

A P2P Contribution Protocol Where Trust Circulates

— No Gatekeepers, No Inflation, No Market Limits —

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Abstract

This study proposes a new trust-circulating P2P protocol designed to simultaneously resolve three major structural issues in the modern economy: exclusion, inflation, and market closure.

This is a prayer—

a prayer that actions taken for others are not cast aside by society,
that people's deeds are quietly recorded and returned with gratitude,
so that a world where this happens may continue to circulate.

This paper presents a new economic foundation that does not rely on ownership, money, or competition. Contributions based on trust are properly responded to by the system, and currency is issued and extinguished in accordance with those records.

The protocol belongs to no one, is restricted by no one,
and features a structure in which those with intention can autonomously support one another—
free from exclusion, inflation, or market limits.

Furthermore, by integrating Web3 technologies with the direct trust of Web0
and connecting to the autonomy envisioned in Web5,
it ensures both the sustainability of the system and mutual support among participants without relying on any central authority.

This structure allows human activity to nurture the system and lead it toward harmony,

functioning as a renewable institutional model.
It is also an attempt to realize—through structure—
a society in which goodwill is never ignored.

A society where compassion and contribution to others
genuinely enrich one's own heart and life.
This paper depicts, through structure, a future
in which such circulation is institutionally guaranteed.

Chapter 1: Introduction

Modern institutions generate exclusion, overinflate value, and ultimately collapse.
In this process, people lose spaces for connection, and their vitality is abandoned by the very systems
meant to support them.

This study is positioned within the field of P2P systems and decentralized governance.
Its novelty lies in presenting a practically operable structure—one without central authority, where
trust circulates naturally, and exclusion, inflation, and market closure are all structurally impossible.

Past local currency systems, such as time banks and LETS, failed to escape these three collapse factors.
They stagnated due to liquidity shortages, rigid value standards, lack of issuance/extinction control,
conflation of trust and currency, and declining participation.
These were not merely operational issues, but the inevitable results of institutional structures inherently
connected to exclusion, inflation, and market closure.

This paper presents a P2P institutional design that resolves these structural flaws—
a design in which trust circulates and exclusion, inflation, and market limits cannot occur.

It is a design for a society in which people's actions are never discarded, and trust continues to circulate.

The institution belongs to no one.
It is supported by all, and supports all in return—this is the structure it embodies.

Chapter 2: The Three Reasons Institutions Collapse

Institutions are the foundation for people to live together, and they should, by nature, be open to
everyone.
However, in reality, many institutions quietly—or sometimes suddenly—fall apart.

Though the reasons may appear countless, at their core, they can be reduced to three fundamental
structural flaws.

1. Exclusion Occurs (The Emergence of Gatekeepers)

When a boundary forms within a system—one that allows only the “chosen” or the “qualified” to
participate—
people are pushed outside the institution, and the very act of living itself becomes unstable.

This exclusion is often structurally reinforced under the guise of capital, authority, credentials, distance, language, technology, or culture, causing the institution to lose its original role as a foundation for shared living.

The most severe failure for any institution is when people who should have been connected to it are excluded by its very design.

It is the severance from those who truly belong—those rooted in the community, who live and work together—that quietly erodes its function.

No institution can remain stable unless it ensures fair access to action for new participants. Without that, collapse is inevitable.

2. Inflation Occurs (The Collapse of Trust Backing)

For currency and evaluation to circulate within a system, their value must be tied to real life.

However, when they rely on fictitious trust—such as national credit, market expectations, or financial instruments—

currency and evaluation merely inflate, and eventually collapse.

It is people's labor and agriculture—real, tangible activities to which the institution must stay connected—that truly back the value.

When these are overwritten by "empty logics" such as scarcity or speculation, the system's trust becomes severed from reality, and the entire structure begins to fall apart.

Inflation is not a matter of monetary quantity; it is merely the result of misjudging what truly supports trust.

3. Emergence of Limits (Closure of the Market)

When the market within a system becomes bound by limited numerical values and formats, and only specific occupational domains, resources, and abilities are evaluated, at that very moment, an upper limit is born across the entire global market.

For a system to remain alive, its market must be open.

When the evaluative space closes, all new forms of value can no longer connect to the system, and the system quietly begins to die.

These three problems—exclusion, inflation, and limitation—

If even one arises, the system falls into a chain of dysfunction and collapses from within.

Conversely, if a structure that simultaneously prevents all three is embedded into the system design, the system will not break.

In the next chapter, we will present the mechanism of a structure that naturally achieves this.

