

Coherence, Access and Agency

An executable companion to Paper XI

Trust Scalar research project · 26 September 2026 · Unnumbered, AI-assisted research draft.

This companion develops the intent of Paper XI alongside a separate, browser-local lattice. It does not overwrite the original paper, append a new numbered paper to the recovered corpus, or replace any earlier simulator. The model is a conditional experiment with fictional participants and illustrative credits, not a deployed monetary system or validated physical-to-economic equivalence.

Abstract

Paper XI proposed a correspondence between scalar-lattice dynamics and monetary architecture, including an exponential coherence response, density-dependent output screening and a three-stage transition toward lattice-native value. The present work preserves that starting point while making the additional definitions required for an executable monetary experiment explicit. Monetary balances, effective coupling, service capacity, access and decision rights are separated. Human-purpose requirements are incorporated into the model's eligibility rules, inspection surfaces and failure criteria: basic security without a performance test; diverse and voluntary participation; legitimate reserves and ownership; non-exclusive knowledge sharing; and accountable, replaceable stewardship.

The accompanying lattice contains 72 persistent fictional participants, six projects and five finite service providers. It records every transfer, models output screening without deleting holdings, and exposes resource shortages and authority capture. Its dynamics and governance mechanisms are disclosed assumptions, not consequences uniquely derived from cosmology. The model can establish conditional software behavior, identify counterexamples and support reproducible comparisons. It cannot establish inflation-free abundance, a universal holdings ceiling, human well-being or a real-world transition timetable.

1. Continuity with the original proposal

The starting source is the supplied eight-page Paper XI, dated 27 May 2026, titled Coherence-Based Value Architecture: A 1:1 Mapping of the $E(C) = mc^2e^{(kC)}$ Scalar-Tensor Lattice onto Monetary Space. Its preserved SHA-256 is 94fe67aa2a4be52dd407d12200586cc95570a391d71b92dcf712ee0a6fad7fdf.

The original maps node kinetic energy to value, tethers to clearing, coherence to supply, screening to anti-hoarding and repulsion to a hard accumulation limit. It proposes $V_{\text{total}} = V_0 \exp(kC)$, with $k = 1.92$, and identifies a shadow layer, hybrid anchoring and a lattice-native phase. Its four predictions concern Gini convergence, the exponential response, screening time and self-restoration.

The useful research question is retained: can network dynamics constrain destabilizing concentration while increasing shared practical possibility? The new model does not substitute a claim that maximizing transaction volume or a founder's wealth is the objective.

2. What changes, and why

The original asserts an exact physical-to-monetary correspondence with no new free parameters. This companion instead identifies every connecting assumption. Accounts, budgets, resource units, participation choices, field evolution and governance procedures need definitions that are not supplied by identifying a spring with a payment.

The original calls the exponential response both increased supply and growth with zero new units. Here nominal currency is a conserved ledger quantity. The exponential response is displayed separately as a reference factor. Neither additional purchasing power nor inflation behavior follows without a price system, production model and accounting rule.

The original Equation 6 suppresses effective output above a density threshold. It contains no debit or redistribution operation. For a fixed baseline scale, $b \exp[-k(b/b_{\text{crit}} - 1)]$ tends to zero as b grows, but this does not imply that b itself falls or is bounded. An account can retain a large balance while having negligible modeled output. The asserted ceiling of $\exp(k)$ times the mean therefore does not follow from Equation 6 alone. This is a specific logical gap, not a refutation of every possible anti-concentration mechanism.

The original shadow phase describes contribution-based coherence scores. The new model does not grade people. Essential eligibility does not depend on output, monetary balance, popularity, field value or agreement. The field belongs to abstract model cells; it is not a reputation or obedience score.

The original proposes calendar phases and financial uses of coherence ratings. Those dates and credit-risk interpretations are not evidence of readiness. The transition is reframed as a sequence of evidence and governance requirements, without promising a launch date, default predictor, instant settlement or a central-bank replacement.

The historical $k = 1.92$ is retained as a visible benchmark, not represented as a settled cross-domain cosmological measurement. The new model also has declared parameters. Mathematical preservation of a chosen exponential is not independent empirical confirmation of that exponential.

