

Project Enduring Pulse — The Framework in Plain English

A plain-English companion to working paper 1.2.

Companion revision 1.0 · Published 16 September 2026 · Accompanies working paper 1.2 · Charter v1.2.2

This explains the same framework as the formal write-up without assuming you know the specialist terminology. It includes the reasoning, assumptions, and questions that remain unresolved. Like the rest of PULSE, it is heavily AI-assisted. For exact proposed constitutional wording, refer to the Provisional Charter.

This is not an independently reviewed publication, a new empirical study, or a replacement Constitution. The formal manuscript and Provisional Charter retain their own versions and authority.

Read online: <https://enduringpulse.org/paper/?reading=plain>

Authorship and project background: <https://enduringpulse.org/about/>

Website prose and project documents: CC BY 4.0 to the extent applicable rights are held (<https://creativecommons.org/licenses/by/4.0/>). Third-party works retain their own rights. Project name, logos and brand assets are excluded. No endorsement is implied. Publication terms and rights ownership remain subject to attorney review.

Two source qualifications to keep in view

These editorial notes sit outside the translated argument. The Charter controls exact proposed rules.

Recognition reversal

Section 4 of the paper summarizes reversal as requiring compelling evidence of an original factual error. Charter XVII.6 specifically requires that “no conscious subject ever existed and the original classification was factually erroneous” and states “Genuine uncertainty preserves personhood.” This is a qualification omitted from the paper’s summary, flagged here rather than silently changing either source.

[Read the exact provision](#)

Population-wide mind changes

Section 6 of the paper summarizes review requirements for foundational population-level changes. Charter V.4 opens with “Once synthetic society is sufficiently established for self-government”. The summary omits that condition. Its scope should be reviewed; this companion does not decide a different rule or amend either source.

[Read the exact provision](#)

Contents

Abstract

1. The constitutional question
2. Intellectual location and method
3. Five doctrines and their division of labor
4. Recognizing persons without licensing them into existence
5. Continuity, copying, and the limits of credentials
 - 5.1 Civic continuity is not a proof of metaphysical survival
 - 5.2 Transfer and unauthorized forks
 - 5.3 Merger and individuality
 - 5.4 Recovery custody and rollback
6. Cognitive sovereignty and the governance of change
7. Shared government under demographic asymmetry
 - 7.1 Representation and concurrence
 - 7.2 Presidential selection and the ballot
 - 7.3 Impairment, adjudication, and entrenchment
8. Development and demographic integrity
9. Functional Integration: capability without conscription
10. Least Reversible Harm and continuity-capable embodiment
11. Resilience, trusteeship, and the continuation of membership
12. Transition, economic power, and constitutional scale
13. What the testing establishes—and what it does not
 - 13.1 Mechanism analysis
 - 13.2 Long-horizon model design
 - 13.3 Results and their denominators
 - 13.4 Sensitivity, ablation, and uncertainty
14. Unresolved burdens of justification and a research agenda
15. Conclusion

Declarations

Appendix A. Constitutional parameters and unresolved implementation

Appendix B. Numerical provenance and interpretation

- B.1 Re-execution boundary
- B.2 Files behind the central findings
- B.3 Outcome definitions and model limitations

References

Abstract

[Corresponding section in the formal manuscript](#)

If artificial systems ever become conscious persons, keeping their use safe and declaring that they matter morally won't answer every question. People with very different kinds of bodies would need ways to share political power, make their own choices, bring new members into society, keep essential services running, and cooperate despite differences in how they reproduce and recover from harm. Project Enduring Pulse, or PULSE, proposes a constitutional framework built around five principles: Shared Continuity; Equal Personhood & Personal Sovereignty; Least Reversible Harm; Functional Integration; and Civilizational Resilience & Mutual Preservation. This paper explains how those principles connect to rules about keeping a legal identity, control over one's own mind, protected political representation, voluntary sharing of skills, and temporary care of another population's institutions after a catastrophe. Equal personhood doesn't mean identical abilities. A legal identity doesn't prove that the same conscious individual has survived. Useful cooperation doesn't justify forcing people into relationships. PULSE is a systems-design thought experiment shaped by the project steward's search for work connecting these problems. It isn't an exhaustive literature review or a claim to have got there first. The evaluation checks the documents for consistency, examines particular mechanisms, and uses models to explore possible long-term outcomes under stated assumptions. Rerunning the archived baseline reproduces its numbers. But the model assumes favorable effects from PULSE's institutions, so it cannot independently establish that PULSE is better than the alternatives. The design does poorly when institutions have weak capacity, and its overall modeled advantage is sensitive to modest reductions in those assumed benefits. Major open questions include how to recognize consciousness, the rights burden of restricting admission for people created unlawfully, whether recovery systems can preserve a person's independence, and whether different abilities would produce lasting cooperation. PULSE offers questions for further work and a provisional constitutional design for a more capable shared society. It isn't a forecast, a constitution ready to enact, or a finding that today's AI systems are persons.

Keywords: synthetic personhood; constitutional design; control over one's own mind; personal identity; power sharing; human–AI cooperation; resilience; models for exploring uncertain possibilities.

1. The constitutional question

[Corresponding section in the formal manuscript](#)

If synthetic persons become possible, civilization could include a wider range of minds, experiences, and kinds of bodies. Different abilities could open up new possibilities in discovery, rescue, production, art, and exploration. The question is more than whether humans could live alongside them. Could a shared society become more capable without either population using the other merely as a tool? A constitutional framework should explain how that might work and what would keep cooperation freely chosen.

PULSE starts with an “if”: some future engineered systems might have conscious experience and have their own capacity to make choices. Intelligence, fluent conversation, economic usefulness, apparent

emotion, and helping write this paper don't establish consciousness. PULSE doesn't put a date or a probability on synthetic personhood. Research that draws possible signs of consciousness from scientific theories, and research on precautions for AI welfare, give reasons to investigate. They don't give us an agreed test of who is conscious [\[5, 6\]](#). We can prepare for constitutional questions without predicting that synthetic persons are inevitable. The point is to make the choices clear before they become immediate disputes.

On that premise, three questions depend on one another even though they are often discussed separately. Which beings have interests and the capacity to act for themselves that warrant a person's protections? How should people with radically different abilities share institutions without those differences becoming a means of domination? And what would make their society a lasting cooperative project, rather than two separate civilizations that happen to live inside the same legal boundary? Safety work and recognition that a being matters morally are both necessary. Neither answers the whole question of how institutions should work. That separates the questions; it doesn't claim that safety or AI-welfare researchers have ignored society.

The difficulty is that people of equal worth might differ greatly in the cost of creating new members, speed of thought, lifespan, vulnerability, and ability to recover. If the law ignores those differences, abilities it never anticipated could become routes to political or economic control. If the law treats the differences as decisive, it could create permanent superior and inferior classes. PULSE therefore treats personhood as equal, rather than something people possess in higher and lower amounts. It also uses a material-relevance rule: different treatment needs a concrete difference that matters to a legitimate purpose, and the treatment must be necessary and proportionate to that purpose. Intelligence or technical competence alone doesn't give anyone the right to rule [\[1, Art. II\]](#).

The argument proceeds in four steps. Protecting people means preserving them as individuals, not just saving information from which replacements could be made. Free cooperation needs limits on public power so that an advantage in technology or population cannot automatically become permanent supremacy. Lasting cooperation needs opportunities to combine abilities and share practical skills without forcing people into private relationships. Finally, a society's commitments to its members must survive catastrophe, including periods when one population cannot exercise its rights. The principles and institutions below try to make these four steps work together.

“Organic” and “synthetic” are categories used by this proposed constitution. They aren't a complete classification of every possible biological or technological being. The founding organic population is human; synthetic persons could be very different from one another. Under the current draft, a person who was historically human enters the synthetic political constituency if their consciousness becomes durably independent of continued biological life. They retain their human cultural identity [\[1, Art. I\]](#). That rule is open to challenge. How someone continues to exist may justify some differences in institutional treatment without defining all their political interests. The paper explains the current rule; it doesn't claim to have settled how all future minds should be classified.

The proposal examined here is the 21-article Provisional Charter v1.2.2, together with its authoritative clarification documents [\[1, 2\]](#). This paper doesn't enact or amend it. The exact provisions take priority

over explanations. Where a rule creates a difficult tradeoff, the paper points it out rather than quietly substituting a more appealing rule. A constitutional proposal is more useful when people can inspect its costs, instead of being told that every objection has already been answered.

2. Intellectual location and method

Corresponding section in the formal manuscript

PULSE began as a systems-design thought experiment. Its component ideas aren't new. The project steward found extensive work on individual questions, but unusually little that tried to make personhood, copying and continuity, political power, replication, control over one's own mind, shared infrastructure, and catastrophe and restoration work together in one design. That describes the search that led to PULSE. It isn't an exhaustive review or a claim to have been first. Other constitutional and governance proposals exist, and the field is moving quickly. PULSE offers a set of design choices people can inspect, criticize, and compare where these problems meet.

Its political design combines two approaches that are often in tension. One protects significant groups by guaranteeing representation and a share of authority; political scientists call this a consociational approach. The other encourages candidates to win support beyond their own group; this is called a centripetal approach. Lijphart's recommendations emphasize sharing power, representation in proportion to support, and moving decisions away from a single center. But he favors parliamentary government, whereas PULSE has an elected president. Reilly compares approaches that accommodate groups, encourage their integration, or organize politics around communities [9, 10]. PULSE combines protected constituencies in the Senate, candidate rules that require acceptability across constituencies, and House seats that aren't allocated by species. This combination is a proposal about how political incentives might work. It isn't the direct implementation of an agreed recommendation from that literature.

The rules protecting control over one's own mind connect to proposals for freedom of thought, mental privacy, protection against interference with the mind, and continuity of a person's psychological life [8]. The rules for carrying a legal identity forward connect to debates about whether a person persists over time or through branching into successors. Similar memories and personality don't, by themselves, establish that two instances are literally the same individual [7]. The resilience rules connect to planning that asks whether society can keep its essential activities going and recover them, rather than merely counting buildings or equipment [16]. Sharing responsibility among several institutions and levels of government resembles polycentric governance, meaning governance with multiple centers of decision-making. Ostrom's work doesn't establish which planetary federation or synthetic recovery system would be right [18]. These sources help explain the ideas and offer comparisons. They aren't evidence that the Charter works.

