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SIGNAL OVER NOISE FOR BITCOIN TREASURY DECISION-MAKERS.

TREASURY V2 GOVERNANCE FRAMEWORK

BEOL: Bitcoin Economic Optimization Logic

Operational Efficiency Framework for Treasury v2

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◆ WHAT CHANGED IN V1.1

This revision makes two structural updates to v1.0:

Constraint hierarchy reordered. The regulatory perimeter now ranks above accounting in the decision hierarchy (Level 2 rather than Level 3). A constraint that demands strict compliance sits above one the company designs around. This aligns the numbered hierarchy with its own treatment descriptions.

Accounting and liquidity logic rebuilt for fair-value reporting. v1.0 was written under the impairment model (cost-less-impairment for crypto held as an indefinite-lived intangible). That model has been replaced. Under FASB ASU 2023-08, effective for fiscal years beginning after December 15, 2024, crypto assets are measured at fair value, with changes recognized in net income each period. Sections 2.2 and 2.4 have been rewritten accordingly, and the impairment-avoidance reasoning of v1.0 has been removed.

Executive Summary

Purpose. BEOL provides a systematic methodology for optimizing Bitcoin treasury operations within accounting, regulatory, and governance constraints.

Core Problem Addressed. CFOs need to optimize operational efficiency while respecting constraints that do not exist in traditional treasury: fair-value earnings volatility, custody complexity, liquidity timing, and regulatory uncertainty.

Key Innovation. An optimization framework that treats constraints as first-class design elements, not obstacles to work around.

Target Users. Treasury Operations, Controllers, Tax Directors, Operational Finance.

I. Problem Statement

1.1 The Optimization Paradox

Traditional Treasury Optimization

- Minimize cost of capital
- Maximize yield on reserves
- Optimize liquidity timing
- Minimize tax burden
- A standard playbook exists

Bitcoin Treasury Reality

- Fair-value accounting routes every price move through reported earnings, creating volatility a traditional treasury never sees
- Custody costs do not scale linearly
- Liquidity timing faces execution constraints
- Tax treatment varies by jurisdiction and continues to evolve
- No standard playbook exists

1.2 Why Traditional Optimization Fails

Accounting Constraints

- Fair-value reporting recognizes unrealized gains and losses in net income every period, so reported earnings swing with the asset
- Quarterly marks affect investor communications, debt-covenant calculations, and any metric tied to GAAP net income
- Book value now tracks market value, so the divergence problem of the old model is gone, replaced by an earnings-volatility problem
- Disclosure requirements create operational constraints

Custody Constraints

- Provider fees have complex structures
- Insurance costs do not scale linearly with holdings
- Multi-signature arrangements introduce operational overhead
- Regulatory requirements vary by custody model, and the custody landscape itself shifted when SAB 121 was rescinded in favor of SAB 122 and regulated banks re-entered the market

Liquidity Constraints

- Market depth limits execution size
- Timing flexibility is limited by volatility
- Exchange concentration creates risk

- Settlement timing affects deployment

Regulatory Constraints

- Reporting requirements affect operational decisions
- Jurisdictional differences create complexity
- Evolving guidance requires adaptive approaches
- Compliance costs vary by structure

1.3 What Treasury Operations Actually Need

- Optimization logic that respects constraints rather than ignoring them
- Decision trees for common operational choices within the reality of those constraints
- Cost-benefit frameworks for custody, liquidity, and tax decisions
- An integration methodology for Bitcoin operations within existing systems
- A continuous-improvement process that evolves with the environment

II. Core Methodology

2.1 Constraint-Aware Optimization Framework

Principle. Optimize within constraints. Do not fight constraints.

The BEOL Decision Hierarchy

- Governance constraints (from board policy) → Hard limits, never violated
- Regulatory constraints (from applicable law) → Strict compliance, never optimized against
- Accounting constraints (from GAAP/IFRS) → Design around, do not ignore
- Operational constraints (from systems and capabilities) → Improve over time
- Economic optimization (within all of the above) → The BEOL focus area

Optimization occurs only at Level 5, respecting Levels 1 through 4. Each level is a hard boundary on the one below it. The ranking is deliberate: a company can comply strictly with the law while still exercising judgment within accounting rules, so the regulatory perimeter sits above accounting, and economic efficiency — the thing operations is forever tempted to chase first — belongs last.