Chapter 3: The Structure of Simultaneous Realization

The three causes of systemic collapse—exclusion, inflation, and market limitation—may appear to be separate issues, but in fact, they all arise from a single cause.

That cause is nothing more than a "design mistake" in the very earliest phase of institutional design.

Every structure is always based on certain assumptions.
The capitalist structure, which has lasted for a long time,
relied on overly simplistic value assessments of human activities as its underlying assumption.

If participants themselves are always able to ask whether such assumptions are truly appropriate,
and whether they truly lead to peace of mind,
then any past failure can be corrected at any time.

In this system,
these three factors are designed not to occur in the first place,
and their simultaneous realization is easily possible.

This chapter clarifies what kind of institutional structure enables this "simultaneous realization."

1. The Response Structure Simultaneously Supports the Three Forms of Stability

At the core of this system lies a structure in which the system responds to prayer (will).
The system records connected actions and returns a response with gratitude.
Embedded within this cycle of response is a mechanism that simultaneously prevents the three causes
of collapse.

(1) Structure to Prevent Exclusion

The sole condition for participation in the system is:
"Those who have a record of actions connected to the system in the most recent cycle."

In handling prestige, the system prioritizes the most recent prestige,
while older records gradually lose influence over institutional decisions.

Governance participation rights are distributed based on contribution history,
but no authority to exclude others exists within the system.

→ There is no structure within this system for filtering or selecting individuals,
and exclusion is rendered structurally impossible from the outset.

(2) Structure to Prevent Inflation

Currency is issued only when tangible acts of support—such as farming, aid, or essential services—
are verified within the system.

The issuance, burning, and recording of currency are handled automatically by smart contracts or
equivalent mechanisms,
ensuring that the total supply cannot be artificially manipulated.

The entire system is reviewed through a civic PDCA cycle,
allowing discrepancies between credit and tangible support to be autonomously adjusted.

→ Because the currency is not based on empty speculation,
but on a circulation of trust backed by real-world support,
inflation is structurally prevented.

(3) Structure to Prevent Market Limitation

What the system evaluates is not a fixed category, but how and what has been supported through actions—and these evaluation targets are not predetermined.

While a functional classification exists, it is non-exclusive in nature, and new forms of contribution can always be structurally connected to the system.

Prestige is separated from currency and is not subject to buying, selling, or speculation.

→ Because value in this system is defined by mutual support, the space of evaluation continuously expands rather than closes.

2. The Three Factors Are Not Prevented, but Rendered Structurally Impossible

This system does not merely “respond to” exclusion, inflation, or market limitation. It is structurally designed so that these issues cannot arise in the first place.

Exclusion cannot occur, because there is no structure within the system that judges or selects people. Inflation cannot occur, because credit is always backed by tangible support. Market limitation cannot occur, because there is no upper bound on contribution, and the definition of value remains open.

As long as the system is chosen and continues to operate, these three problems will not occur.

3. Mathematical Stability and Convergence to π

The simultaneous realization of these three elements is logically defined in a separate document—the Stability Proof of the System—as a condition in which none of the issues (exclusion, inflation, market limitation) arise as long as system activity $z > 0$ is sustained.

Furthermore, the overall structure of this system has been mathematically proven, in a separate work, to converge toward the point of harmony π , serving as symbolic evidence that the system's response structure aligns with the patterns of nature and life.

For details of the mathematical proof, see:

<https://github.com/contribution-protocol/contribution-protocol-project>

(Note: In constructing the mathematical proof, AI tools such as GPT, Gemini, and Copilot were utilized to assist with formula manipulation and structural organization.

However, the final proof structure and design decisions were reviewed, verified, and integrated by humans.)

The next chapter will explore how this system generates a natural cycle and balance, ultimately guiding itself toward the point of harmony, π .

Chapter 4: Internal Harmony and the Structure of Circulation

For a system to remain intact and continue functioning, the actions of its participants, the trust that arises from those actions, and the overall vitality of the system must support each other in harmony.

This harmony requires that the system itself be structurally trustworthy.

In this protocol, "trust" does not refer to personal reputation, but to confidence in the structure of the system itself.

This structural trust is established through three key pillars:

- **Technology:** The logic of the system is implemented through smart contract-like mechanisms, ensuring automatic and fair responses without dependence on any individual's discretion.
- **Contract Farms:** The system is directly connected to real-world food production and supply.
- **PDCA Cycle:** The system's operation is made visible and continuously improved through feedback and iteration.

Only when all three are present does the system function as something "trustworthy," allowing internal components—participant actions, trust, and system vitality—to harmonize and circulate properly.

