Comprehensive Report on DLT and Smart Contract Security

Analysis by Zhong Chen

Presentation at BIS, Basel, Switzerland

Author's Note

This report is a personal account of the presentation Zhong Chen, as interpreted and compiled by Olivier Atangana. It reflects my understanding and perspective on the topics discussed during the event.

Introduction

The presentation by Zhong Chen, titled "DLT and Smart Contract Security," was a highlight at the "Securing the Future Monetary System - Cybersecurity

for Central Bank Digital Currencies" conference, organized by the BIS in Basel, Switzerland. This report delves into the critical aspects of digital currency and blockchain technology security, as discussed in the presentation.

1 CBDCs and Smart Contracts Introduction

- Context: An overview of Central Bank Digital Currencies (CBDCs), focusing on China's Digital Currency Electronic Payment (DCEP) initiative.
- Key Insights: Discussion on the necessity of smart contracts in CBDCs, the three-tier user perspective, and the two-tier central bank design in DCEP.

2 Security Aspects of CBDC Smart Contracts

- Challenges and Solutions: Exploration of security categorized into data, code, and infrastructure, covering privacy, identity, transaction history, and regulatory compliance.

3 Practical Implementations and Vulnerabilities

- Real-World Applications: Use of CBDC smart contracts in poverty alleviation and conditional payments.
- Security Concerns: Vulnerabilities and weaknesses in smart contracts, including those caused by physical objects, user applications, online interfaces, and functions.

4 Security Technologies for CBDC Smart Contracts

- Innovations and Initiatives: Discussion on domain-specific languages (DSLs), general-purpose smart contract programming languages, and

security technology architecture layers.

5 Regulation and Compliance

- Regulatory Challenges: Importance of incorporating regulatory requirements into blockchain technology and smart contracts.

6 Future Directions and Conclusion

- Outlook and Perspectives: Discussion on the future of CBDC smart contracts, emphasizing accessibility, flexibility, and the need for security responses and privacy protection.

Conclusion

Zhong Chen's presentation provided valuable insights into the intricacies and future potential of DLT and smart contract security in the realm of central bank digital currencies. It highlighted the need for robust security measures, regulatory compliance, and innovative technological solutions to ensure the security and efficiency of CBDCs.