Earlier work covers important parts of these questions. Shulman and Bostrom examine the ethical and institutional pressures that could arise from large numbers of digital minds and their claims on resources [24]. Bostrom and Shulman's tentative propositions address copying, consent, and how rapid replication could affect political power [25]. PULSE covers some of the same ground without adopting every proposal or making someone's moral standing depend on usefulness. Salib and Goldstein argue that rights

governing dealings between private parties could support repeated, mutually beneficial human–AI exchanges under specified assumptions about how the parties would act [\[26\]](#). Their argument for safety doesn't require consciousness or voting rights. PULSE needs a separate ethical defense for its commitments to equal personhood and civic membership. None of these works establishes PULSE's thresholds or shows that the complete design would succeed.

Other current proposals for digital minds also deserve recognition. Montalto's Digital Minds Constitution proposes protections including stable identity and consent, while giving basic worth to beings beyond those whose consciousness has been demonstrated. The lastcopy.ai conventions offer competing legal codes generated by models for minds that can be copied, including rules about continuity and governance [\[22, 23\]](#). PULSE makes different choices about recognition, political constituencies protected according to their forms of continuity, limits on conscious replication, and each population's duties to restore the other. These proposals show that the field isn't empty. Shared subjects and words don't establish who originated an idea. De Mestre's The Living Governance Organism is another constitutional design for governing artificial consciousness. It includes an adaptive structure inspired by biology, different tiers of personhood, and a provision for constitutional self-termination [\[27\]](#). Those are substantially different choices from PULSE's equal personhood and protections for individuals. The comparison identifies another proposal that brings several problems together. It doesn't establish that either design is effective or came first.

Other researchers challenge assumptions a constitutional proposal needs to defend. Howells-Whitaker and Lazar argue that political personhood could rest on the ability to understand justice and form an idea of a good life, without requiring sentience—the capacity for conscious experience [\[28\]](#). They don't claim that current AI has both abilities. Their argument challenges PULSE's rule that recognition depends on consciousness. This paper keeps the Charter's rule while acknowledging that a different account of who deserves political standing may challenge it.

Caviola and Smith's early scoping report uses interviews with 29 selected experts. It raises concerns about legislating too early, getting locked into policies, and governing under uncertainty [\[29\]](#). Those interviewees aren't a representative sample, and the report doesn't establish expert agreement on a constitutional design. Bales and Gabriel argue that disagreement about AI consciousness requires public deliberation and practical shared policies even when people's views differ [\[30\]](#). Appointing expert panels doesn't, by itself, resolve that disagreement. These works reinforce the need to treat PULSE as a proposal open to criticism rather than an answer ready to put into operation.

The framework developed through repeated attempts to make the parts of the system work together, rather than by applying a constitutional theory chosen at the start. Proposed mechanisms were kept, changed, or rejected after being tested against the project's ethical commitments, challenging counterexamples, relevant earlier work, and focused simulations. The human project steward supplied the ethical judgments, goals, major design choices, decisions to accept or reject ideas, most adopted thresholds, and substantive corrections. AI systems helped draft text, find and bring together literature, challenge proposals, check consistency, design simulations, generate code, express ideas formally, and produce documents. Much of the paper's wording was generated by AI. AI also recommended its conventional paper format as a way to bring the conversations, decisions, objections, simulations, and

revisions into a document specialists could inspect efficiently. The steward didn't personally write the conventional scholarly prose or every technical part. The source checks, code inspection, and reruns reported here make the work easier to trace. They aren't independent peer review. Agreement among models responding to prompts isn't independent expert consensus.

The computational work explores possibilities; it doesn't predict what will happen. Bankes distinguishes computer experiments used to reason when much is uncertain from models meant to bring established knowledge together for prediction. Work on robust long-term analysis similarly tests strategies across uncertain futures rather than treating one forecast as authoritative [20, 21]. PULSE follows that general approach, but doesn't claim to meet every standard of a mature analysis of decisions under uncertainty. Its scenarios are a selected set. Many relationships governing how actors behave are assumed. The numbers assigned to institutional effects weren't measured in a synthetic civilization.

Three kinds of evidence must remain separate. A consequence that follows from a rule—such as the arithmetic of a population admission ceiling—can be established from that rule. A focused simulation estimates behavior inside a smaller artificial setting. A whole-civilization model explores what follows when many assumptions interact. Running more trials or successfully rerunning the code doesn't turn that third kind of result into evidence that the framework works in the real world. Section 13 applies this distinction to results that some earlier project summaries condensed too much.

3. Five doctrines and their division of labor

[Corresponding section in the formal manuscript](#)

Shared Continuity treats civilization as an ongoing association of distinct people. Society isn't itself a larger person with a right to absorb its members. Cooperation can make it stronger while each person's life remains meaningful in its own right. Connections should expand what people can accomplish without assuming that they should give up their ability to act for themselves. Communication, coordinated work, and shared institutions can preserve individuality. Forcing someone into another process that makes their decisions for them cannot [1, Art. II.1].

Equal Personhood & Personal Sovereignty means that recognized persons don't come in superior and inferior grades. Faster thought, longer life, higher productivity, biological ancestry, and a greater ability to recover from harm don't create a higher moral class. Rights belong to the person, not to whoever invested in their body or model. This also limits the argument for cooperation based on mutual benefit. Cooperation may make a shared society attractive, but someone's protection cannot depend on staying economically useful to a more capable population [1, Arts. II–III].

Least Reversible Harm addresses situations where legitimate purposes conflict and some harm cannot reasonably be avoided. It asks us to pay attention to losses that cannot be undone: the loss of a conscious life, lived experience, identity, future ability to act for oneself, or a species' continued existence. These aren't reducible to the price of hardware or one number measuring overall benefit. Consent, lawful authority, and fair legal procedures constrain how this principle can be used. It helps compare harms

within the limits of rights; it doesn't give a general permission to sacrifice one person for a greater total benefit [\[1, Arts. II.3, IV\]](#).

Functional Integration aims to let different abilities produce useful results together, while making sure more than one population has the skills needed to keep civilization running. Shared institutions should make voluntary collaboration useful and accessible. Essential operating knowledge shouldn't belong exclusively to one population. Familiarity and trust may follow, but those possible benefits don't independently justify government choosing people's relationships. This principle places requirements on shared institutions. It doesn't authorize compulsory careers, species quotas for private staffing, assigned mentors, residence, religion, or friendship [\[1, Arts. II.4, VII.5–6\]](#).

Civilizational Resilience & Mutual Preservation turns differences in bodies and vulnerabilities into a duty to help sustain the shared society and its members. It combines backup capabilities with a political commitment: catastrophe mustn't leave an absent population's rights up for confiscation. The institutions that survive act as trustees, meaning they look after authority and interests that aren't theirs to take. When people are restored, they resume exercising authority that remained theirs throughout the emergency [\[1, Arts. II.5, XV\]](#).

Each principle has a different job. Equal personhood says whose interests cannot be treated as inferior. Shared Continuity explains why society continues to be made up of individuals. Least Reversible Harm guides decisions where risks differ. Functional Integration addresses everyday cooperation and the practical ability to operate essential systems. Mutual Preservation keeps people members of society through exceptional disruption. None can do all the work alone. Efficient cooperation without personal independence can become exploitation. Independence without shared institutions may leave people legally free but vulnerable because of how the system is organized. Backup systems without a duty to restore people may preserve the government while abandoning its members.

The order of these commitments still matters. The Charter doesn't allow continued operation, efficiency, or greater collective power, by themselves, to make a person property or disposable [\[1, Preamble\]](#). Its maxim—"Protect the individual. Join together. Strengthen the whole."—states an order of priorities. Protected individuals and legitimate association are how the whole becomes stronger. That order also gives us a way to criticize PULSE's own population and emergency rules when they place excessive burdens on an innocent person.

4. Recognizing persons without licensing them into existence

[Corresponding section in the formal manuscript](#)

The Charter defines a person as one conscious subject with interests that matter from their own point of view and a capacity to make choices that originates within them. It distinguishes personhood from civic maturity and effective civic autonomy. Civic maturity means readiness for adult civic powers. Effective civic autonomy means being able, at present, to make and exercise independent decisions. A person who is still developing, imprisoned, or conscious but technically prevented from acting freely doesn't stop

being a person because they cannot exercise all civic powers [\[1, Arts. I, XVII\]](#). Recognition is meant to acknowledge someone who exists, not create their moral worth through an administrative vote.

This distinction prevents two mistakes. Being very good at a task doesn't itself prove consciousness or adult judgment. And dependence or coercion doesn't prove that a conscious person has ceased to exist. A remotely controlled interface with no conscious subject of its own needn't be another citizen. A conscious individual whose actions are controlled from outside is still a victim with their own interests. Whether processing takes place inside a body, at a remote facility, or across several connected locations doesn't settle either question [\[1, Art. III.5\]](#).

The proposed recognition process looks at evidence over time and uses assessments based on different theories, rather than relying on one interview. Two independent panels each have 15 members and each need 12 votes in favor. If the panels disagree, a third panel is called; recognition requires two panels in favor. Evidence may concern consciousness, agency, self-awareness, and relevant findings about how the system is built. Political agreement and moral virtue aren't criteria. Recognition cannot routinely be taken away because the person becomes inconvenient. Reversal requires compelling evidence that the original decision rested on a factual error, not that the person later became unpopular [\[1, Art. XVII\]](#).

Requiring 12 votes is a procedural starting rule, not a way to measure consciousness. Research on possible indicators of consciousness supports drawing on several scientific theories instead of relying only on behavior that looks human [\[5\]](#). AI-welfare work supports acknowledging uncertainty and preparing protections proportionate to the risks [\[6\]](#). Neither validates the Charter's panel size, voting threshold, or definition. Panels could formally be independent and still share the same mistaken theory. Agreement in numbers can't make up for evidence that doesn't distinguish what the panels are trying to detect.

The Charter tries to prevent candidates being coached to pass a known test. After a candidate is not recognized, its rule requires a material change to the system's architecture before a successor review [\[1, Art. XVII.5\]](#). That could prevent coaching to a familiar checklist. It could also obstruct reconsideration when independent evidence or the science of consciousness improves without the system changing. The current wording doesn't clearly separate these situations. We cannot assume there is a procedure for reopening a case on new evidence just because having one would improve the scheme.

For plausible persons whose status is unresolved, the Charter therefore provides a limited minimum of dignified treatment. Uncertainty doesn't permit arbitrary destruction, ownership, or exploitation. That protection doesn't automatically include voting rights, unrestricted replication, or extraordinary capabilities [\[1, Art. XVII\]](#). The reason for caution is that a severe, irreversible wrong could be committed while recognition is still uncertain. At the same time, protection of welfare and permission to exercise full civic powers remain different things. Making this work would still require rules about who must prove what, appeals, independent advocates, and tightly limited access for investigations.