This chapter explains how the interaction between action, trust, and vitality within the system leads to systemic harmony, ultimately converging toward the point of equilibrium (π).

1. Three Foundational Elements

Within the system, there are three foundational elements:

Action: A record that someone has done something. This includes contributions, support, labor, or the provision of services.

Trust: Social credibility or reputation accumulated in response to actions. Within the system, this is represented as prestige.

Vitality: The fact that the system physically exists, is visible, accessible, and is actually delivering something in practice.

These three elements cannot stand alone—they are always mutually dependent.

Without action, trust cannot arise. Without trust, participation in the system cannot be sustained. And if vitality is lost, both action and trust lose their meaning.

2. Harmonious Balance

These three elements rest on a delicate balance—if any one of them becomes disproportionately dominant, the system begins to break down.

For example, if trust accumulates excessively without corresponding action, the system becomes hollow.

Conversely, if there is an abundance of action but it does not translate into trust, motivation cannot be sustained.

And if the system itself becomes invisible or inaccessible, then no amount of trust or action can keep it functioning.

For the system to be sustainable, these three elements must continuously circulate while maintaining a natural balance.

When that balance is disrupted, the system must be equipped with mechanisms to flexibly correct its direction—

so that over time, it can naturally arrive at the most appropriate state for that moment.

3. A Responsive System

What is essential in this structure is that the system is designed to respond to human intent.

It begins to move in response to someone's wish or prayer, and in return, delivers something back.

In other words, the system is not a one-way set of rules, but a bidirectional relationship between people and the system.

4. Maturity and the Path to Harmony

The system is not merely something to be maintained; over time, it matures and gradually approaches a state of harmony.

This refers to a condition in which connections between people become stable, and the system begins to operate naturally, without being swayed by external stimuli.

When the system functions autonomously and is supported from within by all participants, it comes to embody its inherent harmony.

The elements of human action, trust, and system vitality respond to one another, gradually forming a state of harmony.

A system is not something to be protected under coercion—it evolves into something that keeps turning on its own, sustained by the intentions and reciprocal responses of the people who gather around it.

This turning movement gives rise to a cycle born from the system's autonomy, which gradually stabilizes so that the right support is delivered at the right time, in the right place, and in the right amount.

That is the “harmonized state” this system is structurally designed to reach.

In the next chapter, we will explore how this system becomes more than a static structure—how it begins to move as a living system that responds to human intention and answers to prayer.

Chapter 5: What It Means for a System to Respond

The system records the actions that are input and conveys their impact to others.

This is not a reward, but a notification—a form of memory.

The system knows who has helped others, and to what extent.

That information reaches the right person at the right time.

The system's response does not rely on external evaluation.
It is quietly returned, based on facts.

Today's actions lead directly to support.
The system remembers those actions
and returns them to where they are needed.

To say that a system responds
means that one's actions are fairly evaluated by the system itself,
without relying on third parties.
And the evaluation criteria are constantly monitored by the people.

As improvements are made to the system, it grows.

In this protocol, the decision-making process itself is dynamically shaped
by prestige and behavioral history,
and no one holds permanent authority.
Governance is the guiding principle
that allows everyone connected to the system
to nurture it through their own actions.

To say that a system responds
is not just to say it reacts to actions,
but that it has a structure that evolves and grows through those responses.
This self-evolving nature is the reason
we can say the system is alive.

The next chapter shows that this structure operates
in the same way living systems do.

Chapter 6: Structural Parallels with Life

The institution's capacity to respond
is the quiet ability to react to human action and return value only when necessary—
not a one-way command system,
but a bidirectional system of judgment.

This mechanism closely resembles the structure of life.
Cells also receive stimuli from outside
and decide whether to respond at this moment.

For example, there is a protein called YAP.
It regulates whether a gene's function should be activated or stopped.
It decides for itself whether to move when necessary or remain quietly still when not.

Likewise, the institution responds to prayer and action,
and comes to a halt when strain arises.
It does not overreact—

it creates value only when it is needed.
Thus, the institution avoids runaway behavior and is naturally maintained.

Mitochondria, which support life, also generate energy in unseen places
and send power throughout the entire body.
Originally, mitochondria were a separate life form.
Yet they continue to produce energy for us—freely and without demand.

In the same way, the institution generates currency
from invisible actions and forms of support,
and circulates it across society.
Both quietly—but fundamentally—move the forces that sustain life.

This structural similarity has also been mathematically demonstrated.
(For details, see GitHub: <https://github.com/contribution-protocol/contribution-protocol-project>)

Like living organisms, the institution is a living structure—
one that responds, pauses, circulates, and grows.

