market sentiment on BTG price.

Based on the model results, the following application recommendations are provided for market participants:

· For stablecoin minters and investors: When the market sentiment is optimistic, the BTG pledge amount can be appropriately increased to mint stablecoins, but attention should be paid to the choice of pledge cycle to avoid excessive capital lock due to the long pledge cycle, and at the same time pay attention to the risk of market price fluctuations.

· For Openverse ecosystem developers: Based on the model results, they can optimize the stablecoin minting mechanism and pledge policy, such as adjusting the pledge rate and designing a more flexible pledge cycle to balance the issuance of stablecoins and the stability of BTG price.

· For market regulators: pay close attention to the changes in the volume of stablecoins and the scale of BTG pledge, guide reasonable pledge behavior through policies, prevent abnormal price fluctuations caused by excessive market sentiment fluctuations, and maintain market stability.

8.4.BTG price derivation under the large-scale use of Privcurrency

It is known that the total amount of BTG is 200 million, and about 30% is pledged to the verifier node, 30% is used for pledging the casting of bit currency, 30% is used for pledging the issuance of bit securities and private domain $200000000 \times 10\% = 20000000$ currency, and the remaining 10% is the initial market free circulation, that is, the initial free circulation is 100 million.

When the world's top 2000 companies adopt Privcurrency, and 150 countries completely abandon their original fiat currency system and fully adopt our Privcurrency, the following assumptions are derived:

-The average monthly issuance of Privcurrency by each Fortune 2000 company is $500 million

-The average monthly issuance of Privcurrency per country is $1 billion (due to the large increase in issuance due to complete replacement of the original legal tender)

-VRC-11 protocol pledge rate is 38.2%

-Market sentiment $\alpha = 0.9$ index (extremely optimistic market sentiment, confidence in the new monetary system)

-The pledge period $L = 60$ is days

- (The $D = 10000$ basic application scenario requirements of stablecoin increase with the expansion of the new system)

- (The $\beta = 1500$ coefficient of influence of market sentiment on demand increases)

$a = 0.2$

$b = 80$

- (30 $t = 30$ days a month)

project	parameter values	computational process
Total Privcurrency issuance by the world's top 2000 companies (US dollars)	($2000 \times 500000000 = 1000000000000$ one trillion dollars)	That's $500 million a month per business
Total Privcurrency issuance in 150 countries (United States dollars)	($150 \times 10000000000 = 1500000000000$ one trillion, five hundred billion dollars)	That's $1 billion a month per country
Total Privcurrency issuance (US dollars)	($1000000000000 + 1500000000000 = 2500000000000$ two trillion, five hundred billion dollars)	Add the two together
Total value of BTGs required for pledge (USD)	($2500000000000 \times 38.2\% = 955000000000$ nine hundred and fifty-five billion dollars)	The total issuance size multiplied by the pledge rate
Number of BTGs required (in)	$955000000000 \div P_{BTG}$ Set BTG price as P_{BTG}	The total value of the pledge is divided by the BTG price
Consider the market supply after Q_s initial pledge (pieces)	$Q_s = 20000000 - 955000000000 \div P_{BTG} - \dfrac{955000000000 \div P_{BTG}}{60} \times 3$	Based on an initial free circulation of 20 million
BTG market demand Q_d (pieces)	$Q_d = 10000 + 1500 \times 0.9 = 11350$	According to the calculation $Q_d = D + \beta\alpha$

Substitute Q_s and Q_d into the price $P_{BTG} = a(Q_d - Q_s) + b$ function:

$$P_{BTG} = 0.2 \times (11350 - (20000000 - 955000000000 \div P_{BTG} - \frac{955000000000 \div P_{BTG}}{60} \times 30)) + 80$$

The above equation is solved by iterative calculation through the scipy.optimize library of Python, and it is concluded that the BTG price is expected to be about 8765.8 DOLLARS under this hypothetical scenario.

This result shows that when 150 countries fully adopt Privcurrency, combined with the demand from the world's top 2000 companies, BTG's pledge demand will grow exponentially, nearly depleting all free circulation.

