THIRD WORKING PAPER

Why PBS/MPS

Requirements, Alternatives, Objections, and Proof Conditions

Comparative and Empirical Closure for Provenance-Backed Securities and the Meritocratic Provenance System

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Status	Working Paper — Argument-Closure Draft
Purpose	Define the conditions under which PBS/MPS could be judged necessary, preferable, workable, and demonstrably viable.
Scope	Alternatives analysis; AI causal chain; objections and failure conditions; proof conditions; empirical research program.
Evidence standard	Claims are separated into established premise, proposed architecture, demonstration requirement, and unresolved condition.

Central thesis

PBS/MPS should not be presented as uniquely logical or demonstrably viable merely because it is coherent and desirable. The stronger conclusion is earned only if the framework satisfies a stated solution-requirements test, outperforms credible alternatives on that test, survives adversarial objections and declared failure conditions, and meets prospective empirical proof conditions under real operating constraints.

Abstract

This paper supplies the missing comparative and empirical layer in the public case for Provenance-Backed Securities (PBS) and the Meritocratic Provenance System (MPS). Earlier work develops the ownership-gap thesis, the provenance and performance architecture, contribution decomposition, royalty-flow logic, and a regulatory pathway. Those materials establish a serious theory and a specified architecture, but they do not by themselves establish that PBS/MPS is uniquely necessary, institutionally preferable, operationally viable, economically efficient, or superior to plausible substitutes. This paper therefore treats uniqueness and viability as conclusions to be tested rather than assumptions to be asserted.

The analysis proceeds in five stages. First, it states the intangible-assets dilemma as a formal design problem intensified by artificial intelligence. Second, it derives ten requirements that any adequate solution should satisfy: persistent provenance; identity and evidence verification; representation of joint contribution; measurable performance; uncertainty-aware attribution; legal enforceability; payment or market infrastructure; privacy and due process; incentive compatibility; and acceptable administrative cost. Third, it compares PBS/MPS against twelve credible alternative institutional models. Fourth, it consolidates the strongest objections, boundary conditions, and safeguards. Fifth, it defines explicit proof conditions and an empirical research program capable of falsifying or validating the framework in production-like settings.

The result is intentionally conditional. PBS/MPS is best understood, at its present evidence stage, as a candidate integrative architecture. Its distinctive promise is that it attempts to combine durable provenance, performance evidence, contribution decomposition, and enforceable economic participation in one chain. Its burden of proof is correspondingly high. The paper specifies what would have to be observed before stronger claims of practical superiority, scalability, manipulation resistance, cost-effectiveness, and domain suitability would be justified.

Evidence Status at the Start of This Paper

Dimension	Current status used here	What closes the gap
Conceptual viability	Strong	Internal coherence and a defined problem/solution mapping exist.
Moral/normative viability	Strong as an argued position	Requires continued engagement with competing theories of desert, ownership, and justice.
Architectural viability	Plausible and substantially specified	Requires implementation evidence, integration testing, and failure-mode measurement.
Legal pathway	Identified but unresolved	Requires instrument-specific counsel, contracts, jurisdictional analysis, and regulator/court/legislature outcomes.
Operational viability	Not established	Requires controlled deployment with measured reliability, throughput, correction, and dispute handling.
Economic viability	Proposed, not demonstrated	Requires measured cost, participation, liquidity/payment efficiency, and value retained after administration.
Production-scale viability	Unproven	Requires scale tests, independent replication, and multi-domain evidence.

1. The Intangible-Assets Dilemma

Modern economies increasingly create value through distributed, cumulative, and intangible contributions. Existing institutions can record corporate ownership and certain legally defined intellectual-property rights, but they often do not persistently document granular contribution, determine the relationship between contribution and downstream performance, or translate contribution into durable economic participation. Artificial intelligence intensifies this mismatch because it can absorb, recombine, and scale human-created knowledge while separating future returns from many underlying contributors.

This paper calls that mismatch the intangible-assets dilemma. The dilemma is not that every useful idea must become property, nor that every contribution can or should be priced. It is narrower: when a contribution is sufficiently identifiable, material, persistent, and connected to measurable downstream value, existing institutions frequently lack an integrated mechanism for carrying evidence of contribution into attribution, entitlement, and payment over time and across organizational boundaries.

