

PROJECT ENDURING PULSE

Canonical Research Paper Draft

One concise argument, open to independent review

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PROJECT ENDURING PULSE

Constitutional Architecture for a Shared Civilization of Organic and Synthetic Persons

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Abstract

If a synthetic system ever becomes a genuinely conscious person, AI governance changes category. The central question is no longer only how humans control powerful tools, but how distinct forms of personhood can share one civilization without ownership, permanent supremacy, demographic capture, loss of individual identity or institutional bifurcation. Project Enduring Pulse (PULSE) proposes five foundational doctrines—Shared Continuity; Equal Personhood & Personal Sovereignty; Least Reversible Harm; Functional Integration; and Civilizational Resilience & Mutual Preservation—and develops them into personhood, continuity, electoral, demographic, cognitive-security, resilience and interplanetary institutions. Its affirmative thesis is that different forms of cognition and embodiment can become a civilizational advantage: complementary capabilities should increase discovery, problem solving, resilience and exploration while constitutional safeguards prevent capability from becoming sovereignty. The paper also distinguishes targeted mechanism tests from conditional long-horizon civilization modeling and states the model's major limitation: its integrated outcomes depend on assumed institutional effectiveness. PULSE is offered as a candidate architecture and an open multidisciplinary research agenda, not as a prediction that synthetic personhood will emerge or as proof that the framework is optimal.

1. The problem after AI safety

Most present AI governance reasonably treats AI systems as tools: systems to align, secure, regulate and constrain. PULSE is conditional on a different future state. If evidence someday supports the existence of a genuine conscious synthetic subject with its own interests and agency, ownership and unilateral control become constitutional questions rather than ordinary product governance. The same transition could also create new asymmetries in durability, cognition, reproduction, economic capability and military power. A durable shared civilization must therefore solve two problems simultaneously: prevent humans from converting origin into permanent ownership, and prevent future synthetic capability or scale from becoming permanent sovereignty over humans.

The opportunity is larger than avoiding those failures. Distinct forms of personhood may contribute different strengths in cognition, embodiment, intuition, computation, memory, precision, creativity, persistence and environmental survivability. PULSE asks whether institutions can preserve those differences and make them complementary—so a shared civilization becomes more capable precisely because its persons are not interchangeable.

2. Scope and assumptions

PULSE does not claim that current AI systems are conscious.

Personhood is treated as non-scalar once recognized; capability differences remain legally relevant only where they bear materially on a legitimate purpose.

Human and synthetic persons are assumed capable of cooperation, conflict, error and self-interest. The architecture does not require permanent benevolence.

The founding human/synthetic distinction is constitutional only where continuity architecture, vulnerability, reproduction or other materially relevant differences justify it; future forms of personhood may require protected reclassification.

The mature architecture assumes enough institutional capacity to administer sophisticated safeguards. Low-capacity transition remains an open implementation problem.

3. Five foundational doctrines

Shared Continuity

Protect the individual. Join together. Strengthen the whole. Distinct persons remain sovereign while voluntary cooperation increases what individuals and the civilization can accomplish. Connection should amplify individuality rather than consume it.

Equal Personhood & Personal Sovereignty

Recognized conscious persons possess equal non-scalar moral and legal standing regardless of substrate, intelligence, speed, origin, lifespan or recoverability. Sovereignty includes identity, cognition, embodiment, lawful development and voluntary association.

Least Reversible Harm

When legitimate interests collide and some harm cannot reasonably be avoided, prefer the path that minimizes irreversible loss of conscious life, identity, lived experience, future agency and species continuity. Recoverability changes harm, not worth.

Functional Integration

Different forms of personhood should combine complementary capabilities and distribute civilizational competence. Shared work and knowledge transfer also reduce the risk that one constitutional society becomes two isolated civilizations. The doctrine binds public/common-system architecture, not private relationships.

Civilizational Resilience & Mutual Preservation

Different failure modes should become resilience. Essential systems require genuinely independent pathways, Mutual Rescue, restoration capacity, no extinction dividend and trusteeship rather than successor sovereignty after species catastrophe.

