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Research Methodology and IPR AAT Report on

# “Stablecoin as a Medium of Exchange on a Blockchain-Based Transaction Network”

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**Abstract**

This report provides a comprehensive analysis of the patent application US 2025/0069047 A1, filed by Ceres Coin LLC on November 11, 2024. The patent proposes a blockchain-based transaction network utilizing an SEC-qualified stable- coin as a medium of exchange, specifically designed for regulated industries, with a primary focus on the legal cannabis industry. This report explores the challenges addressed by the system, the proposed solution, its methodology, advantages, future possibilities, and technical considerations. By leveraging a distributed blockchain ledger, the system aims to enhance transparency, security, and regulatory compliance, offering a scalable solution for industries facing banking and compliance challenges.

# Introduction

The patent application US 2025/0069047 A1, filed by Ceres Coin LLC, introduces a pioneering blockchain-based transaction network that employs an SEC-qualified stablecoin as a medium of exchange (Page 1). This system is tailored for regulated industries, particularly the legal cannabis industry, which faces significant obstacles due to federal regulations and limited banking access. The stablecoin blockchain system comprises three core components: a blockchain framework, a transaction ecosystem, and a network op- operating on a distributed ledger (Abstract, Page 1). These components work together to facilitate secure, transparent, and compliant transactions, addressing critical issues such as cash dependency, regulatory oversight, and supply chain tracking.

The legal cannabis industry, valued at $50 billion and projected to grow, is a prime example of a sector hindered by systemic financial challenges (Page 14). The patent's solution leverages blockchain technology and a stablecoin to create a robust transaction platform that integrates with governmental regulatory systems, ensuring real-time compliance and transparency (Page 16). This report aims to provide an in-depth examination of the system's design, implementation, benefits, and potential, drawing on the patents' detailed descriptions, figures, and claims.

# Problem Statement

## Limited Banking Access in the Cannabis Industry

The legal cannabis industry operates under significant constraints due to its classification as a Schedule I substance under U.S. federal law (Page 14). Despite state-level legalization, only 3% of the 22,000 U.S. banks (approximately 660) provide meaningful banking services to cannabis businesses (Page 14). This scarcity is driven by stringent compliance requirements under the Bank Secrecy Act (BSA) and Patriot Act, which impose heavy reporting and monitoring obligations on financial institutions (Page 14). Banks that do engage with the industry charge exorbitant fees to offset these compliance costs, creating financial burdens for cannabis businesses (Page 14).

## Consequences of Cash-Based Operations

The limited banking access forces cannabis businesses to operate primarily in cash, leading to a cascade of operational and security challenges (Page 14):

1. **Security Risks**: Cash-heavy operations make businesses prime targets for robberies and burglaries, as illustrated in FIG. 1 (Page 16). Dispensaries and cultivation facilities often store large cash reserves, increasing the risk of violent crimes.
   * + **Lack of Transparency**: Cash transactions are difficult to track, reducing regulatory oversight and increasing the potential for money laundering and tax evasion (Page 14). This opacity undermines efforts to ensure compliance with state and federal regulations.
     + **O**perational Inefficiencies: Handling large volumes of cash requires additional se- security measures, such as armored transport and secure storage, which increase operational costs (Page 14).
     + **Negative Feedback Loop**: The reliance on cash exacerbates anti-money laundering challenges, as regulators struggle to monitor cash flows, further discouraging banks from entering the market (Page 14).

## Broader Implications

The cash-based nature of the cannabis industry is not a sustainable long-term solution for a sector experiencing rapid growth (Page 15). The lack of banking infrastructure limits scalability, as businesses cannot efficiently manage large-scale transactions or ac- cess credit (Page 15). Additionally, the absence of transparent financial systems hinders supply chain tracking, making it difficult to monitor product sourcing, processing, and distribution (Page 15). These challenges create a pressing need for a secure, transparent, and compliant transaction system that can replace cash-based operations and integrate with regulatory frameworks.

# Proposed Solution

The patent proposes a stablecoin blockchain system to address the financial and regulatory challenges faced by the cannabis industry (Page 1). The system is built around an SEC-qualified stablecoin, which serves as a stable and compliant medium of exchange (Page 16). The solution comprises three interconnected components:

* **Stablecoin Blockchain Framework**: The foundational infrastructure that supports secure transaction processing and validation (FIG. 9A, Page 16). This framework ensures that transactions are encrypted and recorded on a distributed ledger.
* **Stablecoin Ecosystem**: A network that connects ecosystem participants, including producers, retailers, and regulators, to facilitate seamless transactions (FIG. 3, Page 16). The ecosystem supports end-to-end supply chain tracking, from seed to sale.
* **Transaction Network**: A blockchain-based network that operates on a distributed ledger, integrated with governmental regulatory systems for real-time compliance monitoring (FIG. 5A, 5B, Page 16).

