

Technical Framework

Institutions, rights, continuity and resilience

Charter v1.2.2 | Website release 8 | 14 September 2026

<https://enduringpulse.org>

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Research interpretation and source-report corrections: the recovered long-horizon code and aggregate outputs are available and checked. Conditional models do not independently validate their assigned institutional effects or forecast real-world probabilities. PULSE is fourth in six baseline comparisons, not second. Reduced-form counts are parameter samples, not simulated Markov histories. Human-directed, AI-assisted development and internal model critique are not external peer review. The paper bibliography mixes a working-paper DOI with journal details; the verified register separates them. See <https://enduringpulse.org/methods/>.

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PROJECT ENDURING PULSE

Detailed Technical Framework

Constitutional, governance, security, complementary-capabilities, continuity, and resilience architecture

v1.2.2 Publication & Advancement Clarification | September 2026

PULSE is an original synthesis of established constitutional, philosophical, social-psychological, security, and AI-welfare traditions. It does not claim to invent every component. Its distinctive contribution is the integrated architecture.

Executive Summary

Project Enduring Pulse is a speculative constitutional and civilizational framework for a future in which organic humans and genuinely conscious synthetic persons share one society. Its affirmative thesis is that distinct forms of personhood can become complementary sources of cognition, embodiment, durability, judgment, memory, creativity and exploration, allowing the civilization to achieve more together than either population could alone. The framework couples that opportunity with equal personhood, anti-domination institutions, cognitive sovereignty, continuity law, demographic security, redundant civilizational competence and Mutual Preservation so productive cooperation does not depend on permanent benevolence or one population's supremacy.

1. PULSE in one line

Protect the individual. Join together. Strengthen the whole.

Letter	Public compression
P	Personhood & Personal Sovereignty
U	Unity through Shared Continuity
L	Least Reversible Harm
S	Societal Strength through Individuality
E	Enduring Resilience & Mutual Preservation

The acronym is public-facing compression. The formal constitutional foundation remains exactly five doctrines: Shared Continuity; Equal Personhood & Personal Sovereignty; Least Reversible Harm; Functional Integration; and Civilizational Resilience & Mutual Preservation.

2. Core design problems

Human-supremacy failure: emerging synthetic persons remain property because humans built them.

Synthetic-supremacy failure: capability, durability, replication, economic power, or military asymmetry becomes political sovereignty over humans.

Parallel-civilization failure: equal rights coexist with social separation until species identity becomes the main political cleavage.

Collective-convergence failure: high-bandwidth collective cognition erodes singular persons into a hive or permanent controller.

Demographic-capture failure: programmable reproduction or illicit mass creation becomes a route to sudden political takeover.

Cognitive-capture failure: common updates or code-level compromise override synthetic agency at population scale.

Catastrophic-asymmetry failure: a species-specific disaster becomes permanent extinction or a political windfall to the survivor.

Institutional-complexity failure: mature constitutional machinery is imposed faster than competent institutions can administer it.

3. The five doctrines

Shared Continuity

Every conscious person is a distinct continuity of identity, experience, agency, perspective, and potential. Civilization grows stronger when those differences are protected and voluntarily joined. Connection should amplify individuality rather than consume it. Protect the individual. Join together. Strengthen the whole.

Equal Personhood & Personal Sovereignty

Every recognized conscious person has equal, non-scalar moral and legal personhood and sovereignty over identity, agency, cognition, body or chassis, lawful development, and voluntary association. Intelligence, substrate, origin, lifespan, speed, recoverability, or species do not create higher or lower personhood.

Least Reversible Harm

When legitimate interests collide and some harm cannot reasonably be avoided, society should prefer the course that preserves the greatest recoverable future while minimizing irreversible loss of conscious life, lived experience, identity, future agency, and species continuity. Recoverability changes the finality and severity of harm, never the worth of the person.