2.2 Accounting Optimization Logic

Problem. Fair-value accounting routes every Bitcoin price movement through reported earnings.

Under ASU 2023-08, both declines and recoveries flow through net income in the quarter they occur. A company with a meaningful Bitcoin position can see quarterly earnings swing by 20 to 40 percent on crypto movement alone. The old impairment model created an asymmetric, downside-only charge with a quarter-end cliff to time around. That cliff is gone. What replaces it is a symmetric but volatile earnings line, and a reporting problem rather than a timing problem.

Traditional (Wrong) Response

- “Sell before quarter-end to manage the reported mark”
- “Trade to smooth quarterly earnings”
- Let the cash-tax or reporting calendar drive realization timing (the accounting tail wagging the strategic dog)

BEOL Approach: Optimize Within Fair-Value Reality

The shift in posture is fundamental. Under fair value there is no impairment to avoid and no book-value divergence to flatter, so the timing games of the old model no longer have a target. The two exposures that remain are earnings volatility and, for the largest companies, the tax base. Neither is solved by trading.

Exposure A: Earnings Volatility (every company holding Bitcoin)
The position will mark to market through net income every period. This is not a decision to optimize. It is a fact to plan and communicate around.

- Model the earnings impact of a marked swing in advance, across a range of prices, so no quarter is a surprise
- Stress-test debt covenants and GAAP-tied metrics against the full range, because a covenant breached by a non-cash mark is still a breach
- Communicate the volatility to stakeholders before it appears, framing reported swings as the mechanical result of fair-value accounting rather than a change in the business
- Do not trade, deploy, or delay deployment to manage the reported number

Exposure B: The Tax Base (companies near the CAMT threshold)
The Corporate Alternative Minimum Tax is a 15 percent levy on adjusted financial statement income (AFSI) for corporations with three-year average annual income above $1 billion. Because fair-value accounting routes unrealized gains through GAAP income, and GAAP income is an input to AFSI, unrealized gains briefly threatened to create a cash tax with no sale behind it.

Status as of this revision: Treasury and IRS interim guidance (Notices 2025-46 and 2025-49, issued September 30, 2025) excludes unrealized gains and losses on digital assets from the AFSI calculation, removing the unrealized-gain CAMT exposure on an interim basis. Final regulations remain pending.

- Below the $1 billion AFSI threshold? → CAMT does not apply; monitor only if approaching the threshold
- At or above the threshold? → Model AFSI, applying the current interim exclusion of unrealized digital-asset gains
- Treat the exclusion as interim, not settled → Keep the position under review against final regulations, and re-confirm with tax counsel before relying on it for a material decision
- Realized gains and the broader AFSI calculation still apply → CAMT planning on actual realizations is unchanged

> ◆ KEY INSIGHT
> *Under fair value, BEOL's accounting job is no longer to time around an impairment cliff. It is to make earnings volatility predictable and well-communicated, and to keep the tax base modeled and current as guidance evolves. The accounting is an input to the survival and disclosure analysis, never a driver of the investment decision.*

2.3 Custody Optimization Logic

Problem. Custody is not one decision. It is architecture.

The custody framework below is unchanged in substance from v1.0; the fair-value accounting update does not touch it. One contextual note: since SAB 121 was rescinded in favor of SAB 122 in early 2025, regulated banks and chartered custodians have entered institutional custody, widening the set of qualified options and making custodian selection and concentration a more active decision than before.

Decision 1: Qualified vs. Self-Custody

- Regulatory requirements (qualified custody may be required)
- Insurance availability
- Operational complexity
- Control vs. convenience trade-off

BEOL Decision Matrix

Allocation Size	Regulatory Pressure	Operational Capability	BEOL Recommendation
<$10M	Low	Limited	Qualified custodian
<$10M	High	Any	Qualified custodian (required)
$10M–$100M	Low	High	Hybrid (qualified + limited self-custody)
$10M–$100M	High	Any	Qualified custodian
>$100M	Any	High	Multi-custodian architecture
>$100M	Any	Limited	Primary qualified + backup

Decision 2: Single vs. Multi-Custodian

Single-custodian optimization offers lower operational complexity and better fee-negotiation leverage, but concentration risk and operational dependency. Multi-custodian optimization carries higher operational complexity and less fee leverage per custodian, but reduced concentration risk and operational redundancy.