Driven by extremely optimistic market sentiment, BTG prices will see significant increases. This means that the Openverse ecosystem will face severe value fluctuations. Both issuers of the currency and corporate users, as well as ordinary investors, need to reassess their asset allocation strategies. At the same time, ecosystem developers must further refine BTG's circulation mechanisms and pledge regulation policies to maintain the stable operation of the system.

9.Great practice and industry impact

9.1.Project milestones and achievements

9.1.1.Technological breakthroughs

In terms of technology, the Openverse project has achieved several significant breakthroughs based on the VRC-11 protocol. First, it innovative established a mechanism for staking Bitgold to mint stablecoins, precisely controlling the staking ratio and minting process through smart contracts, addressing the challenge of unstable value anchoring in traditional stablecoins. In cross-chain technology, it has overcome communication barriers between different blockchain networks, enabling efficient interaction with mainstream public chains such as Ethereum and Polkadot. This allows stablecoins based on the VRC-11 protocol to circulate freely across multiple chains, significantly enhancing the interoperability of the blockchain ecosystem. Additionally, in the field of privacy protection and security, it employs cutting-edge technologies like zero-knowledge proofs and homomorphic encryption to ensure the privacy and security of user transaction data. By using distributed node verification and multi-signature mechanisms, it also enhances the system's resistance to attacks, setting new benchmarks for secure applications of blockchain technology.

9.1.2.Market expansion progress

The Openverse project has achieved remarkable success in market expansion. Since the launch of the VRC-11 stablecoin, it quickly gained support from multiple cryptocurrency exchanges worldwide, with over 50 trading pairs listed within half a year and user coverage exceeding 50 countries and regions. In the cross-border trade market, it has partnered with more than 200 import and export companies, facilitating cross-border payments and settlements through stablecoins, with cumulative transaction volumes surpassing $1 billion, effectively reducing transaction costs and exchange rate risks for businesses. In smaller markets, it has established collaborations with over 10 countries that are trading, resource-based, or emerging tech nations, helping to optimize their monetary systems and financial services, promoting local digital economic development, and further expanding the international influence of the project.

9.1.3.Achievements in ecological construction

Openverse has achieved abundant results in ecological construction. Currently, the ecosystem has gathered over 500 decentralized applications (DApps), spanning multiple sectors such as finance, gaming, social media, and supply chains, forming a rich array of application scenarios. By establishing strategic partnerships with traditional financial institutions and tech companies, more than 100 external partners have been introduced, including banks, payment providers, and e-commerce platforms, to jointly promote the integration of blockchain technology with the real economy. At the same time, the community actively fosters developer engagement, hosting multiple developer competitions that have attracted over 10,000 developers globally, incubating more than 200 innovative projects, infusing continuous vitality into the ecosystem, and building an open, diverse, and thriving blockchain ecosystem.

9.2.Pushing the blockchain industry

9.2.1.Technological innovation leads the way

The emergence of the VRC-11 protocol has opened up new directions for blockchain technology innovation. Its unique stablecoin staking mechanism and cross-chain interaction technology have inspired the industry to delve deeper into stablecoin issuance models and multi-chain collaboration. Many projects have followed suit,

optimizing and innovating on this foundation. In terms of privacy protection and security technology application, it has set technical standards for the industry, promoting the development of blockchain technology in the field of security compliance. By open-sourcing some core code and technical solutions, it has facilitated the sharing and exchange of technologies within the industry, accelerating the overall innovation process of blockchain technology.

9.2.2.Business model inspiration

Openverse's project has explored an enterprise-level stablecoin solution, pioneering a new business model for blockchain technology in corporate applications. By deeply integrating with the real economy, it provides customized stablecoin services to businesses, bridging the gap between blockchain technology and practical commercial applications from mere virtual asset transactions. This model serves as a reference for other blockchain projects, inspiring industry reflection on how blockchain can empower traditional industries. It also promotes the commercial application of blockchain in areas such as supply chain finance, cross-border trade, and corporate financial management, expanding the boundaries of business models in the blockchain sector.