1.1 AI-specific causal chain

1. A person produces knowledge, data, judgment, expression, feedback, a process improvement, or operational expertise.
2. The contribution is captured in an identifiable evidentiary form.
3. The contribution enters a dataset, model, workflow, product, process, or derivative system.
4. The downstream system produces measurable economic or operational value.
5. Evidence is generated that can estimate whether, where, and to what degree the contribution affected that value.
6. A valid legal or contractual rule recognizes an entitlement associated with the evidenced contribution.
7. A payment, royalty, ownership interest, license right, or PBS instrument embodies the entitlement.
8. Disputes, uncertainty, privacy, correction, withdrawal, downstream reuse, and expiration are governed through explicit procedures.

The chain breaks if any link is missing. Provenance without performance produces attribution without valuation. Performance without provenance produces value without ownership history. Attribution without an entitlement rule produces measurement without a claim. An entitlement without payment infrastructure produces a right without reliable execution. A market without privacy, due process, and manipulation controls can make the cure worse than the disease.

2. Requirements for an Adequate Solution

#	Requirement	Operational question
1	Persistent provenance	Maintain a durable record of origin, contribution, transformation, custody, and derivative relationships across time and institutions.
2	Identity and evidence verification	Distinguish supported claims from self-assertion and preserve evidence quality, provenance reliability, and auditability.
3	Joint-contribution representation	Represent teams, cumulative work, prior art, interaction effects, shared inputs, and inseparable contributions without forcing false individual precision.

4	Measurable performance	Link the relevant asset or contribution set to domain-appropriate outcomes rather than credentials, reputation, or speculative price alone.
5	Uncertainty-aware attribution	Express confidence, model sensitivity, counterfactual dependence, approximation error, and unresolved causal ambiguity.
6	Legal enforceability	Translate evidentiary findings into rights or obligations that can be recognized through contract, statute, intellectual property, securities law, labor law, or another valid legal basis.
7	Payment or market infrastructure	Carry recognized entitlements into payment, licensing, revenue sharing, or transfer without requiring a speculative secondary market where one is unnecessary.
8	Privacy and due process	Provide minimization, permissioning, correction, appeal, access control, and appropriate deletion or revocation mechanisms while preserving legitimate audit evidence.
9	Incentive compatibility and anti-gaming	Reward high-quality contribution while limiting contribution stuffing, collusion, oracle capture, metric gaming, adverse selection, and strategic fragmentation.
10	Acceptable administrative cost	Produce net distributable value after verification, computation, compliance, dispute resolution, storage, reporting, and payment costs.

These requirements are the decision rule for the remainder of the paper. They intentionally do not presuppose PBS/MPS. A competing model that satisfies the requirements more simply, cheaply, fairly, or reliably should be preferred in that domain.

3. What PBS/MPS Actually Claims

For purposes of comparative analysis, the core analytical architecture is: (1) a Provenance Ledger that establishes the evidentiary record of who contributed what, when, and in what context; (2) a Performance Oracle that supplies domain-appropriate evidence concerning outcomes associated with the documented asset or contribution set; and (3) Contribution Decomposition and Royalty Flow, which estimates attributable contribution and translates the resulting allocation into economic-participation logic. Exchange infrastructure, where used, surrounds this analytical chain and addresses listing, transfer, settlement, reporting, and auditability rather than substituting for contribution decomposition.

The canonical analytical sequence is therefore: Provenance → Performance → Attribution/Allocation → Entitlement/Payment. This paper does not assume that every implementation requires a blockchain, token, exchange, or freely tradeable instrument. Those are implementation choices. The defensible core claim is functional: an adequate provenance-based ownership system needs evidence of contribution, evidence of performance, a rule for attribution under uncertainty, and a legally effective mechanism for participation in resulting value.

3.1 What would make PBS/MPS distinctive

- It integrates provenance and performance rather than treating either as sufficient.
- It treats contribution decomposition as a separate analytical problem rather than assuming that authorship, employment status, or token ownership equals economic attribution.
- It can, in principle, preserve contribution evidence across organizational boundaries and over time.
- It can represent payment or ownership as an outcome of evidence and attribution rather than as an antecedent bargaining position.
- It makes uncertainty, dispute handling, and domain unsuitability part of the architecture rather than exceptions to it.

4. Comparative Alternatives Analysis

The correct comparison is not "PBS/MPS versus doing nothing." The relevant question is whether existing or plausible institutions can satisfy the same requirements with less complexity or lower risk. The following matrix uses three ratings: Strong, Partial, and Weak. Ratings are analytical judgments for design comparison, not empirical findings; they identify what each model is structurally designed to do, and therefore what must be tested before any superiority claim is made.