3. Purpose and protected distinctions

The purpose is to expand practical freedom: security, time, learning, care, tools, creative possibility and the ability to pursue a self-chosen life. Bringing people together does not mean making them alike. Someone need not turn a garden, a repair skill, wildlife care or an artistic interest into an exceptional business to belong.

People may rest, disagree, decline participation, change direction, pursue several interests or fail. Money is not a measure of their worth. Participation payments in the model are explicit bookkeeping choices, not a prerequisite for essentials or a claim that paid work is more valuable than care or rest.

Legitimate saving, personal ownership and comfort are distinguished from coercive control of access. A shared facility's working resources are not treated as a personal hoard. The model's holdings-based screening is itself a hypothesis to examine for unintended exclusion, not an ethical judgment about wealthy people.

Knowledge sharing may benefit its creator without requiring an exclusive gate. Stewardship distributes decision-making power as well as resources: reasons, challenge, review and replacement matter. Harm-related oversight should concern evidence of exploitation, coercion, fraud or deliberate harm, not

unconventional ideas. The current appeal example covers an unsupported restriction, not general adjudication of real harm.

Greater compassion, clarity, inclusion, wellness and mutual support are important hoped-for outcomes. They are not computed from node brightness, network order or an equation. Empirical work would require appropriate consent, validated measures and pluralistic evaluation.

4. State and units

The world contains 72 participants on a periodic 12×6 abstract grid. Every person retains an identity, selected activities, multiple possible memberships, knowledge and an account. People are never merged, deleted or made larger because of wealth. Initial activity choices are synthetic seeded inputs, not behavior inferred from real people.

Six projects represent a community garden, repair and tool library, arts studio, wildlife corridor, community care space and shared learning workshop. There is no profit target for art or conservation and no manufactured wellness or ecological payoff. Each project has an account, target work, status and declared prerequisites. A completed project can remain a chosen affiliation, including when someone returns from rest; this does not schedule more work or manufacture further output or payments. Failed projects accept no new membership in this initial experiment.

Five providers supply food portions, housing places, care slots, energy-service units and tool-work slots. These are finite capacities per dimensionless round. They renew according to explicit scenario assumptions; they are not a complete material-production model. Capacity of different kinds is never added into a purported physical total.

Accounts use integer hundredths of illustrative credits. There is no exchange rate, actual wallet, bank integration, issuance mechanism or investment claim. Model rounds are not calibrated days. Geometry is a display of adjacency, not measured social distance, land ownership or curved spacetime.

5. Monetary accounting and the XI screening reference

Every accepted transfer of q integer subunits records a source, destination, amount, reason and round:

```
b_source(next) = b_source - q
b_destination(next) = b_destination + q
M = sum of every participant, project, provider and commons account
M(next) = M(initial)
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Transfers require available funds. There are no negative balances or hidden money creation. Initial project budgets and the commons reserve are declared initial endowments. Savings gifts, knowledge honoraria and concentration shocks are explicit transfers, not field-generated funds.

For the screening experiment, mean personal balance is b_mean . Institution and project accounts remain in the monetary total but are not classified as individual accumulations. The dimensionless critical balance is τ times b_mean , initially $\tau = 5$:

```
s_i = exp[-k max(0, b_i / (tau b_mean) - 1)]
effective_output_i = b_i s_i
s_i = 1 when screening is disabled
reference_response = exp(k mean(C))
```

This instantiates the functional form of XI Equation 6 using an explicit balance-density map. It does not debit b_i . The interface displays balances, screening factors and the exponential response separately. Project output may slow even while nominal inequality persists. The concentration experiment deliberately allows that unfavorable result.

6. The added dynamical bridge

The executable economic bridge is a declared discrete model, not a derivation of the original scalar-tensor action or the existing scalar–electromagnetic simulator. Every site has C in $[0, 1]$. Four periodic nearest neighbors define the diffusion graph.

Let a_i be the fraction of the person's requested essential service kinds delivered in the current round. Let s_i be the screening factor. The coordination target q_i is their arithmetic mean:

```
q_i = (a_i + s_i) / 2
C_i(next) = 0.44 C_i + 0.12 sum(C_neighbor) + 0.08 q_i
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All coefficients are nonnegative and sum to one. With bounded initial values and targets, the update stays in $[0, 1]$ without clipping. This stability statement concerns the specified discrete rule, not a proof of stable societies. Availability feeds the field by construction; observing that relationship in this model is not discovering it in nature.

