In-Depth Crypto-Economy Design Analysis

A Study of the Object-Centric Economic Model of the Sui (SUI) Network

Focused on object-based ownership, parallel execution, and the storage fund mechanism

Object-Centric Model | Parallel Execution Structure | Reward System | Tokenomics

Subject of Analysis: Sui (SUI)

Scope of Analysis: Value System · Reward Structure · Tokenomics · Sustainability

Reference Website: www.sui.io

Sui redefines the economic design of high-performance blockchains by modeling **assets as objects.**

Project Overview & Core Concepts

A basic framework for understanding the Sui network

Basic Project Information

Project Name:	Sui
Mainnet:	Sui Mainnet
Project Category:	Layer 1 Blockchain
Base Currency:	SUI
Launch Date:	May 03, 2023

Core Concept Map

Key Message

Sui proposes a differentiated Layer 1 economic system through an object-centric data model and parallel execution architecture.

Development Infrastructure & Security Audits

The Sui ecosystem backed by open-source tools and audit frameworks

Core Development Infrastructure

Component	Role
Core Protocol Repository MystenLabs/sui	Node software, consensus engine, and Move VM
System Framework sui-framework	System modules for SUI, staking, and the storage fund
TypeScript SDK	Client library for dApp connectivity
Suiscan	Monitoring dashboard for transactions, object states, and validators
DeepBook V3	Native on-chain CLOB infrastructure

Security Audit Status

Zellic	Bella Ciao Move VM rewrite	2025-12-09
Zellic	Deepbook Margin	2025-11-12
OtterSec	Sui Adapter	2025-10-30
OtterSec	Move VM Refactoring	2025-07-24
OtterSec	Walrus Smart Contract	2025-03-03
Halborn	Sui Core L1 DoS Resilience	2023-04-14
FYEO	sui-system Staking Code	2023-06-01

Transparent open-source code and repeated external audits increase the credibility of the economic system.

Value System Structure: An Object-Centric Economy

Core pillars of the economic value created by Sui

Traditional Account-Centric Model vs Sui Object-Centric Model

Traditional Account-Centric		Sui Object-Centric
Balance-Centric Ledger	VS	Object Store
High State Dependency	VS	Clear Ownership
Limited Parallel Processing	VS	Parallel-Execution Friendly
Intermediated Asset Holding	VS	Direct Asset Control

01

True Ownership

Assets exist as objects themselves, strengthening direct user control.

02

Horizontal Scalability

Parallel processing of transactions involving different objects enables lower gas fees.

03

Maximized Composability

Nested ownership—where objects own other objects—supports complex digital assets.

04

PTB-Based Execution Efficiency

Complex tasks are compressed into a single transaction.

Example

NFT Avatar
A unique avatar object owned by the user

→

Digital Apparel
An apparel object owned by the avatar

→

Attribute Object
Attribute / stat objects owned by the apparel

Sui is not just a ledger; it is a platform that implements an economy of object ownership.

DeFi Ecosystem & Capital Efficiency

Liquidity Structure Enabled by TVL, PTB, and DeepBook

Key Message: High-performance infrastructure strengthens both DeFi capital efficiency and the trading experience.

Performance of Major DeFi Protocols (H1 2026)

1	NAVI Protocol	Money Market	TVL approx. **$160M**
2	Suilend	Money Market	TVL approx. **$146M**
3	Bluefin	Derivatives	TVL approx. **$94M** / 24h Volume approx. **$415M**
4	Cetus	DEX (AMM)	TVL approx. **$33M** / 24h Volume approx. **$26M**
5	DeepBook	Infrastructure (CLOB)	TVL approx. **$15M** / 24h Volume approx. **$5M**

Capital Efficiency of PTB

Borrow → Swap → Provide Liquidity

A Single Atomic Transaction

By handling intermediate assets as temporary objects, PTB reduces gas costs and waiting time.

Role of DeepBook

- Framework-level public order book
- Shared liquidity backbone across protocols
- Institutional-grade price discovery and ecosystem-wide liquidity standardization

Reward System & Incentive Flows

The Sui reward mechanism linking validators, delegators, and the storage fund

Performance-Based Differential Rewards

Rewards are distributed differentially according to validator performance scores.

Incentives for Gas Price Stability

Validators that contribute to gas price stability receive stronger rewards.

Revenue Sharing with Delegators

Delegators receive a share of rewards after commission is deducted.

Staking Subsidies

Subsidies paid from the network budget

Computation Fees

Fees generated by user transactions

Total Rewards$_e$

Validator Rewards

Stake share × performance score

Validator Net Income

Delegator Rewards

Distributed according to the commission rate

Role of the Storage Fund

The Storage Fund also generates returns through stake participation. Part of the returns is used for validator storage rewards, and part is reinvested into the fund.