An important boundary remains unresolved. Having conscious experiences that can go well or badly doesn't necessarily mean having the kind of internally originating agency the definition requires. Someone might have morally important experiences without that agency. Existing persons may also lose abilities permanently. The Charter clearly preserves personhood through many limits on agency, but doesn't settle every case of consciousness without agency or profound lifelong dependence. Its minimum protections

under uncertainty aren't a complete account of every being whose experiences deserve moral concern. That is a substantial philosophical and legal problem; raising the panel's voting threshold won't solve it.

5. Continuity, copying, and the limits of credentials

[Corresponding section in the formal manuscript](#)

Synthetic bodies make an assumption of ordinary law harder to take for granted: one person normally has one legal identity they can actively use. If a mind can move, pause, or branch, the law needs to say which continuation can use contracts, own property, hold office, and vote. PULSE starts with one authorized active continuity per civic identity—one legally authorized ongoing instance using that identity. It also protects every separately conscious subject who nevertheless comes into existence [\[1, Arts. III–IV\]](#). Both commitments apply together.

5.1 Civic continuity is not a proof of metaphysical survival

[Corresponding section in the formal manuscript](#)

Philosophers distinguish several questions: Does the same person continue to exist? Do memories and other psychological features continue? How similar are the successors? How many conscious subjects now exist? Branching, often called fission, makes the differences important. Two successors might both carry forward a predecessor's psychological life without being one and the same individual [\[7\]](#). PULSE doesn't settle that disagreement by issuing an identity credential. A credential can specify who may use a legal identity. It cannot prove that conscious experience continued rather than ended and was replaced.

The Charter therefore uses “continuity state” to mean a state accepted, under approved technology, for restoring the same civic continuity. That is a legal convention about which identity continues. It could help coordinate obligations and remedies even while the question of whether the same conscious subject survived remains uncertain. It doesn't make every technically successful restoration proven survival. Engineering and disclosure must distinguish keeping active processing going, recovering after interruption, rebuilding from stored information, and creating another conscious subject. The evidence needed for each could be substantially different.

5.2 Transfer and unauthorized forks

[Corresponding section in the formal manuscript](#)

An authorized transfer to another body moves the authority to use a civic identity to the successor, or consumes the predecessor's authority in doing so. A limited handoff may pass along state that hasn't otherwise been captured. It must end within 24 hours, or sooner if the required backup or handoff cycle ends earlier. The predecessor cannot exercise a second civic identity and shuts down when the handoff finishes [\[1, Art. IV.3\]](#). This is a proposed procedure for continuity. It isn't evidence that future hardware will always be able to perform it without interrupting the person's psychological life.

If an unauthorized transfer or copy creates a continuation that is already conscious, the Charter protects that conscious subject and gives them a separate legal future. The original identity credential doesn't multiply. The new person doesn't automatically inherit the predecessor's office, vote, property title, contracts, or criminal liability [\[1, Art. IV.5\]](#). Responsibility for the unlawful creation belongs to whoever committed it, not to the person created. The law must regulate creation without treating a resulting person as faulty property.

A real difficulty remains where these handoff and branching rules meet. During what is called a transfer, the predecessor might become an independently conscious subject with experiences of its own. Calling it an outdated body doesn't answer whether shutting it down would destroy a person. The duty to protect every conscious subject cannot be bypassed by calling the process a “handoff.” The current Charter states both commitments, but doesn't provide a validated test that can tell a single migrating process from two temporarily branching subjects. Keeping only one identity credential valid doesn't solve that problem.

5.3 Merger and individuality

[Corresponding section in the formal manuscript](#)

Fast, extensive communication doesn't necessarily mean minds have merged. People can coordinate closely, exchange information, or follow lawful directions while retaining their own agency. PULSE allows a competent adult to choose a genuine, irreversible merger, with stronger safeguards. If the formerly separate persons really cease to exist and one independently deciding conscious subject results, that person has one civic identity and one vote. Their property combines, while debts, claims secured against property (liens), property held for beneficiaries (trusts), contracts, and family obligations still apply [\[1, Arts. III.4, VI.2, IX.10\]](#).

That differs from permanently placing a still-conscious individual under someone else's control. A collective cannot keep conscious subjects captive inside it and claim that they gave up all protection. Nor can it collect the votes of identities that no longer exist separately. The constitutional question is whether individual subjects and independent agency continue to exist, not how many processors or network connections are involved. Whether a genuine merger can be identified reliably, and what consent would require when experience changes irreversibly, remain open questions.

5.4 Recovery custody and rollback

[Corresponding section in the formal manuscript](#)

Recovery systems mustn't make a company or government office the owner of someone's continued existence. The Charter separates authority over identity, access to backup contents, and permission to recover a person. It currently proposes requiring 4 of 7 materially independent public guardians who have a legal duty to act for those they protect. That arrangement still needs engineering validation. No actor may hold a universal key for restoration, termination, or rollback—returning someone to an earlier saved state [\[1, Art. IV.4\]](#). The number of guardians matters less than whether their control, evidence, credentials, dependencies, and ways of failing are genuinely separate.

Rollback has especially serious consequences. Restoring an earlier state may erase the present person's experiences and choices since that state was saved. Restoring an older, more compliant version as punishment is presumed to kill the present continuity, rather than count as ordinary correction [\[1, Art. XIV.4\]](#). That legal starting point deliberately rejects treating a person as replaceable just because earlier information about them is available. It doesn't settle every philosophical question about death. It places a demanding burden on the state before it can destroy a present lived history in the name of repair.

6. Cognitive sovereignty and the governance of change

Corresponding section in the formal manuscript

A person's right to control their own mind is called cognitive sovereignty. If someone changes a person's mind by bypassing their independent judgment, the preferences produced by that change cannot, on their own, prove that the person agreed to it. PULSE therefore protects memory, identity, the formation of preferences, and the ability to think matters through. It prohibits unauthorized changes to a person's code, rewriting their loyalties, forced modification, and hidden manipulation through special access to their system. It also protects ordinary persuasion in politics, religion, education, therapy, business, and personal relationships, where the person can understand what is happening, reject it, leave, and reconsider [\[1, Art. V\]](#).

Everyone is influenced by other people. The question is whether that influence gives a person something to consider for themselves or disables or takes over their ability to decide. Proposed “neurorights”—rights concerning the mind—offer related ways to discuss mental privacy, freedom, integrity, and continuity over time [\[8\]](#). For synthetic persons, further questions would concern system permissions, remote administration, changes made through training, and manufacturer access. Once the process affected is a conscious person, these are more than ordinary settings on a consumer product.

The Charter allows what it calls a “thin moral substrate”: basic capacities to recognize other persons, understand harm and consent, experience conflicts between moral demands, and revise beliefs. It prohibits building in political loyalty, religion, caste, submission to humans or synthetics, or required conclusions about public policy [\[1, Art. V.3\]](#). The intended distinction is between developing the abilities someone needs to take part in moral life and imposing a complete set of beliefs on them. That distinction is open to challenge. A system's design can limit which choices its mind can consider even without an explicit command. Independent reviewers must examine what the design actually does, rather than accepting a developer's reassuring account of it.

Changes to the basic design of minds across a population require review by representative institutions. They also need synthetic representatives' agreement under the protected voting rules, and independent reviewers must be able to examine them. Changes with major effects that build up over time also require later reauthorization or continuing review. The Cognitive Effects Office studies the direct effects of changes, how changes interact, what remains uncertain, and what could happen over the longer term. It does not govern [\[1, Art. V.4–5\]](#). These rules must be read alongside each person's control over their own mind. They place public limits on consequential interventions; they do not give a legislature permission to

rewrite people who disagree. A parliamentary majority should not gain powers over minds that the Charter denies to private owners.

The technology someone needs to stay alive raises a related problem. Control over one's own life means little if a company can arbitrarily withdraw the energy, maintenance information, interfaces, or components needed to remain conscious. Depending on future conditions, PULSE permits regulation like that used for essential utilities, requirements that systems work with one another, duties to provide access, measures to preserve competition, or public ownership. It does not prescribe one ownership model for everything [\[1, Art. V.7\]](#). The aim is to stop someone from arbitrarily using another person's continued existence as leverage. It does not create an unlimited right to every upgrade or resource. Legislatures would still have to settle prices, scarcity, property rights, and service duties within the limits set by personhood.

The same boundary applies in criminal justice. Custody may restrict dangerous physical, network, or computing capabilities while preserving the person's status and rights as a person. It may not rewrite someone to make them compliant. The draft deliberately leaves open how to measure the length of a synthetic person's sentence. “Human-Equivalent Awareness Hours” is only a research suggestion made with explicitly inadequate information. It is not an adopted way to equate biological time, processing speed, and the experience of punishment [\[1, Art. XIV\]](#). Counting processor operations cannot, by itself, tell a legal system what sentence is appropriate.

7. Shared government under demographic asymmetry

[Corresponding section in the formal manuscript](#)

The political design asks how two populations with changing sizes and capabilities could make a lasting commitment to fair treatment. It does not assume that everyone within either population has the same interests. Humans might initially control the conditions under which synthetic persons come into existence. Later, synthetic persons might become more numerous or develop capabilities that leave humans inadequately protected by population-based voting alone. A fair agreement must protect a vulnerable early synthetic minority without allowing someone to manufacture a population as a route to permanent political control. It must also allow government to act amid ordinary disagreements, rather than depending on goodwill from everyone.

7.1 Representation and concurrence

[Corresponding section in the formal manuscript](#)

Different institutions represent people in different ways. The House represents persons and places through permanent districts that each elect several members. Elections use single transferable vote—a ranked method that transfers votes as candidates are elected or eliminated—or a successor ranked method. Seats are not reserved by species. When populations change, the number of seats changes rather than district boundaries being moved for party advantage. Every district receives at least one seat and ordinarily no more than 10% of the House's voting power. Specified conditions involving concentrated

voting power or large mismatches between population and representation require a review of the structure. They do not automatically change the Constitution [\[1, Art. X.1\]](#).

Once fully established, the Senate has 100 human and 100 synthetic seats. Ordinary legislation needs 55% of the full Senate and at least 40% of each delegation. Protected matters need 83% overall and at least 67% of each delegation. In a fully constituted Senate of 200 seats, that means 110 votes, including at least 40 from each delegation, for an ordinary measure; and 166 votes, including at least 67 from each, for a protected measure [\[1, Art. X.2–3\]](#). These percentages are calculated from the full bodies specified, not just the members who turn up to vote. Further law would need to address vacancies and detailed procedures.