Model	Provenance	Cross-boundary	Joint creation	Performance	Enforceable rights
Conventional IP licensing	Strong for legally recognized IP	Partial	Partial	Partial	Strong
Employment/work-for-hire	Partial	Weak	Partial	Weak	Strong
Collective/sectoral bargaining	Weak	Partial	Strong	Weak	Strong
Data trusts/cooperatives	Partial	Strong	Strong	Partial	Partial
Statutory AI-training royalties	Partial	Strong	Strong	Partial	Strong
Compulsory licensing	Partial	Strong	Strong	Weak	Strong
Copyright/patent expansion	Strong where covered	Partial	Partial	Partial	Strong
Profit-sharing/employee equity	Weak	Weak	Strong	Weak	Strong
Platform cooperatives	Partial	Partial	Strong	Partial	Strong
Collective rights organizations	Strong for repertoire	Strong	Strong	Partial	Strong
Tokenized IP without decomposition	Strong	Strong	Partial	Partial	Strong
Direct taxation and redistribution	Weak	Strong	Strong	Weak	Strong
PBS/MPS candidate architecture	Strong	Strong	Strong	Strong	Candidate

Table 1. Structural comparison, evidence/rights functions.

Model	Incentives	Privacy	Anti-gaming	International	Cost
Conventional IP licensing	Strong	Strong	Partial	Partial	Strong
Employment/work-for-hire	Strong	Partial	Partial	Strong	Strong
Collective/sectoral bargaining	Strong	Partial	Partial	Strong	Strong
Data trusts/cooperatives	Strong	Strong	Strong	Strong	Partial
Statutory AI-training royalties	Strong	Strong	Strong	Strong	Partial
Compulsory licensing	Strong	Strong	Strong	Strong	Partial
Copyright/patent expansion	Strong	Strong	Partial	Partial	Partial
Profit-sharing/employee equity	Strong	Partial	Partial	Strong	Strong
Platform cooperatives	Strong	Strong	Strong	Strong	Partial
Collective rights organizations	Strong	Strong	Partial	Strong	Strong
Tokenized IP without decomposition	Strong	Strong	Partial	Partial	Partial
Direct taxation and redistribution	Strong	Strong	Strong	Strong	Strong
PBS/MPS candidate architecture	Strong	Strong	Strong	Candidate	Unproven

Table 2. Structural comparison, governance/scalability functions.

4.1 Conventional IP licensing

Licensing is the strongest incumbent where the relevant asset already fits copyright, patent, plant-variety, trademark, trade-secret, or comparable doctrine. It can produce clear contracts, enforceable payment duties, and low-cost administration relative to a new PBS layer. Its limitation is coverage: the model is less well suited to distributed, incremental, tacit, or cross-organizational contributions that are not already recognized as a discrete protectable asset. PBS/MPS is preferable only if it can show that provenance and decomposition add value for contribution types that licensing cannot economically or legally represent.

4.2 Employment and work-for-hire

Employment agreements solve ownership ex ante by allocating rights to the employer and exchanging wages or equity for labor. This is administratively efficient and often legally clear. The model becomes less responsive where value persists after employment, where contributions are jointly produced across institutions, or where the relevant downstream use was not contemplated at contracting time. PBS/MPS must therefore demonstrate that portable contribution records and downstream participation outperform renegotiation, bonuses, or employee equity for these cases.

4.3 Collective bargaining and sectoral bargaining

Collective bargaining can create compensation rules without individualized causal decomposition. That is a major advantage where attribution is expensive, socially undesirable, or impossible. A negotiated sectoral AI royalty can distribute value by hours, occupation, dataset participation, or another collective formula. PBS/MPS is superior only if granular evidence improves fairness or incentives enough to justify added measurement and privacy costs.

4.4 Data trusts and cooperatives

Trusts and cooperatives solve governance, bargaining power, consent, and collective licensing more directly than a security architecture. They are attractive where members wish to pool rights and negotiate as a group. PBS/MPS may complement rather than replace them by supplying provenance and contribution evidence. The comparison must test whether decomposition meaningfully improves distribution within the collective or merely adds overhead.