The system's use of an SEC-qualified stablecoin ensures regulatory legitimacy, as the stablecoin complies with securities regulations, making it an attractive option for financial institutions hesitant to engage with the cannabis industry (Page 16). Transactions within the system are encrypted, validated, and recorded on a public ledger, providing trans- parency and immutability (Page 16). This approach eliminates the need for cash, reduces security risks, and enables comprehensive regulatory oversight.

# Methodology

## System Architecture

The stablecoin blockchain system is designed with a robust architecture to ensure security, scalability, and regulatory compliance (Page 16). Key components include:

* + - **User Devices and Stablecoin Server**: User devices interact with a stablecoin server equipped with a cache to reduce memory latency, ensuring efficient transaction processing (FIG. 9B, Page 16).
    - **Blockchain Transaction Platform**: The platform serves as the core processing unit, handling transaction encryption, validation, and ledger updates (Page 16). It integrates with governmental regulatory systems to provide real-time data sharing.
    - **Distributed Blockchain Ledger**: A decentralized ledger that records all trans- actions in real-time, ensuring transparency and immutability (Page 16). The ledger is accessible to authorized participants, including regulators.
    - **Security and Integration Layer**: Includes firewalls, routers, and web servers to secure communication between system components and external systems (Page 33). This layer protects against cyber threats and ensures data integrity.

The architecture supports distributed computing, allowing for remote processing and scalability (Page 34). This design enables the system to handle large transaction volumes, making it suitable for widespread adoption in the cannabis industry and beyond.

## Transaction Process

The transaction process is a critical aspect of the system, ensuring secure and compliant operations (FIG. 4, Page 16). The process involves three key steps:

1. **Encryption**: Each transaction is added to the distributed ledger with a unique digital security code, ensuring data integrity and preventing unauthorized access (Page 16).
2. **Validation**: The digital code is confirmed and validated by the system to ensure the transaction's authenticity and compliance with regulatory requirements (Page 16).
3. **Distribution**: Validated transactions are recorded in the public ledger, making them accessible to authorized participants and regulators (Page 16). This process supports two-party transactions, such as a retailer purchasing cannabis products from a producer using stablecoin (FIG. 7, 8, Page 16). The system updates the ledger in real-time, capturing transactional data and sharing it with regulatory systems (Page 16). Additionally, the system tracks the product's lifecycle, including sourcing, processing, selling, and pricing, providing comprehensive supply chain visibility (FIG. 3, Page 16).

## Supply Chain Tracking

A standout feature of the system is its ability to track products from seed to sale (Page 16). The distributed ledger captures detailed data at each stage of the supply chain, including:

* + - **Sourcing**: Origin of raw materials, such as cannabis strains and cultivation details (Claim 8, Page 35).
    - **Processing**: Manufacturing processes, including chemical analysis and quality con- trol (Claim 9, Page 35).
    - **Selling**: Transaction details, including pricing and buyer information (Page 16).
    - **Pricing**: Market data to analyze supply and demand trends (Claim 6, Page 35).

This granular tracking enhances regulatory compliance, supports product recalls, and enables real-time inventory management (Claims 6-10, Page 35).

# Advantages

The stablecoin blockchain system offers numerous advantages, particularly for the cannabis industry, addressing the challenges outlined in the problem statement (Page 16).

## Enhanced Transparency

The immutable distributed ledger records all transactions, providing a transparent audit trail that reduces the risk of fraud and tax evasion (Page 16). For example, regulators can access real-time transaction data to verify compliance with state and federal laws, eliminating the opacity associated with cash transactions (Page 14).

## Regulatory Compliance

The systems integration with governmental regulatory systems ensures real-time data sharing, facilitating compliance with the BSA and Patriot Act (Page 16). By using an SEC-qualified stablecoin, the system aligns with securities regulations, making it easier for banks to participate without fear of regulatory penalties (Page 16).

## Improved Security

Encrypted transactions and the elimination of cash significantly reduce security risks (Page 14). For instance, dispensaries no longer need to store large cash reserves, lower-

Reducing the risk of robberies and burglaries (FIG. 1, Page 16). The system's security layer, including firewalls and routers, further protects against cyber threats (Page 33).

## Comprehensive Supply Chain Tracking

The system's ability to track products from seed to sale enhances supply chain visibility (FIG. 3, Page 16). This feature supports regulatory requirements, such as tracking product origins and ensuring quality control (Claims 8-9, Page 35). It also enables efficient product recalls by tracing products to individual customers (Claim 10, Page 35).

## Real-Time Inventory Management

The system provides real-time insights into supply and demand, enabling businesses to optimize inventory and analyze consumption trends (Claims 6-7, Page 35). For example, retailers can use ledger data to predict demand for specific cannabis strains, improving operational efficiency (Page 16).