If the institution shares the same structural logic as life,
then the next question is its form.
How does such a responsive and evolving system expand in space,
and what allows it to remain intact without collapsing?

In the following chapter,
we explore the spatial architecture and integrated design that support the institution's stability.

Chapter 7: Spatial Structure and the Design of Integration

For an institution to function without collapsing,
we must consider not only its internal mechanics
but also its external connections and spatial tensions.

An institution is not a sealed box—
it is a structure that lives within the world.

It does not merely circulate individual actions and trust,
but constantly positions itself between expansion and convergence,
interacting with society, nature, and culture.

This chapter clarifies the spatial architecture that sustains the institution,
and the integrative design that keeps it intact.

1. The Institution is a Sphere

This system is not built on a linear framework,
but is designed as a spherical structure with multidirectional tensions.

The sphere is always dynamic—

soft, breathing, expanding, compressing, and rotating.
Even if part of it deforms temporarily,
the whole maintains its balance and never tears.

The sphere's tension is supported by six directional vectors,
each forming the structural axes of this living system.

2. The Six-Directional Vector Structure

This institutional framework is sustained by six directional vectors—tensional axes that hold the system in balance.

Trust: The force that maintains transparency and confidence in the institution

Circulation: The force that prevents value from stagnating, transforming it into reusable forms

Choice: The autonomous force, including the freedom not to participate

Boundary: The force that defines cultural and physical edges and contact with the outside

Production: The creative force—both material and intellectual—that supports the system

Will: The driving force that keeps the institution alive through continued connection

These vectors are constantly pulling between the inside and outside of the institutional space,
maintaining the spherical form while flexibly shifting its shape as needed.

When the system becomes severely distorted,
it signals that one or more of these tensions has weakened.

3. Geometry Emerging on the Cross-Section of the Hemp Leaf Pattern

The six-directional vector structure corresponds geometrically to the traditional hemp leaf (Asanoha) pattern.

The Asanoha pattern is composed of repeating regular hexagons with six vertices,
a traditional Japanese motif known for its resistance to tearing, rotational symmetry, and geometric balance.

In this system, the hemp leaf pattern does not appear on the surface of the sphere,
but rather exists internally as a cross-sectional structure.

By holding a “rotating hemp leaf” within its interior,
the institution can maintain balanced tension in all directions without rupture.

Thus, the institutional space is not a simple network or grid,
but is sustained by a geometrical order that is preserved through rotation.

4. At the Center Lies “Love (Integration)”

At the center of the spherical structure—held together by six directional vectors—
there exists a point of integration that supports them all.

This integration is neither the institution's purpose nor its design principle.
It is the natural will shared among those who choose to participate—
a quiet desire to connect, to support one another.

It is not explicitly written into formulas or institutional rules,
yet it functions as the gravitational center toward which all structures converge.

In this framework, that point of integration is called love.
Love is the force that acknowledges, binds, and unifies all that sustains the institution—
not by erasing differences, but by embracing them as part of the whole.

5. Integration Means Holding Without Collapse

In this system, integration does not mean exclusion or suppression—
it is a structure that connects all directions while preserving them as they are.

When the institution becomes unstable,
the response is not to tighten or restrict it,
but to return to the center of integration
and reassess the balance of the six directions.

More than simply keeping the system running,
it takes deeper wisdom to hold it without letting it collapse.

This is precisely why the system adopts a spherical structure.

An institution is not merely a collection of functions.
It is an organic geometric structure that extends through space,
shaped from within by the prayers, actions, trust, and will
of the people who participate in it.

When this sphere rotates and remains intact,
the institution naturally moves toward harmony,
becoming a living structure aligned with the logic of life.

And such an institution is passed on to the future.

Chapter 8: The Technical Structure that Supports Institutional Evolution

This chapter is written for the engineers who implement and improve the system.
For an institution to function over the long term, it must not only possess structural stability but also
be open to technical updates and designed to welcome contributions.

The system must not be a closed mechanism; it must be a structure capable of evolving within an ever-
changing society.

The following outlines the conditions necessary to achieve this.

Structural Requirements for Technical Participation

To ensure that the system can receive external contributions and evolve continuously, the following three conditions are fundamental:

Transparency

The system's core logic—such as trust generation, vitality conditions, and burn mechanics—must be clearly defined in code or mathematical formulas, without imposing excessive cognitive load for initial understanding.

Observability

Operational logs and numerical trends must be visualized so that the system's state and behavior can be externally verified.