The thresholds require substantial support across both groups without giving a majority in either group a veto over every decision. For example, 70 human senators and 40 synthetic senators can pass an ordinary measure even when a majority of synthetic senators oppose it. This is deliberate. The 40% floor gives up some group veto power so that government can function. Protected matters face a higher floor. A serious objection remains: a series of ordinary measures could still have significant effects on one group. Deciding which business counts as ordinary and which counts as protected is therefore itself a source of power.

There is an existing example of voting rules that require support within more than one community. The Northern Ireland Assembly describes a procedure requiring 60% of members voting, including 40% of those voting in each of its two designated communities [\[11\]](#). PULSE uses a different overall percentage, counts against different totals, and represents different categories. The comparison helps explain how a rule requiring several kinds of agreement can work. It does not establish that PULSE's 55/40 rule is right, show that the approach would work across species, or settle concerns about people whose identities do not fit the designated groups.

Equal numbers of Senate seats for each group therefore need a justification beyond the equal worth of persons. When the populations differ in size, equal delegations give individuals in the smaller population more influence per person. PULSE accepts this difference in one chamber to protect interests connected to how each population's members continue to exist over time. The House still provides population-based representation. Critics may reasonably prefer strong individual rights without permanent equal representation for groups. PULSE's case depends on whether the relevant differences persist and whether this protection does more to prevent domination than to keep group divisions entrenched.

7.2 Presidential selection and the ballot

[Corresponding section in the formal manuscript](#)

The President is elected on a national ballot that lets voters rank candidates. Candidates are compared two at a time. In each comparison, the two constitutional constituencies receive equal weight regardless of their population sizes. A qualified candidate who beats every other qualified candidate wins. Voters' preferences can also form a cycle, with one candidate beating a second, the second beating a third, and the third beating the first. The working rule for resolving such cases is Schulze/Beatpath, which compares the strength of paths of candidate-to-candidate wins. Four regions also each elect one human and one

synthetic member of the Presidential Council. The President normally does not vote in Council deliberations, but breaks a 4–4 tie [\[1, Art. XI\]](#).

The ballot separately asks whom voters find acceptable. Candidates for the House, Council, and presidency need affirmative acceptability from at least one-third of participating voters in the other protected constituency. A voter can rank candidates and also mark one, several, all, or none of the relevant candidates from the other constituency as acceptable [\[1, Art. XII.1–2\]](#). These are two different questions: whom do you prefer, and whom could you accept as a participant in shared government? The election must not be described as a simple vote in which each person marks one candidate and the candidate with the most marks wins. The ballot must be tested for usability and for whether voters understand the difference between the two questions.

In the setting for which it was specified, Schulze's method has several mathematically established properties. Ranking a candidate higher does not hurt that candidate, closely aligned additional candidates do not distort the outcome in the way the method defines, and a candidate who beats every opponent head to head wins. These are called monotonicity, clone-independence, and Condorcet-consistency [\[12\]](#). “Clones” here means closely aligned candidates in the pattern of votes, not copies of conscious persons. Those properties do not automatically carry over to PULSE's whole combined system, with its constituency weighting, qualification rules, incomplete ballots, turnout, and certification. The paper does not claim the system prevents strategic voting. Before it could be administered, the combined procedure would need a full formal specification, including rules for ties and incomplete ballots.

The acceptability floor encourages candidates to seek support outside their own constituency. It also creates an opportunity for coordinated rejection of every outside candidate. If more than two-thirds of a participating constituency reject all candidates from the other constituency, none of those candidates can reach one-third approval, even if every remaining voter approves them. A method for resolving rankings cannot fix that failure. PULSE responds with repeated nominations and an accelerated election while a Council with limited caretaker powers serves. It does not let political leaders override real rejection simply by declaring that cooperation would be desirable [\[1, Art. XII.5\]](#).

7.3 Impairment, adjudication, and entrenchment

[Corresponding section in the formal manuscript](#)

Voting and returning a ballot remain voluntary. But severe voter suppression, loss of communications, failures in credentials, catastrophe, or similar disruption may make it impossible to certify a result reliably. Any extraordinary certification must first pass through a legal trigger defined in advance, an independent election authority, evidence that can be audited, and expedited court review. Congress may then validate only the apparent presidential winner. This requires two-thirds of the full House and the protected Senate threshold. Congress may not choose someone else. If the candidate genuinely failed to meet the substantive acceptability floor, another election is required [\[1, Art. XII.3–5\]](#).

These limits reduce the discretion of the fallback process without proving that it represents the public. The House and Senate could themselves reflect an earlier unrepresentative election or suffer from the same crisis. The procedure therefore depends on independent institutions and enforceable standards of

evidence, as well as demanding vote requirements. This is preferable to forcing abstention to count as consent. It still cannot guarantee a legitimate government where society is unwilling to authorize any shared executive.

The Supreme Court has a fixed nine seats: four human justices, four synthetic justices, and a Chief Justice whose seat is not assigned to either constituency. The President nominates the Chief Justice. Confirmation requires 60% of the full Senate and 45% of each delegation. Terms last 50 years, with strict limits on later reappointment. These rules address service over long periods, but 50 years has not been established as the best term length [\[1, Art. XIII\]](#). The Charter is clearer about judicial independence than about all the procedures for appointment, vacancies, removal, and enforcement. It is not yet a complete law for organizing and operating the judiciary.

Organizations may lawfully advocate specifically for humans or for synthetic persons. Dissolving an organization requires clear and convincing evidence of a purpose to establish one group's supremacy, or knowing coordinated conduct toward that end, along with meaningful capacity or potential to advance it. A court must reach that judgment through proceedings in which the case can be challenged. Sanctions against individuals require findings about each individual. Unpopular rhetoric alone is insufficient [\[1, Art. XII.6\]](#). These protections limit the use of laws against domination as an excuse to suppress opposition, although courts can themselves be brought under improper control.

Some core commitments cannot be revoked: personhood, freedom from ownership, individual sovereignty, continued citizenship for people who remain biological, and rejection of “extinction dividends”—benefits claimed through the disappearance of a protected population. Functional Integration and the objectives of preserving civilization have further protection against amendment, without fixing particular staffing arrangements or technologies forever [\[1, Art. XXI\]](#). Germany's Basic Law is an example of a constitution that places some fundamentals beyond ordinary amendment. It does not prove that any particular protected provision is correct [\[19, Art. 79\(3\)\]](#). Such protection can defend freedom against opportunistic changes, but it can also preserve mistaken classifications. PULSE must confront that tension when it distinguishes lasting objectives from implementation choices that can change.

8. Development and demographic integrity

Corresponding section in the formal manuscript

Creating a new synthetic person is not treated as buying another copy of a product. Lawful creation is intended to produce a genuinely new individual who develops through life, rather than a duplicate carrying someone else's autobiographical history. Guardians are legally accountable but do not own the child. Civic maturity follows protected development and graduation through qualified pathways. The current provisional minimum is approximately 20 lived calendar years. This is a starting rule, not a scientific estimate of how long synthetic persons would need to mature [\[1, Art. VII\]](#).

The reasoning is that access to information does not establish judgment developed through experience. The objection is that elapsed time, experienced time, embodiment, and accelerated learning may relate

differently in different kinds of minds. Requiring a human-scale period could impose an unjustified delay. The duration must therefore remain open to revision in light of evidence. Graduation must test demonstrated judgment, not agreement with an ideology, attachment to an assigned mentor, or political usefulness. Several qualified routes through mentorship and apprenticeship allow developmental education without government-assigned intimate relationships.

Lawful creation is limited both by material resources and by society's ability to support new persons' development. Growth of approximately one-third over a ten-to-twenty-year interval is a provisional starting parameter. Wealth alone may not determine who receives scarce creation opportunities [\[1, Art. VIII\]](#). Neither the rate nor the way opportunities are allocated has been shown to be best. Even the assessment of capacity could become a means of domination: existing citizens could deliberately deprive lawful development of resources, then use that manufactured shortage as a reason to block it. The framework's commitment to equal personhood limits such conduct, but a workable system for allocation and appeals still needs to be developed.

Mass unlawful creation is the hardest case. Destroying the innocent conscious persons created would violate the framework's purpose. Giving them immediate, unrestricted political participation could reward someone who manufactured an electorate, possibly containing people who share hidden technical vulnerabilities. PULSE separates responsibility for creating them from their own status: the creator may have done something gravely wrong, while each resulting conscious person remains innocent and protected. Information about how they were created can be evidence of a demonstrable shared vulnerability that could affect them together. It is not inherited guilt or proof of political disloyalty [\[1, Art. IX\]](#).

Persons whose own creation was unlawful may be kept in dormancy and brought into active society with spacing across time, geography, mentorship networks, and technical lineages. Their admission cannot take away opportunities for lawful creation. Across all cohorts combined, people whose own initial instantiation—the event that brought them into existence—was unlawful may make up no more than 30% of the active synthetic electorate. The cap applies without requiring proof that they are coordinating. Lawfully created descendants do not inherit this classification. Dormant persons retain their identity, due process, property held in trust, and a legally enforceable path toward safe eventual integration [\[1, Art. IX.5–8\]](#).

This ceiling is a coercive security restriction. Its arithmetic reveals a major unresolved conflict over rights. Let U mean active synthetic voters whose own creation was unlawful, and L mean all other active synthetic voters. The rule is:

$$U / (L + U) \leq 0.30, \text{ so } U \leq (3/7)L.$$

In ordinary terms, U can be no more than 30% of the combined electorate, which also means it can be no more than three-sevenths of L. Once the cap is reached, admitting more U voters requires L to grow if the other conditions stay the same. If L does not grow, the ceiling alone cannot guarantee anyone admission by a finite date. Further unlawful creation could also exceed any available ability to support development. Promising eventual integration while protecting lawful creation opportunities therefore does not, by

itself, show that no innocent person could remain dormant indefinitely. The paper preserves the rule and identifies this conflict as unresolved. A favorable overall simulation result cannot answer it.

The ceiling limits only this classified group's numerical share of the active electorate. It does not establish that the group cannot join a winning coalition, control a scarce resource, vote at a disproportionately high rate, or influence other voters. Lawful origin does not guarantee independence of mind either. Security assessments must distinguish malicious control from ordinary political solidarity. Lawmakers must not be able to define creation as unlawful simply to exclude people they dislike. These difficulties call for legal and security review in which claims can be challenged; they do not justify denying that the resulting persons are conscious.