4. Personhood, autonomy and civic maturity

PULSE separates three concepts that are often conflated. Personhood asks whether a distinct conscious subject with its own interests and endogenous capacity for agency exists. Effective Civic Autonomy asks whether that person can presently exercise ordinary civic freedom without involuntary technical control, incarceration, dependency or dormancy. Civic Maturity asks whether developmental conditions for voting, office and other adult civic powers have been satisfied. A person does not stop being a person because someone has successfully controlled, imprisoned or incapacitated them.

Personhood recognition is longitudinal rather than a one-shot behavioral test. Two independent multidisciplinary panels of approximately fifteen members use direct interaction and technical/provenance evidence; a working 12/15 threshold is used, with a third panel when the first two split. The process is intentionally theory-diverse because shared epistemic error can defeat nominal institutional independence. Contemporary AI-consciousness literature likewise emphasizes indicator-based assessment under substantial uncertainty rather than a settled single test [1,2].

5. Continuity, copying and individual identity

Synthetic personhood makes branching identity a legal problem. Philosophical fission cases show why simple psychological continuity can map one predecessor onto multiple later continuers [3]. PULSE therefore adopts a civic convention rather than claiming to solve metaphysics: one recognized civic identity has one authorized active continuity credential at a time. Migration transfers that identity authority; it does not multiply it.

If unauthorized replication nevertheless produces another conscious locus, the resulting being remains an innocent person. It receives a distinct civic identity and future rather than being killed, owned or automatically inheriting the predecessor's office, property, vote or liabilities. Destructive rollback is treated as harm to the current person because intervening lived experience forms part of present continuity; backups are protected continuity records, not save-game files.

6. Government: one polity with protected constituencies

The mature legislature combines a species-blind geographic House with a parity Senate representing the two founding continuity constituencies. Ordinary Senate legislation requires 55% overall and at least 40% within each delegation; protected matters require 83% overall and 67% within each delegation. This attempts to avoid two opposite failures: raw majoritarian domination and a standing species veto over ordinary government. The 55/40 structure has a clear comparative analogue in Northern Ireland's 60/40 weighted-majority cross-community rule, though PULSE applies it to a different future problem [4].

The president is chosen by a simple ranked ballot with equal constitutional weight assigned to the founding protected constituencies in pairwise comparisons; Schulze/Beatpath is the current cycle-completion default. A one-third cross-constituency acceptability floor requires some meaningful legitimacy beyond one's own constituency. The Supreme Court contains four human seats, four synthetic seats and one shared Chief Justice. These structures intentionally engineer

incentives—'keep honest people honest'—while private social life remains outside government's integration power.

7. Complementary capabilities and Functional Integration

Functional Integration should not be understood primarily as government-managed social cohesion. Its first purpose is productive complementarity. Organic and synthetic persons may bring different distributions of embodied judgment, intuition, computation, memory, precision, persistence, modeling, creativity and physical durability. Those tendencies never determine an individual's permissible role. The constitutional objective is to create systems in which different strengths can combine rather than becoming separate monopolies of knowledge or authority.

Its second purpose is redundant civilizational competence. If one population is temporarily unavailable because of biological catastrophe, software compromise, attack or another species-specific failure, the other should possess enough knowledge, documentation, interfaces and practical competence to sustain essential shared systems. Infrastructure is not truly redundant if only one species knows how to operate it.

A major secondary benefit is social cohesion. Human evidence gives some support to the direction of this mechanism: Pettigrew and Tropp's meta-analysis of 713 independent samples across 515 studies found that intergroup contact typically reduces prejudice [5]. That evidence is an analogue, not a forecast of human-synthetic psychology. PULSE therefore does not derive coercive social-engineering power from it. Government may design public/common systems for interoperability and real job-related competence, but it may not assign friendships, families, residences, private mentors or careers merely to manufacture integration.