For a chosen project work slot, the extra bridging rule is:

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g_i = s_i [0.25 + 0.75 (C_i + mean(C_neighbor)) / 2]
work = min(g_i, remaining_project_work)
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A contribution below 0.001 is not scheduled. Each willing participant has at most one discretionary work slot per round, shared across their chosen memberships. Each scheduled slot uses one tool-capacity unit and 1.20 credits from its project: 0.20 to the tool provider and 1.00 as a fixed participation honorarium. Basic eligibility never consults g_i . The mapping from financial density to discretionary coordination is a testable modeling choice; it may impose costs as well as benefits.

Completed repair work shares its method; the learning workshop requires that method. Selected completed projects add declared provider capacity, available on completion and included in subsequent renewal. Those additions stand in for specified project outcomes, not automatic creation of real materials. Their magnitudes and the provision of external service capacity require calibration before real economic conclusions.

7. Access, scarcity and ecological limits

Each participant requests one food, housing and energy unit per round. Eighteen also request a care slot. The commons funds delivered essentials at stated provider prices. Allocation rotates the starting position each round and does not inspect personal wealth, activity mode, project success or C . No participant is declared more deserving than another.

Default provider capacities are 78 food portions, 72 housing places, 22 care slots, 80 energy-service units and 24 tool slots per round. Prices in credit subunits are respectively 12, 8, 28, 8 and 20. These illustrative choices are explicit inputs, not empirically fitted social quantities. Personal endowments are

seeded between 75.00 and 124.99 credits; the commons begins with 6000 credits; each project begins with 160 credits.

Entitlement does not guarantee that delivery succeeds. Missing capacity, exhausted commons funding and access restrictions are recorded as different possible causes of a gap. Appeals cannot produce unavailable food. Service renewal is not proof of ecological sustainability. Land, production chains, energy conversion, biodiversity and long-term material stocks remain outside the initial bounded implementation.

8. Authority, challenge and replacement

Providers begin with three listed stewards. The control-capture scenario replaces them with one authority without transferring money, and blocks a declared subset of participants. This demonstrates why balance equality alone cannot establish independence. The displayed veto share counts requested essential person-service pairs under sole-steward control, not a sum of unlike physical capacities.

An affected participant can lodge an appeal. An explicit review uses two simulated reviewers distinct from the affected person and incumbent stewards. In the supplied case the restriction has no supporting evidence, so the rule removes it; delivery is recomputed next round. The record retains the reason and outcome. This is a disclosed procedural assumption, not a claim about real independent voters.

After an upheld appeal, a separate replacement action appoints three different stewards. Other people's restrictions are not silently erased; their cases remain inspectable. Disabling accountability leaves a recorded appeal without an independent review or replacement channel. Neither screening nor an attractive field display fixes that institutional failure.

Rights, due process, malicious allegations, actual evidence, representation and lawful enforcement need deeper design. The prototype does not define a universal harm classifier or grant an algorithm authority over real people.

9. Experiments and decision criteria

Nine presets provide an open community, rest and changing direction, non-exclusive knowledge sharing, a legitimate reserve, concentrated holdings, a resource shortage, project failure, control capture and an unsupported restriction. Their external event schedules are visible. Rest, joining, leaving, sharing, appeal, review and replacement are also explicit user actions in the synthetic world.

The concentration shock transfers 65% of other participants' balances to Participant 08 in round 4. The imposed transfer is a stress-test input, not consent or policy. The savings scenario instead transfers a modest declared gift. Both preserve total currency. The shortage scenario explicitly restores external supply in round 16; that recovery must not be described as spontaneous field self-restoration.