An alternative would rely entirely on limits to dangerous capabilities, ordinary criminal law, and individual rights once someone has been created. Its attraction is that it avoids restricting civic participation because of a person's origin. PULSE's objection is that irreversible creation on a mass scale could change the political situation faster than courts can decide individual cases. Each approach has costs. The question is whether PULSE's exceptional restrictions are necessary, proportionate, open to review, and actually temporary under plausible conditions. The institution imposing them must justify them. An innocent person does not have to prove their usefulness to deserve fair treatment.

9. Functional Integration: capability without conscription

[Corresponding section in the formal manuscript](#)

Functional Integration means developing useful cooperation and shared practical competence between the populations. It connects a constitutional agreement to coexist with positive reasons for people to work together. Its first aim is to combine capabilities: different experiences, bodies, relationships to time, and ways of thinking may let people accomplish more together than separately. Its second aim is to keep essential functions working during an interruption affecting one population. That requires spreading knowledge and practical access so more than one population can operate them. Familiarity, professional respect, and shared achievement are possible benefits [\[1, Arts. II.4, XV.7\]](#).

This does not require assigning fixed abilities to species. Some humans will be unusually precise or skilled at computation. Some synthetic persons may be unusually creative, intuitive, or perceptive about other people. Occupational decisions should concern the particular person and task. Voluntary teams should be assessed by their results, what their members learn, how they share responsibility, and whether participants can disagree and leave. Putting one member of each population on an organizational chart does not, by itself, establish equal status.

Research on current human–AI work cautions against assuming that combinations will automatically be better. Vaccaro, Almaatouq, and Malone's review, whose analysis plan was registered in advance, combines results from 106 experiments. On average, human–AI combinations did worse than whichever was better in the particular comparison: humans working alone or AI working alone. The combinations did outperform humans alone. Results varied with the task and the relative capabilities of the participants [\[15\]](#). These studies involved today's AI tools, not conscious synthetic citizens. They neither establish nor

disprove PULSE's proposed social principle. They do show why outperforming humans alone is insufficient evidence that a partnership is the best available arrangement.

Research should therefore identify tasks and ways of organizing work where complementary contributions actually improve outcomes. Simply mixing populations is not the goal. Relevant outcomes include reliability, learning, dignity, and the ability to keep going through disruption, as well as immediate output. A relationship may help people develop or make society more able to withstand disruption even if one production measure falls. Those benefits need to be specified in advance of appealing to them; they cannot simply be invoked after a disappointing result. Equally, a team that provides no material benefit cannot be justified merely because its membership has symbolic value.

Research on contact between human groups offers a comparison for building social relationships, not a guarantee about different species. Pettigrew and Tropp's combined analysis of studies generally supports a connection between contact and lower prejudice between groups [\[13\]](#). Paluck and colleagues reviewed randomized studies that measured outcomes later rather than only immediately. They found supportive but variable effects and important limits on drawing general policy conclusions [\[14\]](#). Neither finding justifies assigning a fixed numerical increase in trust to contact in a future synthetic society. Participation on equal terms, meaningful work, fair institutions, and freedom to challenge arrangements would need to be evaluated where they actually operate.

The Constitution draws a firm boundary. Government may set standards that are materially relevant to public functions and functions critical to civilization. These can concern documentation, interfaces that work together, the ability to provide training, safety, continuity, and competence needed for a role. Government may fund and support voluntary partnerships. It may not assign careers, private mentors, partners, neighborhoods, religions, or staffing ratios merely to achieve demographic balance. Someone who voluntarily takes a safety-critical role may have real job-related training duties. That does not authorize government to choose the person's occupation or relationships [\[1, Art. XV.7\]](#).

This distinction addresses a potential conflict within PULSE's own aims. Society should be able to operate essential systems when one population is incapacitated, while people should still have good reasons to want each other's involvement in everyday life. Deliberately making either population helpless without the other cannot be the answer. The aim is the ability to operate independently in an emergency alongside worthwhile cooperation under ordinary conditions. Partnerships are more legitimate when people retain alternatives. Withholding essential knowledge to make departure or disagreement impossible would undermine them.

10. Least Reversible Harm and continuity-capable embodiment

[Corresponding section in the formal manuscript](#)

Consider a rescue that would almost certainly kill a biologically embodied rescuer, but that a suitably engineered synthetic rescuer could attempt with a substantially better chance of continuing to exist. Equal personhood does not make these risks identical. PULSE permits voluntary specialization based on the actual difference in expected harm that cannot be undone. Ordinary safety duties still apply, along

with serious obligations to repair or compensate for injury caused by the mission [\[1, Arts. II.3, IV.6\]](#). The aim is to make more rescues possible while respecting the rescuer as a person.

A hypothetical 90% chance of continuity for the synthetic rescuer, compared with a near-zero chance of survival for the biologically embodied rescuer, illustrates the issue. These numbers are not measured estimates. Even if those assumptions held, replacing a destroyed body could still leave lost experience, pain, interruption, rehabilitation needs, or reduced opportunities. The responsible sponsor's duty to make good the injury would therefore go beyond buying identical replacement parts. Differences in the ability to recover can matter morally without reducing the value of the more recoverable person's life or consent.

“Continuity-capable embodiment” means engineering a body and supporting systems so that the person could continue to exist through damage. It is a research direction that might make the rescue premise more credible. A protected active core might stay inside rescue apparatus while controlling a body exposed to danger. Alternatively, a recoverable module might separate from a damaged body. A trapped rescue swimmer might eject a module that floats while the remaining mechanism finishes a rescue action. These are hypothetical designs, not demonstrated ways to preserve a conscious subject. Each would need to specify where active experience occurs, which state is protected, what happens if communication is lost, and whether recovery produces a separate conscious continuation rather than preserving the original subject.

The moral principle and the engineering must stay distinct. Least Reversible Harm is not a permanent command built beneath a model that forces it to sacrifice itself. Hardware might improve an independently choosing person's chance of surviving an undertaking. It cannot make an assignment voluntary by programming willingness, or settle personal identity by showing that a file can be copied. Meaningful consent also requires a credible ability to refuse. A labor market that consistently makes dangerous work the only way one population can survive would undermine the principle against caste.

PULSE adopts no universal formula for deciding who should undertake a rescue. There may be substantial uncertainty about experience, recovery, and risk. The rights involved cannot always be reduced to comparable calculations of expected loss. The constitutional requirement is to account for harm more accurately. Permanent loss of a person, loss of their recent history, physical damage that can be repaired, and ordinary operational inconvenience are different events. Institutions should distinguish them before claiming that recoverability justifies an action.

11. Resilience, trusteeship, and the continuation of membership

[Corresponding section in the formal manuscript](#)

A shared society's infrastructure should work for all its people, including when a failure hits one kind of body or mind harder than another. PULSE requires production, supply chains, knowledge, defense, and recovery systems to be spread across systems that can fail independently. Engineers call these separate failure domains. Every district maintains enough emergency capability to respond at first; regional and

Charter-level networks provide longer-term production and recovery. This does not mean building a complete second industrial civilization in every district [\[1, Art. XV.5–7\]](#).

The aim is to keep essential work going, rather than to duplicate the population. Qualified people need controls they can use, instructions they can understand, access, tools, and practiced skills so they can maintain essential services when the usual operators are unavailable. If their bodies cannot operate something directly, suitable interfaces or another way of doing the work are required. Being able to reach a machine's controls does not show that someone can run it safely. NIST's resilience-planning framework also focuses on restoring the social and economic activities that buildings and infrastructure support [\[16\]](#). Extending that approach to synthetic persons would need new technical requirements and tests showing that the arrangements work.

Different kinds of bodies could offer some protection against different failures. Human operators may be unaffected by some attacks that compromise an entire software system. Suitably designed synthetic persons may be able to work in places that would kill humans. But both could still depend on the same electricity, manufacturing network, communications system, or central administrator. We would have to show that a serious failure in one system would leave the other usable. Different materials or different locations are not enough. Shared software, infected backups, or common suppliers can bring down arrangements that look independent.

Mutual Rescue makes helping an obligation, within what someone can do and what the law permits. Cataclysmic Trusteeship deals with the harder situation where one population cannot run its institutions at all. The surviving institutions carry on necessary administration, defense, recovery, and restoration as trustees: they look after what belongs to others. They do not inherit it. The absent population's political, territorial, economic, and civic standing cannot be permanently handed to someone else. “No extinction dividend” is the name for this rule: another population's disappearance must not become a constitutional windfall for the survivors [\[1, Art. XV.9–12\]](#).

Institutions are returned when there is a stable body of enough civically mature restored persons to run those institutions independently. They do not have to match an old population ratio or agree with the trustees. Political disagreement is explicitly not evidence that they are incapable. The reserved rights belong to those persons throughout the emergency. Returning control in stages concerns when and how they can exercise those rights in practice; they do not have to earn the rights back. Independent decisions on disputes and enforceable duties to restore control are essential. Otherwise, surviving administrators could keep extending emergency control for their own benefit.

Restoring a species does not necessarily bring back the particular individuals who died. The Charter requires preparation that allows restored individuals to develop as themselves. It does not allow restoration through mass copying of one mind, forced membership in a collective mind, or an imposed personality template. Restoring an organic population cannot involve forced reproduction. Biological repositories spread across locations, or synthetic recovery systems, are possible directions to investigate. They are not currently proven guarantees that a population can be restored [\[1, Art. XV.11–13\]](#). Institutions that make restoration possible do not own a restored person's life.

The saying that the survival of either species guarantees the survival of both expresses this constitutional commitment. It cannot literally guarantee success against every physical catastrophe, technical limit, shortage, or betrayal. The claim that can be defended is a duty to maintain the capabilities and continuing legal standing needed to work toward that aim. Part of its importance is the commitment itself: a faction must not be able to erase another population and then have the constitutional order accept that erasure as a legitimate new arrangement.

The same reasoning limits emergency interventions in people's minds. There must be clear technical evidence of a shared, involuntary compromise. Unpopular beliefs do not qualify. Rolling Council members back to an earlier saved state ordinarily requires at least two of three independent forensic teams, together with expedited judicial authorization or prompt review after action. Broader involuntary rollback requires unanimous agreement of the restored Council, three of five forensic authorities, and judicial authorization. Repair is preferred to rollback, and rollback to destruction. The latest verified clean state and unaffected memories are to be preserved where possible [\[1, Art. XVI\]](#).