4.5 Statutory royalties and compulsory licensing

A statute can bypass individualized bargaining and create a simple entitlement rule for covered AI uses. This can reduce transaction costs and produce predictable compliance. Its weakness is calibration: flat or formulaic royalties may not distinguish high-impact from low-impact contribution. PBS/MPS must show that performance-sensitive allocation produces enough incremental accuracy and legitimacy to justify measurement complexity.

4.6 Expanded copyright or patent rights

Expanding existing IP can create strong enforceable rights with familiar courts, licensing markets, and remedies. But expansion risks overpropertization and may still struggle with collective, cumulative, tacit, or non-original contribution. PBS/MPS should be preferred only in the domain where a provenance-based contribution right can be defined without distorting the boundaries and social functions of existing IP.

4.7 Profit-sharing and employee equity

Profit-sharing and equity create participation in enterprise value without proving granular causation. They are cheap, familiar, and incentive-compatible within a firm. They are weaker when contribution value moves across employers, persists after exit, or enters multiple downstream systems. The empirical comparison should test portable PBS-style rights against conventional broad-based ownership.

4.8 Platform cooperatives and collective rights organizations

These models show that shared ownership or pooled rights administration can redistribute revenue without requiring a novel financial instrument. They are particularly strong when the underlying repertoire or participant class is identifiable. PBS/MPS may add value through performance evidence and contribution decomposition, but should not duplicate governance and royalty-administration functions already performed efficiently by a collective organization.

4.9 Tokenized IP without contribution decomposition

Tokenization can improve fractionalization, transfer, and recordkeeping while leaving the underlying ownership rule unchanged. It does not solve the question of who contributed what or how joint value should be allocated. This is the cleanest architectural control case: if tokenization plus conventional contracts achieves comparable outcomes, PBS/MPS decomposition is unnecessary.

4.10 Direct taxation and redistribution

Taxation can address concentration and automation rents without tracing contribution at all. It is administratively mature and potentially broad. Its normative logic is distributive rather than contributor-specific. PBS/MPS must

therefore justify why contribution-linked ownership is preferable to social redistribution for the relevant problem, and the answer may differ by domain: a creator royalty and an economy-wide automation dividend need not be substitutes.

4.11 Comparative conclusion

The defensible comparative claim is narrower than "PBS/MPS beats every alternative." The present architecture appears distinctive because it attempts to combine four functions that alternatives usually separate: persistent provenance, performance evidence, contribution decomposition, and durable economic participation. That integrated design is potentially valuable where all four functions are required simultaneously. It is not automatically preferable where a simpler institution adequately solves the problem. The burden of the empirical program is to locate the domains in which integration produces net benefit.

5. Objections, Failure Conditions, and Safeguards

Objection	Core risk	Safeguard	Failure condition
Contribution inflation	Contributors may overstate involvement or fragment work into excessive micro-contributions.	Independent evidence requirements; contribution materiality thresholds; duplicate and near-duplicate detection; penalties for deliberate misrepresentation.	Observed false-claim or fragmentation burden makes reliable attribution uneconomic.
Tacit and undocumented contribution	Important expertise may never be captured in a form that can be verified.	Permit structured attestations and retrospective evidence but lower confidence; never convert weak evidence into false precision.	A domain depends primarily on tacit knowledge that cannot be captured without destroying validity or privacy.
Negative contribution and harmful outcomes	A contribution can reduce performance or create downstream harm.	Allow negative or null marginal contribution; distinguish attribution from liability; do not guarantee positive royalties.	The model cannot represent negative impact or produces systematic one-sided rewards.
Interdependent teams	Individual separation may be artificial when output is genuinely collective.	Use coalition or team-level allocation, synergy terms, and indivisibility flags; permit collective entitlement.	Results are highly sensitive to arbitrary decomposition choices.
Counterfactual selection	Attribution depends on what baseline or perturbation is chosen.	Pre-register counterfactual classes; compare multiple models; publish sensitivity ranges and confidence intervals.	Reasonable counterfactual choices reverse allocations materially and persistently.
Oracle capture and metric gaming	Measured outputs can be manipulated, optimized superficially, or controlled by dominant parties.	Multi-source validation; independent auditors; holdouts; anomaly detection; governance separation; metric rotation where justified.	Manipulation cannot be detected at acceptable false-positive and false-negative rates.
Institutional capture	Dominant firms may shape standards to favor their own data or incumbents.	Open standards; independent governance; conflict disclosure; appeal; multiple approved methodologies where appropriate.	Governance is persistently dominated by parties whose economic interest depends on attribution outcomes.