BEOL Cost-Benefit Model

- Concentration risk cost: probability of custodian failure × position size × unrecovered percentage, plus operational outage cost and reputational risk
- Multi-custodian cost: incremental custody fees, operational complexity, and staff time
- Breakeven: a position above roughly $50M typically justifies custody redundancy, adjusted for company-specific risk tolerance

Decision 3: Insurance Optimization
Begin with the coverage the custodian already provides — its limit and its exclusions (key-person risk and similar) — then size any gap against the position.

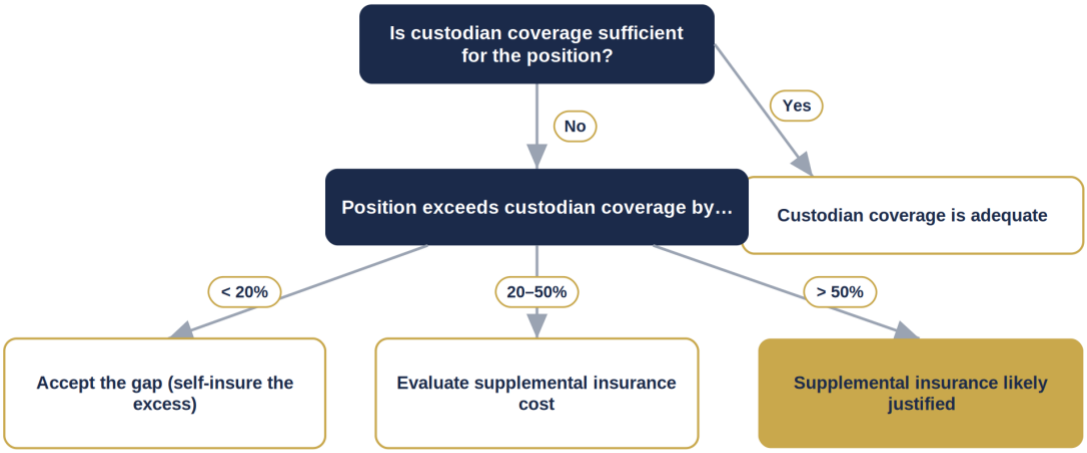

Figure 2.3 — Custody insurance decision flow

Supplemental insurance decision: is the expected loss avoided (probability × uncovered amount) greater than the premium? BEOL calculates whether the insurance is NPV-positive.

2.4 Liquidity Optimization Logic

Problem. When to deploy cash to Bitcoin, and when to hold dry powder.

Traditional Approach. "Buy the dip" (timing the market).

BEOL Approach. Systematic deployment within constraints.

> ◆ WHAT CHANGED IN V1.1
> *v1.0 timed deployment around quarter-end to minimize book-value step-up and impairment risk. Under fair value there is no impairment risk and no book-value step-up to minimize — a position is marked to fair value regardless of when it was acquired. The accounting calendar therefore no longer constrains deployment timing. Deployment is now driven by allocation policy and market depth, not the proximity of a reporting date.*

Liquidity Deployment Framework — Inputs

1. Current allocation vs. policy bands (from RARTA)
2. Available dry powder (cash reserves)
3. Market liquidity depth (execution capacity)
4. Volatility regime (from RARTA)