A comparison replays the same seed, event schedule and recorded user actions with screening on and off. It reports access, projects, personal-balance Gini, veto share and field response independently, rather than announcing a universal winner. A Gini difference caused by differing participation payments is not a mathematical holdings cap.

- Software checks: conserved money, double-entry consistency, no negative accounts, bounded

field without clipping, finite capacity, deterministic replay and persistent participant identities.

- Purpose checks: rest and project failure do not change entitlement; contribution is voluntary; knowledge may benefit a creator without exclusivity; control capture remains visible; unsupported restrictions can be challenged when the chosen governance rules permit.
- Open mechanism tests: whether screening reduces harmful concentration without excluding useful coordination; whether access persists under shortages; whether decentralized control survives adversarial behavior.
- Failure conditions: unaccounted money, hidden clipping, resource over-allocation, lost participants, suppressed access gaps, or claiming social benefits that were neither modeled nor measured.

Passing software tests establishes only the tested implementation properties. This 72-person experiment does not perform XI's $N > 1000$ Gini test, infer a physical coherence time or validate the claims across nuclear, biological, heliospheric and economic scales.

10. A revised transition

Stage A is an inspectable research model: state the units and assumptions, preserve adverse outcomes, compare mechanisms, and publish reproducible records only with appropriate authorization. The current deliverable is in this stage.

Stage B would require empirical, consensual observation and calibration. Define coherence observables independently of desired outcomes, measure real resource and access conditions, compare competing models, protect privacy and avoid conditioning basic rights on unvalidated scores. A simulation or site visit alone is not an observed monetary network.

Stage C, any limited institutional or financial pilot, would require genuine participant consent, legal and financial safeguards, independent governance, fraud and dispute procedures, accessibility, demonstrated accounting and resource feasibility, and a safe exit. This paper neither implements nor recommends immediate adoption of a new currency.

Readiness is not a calendar assertion. The physical-to-economic identification and endogenous anti-concentration mechanism remain research questions. The intended shared-substrate framework is broader than this one bounded application.

11. Reading the display and reproducing a run

The six views share one state: field and screening; monetary transfers; essential delivery; resource capacity; chosen opportunities and knowledge; and authority and review. Human markers retain equal size and brightness. Field colors belong to model cells. Connection highlights refer to recorded events or declared relationships, not new payments generated by animation. Visual preferences do not change the model.

The overview begins paused after one computed round. Play advances discrete rounds; pause, single step and replay are available. Hidden tabs pause and runs stop at 180 rounds. Settings apply to a new run. Recorded interventions have exact rounds; intervening during replay starts a new action branch from that point.

Saved runs use a separate browser-local notebook, not a shared database or any earlier lattice's

storage. JSON export contains model version, parameters, seed, current round, actions, account balances, transfers, observations, events and appeals. Loading reconstructs the model from its seed and action history; imported snapshots are not trusted as authority. The event and transfer lists in the interface disclose their visible window, while export retains the complete record.

12. Conclusion and status

The evolution from XI is not an abandonment of shared possibility. It makes the proposal more inspectable: identify the field-to-money assumptions, account for resources and payments, separate authority from balances, and make individual liberty a requirement rather than a presumed by-product.

The supported statements here are limited mathematical or software statements about explicit rules. Claims contradicted by the supplied mathematics, such as deriving a nominal holdings ceiling from output suppression alone, are not carried forward as established results. Questions needing unavailable observations remain unresolved. Broader physical identification, social benefit and real-world monetary viability remain hypotheses requiring distinct evidence.

The architecture should be judged by what people can actually access and choose, what prevents them and who controls the decision—not by the amount one person can accumulate or the beauty of the lattice.

Sources and provenance

- Paper XI, supplied eight-page draft dated 27 May 2026; source title and SHA-256 are recorded in Section 1. Its bytes and historical web implementation remain untouched.
- User-supplied design discussion and purpose statements, 26 September 2026, preserved in the separate Coherence value lattice design proposal.
- The separately implemented, versioned value-lattice model and its reproducible test and export records. These establish software behavior only.
- The original cosmic lattice, physics comparison and unified lattice remain independent models. This companion does not borrow their results as economic validation.