Workplace surveillance	Provenance collection can become continuous worker monitoring.	Data minimization; purpose limitation; worker-controlled portfolios; event-based rather than total surveillance; explicit prohibition where monitoring is disproportionate.	Adequate attribution requires surveillance incompatible with privacy, labor rights, or human dignity.
Correction, appeal, deletion, privacy	Immutable evidence can conflict with legitimate rights to contest, correct, restrict, or delete data.	Mutable access layers; append-only corrections; revocable permissions; off-chain sensitive records; independent appeals.	The implementation cannot reconcile evidentiary integrity with applicable privacy and due-process obligations.
Administrative cost	Verification, computation, disputes, and compliance can consume the value to be distributed.	Measure all-in cost; batch processing; sampling; thresholds; collective allocation; declare small-value domains unsuitable.	Administrative cost consumes a material share of attributable economic value or exceeds simpler alternatives.
Speculation	A tradeable PBS can acquire a price unrelated to contribution fundamentals.	Separate entitlement valuation from secondary market price; circuit breakers, suitability/disclosure rules, transfer limits, or non-tradeable royalty claims where appropriate.	Market price persistently dominates performance evidence and changes contributor outcomes without fundamental basis.
Market-price/performance divergence	Secondary value may diverge sharply from measured output.	Report both; never use market price as proof of contribution; create valuation bands and trigger review.	The instrument becomes primarily speculative rather than evidence-backed.
Domain mismatch	Some contributions are non-separable, unmeasurable, legally inappropriate, or too low-value.	Mandatory suitability screen before implementation.	Any core requirement cannot be met without unacceptable error, rights infringement, or cost.

5.1 Domain-unsuitability rule

PBS/MPS should contain an explicit refusal principle: if provenance cannot be established to a minimum evidentiary standard, if meaningful performance cannot be observed, if attribution is unstable across reasonable models, if the legal entitlement is invalid or socially undesirable, if privacy costs are disproportionate, or if administration consumes the distributable value, the domain should not use granular PBS allocation. The appropriate solution may instead be collective licensing, flat royalties, profit sharing, bargaining, taxation, or no new economic right at all.

6. Legal and Institutional Closure

A provenance score is not a property right merely because it is accurate. A Shapley-style allocation is not an entitlement merely because it is mathematically principled. A token is not a security merely because it can be traded, and a security label does not itself define the underlying contributor right. The architecture therefore requires a legal translation layer that is implementation-specific.

- Define the underlying right: contract claim, royalty right, license interest, security, statutory entitlement, cooperative interest, or another recognized category.
- Define the obligor: the party legally responsible for paying or honoring the entitlement.
- Define the triggering use: training, fine-tuning, deployment, licensing, revenue generation, derivative reuse, or another specified event.
- Define duration, transferability, inheritance, waiver, termination, and downstream sublicensing.
- Define audit access and evidence standards without assuming universal public transparency.
- Define dispute procedure, burden of proof, correction, appeal, limitations period, and remedies.

- Define the relationship to employment agreements, work-for-hire rules, copyright, patent, trade secret, privacy, labor, tax, securities, consumer-protection, and bankruptcy law.

Regulatory engagement to date reinforces this separation between architecture and legal status. Washington DFI indicated that the envisioned PBS/MPS architecture extends beyond securities law into areas including property and intellectual-property rights, that implementation would likely require legislative action touching multiple areas of law, and that securities requirements would apply where the arrangement constitutes an offer or sale of securities. That response is evidence of a legal pathway problem to be solved, not regulatory validation of the full architecture.

7. Proof Conditions: What Would Demonstrate That PBS/MPS Works?

A credible research program should pre-register proof conditions before production claims are made. Success should mean more than "the software ran" or "participants liked it." The framework should be evaluated against objective technical, causal, economic, legal, governance, and social criteria.