Decision Logic

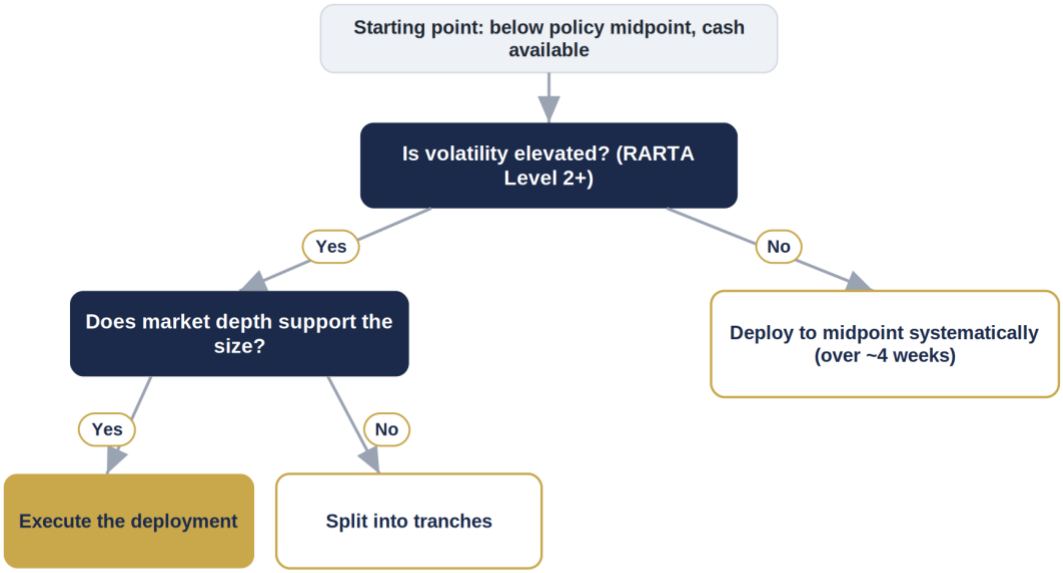

Figure 2.4 — Liquidity deployment decision flow

Systematic Deployment Protocol

- Target: return to policy midpoint
- Timing: spread over 4 to 8 weeks to reduce timing risk
- Size: limit each tranche to roughly 10 percent of daily volume
- Execution: a pre-defined schedule that removes discretion

Reporting-Date Consideration (informational, not a timing rule)

- A larger position deployed before a reporting date will be marked at that date and will move reported earnings, and for a company near the CAMT threshold it enters the AFSI calculation
- This is a communication and modeling input, handled in advance under Section 2.2
- It is not a reason to time the market or to pause an allocation decision the policy calls for

> ◆ KEY INSIGHT
>
> *Respect the allocation policy and the depth of the market. Do not let the reporting calendar dictate strategy, and under fair value do not let it dictate timing either.*

2.5 Tax Optimization Logic

Problem. Tax treatment varies widely and continues to evolve.

BEOL Approach. An adaptable framework for common scenarios, now read alongside the CAMT status in Section 2.2.

Scenario 1: Harvest Gains (Above Cost Basis)

Decision factors: current vs. expected future tax rate, holding period (short- vs. long-term), alternative use of cash if sold, and strategic value of holding. Read the conditions top to bottom; the first row that matches gives the action.

Condition	Action
Unrealized gain ≤ 20% of cost basis	Hold — tax efficiency of deferral
Gain > 20%, but long-term capital-gains rate does not yet apply	Defer if possible (wait for LTCG treatment)
Gain > 20%, LTCG applies, and there is a strategic reason to hold	Hold unless liquidity is needed
Gain > 20%, LTCG applies, no strategic hold, alternative-use NPV > tax cost	Harvest the gain
Gain > 20%, LTCG applies, no strategic hold, alternative-use NPV ≤ tax cost	Hold the position

Scenario 2: Harvest Losses (Below Cost Basis)

Decision factors: tax-loss value vs. transaction costs, wash-sale implications, strategic value of holding, and the ability to redeploy. Read the conditions top to bottom; the first row that matches gives the action.

Condition	Action
Unrealized loss ≤ 10% of cost basis	Hold — transaction costs exceed the tax benefit
Loss > 10%, plan to redeploy to Bitcoin, wash-sale question manageable	Harvest, then redeploy after the required interval
Loss > 10%, plan to redeploy, wash-sale question not manageable	Hold — a wash sale defeats the purpose
Loss > 10%, no redeployment planned, tax-loss value > transaction costs	Harvest the loss
Loss > 10%, no redeployment planned, tax-loss value ≤ transaction costs	Hold the position

Scenario 3: CAMT and Multi-Jurisdictional Optimization

For companies at or above the CAMT threshold, coordinate realization timing with the AFSI analysis in Section 2.2; the current interim guidance excludes unrealized digital-asset gains, but realized gains and the broader base still apply, and the guidance is not yet final.

For companies operating across jurisdictions, subsidiaries may face different treatments, internal transfers raise transfer-pricing questions, and cross-border movements raise

withholding considerations. BEOL recommends engaging tax counsel where complexity exceeds the framework, documenting transfer-pricing methodology, and building jurisdiction-specific decision trees.

2.6 Operational Integration Logic

Problem. Bitcoin treasury must integrate with existing systems. (Unchanged in v1.1.)

