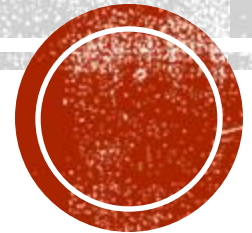


INVESTIGATIVE CHALLENGES OF CRYPTO ASSETS

A Comprehensive Overview of Legal, Technical, and Practical Barriers

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INTRODUCTION TO CRYPTO ASSETS

- Digital or virtual assets that are issued or transferred using blockchain technology
- Types of Crypto Assets:
 - Cryptocurrencies (e.g., Bitcoin, Ethereum)
 - Non-fungible tokens (NFTs)
 - Stablecoins – USDT
 - Central Bank Digital Currencies (CBDCs) – JAM-DEX
- - Rising Importance: Increasing adoption by individuals, businesses, and institutions.



INVESTIGATIVE CHALLENGES IN CRYPTO ASSETS



- **Anonymity:-** Pseudonymous nature of crypto transactions.
- **Decentralization:** Lack of central authority for traceability.
- **Cross-border Nature:** Transactions can cross national borders without jurisdictional limitations.
- **Complexity of Technology:** Technical knowledge required to understand blockchain and encryption.



CHALLENGE 1 - ANONYMITY & PSEUDONYMITY

- Crypto transactions are pseudonymous: Identifiers (wallet addresses) don't directly link to real-world identities.
- Tools Used for Anonymity: Privacy coins (e.g., Monero, Zcash), mixing services, and tumblers.
- Difficulty in Attribution: Investigators face challenges linking illicit activity to individuals.
- Self-Custody: Individuals holding their own crypto in wallets may not keep logs or records.
- KYC/AML Compliance: Challenges in ensuring compliance with Know Your Customer (KYC) and Anti-Money Laundering (AML) regulations.



CHALLENGE 2 - DECENTRALIZATION AND LACK OF CONTROL

- **No Central Authority:** Unlike traditional financial systems, cryptocurrencies operate on decentralized networks.
- **Blockchain Immutability:** Transactions are permanent but not easily alterable, which hinders correction of errors.
- **Difficulty in Seizing Assets:** No central entity to freeze or seize assets like in a traditional bank account.
- **No Centralized Records:** Unlike traditional financial institutions, crypto exchanges or wallets don't always retain comprehensive data.



CHALLENGE 3 - JURISDICTIONAL & CROSS-BORDER ISSUES

- **Global Nature of Cryptocurrencies:** Transactions can occur across borders without the need for intermediaries.
- **Multiple Legal Systems:** Different countries have varying regulatory frameworks, from full bans to integration into financial systems.
- **Enforcement Problems:** Difficulty in enforcing regulations or prosecuting across multiple jurisdictions.
- **Privacy and Data Protection Laws:** Regulations like GDPR in Europe limit the retention of user data, complicating investigations.
- **Regulatory Ambiguities**:** Uncertainty in classification (e.g., as commodities, securities, or currencies).



CHALLENGE 4 - TECHNICAL COMPLEXITY

- Blockchain and Smart Contracts: Understanding and analyzing blockchain data, including smart contracts.
- Public vs. Private Blockchains: Differences in data access (public blockchains are more traceable).
- Crypto Forensics: The use of specialized tools to trace transactions, but the process requires expertise.
- The use of blockchain analysis firms like Chainalysis, Elliptic, and CipherTrace.
- Prone to hacking



SOLUTIONS?

- **Blockchain Analysis** tools like Chainalysis, Elliptic etc.
- **Education and awareness** – especially of law enforcement officers
- **Monitoring Funds Through Multiple Wallets:** Using blockchain explorers and forensic tools to track stolen funds through multiple wallets and exchanges.
- **Exchange Cooperation:** Centralized exchanges (CEXs) are often crucial in cryptocurrency investigations
- Investigators can ask exchanges to assist by sharing KYC data or freezing suspicious accounts
- **Reporting and Blacklists:** Many exchanges maintain blacklists of suspicious addresses and report criminal activities to relevant authorities.



QUESTIONS?