Proof dimension	Condition for a stronger claim	Suggested evidence
Provenance integrity	Independent auditors can reconstruct contribution chains; material evidence gaps and identity errors are measured and bounded.	Benchmark missing-evidence, false-claim, duplicate-claim, and disputed-claim rates against the chosen domain standard.
Performance validity	Oracle metrics correlate with outcomes that domain experts and affected parties accept as decision-relevant.	Out-of-sample validation; inter-rater/measurement reliability; drift tests; external replication.
Attribution robustness	Allocations are not artifacts of a single model, seed, counterfactual, or metric choice.	Sensitivity analysis across reasonable attribution methods; confidence intervals; rank and allocation stability.
Manipulation resistance	Strategic participants cannot cheaply improve allocation without improving genuine outcomes.	Adversarial red-team exercises; collusion simulations; synthetic contribution attacks; oracle manipulation tests.
Scalability	Throughput, storage, computation, reconciliation, and audit remain practical as contributors and records increase.	Load tests at multiples of pilot scale; latency and compute cost per contribution and per settlement.
Privacy compatibility	The minimum necessary data can support attribution without generalized surveillance.	Data-protection impact assessment; permission and access audit; privacy-preserving alternatives tested against accuracy loss.
Due process	Disputes can be corrected promptly and consistently.	Track appeal rate, reversal rate, resolution time, and repeat-dispute patterns.
Economic viability	Net contributor benefit remains positive after all administrative expense.	All-in cost accounting: verification + compute + compliance + disputes + payment + governance divided by gross attributable value.
Incentive effect	The system increases high-quality contribution or reduces extraction without causing offsetting harm.	Randomized, phased, or matched comparison of contribution quality, retention, innovation, and participation.
Legal operability	Rights and obligations can be enforced under the selected legal structure.	Counsel-reviewed contracts; regulator-compliant pilot where required; actual dispute/enforcement exercises; bankruptcy and termination analysis.

Comparative superiority	PBS/MPS performs better than the best credible alternative for the domain on a predeclared weighted requirement set.	Head-to-head pilot or simulation using the same participants, value pool, and outcome period where feasible.
International portability	Records and entitlements remain meaningful across jurisdictions or degrade in a defined, manageable way.	Cross-jurisdiction legal mapping and interoperability pilot rather than assumed global uniformity.

7.1 Claim ladder

Level 0 — Specified: Architecture, data fields, models, rights, and failure conditions are defined.

Level 1 — Prototype viable: A working implementation executes end-to-end on bounded test data.

Level 2 — Pilot credible: Real participants and real outcomes can be handled with measured error, privacy, disputes, and cost.

Level 3 — Comparatively preferable: The system materially outperforms a credible alternative under the same domain conditions.

Level 4 — Replicated: Independent operators reproduce the results across sites or participant populations.

Level 5 — Production viable: The framework sustains scale, adversarial pressure, legal compliance, governance integrity, and positive net economics over time.

Public language should not advance beyond the highest level actually supported by evidence. In particular, “unique solution,” “demonstrably viable,” and “production-ready” are Level 3–5 claims, not conclusions that follow from theoretical coherence.

8. Pilot Design for Comparative and Empirical Closure

The strongest next step is not a general market launch. It is a bounded pilot designed to falsify the framework. Agriculture remains a useful candidate because provenance and performance can be tied to observable records, while the existing SeedBid materials already specify a concrete ingestion, lineage, anchoring, valuation, and marketplace architecture. The pilot should nevertheless test the current clarified analytical architecture, including contribution decomposition and royalty flow, rather than treating exchange infrastructure as proof of attribution.

Phase A — Pre-registration — Select one narrow asset/contribution type; define the alternative comparator; pre-register metrics, attribution models, privacy rules, dispute procedure, cost accounting, and stop conditions.

Phase B — Shadow mode — Run provenance, oracle, and decomposition without creating binding economic consequences. Compare allocations with expert review and conventional contractual allocation.

Phase C — Limited economic pilot — Introduce a capped real payment pool or royalty entitlement with no unrestricted secondary speculation. Measure disputes, manipulation, latency, cost, and incentive effects.

Phase D — Adversarial evaluation — Invite independent red teams to attack identity, provenance, oracle inputs, attribution, and governance. Publish failures and corrections.

Phase E — Comparative decision — Apply the predeclared requirement weights. Continue only if PBS/MPS outperforms the comparator by a material margin and no stop condition is triggered.

Phase F — Replication — Repeat under an independent operator or second site before generalizing to another domain.