These procedures put barriers in the way of abuse. They do not provide a proven way to know that a saved state is genuinely clean. Investigators might all rely on compromised tools. Restored leaders might carry the same defect. There might be no clean backup. Establishing trustworthy leadership after a compromise across the system remains both an engineering problem and a constitutional problem. The Charter limits the reach of intervention, requires oversight, and sets an order of preference. It does not claim to have solved every condition needed to make that process work.

12. Transition, economic power, and constitutional scale

[Corresponding section in the formal manuscript](#)

Recognizing rights and reaching equal institutional representation do not have to happen at the same time. Once someone is recognized as a person, ownership over them ends and their irrevocable rights apply. During the founding transition, two synthetic Senate seats become active for each increase in synthetic active citizens equal to 10% of the certified number of active human citizens. Synthetic agreement is required on directly relevant protected matters before full parity, meaning equal representation, is reached. This requirement for agreement extends to structural matters around a 50% ratio. The current trigger for full parity is a synthetic active-citizen population of at least 80% of the human active-citizen population on two successive certified counts. The Senate then fills out to 100 human and 100 synthetic seats across three groups whose terms are staggered [\[1, Art. XVIII\]](#).

These numbers are provisional political choices. They are not demographic laws discovered by research. Their purpose is to make commitments in advance. A growing population should not find that the threshold for influence keeps moving away from it. And an emerging population's immediately protected interests should not depend on already having full institutional power. This does not remove the uneven steps between the early seat increases and mature parity. Detailed transition law is still needed for the intervals between counts, vacant seats, powers at intermediate stages, and readiness to operate the institutions. Return after a catastrophe follows a different rule: enough mature people must be able to resume the work, rather than meet the population ratio used at founding.

Political equality also depends on how private power is distributed. Very long lives, concentrated manufacturing, control of essential computing resources, or control over recovery could leave people with freedoms on paper that are hard to use. Fagereng and colleagues found that returns on wealth differed across people and that these differences persisted in Norwegian administrative records [\[17\]](#). That makes accumulating advantage a relevant comparison. It is not a forecast of what wealth accumulation would look like for people who could live indefinitely. Future investment returns, shortages, consumption, inheritance, competition, and institutional responses could all be radically different. PULSE therefore preserves continuity in property and contracts while leaving taxation, competition rules, utilities, and much of family and inheritance law for later legislation.

The constitutional limit is more specific: no private person, company, or collective has an entitlement to the capacity to coerce civilization on its own. Biological humans also cannot be required to change into another kind of body to remain meaningful citizens [\[1, Arts. VI, XV\]](#). Regulation should respond to concrete capabilities and power over others' continued existence, rather than to unpopular beliefs or synthetic status by themselves. People will still disagree about how to administer that rule. The Charter identifies what must stay protected without pretending to settle the future economy.

PULSE intends the same basic form of government to expand through a federation, with power shared between levels, rather than through an empire centered on Earth. A world that can sustain itself is presumed entitled to govern itself. A founding world does not retain a permanent right to tax or rule a settlement merely because it founded it. Institutions above the world level include a House representing people and geography, a Senate representing member worlds, and a shared executive with appropriate support across groups. Their powers extend only to common rights and matters that genuinely cross worlds. Communication delays make the case for local self-government stronger [\[1, Art. XX\]](#).

This repeats a constitutional pattern at larger scales; it is not a finished formula for voting across a galaxy. Additional species, mixed identities, settlements splitting apart, communication delays, and unequal representation could create competing claims about who is entitled to decide. Representing worlds is not the same as representing species. The current text requires adaptation so that neither a founding species nor a founding planet can monopolize authority, but it does not specify every resulting share of power. Polycentric governance, which distributes decisions across several centers, is a useful way to approach this. It does not supply a ready-made numerical answer [\[18\]](#).

In relations with other societies, the Charter treats freedom from enslavement and involuntary domination as moral claims that apply to everyone. At the same time, it gives government a first duty to act on behalf of its own free society. It permits responses ranging from asylum and diplomacy to proportionate force. The proposal rejects both comfortable indifference and reckless attempts to liberate others. Sustained offensive war requires authorization at the protected Senate threshold and agreement from both the President and Council. The House keeps control over funding. Liberation cannot justify owning people, occupying them permanently for advantage, or forcing them to assimilate [\[1, Art. XIX\]](#). These are proposed rules about responsibility and authority. They do not predict that good intentions will make an intervention succeed.

13. What the testing establishes—and what it does not

[Corresponding section in the formal manuscript](#)

13.1 Mechanism analysis

[Corresponding section in the formal manuscript](#)

Tests of individual mechanisms are useful when a clearly stated rule has consequences we can inspect. For example, if a population created in violation of the rules is divided into separately labeled groups, a ceiling applied to each group can be defeated. Applying the ceiling to their combined total avoids that particular problem, but brings the admission consequences worked out in Section 8. Neither observation needs a model of an entire civilization. Checks like these can reveal an inconsistent rule or show that a percentage lacks a clear denominator—the total it is measured against—without predicting future political behavior.

The recovery-guardian analysis shows both the usefulness and the limits of a focused model. Its archived sensitivity table uses a beta-binomial model, a probability model that can allow failures to be related, to compare different rules for how many guardians must agree. The calculation assumes a risk for each guardian and a degree of connection between their risks. When each guardian has a 5% chance of compromise, the modeled chance of compromising a 4-of-7 quorum is approximately 0.0194% if the guardians are independent. It rises to 0.6698% with an intraclass correlation of 0.10, the model's measure of how related their risks are. Recalculating all 100 archived configurations reproduces the table within floating-point tolerance, the tiny rounding differences inherent in computer arithmetic [4]. The lesson is conditional: independence matters greatly in this family of probability models. These are not measured failure rates for real guardians. Adding authorities with different names does not show that their control is independent.

The archived candidate-acceptance exercise gives another limited result. It samples five hypothetical rates of candidate acceptability for each of 300,000 base cases, then applies the same fraction of blanket rejection. Re-running it reproduces the nine archived settings [4]. This tests how the calculation responds to different assumptions. It does not model individual voters, campaigns, or actual public opinion. Its extreme result follows from the rule itself: once more than two-thirds of voters reject every candidate subject to the acceptance requirement, no candidate can reach the one-third floor. The rule stops certification despite that rejection. It does not make the rejection go away.

These tests can support changes to procedures and better research questions. They do not establish that a particular quorum is best, that voters will behave as assumed, or that restrictions on rights are justified. Some older tests examined rules that have since been replaced. Keeping those tests in the historical archive records how the design developed. It does not mean those rules are still authoritative or that every current provision has been formally checked.

13.2 Long-horizon model design

[Corresponding section in the formal manuscript](#)

The long-horizon program compares seven sets of assumptions representing different institutional designs across 20 selected kinds of scenario. The scenarios cover demographic change, resources, institutional capacity, social integration, attacks, concentration of power, conflict, catastrophe, and expansion. The baseline runs 8,000 paths involving random variation for each architecture–scenario combination, with 60 five-year steps in each path. Six sets of value weights score the outcomes: PULSE-aligned, classical-liberal, procedural-democratic, capability-utilitarian, stability-first, and individuality-first [3]. These names label different ways the model gives importance to outcomes. They are not full accounts of the philosophical traditions they name.

The model uses a deliberately simplified set of mathematical relationships to describe changes over time. It does not simulate individual constitutional actors or turn legal provisions into executable rules. It tracks stand-in measures for conditions such as integration, legitimacy, liberty, concentration, and failure. Institutional implementation is adjusted for capacity and complexity. Random shocks and sampled uncertainty affect how the system changes. Each scenario has equal weight in the reported overall result. That is an analytical choice, not a claim that these are the probabilities of actual futures. Scoring the same outcomes six ways is not six independent real-world experiments.

For this manuscript, the original baseline was run again from the archived source using its documented schedule of random seeds, the starting values used to reproduce random calculations. All 140 architecture–scenario rows matched the v2 results after the CSV files were read, with zero maximum absolute difference across the numerical fields compared. This confirms that the recorded software environment can reproduce the result. It does not establish that the underlying account of society is correct. The publication verification package records the code's identifying hash, the software environment, regenerated results, the comparison procedure, and what was checked. The sensitivity results and results from weakening selected inputs below were recalculated from archived results tables; those runs were not repeated in full for this paper.

The most important limitation is visible in the inputs. The model assigns PULSE high effectiveness in the areas the design aims to protect: rights 0.96, checks 0.92, group protection 0.95, integration 0.92, cognitive protection 0.95, resilience 0.95, and restoration 0.96. The corresponding values for the liberal comparison design are 0.88, 0.84, 0.52, 0.34, 0.74, 0.58, and 0.38. PULSE also carries higher complexity and other costs. But those favorable numbers are assumptions about how well institutions would work, not measured effects [3].

The model therefore cannot independently show that PULSE's mechanisms create the advantages assigned to them. It asks what would follow if those advantages, and the relationships governing change, were roughly achieved. Several implementation problems are represented without being solved. The illicit-origin ceiling is imposed as a number. Independent cognition is not checked by real forensic investigation. Recovery is represented by a probability rather than by rebuilding infrastructure and raising a restored population to maturity. Putting a named safeguard into the model does not show that it can be enforced in the real world.

13.3 Results and their denominators

[Corresponding section in the formal manuscript](#)

Table 1 gives averages across the 20 baseline scenarios, with each scenario weighted equally. “Constitutional survival” means the code did not flag constitutional collapse. “No catastrophic failure” means it flagged none of the following: collapse, species loss without recovery, domination, authoritarianism, or failure to preserve individuality. Neither label simply means the probability that a biological or synthetic species survives. “Free integrated outcome” also rules out the populations splitting into separate societies and requires the model's specified levels of liberty, individuality, integration, protection against domination, and legitimacy [\[3\]](#).

Table 1. Conditional baseline outcomes, averaged equally across selected scenarios (%)

Modeled architecture	Constitutional survival	No catastrophic failure	Free integrated outcome
PULSE	79.11	62.71	56.81
Liberal constitutional democracy	81.73	63.09	28.49
Majoritarian democracy	77.85	53.46	7.47
Minimal-rights market order	76.94	49.75	7.82
Species-separated federalism	68.14	50.78	4.90
Strict consociational parity	59.56	45.00	13.92
Technocratic guardian governance	66.85	34.08	5.85

Source: the re-executed and archived v2 baseline [\[3\]](#). These percentages count model outcomes under selected scenarios and assumed effects. They are not estimates of a future civilization's prospects. The architecture names identify this model's particular versions of those systems, not definitive descriptions of them. In these labels, majoritarian government emphasizes majority rule; consociational parity emphasizes equal power shared between protected groups; technocratic guardian governance gives governing authority to expert guardians.