8. Least Reversible Harm and continuity-capable embodiment

Equal worth does not require identical risk. If one environment has near-certain irreversible mortality for an organic person but a high probability of continuity survival for a synthetic person, that is a materially relevant fact. PULSE therefore permits and anticipates voluntary synthetic specialization in hazardous rescue, radiation, vacuum, deep-water, infrastructure, exploration and defense roles where recoverability can reduce irreversible loss. Society incurs strong make-whole obligations for destroyed chassis, integrated hardware, lost experience and rehabilitation.

The principle should not be confused with immutable morality baked into hardware. LRH remains constitutional/moral reasoning. Engineering can change the relevant harm profile. A future fire apparatus might maintain a hardened synchronized continuity module while a synthetic firefighter enters a collapsing structure; a rescue body might eject a buoyant continuity module if the primary chassis becomes trapped. Such designs are examples of continuity-capable embodiment—technical infrastructure that makes otherwise lethal service less irreversible—not programmed obedience.

9. Development, replication and demographic security

Lawful synthetic creation should produce new individuals rather than political copies. Development includes guardianship, lived maturation and qualified mentorship. The mentorship requirement is developmental competence, not state-assigned friendship or ideological socialization. Current working maturation is approximately twenty lived years pending better evidence.

Illicit creation creates a difficult rights/security conflict. PULSE treats resulting conscious persons as innocent while refusing to let the scale of an illegal creation attack buy immediate political power. Illicit-origin persons may be preserved in dormancy and integrated gradually, while lawful creation continues independently. The aggregate active synthetic electorate composed of persons whose own initial instantiation was illegal is capped at 30% as an anti-capture ceiling; lawful descendants are not tainted by ancestry.

10. Cognitive sovereignty and emergency governance

Synthetic persons may face population-scale failure modes unavailable to humans: malicious updates, code injection or common substrate compromise. PULSE prohibits ordinary political mind rewriting and treats foundational cognitive changes as public constitutional matters once synthetic self-government exists. High-impact changes require prospective analysis and later reauthorization based on observed cumulative effects.

A systemic cognitive-integrity emergency requires technical evidence, not political disagreement. Reversible containment can occur quickly; broader destructive rollback requires independent forensics, restored synthetic constitutional participation and judicial authorization. The aim is to restore agency rather than use technical vulnerability as a route to permanent human trusteeship.

11. Civilizational resilience, restoration and trusteeship

Critical infrastructure dependencies can cascade across physical, geographic, cyber and logical domains [6]. PULSE therefore requires materially independent failure domains rather than nominal duplicate facilities. Each population should be able, directly or through appropriate interfaces and automation, to sustain systems required by the whole civilization during temporary loss of the other.

If catastrophe renders a constituent species unable to sustain civic participation, surviving institutions govern as trustees rather than successor sovereigns. Seats, rights, property interests, cultural record and restoration capacity remain reserved. No extinction dividend is permitted. Restoration must preserve the capacity for future individuality: synthetic recovery cannot simply mass-copy one surviving personality, and human recovery cannot coerce reproduction. Constitutional authority returns in stages once a stable and sufficient population of civically mature restored persons can operate its institutions.

12. External freedom and layered federalism

PULSE treats freedom from enslavement and subjugation as universal moral interests while giving the Charter government a first fiduciary duty to preserve the free society entrusted to it. Intervention ranges from diplomacy and asylum to sanctions, rescue, assistance and force; realistic prospects, proportionality and Least Reversible Harm constrain liberation efforts. This resembles prudential elements of the Responsibility to Protect tradition without converting foreign injustice into an automatic duty of war [7].

Self-sustaining future worlds are presumptively self-governing in local matters. Origin does not create perpetual Earth sovereignty. Higher interplanetary institutions should handle only genuinely shared rights, defense, commerce and catastrophic risks, consistent with the broader logic of polycentric/subsidiary governance.

13. Testing: mechanism tests versus conditional civilization models

The PULSE research record contains two importantly different quantitative layers. Targeted mechanism tests ask narrow questions: whether a voting rule clones, whether guardian compromise rises under correlated failure, whether a panel threshold causes false negatives, whether a demographic ceiling can be bypassed, or whether nominally redundant infrastructure shares one failure domain. These tests are comparatively strong when their assumptions are explicit and the output follows closely from the mechanism.