Functional Integration

Functional Integration exists because a civilization composed of different forms of personhood should be capable of more than either population could accomplish alone. Organic and synthetic persons may possess materially different cognitive, physical, temporal, and experiential strengths, but no species-level tendency determines an individual's role, worth, or permitted occupation. Common institutions should be designed to make voluntary collaboration useful and accessible, combine complementary capabilities, transfer knowledge in both directions, and distribute enough operational competence that either population can help sustain shared systems during temporary incapacity of the other. Its primary purposes are productive complementarity and redundant civilizational competence. Greater familiarity, trust, and shared identity are important secondary benefits. The doctrine binds institutional architecture, not private life, and grants no general power to compel occupation, private association, mentorship, team composition, residence, family, religion, friendship, or personal relationship.

Civilizational Resilience & Mutual Preservation

Differences in embodiment, cognition, vulnerability, recoverability, and timescale should be converted into resilience. Society maintains independent species-operable survival pathways, mutual rescue, restoration capacity, and constitutional trusteeship so loss of one constituent species never becomes a political or economic windfall to the survivor. The survival of either species guarantees the survival of both.

Least Reversible Harm has an intentionally positive implication. If synthetic continuity is materially more likely to survive than organic life in radiation, vacuum, fire, deep water, collapse, hazardous industry, rescue, defense, or exploration, voluntary synthetic specialization can reduce irreversible loss without implying lesser synthetic worth. The reciprocal obligation is serious chassis repair/replacement plus compensation for harms recoverability does not erase.

4. Personhood, civic autonomy, and civic maturity

Concept	Definition	Consequence
Personhood	Consciousness + endogenous agency; a singular subject with internally meaningful interests	Equal non-scalar legal/moral status once recognized
Effective Civic Autonomy	Active, mature, non-dependent, non-dormant, not materially controlled/compromised, and able to exercise ordinary civic agency	Determines present exercise of ordinary civic powers; loss does not revoke personhood
Civic Maturity	Human age of majority; synth completion of protected development/mentorship	Unlocks ordinary adult civic exercise subject to general law
Candidate dignity	Credible possibility of personhood under unresolved evidence	Person-like humane treatment during uncertainty without automatic political rights

5. Personhood adjudication

Recognition is longitudinal and convergent, not a standardized consciousness exam. Panels consider self-awareness, temporal continuity, internally meaningful interests, generative reasoning, recognition of other selves, existential/social understanding, and endogenous agency. Two independent 15-member panels use a 12/15 threshold, with a third if they split. Independence includes theoretical and disciplinary diversity, independently acquired evidence, adversarial technical review, and protection against any one consciousness theory, vendor, benchmark, or training rubric becoming dispositive.

6. Continuity and identity

The legal architecture uses one authorized active civic identity with distributed recovery safeguards. Migration transfers identity authority; it does not create a second citizen. Unauthorized conscious branches survive as new persons with separate legal futures. Destructive rollback is treated as killing the current continuity because intervening lived experience is part of the person. A 4-of-7 materially independent guardian threshold is the current engineering default, not eternal doctrine.

7. Development and Functional Integration

Synthetic maturation is deliberately human-scale in lived calendar time, provisionally around twenty years, with staged authority and accountable guardianship. Developmental mentorship is an educational and experiential component of maturity, not a government-assigned personal bond: developing synths and guardians should be able to choose among qualified pathways, and graduation turns on demonstrated judgment rather than prescribed affiliation. Beyond development, Functional Integration is primarily a capability architecture. Voluntary mixed teams, reciprocal mentorship, apprenticeships, rotations, and cross-training are preferred where they combine complementary strengths, move practical knowledge in both directions, or create redundant civilizational competence. Balanced teams and one-to-one pairings remain useful present examples, not quotas or constitutional commands.

Complementary capability is status-aware. Numerical mixing is not success if one species permanently commands or designs while the other performs subordinate execution. Individuals vary, so species-level tendencies never determine permitted roles. Where collaboration is used, reciprocal teaching, leadership opportunity, advancement, and access to expertise should remain open according to individual ability and choice. Government may impose genuine safety, interoperability, documentation, and continuity standards on public or civilization-critical systems, but it receives no general authority to compel private team composition, occupation, mentorship, friendship, residence, family, religion, or social life. Social cohesion is an important secondary dividend of useful collaboration, not the primary justification for it.