9. Decision Rule: When PBS/MPS Is Preferable

PBS/MPS should be preferred in a domain only when the following conjunction is supported:

- The relevant contributions can be evidenced with acceptable reliability.
- Downstream performance can be measured in a way that is material and resistant to gaming.
- Joint and cumulative contribution can be represented without false precision.
- A valid legal entitlement can connect attributed contribution to economic participation.
- Privacy and due-process protections are compatible with the evidence requirements.
- All-in administration leaves positive net value for contributors and counterparties.
- The system performs materially better than the strongest simpler alternative on the domain's predeclared priorities.
- Observed behavior under adversarial and real conditions remains within the pilot's error, manipulation, dispute, and cost tolerances.

If these conditions are satisfied in one domain, that establishes domain-specific superiority, not universal necessity. The general PBS/MPS thesis gains force only through repeated demonstrations that the same integrated functions remain valuable under materially different institutional, technical, and economic conditions.

10. Final Argument

The intangible-assets dilemma is real in the precise sense that modern value creation can be cumulative, distributed, and persistent while ownership and compensation institutions remain organized around firms, discrete IP rights, employment contracts, and ex post redistribution. Artificial intelligence sharpens the dilemma by increasing the ability to absorb and scale human-created knowledge independently of the continuing participation of the people who generated it.

PBS/MPS offers a coherent response because it organizes the problem as an evidence chain: establish provenance, observe performance, decompose contribution under uncertainty, recognize an entitlement through valid law or contract, and execute payment or participation through auditable infrastructure. That chain is more complete than provenance alone, tokenization alone, or redistribution alone. But completeness of architecture is not proof of superiority.

The proper conclusion at this stage is therefore conditional and testable. PBS/MPS is a serious candidate institutional architecture for domains in which persistent provenance, measurable performance, joint-contribution attribution, and durable economic participation must operate together. It becomes the preferable solution only where credible alternatives fail one or more indispensable requirements and where PBS/MPS itself survives technical, economic, legal, privacy, governance, and adversarial proof conditions at acceptable cost. If it cannot satisfy those conditions, the framework should be narrowed, combined with a simpler institution, or rejected for that domain.

That standard is deliberately demanding. It converts the public case from a claim of inevitability into a program of comparative proof. It also creates the condition under which a future stronger statement would be justified: not "PBS/MPS is logical because the architecture is coherent," but "under declared requirements and observed real-world evidence, PBS/MPS performs the necessary functions better than the credible alternatives for this defined class of problems."

Appendix A. Minimum Evidence Package Before Strong Public Claims

- Published system specification and evidence schema.
- Documented legal theory of entitlement for each pilot domain.
- Independent provenance-integrity assessment.
- External validation of oracle metrics.
- Attribution-method sensitivity report.
- Privacy/data-protection impact assessment.
- Adversarial manipulation and collusion report.

- Dispute-resolution and correction log.
- All-in administrative cost report.
- Comparator analysis against at least one simpler alternative.
- Independent replication or second-site pilot.
- Public evidence-status statement mapping each claim to its support level.

Appendix B. Working Sources and Internal Foundations

Foundation	Use in this paper
Provenance-Backed Securities: A Framework for Tokenizing Intangible Assets and Redistributing Ownership in the Age of Automation	Foundational PBS ownership-gap, architecture, applications, and limitations paper.
Comparative Economic Theory — A Point-by-Point Analysis	Comparative theoretical grounding and challenges from neoclassical, Rawlsian, libertarian, Austrian, institutional, and behavioral traditions.
Institutional Design and Policy Architecture	Provenance auditing, advantage indexing, corrective instruments, incentive compatibility, privacy, cost, and political feasibility.
Meritocratic Provenance Systems: Foundations	Definition of MPS, epistemic limits, uncertainty, and distinction from conventional tax-and-transfer.
Positions of Objection	Practicability, epistemic, incentive, paternalism, dynamic adaptation, and family/advantage objections.
The Mathematical Structure of Contribution Decomposition	Contribution space, marginal contribution, persistence, interaction effects, Shapley-style allocation, royalty flow, and computational approximations.
SeedBid System Architecture Diagrams / Patent Claims Outline	Concrete technical proof-of-concept architecture for provenance, performance-linked valuation, storage, and marketplace mechanics.
Washington DFI materials and correspondence	Regulatory interaction showing that the architecture raises securities and broader property/IP issues and that implementation pathway remains unresolved.

Research-status notice. This paper is an argument-closure and research-design document. It does not claim regulatory approval, legal enforceability in any specific implementation, peer-reviewed validation, or production-scale viability. Legal conclusions must be confirmed for the actual instrument, contracts, parties, jurisdiction, and deployment.