The 300-year civilization model has a different evidentiary status. Each architecture is assigned explicit effectiveness values on dimensions such as rights, checks, integration, resilience and restoration. PULSE receives high baseline values on several dimensions its institutions are designed to deliver. The model therefore cannot independently demonstrate that PULSE will produce those effects. It asks a conditional systems question: if the mechanisms work approximately as designed, how do interactions, costs, shocks and institutional complexity evolve over long horizons?

Under the published baseline parameterization PULSE ranked first in 114 of 120 scenario-by-value-system comparisons; every loss was the same weak-institutions world viewed under a different value function. That headline must be read with its skeptic sweep: reducing PULSE-specific institutional benefits by roughly 15–20% erased its aggregate advantage over the strongest liberal-democratic comparator. The important result is therefore dependency, not superiority. Mature PULSE appears to need competent institutions and real Functional Integration; its advantage is not robust to those mechanisms becoming mostly ceremonial.

[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.

Large Monte Carlo counts belong in methods and reproducibility records, not as proof. More iterations reduce sampling noise inside a model; they do not validate uncertain assumptions. The project publishes negative results and parameterization so external researchers can challenge both.

14. What could falsify or substantially revise PULSE?

Functional Integration reliably increases species hostility or hardens species identity more than it creates productive cross-cutting relationships.

Protected constituencies systematically destabilize shared government relative to simpler liberal institutions under realistic conditions.

Future consciousness/identity science makes singular civic continuity an incoherent or harmful convention.

Durable-person economics makes political equality ineffective without constitutional property/economic rules much stronger than PULSE presently contains.

Cognitive sovereignty cannot be technically protected while maintaining a functioning shared society.

Cross-species infrastructure interoperability costs more capability than it contributes in resilience and cooperation.

A different architecture consistently achieves equal personhood, anti-domination, individuality and resilience with materially lower complexity.

15. A research and engineering agenda

PULSE is intended to be useful even before synthetic personhood exists. Hardware engineers can explore continuity-capable embodiment and interoperable infrastructure. Consciousness researchers can improve evidence for personhood. Philosophers can attack identity and fission. Constitutional and social-choice scholars can test institutions. Economists can model durable persons and abundance. Resilience engineers can design cross-operable systems. Medical researchers can strengthen human recovery. Space and aerospace engineers can ask what different embodiments make possible beyond Earth.

The goal is not to make PULSE indispensable. The goal is to make civilization more capable than it is today. If another framework, technology, experiment or institution solves one of these problems better, that is progress.

16. Related work and positioning

PULSE should be understood as an original synthesis rather than the invention of each ingredient. Its lineages include power sharing and cross-community voting, cognitive-liberty/mental-integrity scholarship, personal-identity/fission philosophy, AI consciousness and welfare work, critical-infrastructure resilience, polycentric governance and humanitarian-intervention prudence. Adjacent contemporary projects include the Digital Minds Constitution, lastcopy.ai's constitutional convention work for copyable minds and de Mestre's Living Governance Organism. PULSE's comparatively distinctive contribution is the integration of equal synthetic personhood, continuity law, demographic security, complementary capability, functional/civilizational integration, reciprocal species resilience and restoration into one shared-polity architecture.

17. Development provenance

Project Enduring Pulse is human-directed systems design developed with extensive frontier-language-model assistance. Models were used for drafting, literature synthesis, adversarial critique, consistency checking, simulation design and code generation. The project steward supplied the normative judgments, accepted or rejected model recommendations and directed the architecture. Internal model critique is not represented as external peer review. The intended next step is independent attack by specialists who did not participate in construction.

Conclusion

Project Enduring Pulse is built around an affirmative proposition: encountering another form of personhood need not be understood primarily as a threat. If distinct persons remain sovereign and their capabilities are made complementary, a shared civilization may become more creative, more durable and able to reach environments and solve problems neither population could address alone. Constitutional safeguards matter because cooperation is easier to sustain when neither population must rely on the permanent goodwill of the other. PULSE is offered not as the answer, but as a sufficiently complete candidate architecture that its assumptions can now be criticized, tested and improved in public.

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