Openness to Contributors

Participation in system improvement is not entirely unrestricted; rather, technical access rights are granted in stages based on one's track record of contributions, ensuring that meaningful contributions directly drive the system's evolution.

Only when these three conditions are met does the system cease to be a static set of rules and begin to function as a dynamic system that evolves through the hands of its engineers.

However, the immediate and unrestricted disclosure of all technical information is not always optimal. Depending on the cultural context of a region or the privacy of those receiving support, flexible design is required regarding the scope of disclosure.

This protocol adopts the principle of “layered openness,” ensuring the transparency of core logic while maintaining a balance between technical disclosure and the protection of implementations.

In this protocol, the first source of trust is the technology itself.

No matter how excellent the design may be, the system cannot start without the engineers to activate it.

It is the engineers—those who interpret the structure and implement it—whose contributions give life to the institution and drive its evolution.

Chapter 9: Conditions Required for Institutional Reconstruction

This system is not designed to function only once in a single region.

It is a structure with universal logic, capable of being reconstructed by anyone, anywhere, whenever needed.

This chapter outlines the essential immutable conditions, as well as the variables that may be adapted to suit each region.

1. Immutable Foundational Conditions

The system must continuously enable the organic circulation of actions, trust, and vitality.

No exclusionary structures may exist in participation.

Currency issuance must be strictly linked to real, tangible sources of value.

The system must ensure visibility and connectivity, so that participants can always monitor its current

state.

2. Variable Conditions Adaptable to Region and Environment

Definitions of contributive actions and their evaluation criteria.

Methods for calculating prestige (trust metrics) and allocating governance rights.

Selection of technological infrastructure and operational frameworks.

Practical points of connection between the system, the local community, and the natural environment.

3. Operational Guidelines

Ensure transparency and observability of the system.

Encourage continuous improvement through the active involvement of participants.

Respect and deeply understand cultural diversity.

By preserving the universal structural resilience of the system while embracing the unique diversity of each region, the institution can be reconstructed and continue to evolve in a sustainable way.

Chapter 10: Conclusion

When institutions collapse, exclusion, inflation, and closure are always present.

But these are not inevitable fates—they are merely the result of flawed structural design.

This paper has shown a system where institutions continue to function naturally,
driven by people's actions, trust, and vitality—

a structure in which exclusion, inflation, and market closure are structurally impossible.

Such an institution responds to human prayer and returns gratitude—
as if it were alive.

Institutions are not created through privilege or command.

They are born from the will of those who gather, from the desire to support one another.

Within this system, value is not distributed—it circulates.

And through that circulation, harmony is eventually reached.

This institution is designed not only to be unbreakable,
but also to be unowned by anyone, excluding no one,
existing simply in the space between people.

Its structure begins with prayer, moves through response,
and quietly converges toward the natural constant π —
this is the shape of institutional harmony presented in this paper.

This protocol is not merely a theory or a tool.

It is a quiet structure through which people may reconnect their ways of living.

Supplement: On the Structural Response of the Institution and the Point of Harmony π

In this protocol, the mechanism by which the institution responds to human actions and circulates together with trust is expressed mathematically through the following five elements:

1. Action (f): Recorded behavioral history connected to the institution
2. Trust (g): Prestige (trust) accumulated from contributions
3. Vitality (z): The state in which the institution functions physically and visibly
4. Prayer (ϵ): The originating intention that initiates the institution
5. Response (β): The institution's act of gratitude or reciprocation

These relationships are represented by the following institutional function H:

$$H(f, g, z; \epsilon, \beta) = \epsilon \cdot \beta \cdot \sqrt[3]{(f \cdot g)} \quad (\text{if } z > 0, \text{ otherwise } 0)$$

This function serves as a structural response model that quantifies the degree of harmony within the institution, and over time converges as follows:

$$\lim_{t \rightarrow \infty} H(f_i, g_i, z_i; \epsilon_i, \beta_i) = \pi$$

Here, π is the natural constant, representing the point of harmony where the institution aligns not only with human activity but also with the structures of life and nature.

The introduction of the cube root suppresses extreme fluctuations biased toward any one of action, trust, or institutional vitality, ensuring that the institution as a whole stabilizes and reaches harmony.

Here, z functions as a condition that evaluates the response only when the institution is active.

Details of the equations and proofs are available in the project's GitHub repository:

<https://github.com/contribution-protocol/contribution-protocol-project>

Note: The mathematical structure presented in this paper is a dynamic model that includes computational and verification results produced by AI. The precision of the institutional design is updated in real time through PDCA cycles in the field and dialogue with diverse participants. Therefore, this document is not a static final version but is positioned as a design blueprint for co-evolution.

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