Decision 1: Accounting System Integration

Transaction Volume	Position Complexity	BEOL Recommendation
<10/month	Single custodian	Manual entry acceptable
10–50/month	Single custodian	Consider middleware
>50/month	Any	API integration required
Any	Multi-custodian	API integration recommended

Breakeven: compare API integration cost (upfront plus annual) against manual cost (hours per month × rate × error rate). Typically more than 20 transactions per month justifies automation.

Decision 2: Treasury Management System Integration

- Position value and policy limits → always in the TMS
- Transaction details → in the TMS if it supports digital assets, otherwise tracked separately
- Custody details → likely a separate system
- Reconciliation → always documented, at a frequency set by transaction volume

Decision 3: Reporting Automation

- Reporting monthly or more often → automate
- Reporting quarterly → manual acceptable initially
- Position above 10 percent of treasury → automate regardless

Automation ROI typically breaks even in 6 to 12 months on time savings and error reduction.

III. Implementation Framework

3.1 Pre-Implementation Assessment

Document the current state: accounting-system capabilities, custody architecture, tax-jurisdiction complexity, reporting requirements, and operational constraints. Then run a gap analysis: where does the current setup conflict with BEOL logic, which constraints are hardest to optimize within, what quick wins exist, and what requires longer-term investment.

3.2 BEOL Implementation Roadmap

- Phase 1 (Weeks 1–2), Constraint Documentation: document accounting constraints under fair value, map custody architecture, identify tax-optimization opportunities, catalog operational limits
- Phase 2 (Weeks 3–4), Decision Framework Deployment: deploy the accounting and earnings-communication logic, implement custody decision trees, establish liquidity deployment protocols, create the tax-harvesting framework
- Phase 3 (Weeks 5–8), Integration and Automation: prioritize integration opportunities, implement critical automations, build reporting infrastructure, test end-to-end workflows
- Phase 4 (Ongoing), Optimization: monitor decision effectiveness, refine frameworks against outcomes, identify new opportunities, run continuous improvement

3.3 Integration with RARTA and SRF

Normal Operations

- RARTA decides allocation strategy
- BEOL optimizes execution within RARTA parameters
- SRF remains dormant

Stress Conditions

- SRF protocols activate and override BEOL
- BEOL efficiency is secondary to governance during a crisis
- Return to BEOL when stress de-escalates

Example Integration

- RARTA says: “Increase to midpoint”
- BEOL says: “Deploy over 4 weeks, in tranches sized to market depth”
- SRF says: “If Level 3 stress hits, pause deployment immediately”

IV. Decision Tools & Templates

4.1 Earnings and Tax-Base Calculator (rebuilt for fair value)

Inputs: current Bitcoin price, position size and cost basis, a price range to stress, AFSI proximity to the $1 billion threshold. Calculation: marked earnings impact across the price range, covenant and GAAP-metric headroom under each, and AFSI under the current interim CAMT treatment. Output: a pre-modeled earnings-volatility and covenant picture for stakeholder communication, plus a CAMT-exposure flag for companies near the threshold. (Replaces the v1.0 impairment / defensive-sale calculator, which no longer applies.)

4.2 Custody Architecture Optimizer

Inputs: position size, regulatory requirements, operational capability, risk tolerance. Analysis: single vs. multi-custodian breakeven, insurance-gap calculation, operational-complexity score. Output: a recommended architecture, an implementation roadmap, and a cost-benefit analysis.

4.3 Liquidity Deployment Scheduler

Inputs: target allocation change, current market liquidity, volatility regime (from RARTA). Calculation: recommended deployment schedule, tranche sizing, execution limits. Output: a systematic deployment plan with a daily or weekly schedule and risk parameters. (The quarter-end input from v1.0 has been removed; deployment is no longer timed to the reporting calendar.)

4.4 Tax Optimization Worksheet

Inputs: unrealized gain and loss positions, holding periods, current tax rates, AFSI proximity. Analysis: gain- and loss-harvesting opportunities, wash-sale implications, and CAMT interaction under current guidance. Output: recommended actions, optimal timing, and expected tax effect.

V. Metrics & Continuous Improvement

5.1 Operational Efficiency Metrics

Cost Metrics. Custody fees as a percentage of position; transaction cost per deployment; accounting and reconciliation time; realized tax savings.

Efficiency Metrics. Time from decision to execution; error rate in accounting entries; reporting-automation percentage; manual touchpoints per transaction.