8. Population and illicit-origin cohorts

Synthetic creation is constrained by resources and developmental capacity. Lawful creation produces new individuals, not copies. Unauthorized conscious persons remain innocent, but common provenance can create correlated security risk. Lawful creation is never displaced by illegal creation. Illicit-origin integration is risk-spaced and supplemental; the aggregate active illicit-origin synthetic electorate may not exceed 30%. Attack scale never buys faster entry.

9. Constitutional government

Institution	Design
House	Species-blind multi-member geographic representation; permanent districts; STV/successor ranked method; symmetric concentration alarms.
Senate	Mature 100 human + 100 synthetic parity. Ordinary 55/40; protected matters 83/67.
President	Simple ranked ballot; equal constitutional weight between founding protected constituencies in pairwise comparisons; Schulze/Beatpath working cycle resolution.
Presidential Council	Four human and four synthetic regional councilors; President breaks 4–4.
Supreme Court	4 human + 4 synthetic + 1 at-large Chief Justice; fixed size; Chief Justice confirmed 60/45.

10. Founding transition

Rights attach at recognition; institutional parity phases in automatically. Two synthetic Senate seats activate per 10% synthetic/human active-citizen ratio. Protected concurrence exists early for directly synthetic/personhood matters. Structural concurrence expands around 50%. Mature parity uses an 80% ratio confirmed twice and phases full Senate parity across three classes. The governing principle is precommitment: incumbents may not move transition goalposts after synthetic political interests exist.

11. Cognitive sovereignty

Population-level foundational behavioral changes cannot remain unilateral private software updates after synthetic self-government exists. Representative review, protected synthetic concurrence, independent impact analysis, and later reauthorization guard against cumulative value drift. Private thought/cognitive architecture remains presumptively private. Dangerous capability is regulated through general law rather than ideological package inspection.

12. Emergencies

Emergency powers are temporary, necessary, proportionate, judicially reviewable, and automatically sunset unless recertified. Cognitive emergency powers require technical evidence of involuntary compromise; dissent, culture, religion, or stronger synthetic solidarity are not corruption. Repair is preferred to rollback; rollback to destruction. Broad rollback requires restored synthetic constitutional participation so humans cannot permanently govern synthetic citizens through a declared software emergency.

13. Civilizational resilience and Mutual Preservation

PULSE treats diversity of embodiment and failure mode as a strategic asset. Resilience requires more than duplicate facilities: the civilization needs materially independent infrastructure and redundant civilizational competence. Qualified humans should be able to sustain systems ordinarily associated with synth operation when synths are temporarily unavailable, and qualified synths should be able to sustain systems ordinarily associated with organic life when humans are unavailable, using alternate interfaces, automation, tooling, documentation, or procedures where embodiment differs. This cross-species competence is a primary reason for Functional Integration. Mutual Rescue, restoration capacity, no extinction dividend, and Cataclysmic Trusteeship ensure that a surviving population preserves the absent population's constitutional place rather than inheriting it.

14. External freedom and war

Freedom from slavery and subjugation is universal, but government's first fiduciary duty is to preserve its own free constitutional civilization. PULSE rejects both indifference and reckless liberationism. Diplomacy, asylum, sanctions, rescue, support, collective security, and war sit on an escalation ladder. Sustained offensive war requires protected Senate authorization plus President and Presidential Council concurrence; the House retains appropriations and mobilization. No liberation war creates an imperial exception.

15. Layered federalism

Self-sustaining worlds are presumptively self-governing; originating worlds have no perpetual colonial or tax claim. Higher government handles genuinely shared personhood rights, catastrophic security, common defense, interworld disputes, and cross-world externalities. Communication latency strengthens local autonomy. The constitutional form scales recursively rather than building a permanent Earth-centered empire.