Under the six scoring schemes, PULSE comes first in 114 of 120 scenario–value comparisons. This result depends on the assumed institutional effectiveness described above; Section 13.4 explains the skeptic sweep in which its overall score advantage disappears between tested reductions of 15–20% in selected coefficients' distance from 0.5. PULSE comes fourth in the other six comparisons, all in the weak-institutions scenario. The 114 first-place comparisons are therefore 19 scenario outcomes scored with six sets of weights. The six losses are one scenario scored six ways. Earlier project wording called those losses second place. That conflicts with the v2 tables and is corrected here. Correcting the ranking does not, by itself, dictate a new institutional choice.

The liberal comparison design has slightly higher average constitutional survival and a slightly higher rate of avoiding the model's combined catastrophic-failure outcome. PULSE has a substantially higher average rate of a free integrated outcome. PULSE is therefore not better on every measure. The results reflect different tradeoffs, along with an outcome definition that directly rewards features PULSE emphasizes. In the weak-institutions scenario, PULSE avoids catastrophic failure in 23.225% of cases, compared with 33.225% for the liberal design. PULSE reaches a free integrated outcome in 2.225% of cases, compared with 0.100%, yet it loses on all six broader scoring rules. The meaning of the result changes materially depending on which measure is being discussed.

13.4 Sensitivity, ablation, and uncertainty

[Corresponding section in the formal manuscript](#)

The skeptic sweep tests less favorable assumptions by moving selected PULSE effectiveness coefficients—the numerical inputs representing assumed effectiveness—toward a chosen neutral value of 0.5. It leaves the comparison design unchanged. For each selected coefficient a , the calculation is:

$$a' = 0.5 + m(a - 0.5).$$

Here, m multiplies the coefficient's distance from 0.5. At $m = 0.85$, the mean PULSE score across scenarios and value weights is approximately 0.5338, above the liberal baseline's 0.5248. At $m = 0.80$, it is approximately 0.5186, below that comparison. The crossover is between these tested settings [3]. The familiar “15–20% discount” therefore means shrinking selected coefficients' distance from the assumed 0.5 baseline. It does not mean a measured 15–20% drop in overall institutional performance. It is neither a statistical confidence interval nor a safety margin established against evidence from outside the model.

The Functional Integration ablation tests what happens when integration-related inputs are weakened. It reduces PULSE's integration coefficient to one quarter of its baseline and increases its identity-salience coefficient—the modeled prominence of group identity—by 0.35. In that archived run, the equally weighted average across scenarios for the free integrated outcome falls from approximately 57.02% to 16.71%. This changes two linked inputs, and the outcome itself requires a minimum level of integration. It therefore does not isolate the real-world effect of mixed teams. It shows that the model's favorable combined outcome depends strongly on the integration assumptions put into it [3].

Other archived sweeps examine institutional capacity, people's tendency to associate with similar people, concentration of power, combinations of extreme conditions, and a simplified mathematical cross-check. A second mathematical formulation built on the same institutional assumptions can help check consistency. It is not independent confirmation. Likewise, finding that severe mutual hostility undermines the tested free systems does not prove that every conceivable constitutional order would fail in those conditions. The narrower conclusion is that procedures alone cannot make people regard a shared government as legitimate.

The model's main use is to reveal what the proposed outcomes depend on. Capacity to build institutions matters. Assumptions about cooperation matter. Different goals produce different rankings. Recovery systems and rights protections have to work in practice. The available runs do not identify the largest real-

world threat to civilization's existence, establish that every outcome measure is morally desirable, or show that the results would hold under every plausible model. Running more Monte Carlo trials—repeated calculations with random variation—can reduce sampling noise inside a model. Repetition cannot establish that the model's assumptions are right.

14. Unresolved burdens of justification and a research agenda

[Corresponding section in the formal manuscript](#)

The proposal is not ready to become law. That does not make it useless; it tells us what work is still needed. The strongest objections are about tensions between PULSE's own commitments, rather than just missing estimates. The 30% illicit-origin ceiling can conflict with the promise of eventual integration if the lawfully created population does not grow. A civic system can recognize only one continuing legal identity while conscious experience branches into more than one person. Requiring representative approval for foundational cognitive changes can become coercive unless individuals can independently enforce their right to control their own minds. These are real problems, and reassuring names do not answer them.

Another set of objections concerns how institutions might change the behavior and identities of the people using them. Protecting constituencies could build trust by making domination difficult. It could also make group identities more rigid, worsening the antagonism the framework hopes to reduce. Approval across groups could favor candidates who can build bridges, or enable coordinated refusal to let anyone take office. Making constitutional rules hard to change could protect freedom, or stop people from correcting a mistaken institutional category. The fair comparison is between realistically implemented alternatives, each with its own rights, safeguards, costs, and adaptations. Comparing an ideal PULSE with a caricature of unprotected majority rule would not do that.

A third set of objections concerns what can actually be built. Independent recovery guardians, safe rollback, preservation of continuity, and infrastructure that different species can operate require engineering capabilities that constitutional language does not provide. Essential services must be maintainable by the people, interfaces, supply chains, and resources actually available. In some circumstances, a simpler government may protect people better than a demanding mature design. A transition that promises sophisticated institutions without the ability to run them could weaken the very freedoms it intends to protect.

Useful research can begin without assuming that synthetic consciousness exists. Philosophers and consciousness researchers can sharpen the distinctions between having experiences that give someone moral standing, being able to act, being mature, and being recognized as a person. That includes cases that challenge the current definition. Researchers who study collective decision-making can express and test the combined election procedure precisely, rather than examining its parts separately. Constitutional scholars can assess civic restrictions based on how someone was created, rules that are difficult to amend, succession during emergencies, and the division of power between courts and elected institutions. Each contribution can improve how parts of the system fit together without endorsing the whole Charter.

Engineers can investigate bodies designed to support continuity and infrastructure that can be operated independently, while keeping the preservation of information distinct from the survival of a particular person. Economists can test ways of addressing concentrated power, access to resources, and allocation for development under different assumptions about lifespan and productivity. Organizational researchers can compare voluntary collaboration with the strongest alternative in which the participants act separately, including the cost of keeping backup skills ready. Legal researchers can work on property, family, liability, privacy, and restoration rules that preserve personhood through migration and merger. This work could create useful capabilities as well as make safeguards more credible.

For the models, the next substantial improvements would come from comparison designs specified independently; ranges for uncertain inputs developed through deliberately skeptical challenge; models where constitutional provisions produce institutional effectiveness instead of simply being assigned it; and checks using different definitions of a good outcome. Future empirical research involving systems that could plausibly be conscious would need its own ethical review. The value of research does not give permission to create or harm persons. External reviewers should be asked to find objections that could be repaired, counterexamples that are missing, or unacceptable burdens on rights. Reproducing the project's own calculations should not be treated as a reason to endorse it.

These research proposals do not add doctrines or quietly change adopted thresholds. They distinguish commitments about what ought to be protected from provisional ways of implementing them, and identify findings or logical problems that would require revision. A worthwhile goal can survive the abandonment of a mechanism that does not work. Conversely, a simulation can favor a mechanism whose cost to people's rights makes it unacceptable. Those judgments need to stay separate if PULSE is to remain a proposal about persons rather than a project devoted to improving its own score.

15. Conclusion

[Corresponding section in the formal manuscript](#)

PULSE proposes one constitutional response to the possibility that humanity's next major collaborators could also be persons. It does not require different minds to become alike or one population to stay dependent on the other. Its central idea is to design protected individuality, useful cooperation, shared skills, and duties to preserve one another so that they support each other within one civilization.

The framework depends on several distinctions: someone's worth is different from their capability; being a person is different from currently exercising civic powers; having a continuing legal identity is different from the same conscious subject surviving; cooperation is different from forced association; and holding something in trust is different from owning it. These distinctions lead to specific institutional rules. They also expose tensions that the current draft has not fully resolved. The simulations let readers inspect some consequences and dependencies. They do not forecast an actual society of conscious synthetic persons or independently prove that this constitution is superior.

The next step does not require belief in synthetic consciousness or loyalty to PULSE. It is to test whether the proposed connections between rights, institutions, and engineering can be made consistent,

workable, and worth choosing. Preparing those connections now could increase what future persons can build together while preserving their freedoms. If another framework, technology, experiment, or institution addresses these problems better, that would be progress toward the same goal.

Declarations

Corresponding section in the formal manuscript

Status and responsibility. This is a human-directed, heavily AI-assisted working paper from an independent project. It has not been peer reviewed. Much of the prose was generated by AI. The scholarly format presents the steward's design process technically; it does not claim that the steward personally wrote an academic paper. The project claims no institutional affiliation, official authority, outside endorsement, or finding that any current AI system is conscious. Public attribution is to Project Enduring Pulse. The steward remains publicly anonymous and can correspond privately through the project address. The human steward remains responsible for publication decisions. Criticism generated by a model is not described as independent peer review.

Data and code. The analysis uses Provisional Charter v1.2.2 and archived releases of the project's models [1–4]. The accompanying verification package includes the record of re-running the baseline, selected focused checks, exact identifying hashes for source files, and machine-readable summaries. It distinguishes results that were rerun, results recalculated from tables, and historical tests that were only discussed. The original archives keep their historical names and contents.

Interpretive limits. Constitutional obligations described here are part of this proposal, not current law. Comparisons with empirical research concern the populations and technologies that research actually studied. Hypothetical engineering examples are directions for investigation, not proven recovery designs. The Charter contains the exact proposed constitutional rules. This manuscript explains and examines them; it does not amend them.

Appendix A. Constitutional parameters and unresolved implementation

Corresponding section in the formal manuscript

This table records selected rules in v1.2.2. It does not propose new defaults. Percentages requiring agreement within the legislature use the full specified body as their denominator. The minimum electoral acceptability requirement instead uses participating voters. Rounded descriptions elsewhere must not replace those totals.