## Scalability

Designed for large-scale adoption, the system supports high transaction volumes and distributed computing (Page 34). This scalability makes it suitable for the growing cannabis industry and other regulated sectors (Page 16).

# Future Possibilities

The stablecoin blockchain system has significant potential for expansion and innovation, extending beyond its current application in the cannabis industry.

## Broader Industry Applications

The system can be adapted for other regulated industries facing similar banking and compliance challenges, such as real estate, tax, or liquor distribution (Claim 11, Page 35). For example, in real estate, the system could facilitate secure property transactions using stablecoin, reducing reliance on traditional banking systems.

## Advanced Analytics

Blockchain data can be leveraged for predictive analytics, enabling businesses to model supply chain dynamics and consumer behavior (Page 16). For instance, retailers could use transaction data to forecast demand for cannabis products, optimizing inventory and marketing strategies.

## Global Adoption

The systems design makes it applicable to international regulated markets with similar banking constraints. For example, countries with legal cannabis markets, such as Canada or Uruguay, could adopt the system to enhance financial transparency and compliance.

## Integration with IoT

Combining the system with Internet of Things (IoT) devices could enable real-time tracking of product conditions, such as temperature or humidity during transport (Page 16). This integration would enhance quality control and regulatory compliance.

## Decentralized Finance (DeFi)

The SEC-qualified stablecoin could integrate with DeFi platforms, enabling services such as lending, staking, or yield farming (Page 16). This would create new financial opportunities for ecosystem participants, further reducing reliance on traditional banking.

# Technical Considerations

The system incorporates robust technical features to ensure reliability, security, and scalability:

* **Security Layer**: Includes firewalls, routers, and web servers to secure communication and protect against cyber threats (Page 33). This layer ensures data integrity and prevents unauthorized access.
* **Distributed Computing**: Supports remote processing, enabling the system to handle large transaction volumes and scale with industry growth (Page 34).
* **Real-Time Validation**: Ensures ledger accuracy and regulatory compliance through automated validation processes (Claim 13, Page 35).

However, several challenges must be addressed for widespread adoption:

* **Infrastructure Requirements**: The system requires robust hardware and network infrastructure to support real-time transaction processing and ledger updates (Page 34).
* **Regulatory Approval**: Widespread adoption depends on regulatory acceptance of the stablecoin and blockchain system, particularly in jurisdictions with strict financial regulations (Page 16).
* **Resistance from Traditional Banks**: Financial institutions may resist adopting the system due to competition with existing services or concerns about regulatory scrutiny (Page 14).

# Case Study: Application in the Cannabis Industry

To illustrate the impact of the system, consider a hypothetical cannabis dispensary adopting the stablecoin blockchain system. The dispensary, previously operating in cash, faces high security risks and compliance costs. By implementing the system:

* **Transaction Process**: Customers purchase cannabis products using stablecoin, with transactions encrypted and recorded on the ledger (FIG. 7, Page 16). This eliminates cash handling, reducing robbery risks.
* **Supply Chain Tracking**: The dispensary tracks product origins, ensuring compliance with state regulations (FIG. 3, Page 16). For example, it verifies that cannabis is sourced from licensed cultivators.
* **Regulatory Compliance**: Transaction data is shared with state regulators in real-time, ensuring adherence to BSA requirements (Page 16).
* **Inventory Management**: The dispensary uses ledger data to monitor inventory levels and predict demand, optimizing stock levels (Claims 6-7, Page 35).

This case study demonstrates the system's ability to transform operations, enhance security, and ensure compliance in the cannabis industry.

# Conclusion

The stablecoin blockchain system proposed in US 2025/0069047 A1 represents a ground-breaking solution for regulated industries, particularly the legal cannabis industry. By leveraging an SEC-qualified stablecoin and a distributed blockchain ledger, the system addresses critical challenges, including cash dependency, limited banking access, and regulatory compliance. Its advantagesenhanced transparency, improved security, com- comprehensive supply chain tracking, and scalabilityposition it as a viable alternative to traditional financial systems.

The system's potential extends beyond cannabis, with applications in other regulated industries and integration with emerging technologies like IoT and DeFi. However, its success depends on overcoming technical and regulatory challenges, including infrastructure- ture requirements and acceptance by financial institutions. As the cannabis industry continues to grow, the stablecoin blockchain system offers a scalable, secure, and compliant solution to modernize financial transactions, paving the way for broader adoption in regulated markets.

# References

[1] US Patent Application 2025/0069047 A1, “Stablecoin as a Medium of Exchange on a Blockchain-Based Transaction Network,” Ceres Coin LLC, Filed Nov. 11, 2024.