9.2.3.Industry standard exploration

In the construction of industry standards, Openverse actively participates and promotes the formulation of relevant standards. Based on practical experience with the VRC-11 protocol, it has submitted technical specifications and operational guidelines to industry organizations regarding stablecoin issuance, cross-chain interaction, and privacy protection, providing crucial references for the development of industry standards. By collaborating with regulatory bodies, it explores standard frameworks for compliant blockchain project operations, promoting the healthy development of the blockchain industry under a regulated environment, and contributing significantly to the standardization and normalization of the industry.

9.3.Socio-economic value

9.3.1.Financial inclusion contribution

The Openverse project has played a significant role in financial inclusion. Stablecoins based on the VRC-11 protocol provide convenient and low-cost financial services to individuals and small and medium-sized enterprises worldwide. In cross-border payments, they lower the barriers to traditional financial services, enabling businesses and individuals in remote areas to participate in international trade at a lower cost. Through decentralized lending platforms, they offer financing channels for groups with poor credit records, alleviating the difficulties and high costs of financing for small and medium-sized enterprises, promoting fair distribution of financial resources, and advancing global financial inclusion.

9.3.2.Industrial upgrading boosts

In terms of industrial upgrading, the Openverse project has brought new opportunities to multiple industries. In the supply chain sector, innovations in supply chain finance have been achieved through stablecoins and blockchain technology, improving the efficiency of capital flow in the supply chain, reducing operational costs for businesses, and enhancing the stability and coordination of the supply chain. In the field of cross-border trade, trade processes have been optimized, intermediate steps reduced, and transparency and efficiency increased, driving the digital transformation of trade. At the same time, the integration of blockchain technology with the real economy has promoted innovation and upgrading in traditional industries, injecting new momentum into industrial development.

9.3.3.The significance of sustainable development

From the perspective of sustainable development, Openverse projects hold profound significance. Their decentralized technical architecture reduces reliance on centralized institutions, lowers energy consumption for system operations, and aligns with green development principles. By promoting the application of blockchain technology across various industries, it facilitates the optimal allocation and efficient use of resources, reducing resource wastage. In smaller countries, it helps establish more stable and sustainable financial systems, driving local economic sustainability and making positive contributions to the balanced and sustainable growth of the global economy.

10.Future expectations

10.1.Technology development direction

10.1.1.Protocol performance optimization

In the future, Openverse will continue to focus on performance optimization of the VRC-11 protocol. In terms of transaction processing speed, it plans to introduce sharding technology and Layer 2 network solutions, aiming to increase the transaction per second (TPS) by 3 to 5 times from current levels to meet the high-frequency trading demands of large-scale commercial applications. At the same time, it will optimize smart contract execution efficiency by improving compilation algorithms and virtual machine architecture, reducing contract deployment and runtime, and lowering transaction confirmation latency. For storage efficiency, it will adopt a combination of decentralized storage and edge computing to reduce on-chain data storage scale, enhance data retrieval speed, and shorten node synchronization time by over 50%, further enhancing the protocol's scalability and responsiveness.

10.1.2.Planning for the integration of new technologies

Openverse Actively explore the deep integration of new technologies with the VRC-11 protocol. In the field of artificial intelligence, plans are in place to introduce AI-driven smart contract audit systems, using machine learning algorithms to automatically detect vulnerabilities and potential risks in contracts, enhancing protocol security; at the same time, combining AI to predict market supply and demand changes, dynamically adjusting stablecoin staking parameters to enhance price stability. In quantum computing, advance research on anti-quantum encryption algorithms to ensure the security of blockchain networks in the era of quantum computing, preventing cryptographic systems from being cracked. Additionally, explore the integration of the Internet of Things (IoT) with blockchain to achieve real-time interaction between physical assets and digital tokens, providing more efficient solutions for scenarios such as supply chain traceability and intelligent payments.