Reward Equations

- $\text{Total Rewards}_e = \text{Stake Subsidies}_e + \text{Sum}(\text{Computation Fees}_e)$
- $\text{Validator Rewards}_v = (\text{Total Rewards}_e \times \text{Stake}_v / \text{Total Stake}) \times \text{Performance Score}_v$
- $\text{Delegator Rewards} = \text{Validator Rewards}_v \times (1 - \text{Commission Rate}_u)$

Even without slashing, performance scores and reward adjustments guide efficient behavior.

Tokenomics: Supply, Utility & Storage Fund

SUI Token Supply Structure and Long-Term Value Mechanism

Max Supply
10B SUI

Circulating Supply
Approx. 4.005B SUI
(as of 2026-05)

1 Token Unit
1 SUI = 1,000,000,000 MIST

Initial Circulating Ratio
Approx. 5%

Supply Status

- Current Circulating Supply
  Approx. 40.05%
- Remaining Supply
  Approx. 59.95%

Core Utility

- Paying Gas Fees
- Validator Staking & Delegation
- Providing DeFi Liquidity
- Economic Rights to Storage Space

Inflation Mechanism

An initial 1B SUI is allocated to staking subsidies to support early-stage security rewards.

Deflation / Supply Suppression

Storage fees are locked into the Storage Fund, putting pressure on circulating supply as network activity grows.

Key Equation

Net Supply Change = New Subsidies - (Burned Fees + Net Storage Inflow)

As the network matures, Storage Fund inflows and fee burning can offset new issuance.

The storage fund internalizes future storage costs through an upfront-capital model.

On-Chain & Off-Chain Operating Structure

Sui Architecture Designed for Both Decentralization and User Experience

On-Chain Components: Decentralization & Transparency

1 Object State Store

All asset metadata and ownership information are recorded in the state tree.

2 Move Execution Layer

On-chain packages and bytecode verifiers ensure resource safety.

3 Consensus Committee & Voting

Checkpoint signatures and governance proposal registration maintain trust.

Hybrid UX Layer

Security stays on-chain, while convenience is placed in off-chain supporting infrastructure.

Off-Chain Components: Performance & User Experience

1 Causal Ordering

Transactions involving owned objects can finalize quickly with only quorum signatures.

2 zkLogin

Combines Web2 login with zero-knowledge verification.

3 Data Indexing & APIs

Indexers, GraphQL, and REST APIs improve query efficiency.

4 Sponsored Transactions

dApps can pay gas fees on behalf of users, lowering entry barriers.

Sustainability, Governance & Risks

Assessing the Long-Term Viability of the Sui Economic System

Economic Sustainability

Growth of the Storage Fund

Its perpetual-fund structure avoids principal withdrawal and helps distribute long-term storage costs in a stable way.

Health of the Validator Ecosystem

The gas-pricing mechanism restrains excessive competition and promotes efficient operations.

Link Between Token Value and Security

As the value of SUI rises, the cost of attacking the network increases, strengthening security.

Governance Sustainability

SIP Proposal Process

Community proposals and review enable transparent and systematic decision-making.

Foundation Transparency

Regular disclosure of financial and operating information builds trust-based governance.

Ecosystem Builder Support

Grants, tools, and infrastructure support accelerate Web3 innovation and adoption.

Key Risks

FDV & Unlock Pressure

Large token unlocks may create volatility in price and market sentiment.

Technical Barriers to Entry

Move and the object-centric model require a new learning curve.

Centralization Debate

High-performance infrastructure requirements may lead to validator concentration.

Overall View: **Structural strengths are significant, but market and operational risks require continuous monitoring.**

Final Conclusions & References

Summary of Sui (SUI) Crypto-Economy Design Analysis

Sui is a next-generation Layer 1 that simultaneously pursues high performance, low cost, and long-term sustainability through its object-centric data model and storage fund.

Final Assessment

Innovation
Very High
Leads a paradigm shift through the object-centric model and PTB.

Scalability
High
Achieves high throughput through parallel processing and horizontal scaling design.

Economic Sustainability
High
Long-term sustainability is supported by the storage fund and a rational issuance model.

Market / Operational Risk
Present
Risks remain, including large token unlocks and validator concentration.

Key Conclusions

- Object-centric architecture maximizes parallel processing efficiency
- The storage fund internalizes long-term storage costs
- PTB and DeepBook strengthen capital efficiency
- Large token unlocks and possible validator concentration require ongoing monitoring

Insights at a Glance

Object-Centric Ownership
All assets are modeled as objects, enabling safer and more flexible asset management.

Predictable Gas Structure
Byte-based storage pricing improves cost predictability and user experience.

On-Chain + Off-Chain UX
zkLogin, Kiosk, and Sponsored Transactions provide a Web2-level user experience.

Key References

1. Sui Official Website
2. Sui Documentation - Tokenomics Overview
3. Sui Tokenomics Whitepaper
4. Suiscan
5. DeFiLlama