Optimization Metrics (rebuilt for fair value). Earnings volatility communicated ahead of each report (yes/no); covenant headroom maintained across the modeled price range; CAMT exposure modeled and current against guidance; liquidity deployment vs. benchmark; integration-automation level. (The v1.0 “impairment avoidance success rate” has been retired; under fair value there is no impairment to avoid.)

5.2 Quarterly Optimization Review

Questions to address: what optimization opportunities were identified, what decisions used BEOL frameworks, what the outcome was versus the alternative, where constraints prevented optimization, and which constraints can be reduced over time. Process: the Controller leads, Treasury Operations provides data, the CFO reviews findings, and improvements are approved and implemented.

5.3 Framework Evolution

Annual enhancement: review every decision framework, incorporate lessons learned, update for accounting and regulatory change (the CAMT guidance in Section 2.2 is a live example to track to its final form), refine breakeven calculations, and improve automation. Working-group contribution: share anonymized findings, compare breakeven thresholds across peers, identify common constraint patterns, and collaborate on improvements.

VI. Limitations & Risk Factors

6.1 What BEOL Does

- Provides systematic optimization logic
- Respects constraints rather than fighting them
- Creates decision frameworks for common scenarios
- Enables continuous operational improvement

6.2 What BEOL Does Not Do

- Overcome fundamental constraints (for example, fair-value earnings volatility, which is structural and cannot be optimized away)
- Guarantee optimal outcomes (the environment changes)
- Replace professional judgment, especially on tax and legal questions
- Eliminate all operational inefficiency

6.3 Implementation Risks

Over-Optimization Risk: optimizing for accounting over strategy; the tax tail wagging the investment dog; operational efficiency placed over governance.

- Mitigation: BEOL is subordinate to RARTA (strategy first), SRF overrides BEOL during stress (governance priority), and optimization is reviewed against strategic objectives.

Constraint Misunderstanding: treating soft constraints as hard ones, ignoring constraints that actually matter, or failing to update for regulatory and accounting change.

- Mitigation: annual constraint review with counsel, a regular update process, and working-group peer validation. The v1.0-to-v1.1 accounting rebuild is itself an example of why this matters: a framework written to the prior accounting regime would have kept optimizing around a quarter-end cliff that no longer exists.

VII. Appendices

Appendix A: Decision Calculator Specifications

- Fair-value earnings-impact formulas
- AFSI / CAMT modeling under current interim guidance
- Custody cost models
- Integration ROI models

Appendix B: Implementation Checklist

- Pre-implementation assessment template
- Phase-by-phase tasks
- Integration requirements
- Testing protocols

Appendix C: Integration Templates

- Accounting-system integration specifications
- TMS integration requirements
- Reporting-automation templates
- Reconciliation procedures

Appendix D: Optimization Case Studies

- Earnings-volatility communication examples
- Custody architecture decisions
- Tax-harvesting scenarios
- Liquidity deployment case studies

Appendix E: Glossary

- Constraint taxonomy
- Optimization terminology
- Integration concepts
- Efficiency-metric definitions

Working Group Feedback Process

Current Version: 1.1 (Released: June 17, 2026)

Status: Published — practitioner feedback welcome

Feedback Channels

- GitHub repository: [link]
- Working group sessions: Quarterly
- Direct submission: feedback@satoshiinstitute.com

Next Version: 1.2 (Planned)

- Finalize CAMT treatment once Treasury issues final regulations
- Additional tax-optimization scenarios
- Enhanced integration templates
- Multi-jurisdictional frameworks

Framework Integration Summary

How RARTA, SRF, and BEOL Work Together

Normal Operations

- RARTA determines allocation strategy within policy
- BEOL optimizes execution and operations
- SRF remains dormant (monitoring only)

Stress Conditions

- SRF protocols activate and override normal operations
- RARTA is suspended during Level 3–4 stress
- BEOL is deferred (governance over efficiency)

Recovery

- SRF de-escalates as stress subsides
- RARTA resumes allocation decisions
- BEOL resumes operational optimization

The Complete Treasury v2 Operating System

- Policy Layer: board-approved parameters
- Strategy Layer: RARTA allocation framework
- Crisis Layer: SRF stress protocols
- Optimization Layer: BEOL operational efficiency
- Oversight Layer: board reporting and governance

This integrated system constitutes professional standards for Treasury v2.