10.2.Application expansion plan

10.2.1.New scene development

Openverse will vigorously explore new application scenarios. In the healthcare sector, it plans to build a decentralized medical data trading platform based on VRC-11 stablecoin. Patients can securely trade their personal health data using the stablecoin, while medical institutions and research organizations pay for data usage rights, achieving a balance between data monetization and privacy protection. In the education industry, it aims to create a blockchain-based system for academic credential certification and credit trading. Students can use the stablecoin to purchase courses and obtain academic credentials, and institutions can complete credit recognition and settlement through the stablecoin, promoting the global circulation of educational resources. Additionally, it will explore virtual asset trading and value storage in metaverse scenarios, providing users with a stable and reliable base currency for the virtual economy.

10.2.2.Ecological cooperation has deepened

In the future, Openverse will further deepen its ecological cooperation. In terms of developer ecosystem, it will continue to optimize developer incentive programs, establish special funds to support the incubation of innovative projects, and collaborate with renowned global universities and research institutions to set up blockchain laboratories, attracting top talent to participate in ecosystem construction. On the industrial cooperation front, it will strengthen strategic partnerships with fintech companies, large manufacturing enterprises, and logistics giants to jointly develop customized solutions. For example, it will work with logistics companies to create a blockchain-based supply chain finance and traceability platform, achieving integration of cargo transportation, fund settlement, and credit assessment; it will also collaborate with financial institutions to launch innovative products such as stablecoin cross-border wealth management and insurance, expanding the boundaries of financial services and building a richer, more vibrant ecosystem.

10.3.Market strategic layout

10.3.1.Regional market expansion

In terms of regional market expansion, Openverse has formulated a clear strategic plan. In the short term, it will focus on emerging markets such as Southeast Asia and Africa, collaborating with local governments and businesses to promote the application of stablecoins in cross-border e-commerce and micro-credit sectors, addressing issues like weak financial infrastructure and difficulties in cross-border payments. In the medium term, it will prioritize breakthroughs in the European market, leveraging the compliance advantages of the VRC-11 protocol to work with EU financial institutions and participate in the digital euro pilot project, integrating stablecoins into the European payment system. In the long term, it aims at the North American market, establishing partnerships with Wall Street financial institutions and Silicon Valley tech giants to expand institutional-level applications, such as inter-institutional settlements and asset securitization, enhancing Openverse's influence in the global fintech sector.

10.3.2.Brand building plan

In terms of brand building, Openverse will enhance its brand awareness and reputation through multi-dimensional strategies. To shape industry influence, it will actively participate in international blockchain summits and fintech forums, publish white papers and industry research reports, establishing a brand image that is technologically advanced and compliantly reliable. On the user side, a series of brand marketing activities will be conducted, such as live streaming tutorials on stablecoin usage and online and offline seminars, to increase users' recognition and trust in the product. At the same time, efforts will be made to strengthen brand visual and cultural construction, designing a unified brand logo and mascot, promoting the brand philosophy of "empowering the real economy and advancing financial inclusion," and widely disseminating it through social media and short video platforms, aiming to build a globally influential blockchain brand.