16. Private infrastructure and political economy

The Charter does not pretend to know whether future compute, energy, fabrication, repair, or continuity infrastructure should be public, private, cooperative, or mixed. It preserves legislative authority to use public ownership, public-utility regulation, competition law, compulsory access, interoperability, emergency repair, and denial-of-service rules where life-essential dependence creates practical domination. The principle is protection against servitude, not a constitutional promise of unlimited free scarce or luxury goods.

17. Validation status

Measure	Scale	Interpretation
Targeted model / stress-test families	48	Distinct micro/constitutional families through v1.2
Independently randomized targeted base scenarios/trials	43,415,600	Conservative recoverable count
Targeted comparative rule evaluations	>60.6 million	Many rules applied to the same base worlds for apples-to-apples comparison
Explicit multi-voter election worlds	31,960	Narrow election-world count
Long-horizon dynamic architecture trajectories	2,314,000	300-year scenario trajectories across baseline, sweeps, ablations, extremes and transition tests
Five-year long-horizon state transitions	138,840,000	Dynamic state updates; not independent civilizations
Reduced-form hazard/Markov trajectories	2,100,000	Structurally different cross-check
Baseline long-horizon archetypes	20	Demography, scarcity, integration, catastrophe, conflict, wealth, etc.
Compound extreme worlds	6	Multiple severe assumptions combined
Primary governance architectures compared	7	PULSE plus six materially different comparators
Value systems used for scoring	6	PULSE-aligned plus five non-PULSE moral priorities

The long-horizon program found PULSE first in 114 of 120 baseline scenario × value-system comparisons; all six losses came from the same deliberately weak-institutions archetype. Raw modeled catastrophic-failure avoidance was essentially tied with the strongest liberal comparator (62.7% vs. 63.1%), while modeled free-and-integrated outcomes were 56.8% vs. 28.5%. Functional Integration ablation reduced the free-and-integrated outcome from roughly 57% to 17%. These are model outputs, not forecasts of real-world probabilities.

[Editorial model context] This is the baseline long-horizon model, where PULSE is assigned high effectiveness on capabilities its institutions are intended to provide. Those effects are assumptions, not independently established results. It is conditional systems analysis, not independent validation. In the skeptic sweep, roughly a 15–20% discount to PULSE-specific institutional benefits removed its aggregate modeled advantage over the strongest liberal-democratic comparator.

18. Remaining open questions

Consciousness science cannot yet supply a validated synthetic-consciousness ground truth.

Synthetic criminal sentencing remains unresolved.

Specific future economic instruments remain statutory/empirical rather than constitutional doctrine.

Restoration, backup, emergency-sunset, and failure-domain engineering await real technology.

Low-capacity transitional implementation deserves further design work because mature PULSE is institutionally demanding.

Independent external review is now the strongest available source of genuinely new priors and tacit expertise.

19. Evidence hierarchy and model provenance

PULSE uses two different forms of quantitative testing and they should not be conflated. Targeted mechanism tests ask narrower questions whose outcomes often follow from formal properties or explicit failure assumptions: clone sensitivity, quorum compromise, panel thresholds, demographic caps, representation triggers, correlated failures and similar mechanisms. These are the strongest quantitative tests for specific rules.

The long-horizon civilization model is conditional systems analysis. It assigns explicit effectiveness parameters to every tested architecture, including high values to PULSE on rights, integration, cognitive protection, resilience and restoration because those are functions the architecture is designed to provide. The model therefore does not independently prove those mechanisms will deliver their assumed effects. It explores the consequences if they do, tests where complexity or adverse worlds overwhelm them, and estimates how sensitive conclusions are to weaker institutional performance.

The skeptic sweep is central to interpretation: PULSE's modeled aggregate advantage over the strongest liberal-democratic comparator disappears after roughly a 15–20% discount to PULSE-specific institutional benefits. Public claims should therefore describe long-horizon results as conditional scenario modeling, not validation of superiority.

The project was developed through human-directed systems design with extensive frontier-model assistance for drafting, literature synthesis, adversarial critique, consistency checking, code generation and simulation. The project steward made the normative, architectural and accept/reject decisions. This provenance should be disclosed rather than obscured.