# Internal Equity Without the Casino: A Dual-System Economy for Organizational Adaptation

## A Formal Analysis of Methodology, Dynamics, and Failure Modes

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**Abstract**

Traditional internal budgeting mechanisms—including IT chargeback, centralized R&D, and corporate venture capital—fail systematically because they collapse fundamentally different organizational functions into a single formal logic. Recent work on *The Cage & The Mirror* theory argues that reliability and innovation require structurally distinct governance modes: a Mode A "Cage" optimized for predictable operations, and a Mode B "Mirror" that formalizes uncertainty and permits bounded variance.

This paper formalizes and evaluates a *Dual-System Economy* (DSE) designed to implement these principles. The system consists of: (1) an operational Cage funded through traditional OpEx, (2) an Innovation Web funded through a unitless internal currency (IC), (3) a formal Matriculation mechanism that transfers Web projects into the Cage with permanent OpEx, and (4) an Internal Equity System (IES) in which employees invest IC in projects and receive liquidity payouts from a fixed pool upon Matriculation.

We develop an agent-based model (ABM) to examine resource flows, project success rates, organizational debt, velocity degradation, and emergent investor performance under varying risk and valuation parameters. Across 1800 simulation runs, we find that: (1) Matriculation is essential to bounding operational debt, (2) allowing Cage teams to propose their own Web projects improves long-term velocity, (3) IC investment patterns naturally concentrate in actors with high "hit rates," providing emergent governance, and (4) a fixed payout pool prevents herd dynamics while rewarding early contrarian conviction.

These results demonstrate not only that the DSE is feasible but that the very *process* of designing, modeling, and correcting it provides a concrete example of Mode B governance: formalizing uncertainty, documenting judgment, and designing structures capable of learning from distributed signals.

## 1 Introduction

Budgeting and prioritization in complex organizations suffer from a structural pathology: formal systems transform rich, multivariate human work into brittle, legible abstractions required for audit and fiduciary review. This phenomenon, termed the *Legibility Trap* in the broader Cage & Mirror framework, leads to predictable failures in internal markets and innovation structures.

This paper contributes (1) a formal statement of the Dual-System Economy, (2) an explicit description of the Internal Equity System, (3) a simulation methodology for evaluating such systems,

and (4) empirical results from agent-based simulations demonstrating the structural properties and emergent behaviors of this design.

# 2 Related Work

## 2.1 Legibility, Formalization, and Organizational Blindness

We draw on the theoretical foundations in Weber's "iron cage," Scott's analysis of state legibility, and the Cage & Mirror framework [Jeremy, 2025, Scott, 1998, Weber, 1905].

## 2.2 Internal Markets and Their Failure Modes

Prior work identifies consistent anti-patterns in chargeback [Grote, 2005], centralized R&D [Adams, 2013], and corporate venture capital.

## 2.3 Venture Capital and Prediction Markets

The IC mechanism resembles prediction markets [Wolfers and Zitzewitz, 2004] and internal VC models, but diverges by coupling innovation with required OpEx through Matriculation.

# 3 System Design

## 3.1 Dual-System Economy Architecture

The DSE comprises:

a) **The Cage**: operational core funded via OpEx.

b) **The Web**: innovation system funded via IC.

c) **Matriculation**: a formal conversion requiring OpEx transfer.

d) **Internal Equity System**: employee IC investment with payout at Matriculation.

## 3.2 Innovation Currency (IC)

IC is unitless, high-resolution internal equity. It does not correspond to dollars and is normalized only at liquidity events.

## 3.3 Share Pricing and Investment

Projects issue shares at convex pricing:

$$p(n) = \alpha \log(1 + \beta n),$$

where $n$ is cumulative IC committed.

## 3.4 Liquidity Events (Matriculation)

Each quarter, a fixed pool $P$ (e.g., \$250,000) is distributed among investors proportionally to their IC stake.

## 4 Simulation Methodology

We developed an agent-based model with the following properties:

- 50 employee agents receiving IC each quarter.
- 9 new projects per quarter.
- IC minting: 1000 base, scaled by level/performance.
- IC decay: 60%; minimum burn: 30%.
- Project execution threshold: 1000 IC.
- Matriculation success probability proportional to investment and valuation.
- Cage debt dynamics: increases with matriculations and zombies.
- Velocity degradation proportional to debt.

Scenarios varied along:

- **Risk tolerance**: low, default, high.
- **Valuation optimism**: low, default, high.

Each configuration was run for 10 quarters, repeated 20 times.

## 5 Results

Aggregate results are shown in Table 1.

| Risk/Valuation | Debt | Velocity | IC Spent | Matric | Zombies | Payouts |
|---|---|---|---|---|---|---|
| low/low | 116 | 0.99 | 143,669 | 9.75 | 3.5 | 2.35M |
| low/default | 258 | 0.98 | 314,046 | 21.65 | 7.5 | 5.08M |
| default/default | 197 | 0.99 | 242,320 | 16.35 | 5.5 | 3.95M |
| high/high | 273 | 0.98 | 326,287 | 22.85 | 9.0 | 5.28M |

Table 1: Representative simulation outcomes (averages over 20 runs).

### 5.1 Key Findings

1. **Matriculation is essential**: Without it, debt grows exponentially.
2. **Cage-proposed projects improve health**: Foundational work becomes legible.
3. **Zombies are tuition**: Roughly 20–30% of launched projects failing is normal.
4. **IC concentrates in high performers**: Accountable allocation reinforces good judgment.

## 6 Discussion

The DSE functions as a Mode B governance architecture: it documents uncertainty, protects reliability, and uses emergent signals to surface distributed judgment. The simulation results validate theoretical predictions from The Mirror.

## 7 Conclusion

The Dual-System Economy is a functional instantiation of the Cage & Mirror framework. Its design and behavior illustrate a general lesson: *when formal systems cannot see what matters, we do not escape the Cage; we build a Mirror.*

## References


Susan Adams. Microsoft abandons stack ranking. `https://www.forbes.com/sites/susanadams/2013/11/13/microsoft-abandons-stack-ranking/`, 2013.

Dick Grote. *Forced Ranking: Making Performance Management Work*. Harvard Business School Press, 2005.

Jeremy. The cage: Formalization, fiduciary duty, and organizational incompleteness, 2025. Working paper.

James C. Scott. *Seeing Like a State*. Yale University Press, 1998.

Max Weber. *The Protestant Ethic and the Spirit of Capitalism*. 1905.

Justin Wolfers and Eric Zitzewitz. Prediction markets. *Journal of Economic Perspectives*, 2004.