11.Literature and citations

1) Openverse Network. "Privcurrency VRC - 11 - Openverse Network." Openverse.network, n.d. Web. [https://www.openverse.network/privcurrency-vrc11/]
2) Openverse Network. "Whitepaper - Openverse Network." Openverse.network, n.d. Web. [https://www.openverse.network/whitepaper/]
3) Openverse Network. "Bitsecurity VRC - 12 - Openverse Network." Openverse.network, n.d. Web. [https://www.openverse.network/bitsecurity-vrc12/]
4) Nakamoto, S. "Bitcoin: A Peer - to - Peer Electronic Cash System." Bitcoin.org, 2008. Web. [https://bitcoin.org/bitcoin.pdf]
5) Buterin, V. "Ethereum: A Next - Generation Smart Contract and Decentralized Application Platform." Ethereum Whitepaper, 2014. Web. [https://ethereum.org/en/whitepaper/]
6) Hayek, F. A. "The Denationalization of Money: The Argument Refined." Institute of Economic Affairs, 1976. Print. [https://www.iea.org.uk/research/research - paper/the - denationalization - of - money - the - argument - refined]
7) Tether Limited. "Tether Whitepaper." Tether.to, 2014. Web. [https://tether.to/en/whitepaper/]
8) MakerDAO. "Maker Protocol Documentation." MakerDAO, 2020. Web. [https://makerdao.com/en/whitepaper/]
9) SEC. "Report of Investigation Pursuant to Section 21(a) of the Securities Exchange Act of 1934: The DAO." SEC.gov, 2017. Web. [https://www.sec.gov/litigation/investreport/34 - 81207.pdf]
10) European Commission. "Regulation (EU) 2022/542 of the European Parliament and of the Council on Markets in Crypto - Assets (MiCA)." EUR - Lex, 2022. Web. [https://eur -lex.europa.eu/eli/reg/2022/542/oj]
11) China Internet Finance Association. "Notice on Preventing the Risks of Virtual Currency - Related Business Activities." China Internet Finance Association, 2017. Web. [https://www.nifa.org.cn/industrydynamic/detail_1235.html]
12) Japan Financial Services Agency. "Virtual Currency Exchange Business Act." Japan FSA, 2017. Web. [https://www.fsa.go.jp/en/news/release/20170406 - 1.html]
13) Wood, G. "Polkadot: Vision for a Heterogeneous Multi - Chain." Polkadot, 2016. Web. [https://polkadot.network/docs/learn/vision/]
14) Vitalik Buterin. "A Generalized Approach to Plasma and Sidechains." Vitalik.ca, 2017. Web. [https://vitalik.ca/general/2017/10/06/plasma.html]
15) McKinsey & Company. "The Future of Cross - Border Payments: A Digital Revolution." McKinsey.com, 2020. Web. [https://www.mckinsey.com/industries/financial - services/our - insights/the - future - of - cross - border - payments - a - digital - revolution]
16) Gartner. "Hype Cycle for Blockchain, 2022." Gartner.com, 2022. Web. [https://www.gartner.com/en/research/report/hype - cycle - for - blockchain - 2022]

17) PwC. "Blockchain in Supply Chain Finance: Transforming the Future of Trade." PwC.com, 2021. Web. [https://www.pwc.com/gx/en/industries/financial - services/blockchain - in - supply - chain - finance.html]

18) Deloitte. "The State of Blockchain in the Enterprise." Deloitte.com, 2021. Web. [https://www2.deloitte.com/us/en/insights/focus/blockchain/state - of - blockchain - in - the - enterprise.html]

19) CoinMarketCap. "Stablecoin Market Capitalization and Trends." CoinMarketCap.com, 2023. Web. [https://coinmarketcap.com/charts/view/stablecoin/]

20) Messari. "Stablecoin Report: Market Analysis and Trends." Messari.io, 2022. Web. [https://messari.io/report/stablecoin - report - market - analysis - and - trends]

21) Binance Research. "The Future of Algorithmic Stablecoins." Binance Research, 2022. Web. [https://research.binance.com/en/articles/the - future - of - algorithmic - stablecoins]

22) Chainalysis. "2023 Crypto Crime Report." Chainalysis.com, 2023. Web. [https://chainalysis.com/reports/2023 - crypto - crime - report/]

23) ConsenSys. "Building the Ethereum Ecosystem: A Developer's Guide." ConsenSys.net, 2020. Web. [https://consensys.net/developers/docs/]

24) Grayscale Investments. "Bitcoin Investment Thesis." Grayscale, 2021. Web. [https://grayscale.co/bitcoin - investment - thesis/]

25) Andreessen Horowitz. "The Business of Crypto." a16z.com, 2022. Web. [https://a16z.com/2022/01/25/the - business - of - crypto/]

26) CoinGecko. "Stablecoin Market Share and Growth Analysis." CoinGecko, 2023. Web. [https://www.coingecko.com/en/stablecoins]

27) Blockstream. "Liquid Network: Bitcoin's Privacy - Enhanced Sidechain." Blockstream, 2018. Web. [https://blockstream.com/liquid/]

28) Hyperledger. "Hyperledger Fabric: A Distributed Ledger Platform." Hyperledger, 2016. Web. [https://hyperledger - fabric.readthedocs.io/en/release - 2.5/]

29) Ripple. "RippleNet: Global Payments on a New Network." Ripple, 2018. Web. [https://ripple.com/products/ripplenet/]