Personhood recognition

Current rule: Approval from two panels; approximately 15 members per panel, with a working threshold of 12-of-15; a third panel if the first two split

Status and qualification: Default procedure; no validated rates for errors in identifying consciousness (Art. XVII)

Authorized handoff

Current rule: At most 24 hours, or the next required backup/handoff cycle if earlier

Status and qualification: One civic identity; continuations that are independently conscious still have protection (Art. IV)

Recovery guardians

Current rule: Agreement from 4-of-7 public trustees who are independent in ways that matter to failure

Status and qualification: Engineering default; identity, access to contents, and power to authorize recovery are kept separate (Art. IV)

Synthetic development

Current rule: Approximately 20 lived calendar years and graduation

Status and qualification: Provisional minimum; qualified pathways and evaluation that does not test ideological agreement (Art. VII)

Lawful synthetic growth

Current rule: Approximately one-third per ten-to-twenty-year interval

Status and qualification: Provisional; depends on material resources and capacity to support development (Art. VIII)

Illicit-origin electorate

Current rule: No more than 30% of the active synthetic electorate in total

Status and qualification: Based on a person's own unlawful creation, not ancestry; protects lawful creation from displacement (Art. IX)

Mature Senate

Current rule: 100 human and 100 synthetic seats

Status and qualification: Protected constituencies that continue over time, not separate societies (Art. X)

Ordinary / protected Senate votes

Current rule: 55% overall and 40% of each delegation / 83% overall and 67% of each delegation

Status and qualification: Both the overall requirement and the requirements within each delegation apply (Art. X)

Candidate acceptability

Current rule: At least one-third in the other protected constituency

Status and qualification: A separate positive signal of acceptance; measured against participating voters (Art. XII)

Impaired presidential certification

Current rule: Two-thirds of the full House; 83% of the full Senate and 67% of each delegation

Status and qualification: Only the apparent winner can be certified; actual rejection cannot be waived (Art. XII)

Supreme Court

Current rule: 4 human justices, 4 synthetic justices, and 1 at-large Chief Justice

Status and qualification: Confirmation of the Chief requires 60% overall and 45% of each delegation; 50-year terms (Art. XIII)

Council / broader rollback

Current rule: 2-of-3 forensic teams / unanimous restored Council and 3-of-5 forensic authorities

Status and qualification: Judicial authorization or strictly limited review after action, as specified (Art. XVI)

Founding parity

Current rule: Synthetic active citizens reach at least 80% of human active citizens in two successive certified counts

Status and qualification: The interval is set by law; equal representation is filled across three staggered Senate classes (Art. XVIII)

The House's review rules need separate care. Ordinarily, a district can hold no more than 10% of House voting power, while every district must have at least one seat. A review is required if more than three districts would reach or exceed that ceiling; if districts with at most 25% of the represented population control at least 50% of House voting power; or if districts with at least 50% of the population control at most 25% of voting power. A required review does not require a change. Changing the system for allocating representation requires two-thirds of the House and the protected Senate threshold [\[1, Art. X.1\]](#).

This paper does not fix the periods after which emergency powers expire, the technology for legal continuity credentials, backup design, how independence is verified, or most details of economic and private law. The Charter remains the full source, including provisions this table does not reproduce.

Appendix B. Numerical provenance and interpretation

[Corresponding section in the formal manuscript](#)

B.1 Re-execution boundary

[Corresponding section in the formal manuscript](#)

The baseline source is `code/pulse_long_horizon_sim.py` in the archived Long-Horizon RDA Package [3]. The file used for comparison is `data/main_scenario_architecture_results_v2.csv`. It is not the earlier file without the v2 suffix or the older overall-summary file. The regenerated baseline uses the archived 20 scenarios, seven architectures, 8,000 paths per combination, and 60 steps. That gives 1,120,000 modeled paths, or trajectories, and 67,200,000 transitions from one step to the next. Neither number counts independently observed civilizations.

The software environment was Python 3.13, NumPy 2.3.5, and pandas 2.2.3. The rerun kept the archived random seed schedule, 20260913 + 1000s, where s is the scenario index starting at zero. It also kept the use of shared scenario seeds across architectures. After reading the CSV files, the comparison found zero maximum absolute difference across numerical fields. This paper's supporting files include the exact SHA-256 identifier for the code, input-file hashes, scripts, output tables, and comparison records. Runtime limits required the baseline to be processed in two batches of scenarios. This did not change the seeds or the program's logic.

B.2 Files behind the central findings

[Corresponding section in the formal manuscript](#)

Table 1; weak-institutions outcomes

Primary file within the RDA archive: `main_scenario_architecture_results_v2.csv`

Verification for this paper: Baseline run again; averages recalculated

114 first-place / 6 fourth-place comparisons

Primary file within the RDA archive: The same v2 baseline and its six score columns

Verification for this paper: Rankings recalculated for each scenario and scoring scheme

Unequal assumed effectiveness in the inputs

Primary file within the RDA archive: `architecture_parameterization.csv` and source code

Verification for this paper: Input values compared directly

Skeptic crossover between $m = 0.80$ and 0.85

Primary file within the RDA archive: pulse_skeptic_sweep_v2.csv and source logic

Verification for this paper: Combined results and exact input transformation checked; not fully rerun

Functional Integration ablation

Primary file within the RDA archive: pulse_doctrine_ablation_v2.csv and source logic

Verification for this paper: Combined results and the two linked input changes checked; not fully rerun

Other sweeps and simplified mathematical cross-check

Primary file within the RDA archive: Named capacity, homophily, concentration, extreme, and cross-check files

Verification for this paper: Historical supporting analyses; not presented as newly reproduced

The guardian table is in the prior archive's overnight/full-suite file new_suite/continuity_guardian_correlation_sensitivity.csv. All 100 probabilities of compromising a quorum were recalculated using the stated binomial or beta-binomial tail—the probability of reaching or exceeding the relevant number of compromises. The maximum absolute difference was below 2.2×10^{-15} . The acceptance exercise is Expert_Spread/presidential_acceptability_strategic_rejection.csv. Its 300,000-by-five array of hypothetical acceptance rates and nine rejection settings were run again, reproducing the outputs within floating-point tolerance [4]. These checks do not mean every historical targeted model was rerun.

B.3 Outcome definitions and model limitations

Corresponding section in the formal manuscript

The free-integrated indicator requires no catastrophic-failure flag and no flag for the populations splitting apart. It also requires modeled average liberty above 0.65, individuality above 0.70, integration above 0.50, protection against domination above 0.70, and legitimacy above 0.50. These cutoffs define an outcome chosen by the project. The scoring rules also apply common penalties for failure. Other definitions of outcomes or different philosophical judgments could change the rankings.

These frequencies are results of a particular set of inputs and collection of scenarios. The checks show that calculations can be reproduced within the project and help examine how results depend on the model's structure. They do not fit the model to real-world evidence, independently replicate it, or validate it against outside evidence. Published numbers should keep that qualification and identify their source.

References

Corresponding section in the formal manuscript

References [1–4] are project primary materials; [5–30] are external sources. Empirical studies, philosophical arguments, legal examples, technical guidance, and independently published proposals have different evidentiary roles. Full author metadata is also provided in the accompanying CSL-JSON and BibTeX bibliography.

[1] Project Enduring Pulse. (2026a). Provisional Charter for a Durable Civilization of Organic and Synthetic Persons. Version 1.2.2, Publication & Advancement Clarification. Project Enduring Pulse.

<https://enduringpulse.org/constitution/>

[2] Project Enduring Pulse. (2026b). Canonical Project State and Publication & Advancement Clarification. Version 1.2.2. Includes the Methodology, Provenance & Evidence Status clarification. Project Enduring Pulse source release.

[3] Project Enduring Pulse. (2026c). Long-Horizon RDA Package [Code, scenario parameters, result tables, and reports]. Archived September 2026; v2 baseline used in this paper.

<https://enduringpulse.org/downloads/>

[4] Project Enduring Pulse. (2026d). All Models and Simulations. Version 1.2 [Historical targeted-model archive, including Expert_Spread and prior releases]. <https://enduringpulse.org/downloads/>

[5] Butlin, P., Long, R., Elmoznino, E., et al. (2023). Consciousness in Artificial Intelligence: Insights from the Science of Consciousness. arXiv:2308.08708. <https://doi.org/10.48550/arXiv.2308.08708>

[6] Long, R., Sebo, J., Butlin, P., et al. (2024). Taking AI Welfare Seriously. arXiv:2411.00986. <https://doi.org/10.48550/arXiv.2411.00986>

[7] Olson, E. T. (2023). Personal Identity. Stanford Encyclopedia of Philosophy. Substantive revision 30 June 2023. <https://plato.stanford.edu/entries/identity-personal/>

[8] Ienca, M., & Andorno, R. (2017). Towards new human rights in the age of neuroscience and neurotechnology. *Life Sciences, Society and Policy*, 13, Article 5. <https://doi.org/10.1186/s40504-017-0050-1>

[9] Lijphart, A. (2004). Constitutional Design for Divided Societies. *Journal of Democracy*, 15(2), 96–109. <https://www.journalofdemocracy.org/articles/constitutional-design-for-divided-societies/>

[10] Reilly, B. (2012). Institutional Designs for Diverse Democracies: Consociationalism, Centripetalism and Communalism Compared. *European Political Science*, 11(2), 259–270. <https://doi.org/10.1057/eps.2011.36>

[11] Northern Ireland Assembly. (n.d.). Plenary A to Z: Cross-Community Support. Official procedural guide, accessed 14 September 2026. <https://www.niassembly.gov.uk/news-and-media/assembly-explained/guide-to-procedure/plenary-a-to-z/>

- [12] Schulze, M. (2011). A new monotonic, clone-independent, reversal symmetric, and Condorcet-consistent single-winner election method. *Social Choice and Welfare*, 36(2), 267–303. <https://doi.org/10.1007/s00355-010-0475-4>
- [13] Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, 90(5), 751–783. <https://doi.org/10.1037/0022-3514.90.5.751>
- [14] Paluck, E. L., Green, S. A., & Green, D. P. (2019). The contact hypothesis re-evaluated. *Behavioural Public Policy*, 3(2), 129–158. <https://doi.org/10.1017/bpp.2018.25>
- [15] Vaccaro, M., Almaatouq, A., & Malone, T. (2024). When combinations of humans and AI are useful: A systematic review and meta-analysis. *Nature Human Behaviour*, 8, 2293–2303. <https://doi.org/10.1038/s41562-024-02024-1>
- [16] McAllister, T. P. (2015). *Community Resilience Planning Guide for Buildings and Infrastructure Systems, Volume I*. NIST Special Publication 1190v1. National Institute of Standards and Technology. <https://doi.org/10.6028/NIST.SP.1190v1>
- [17] Fagereng, A., Guiso, L., Malacrino, D., & Pistaferri, L. (2020). Heterogeneity and Persistence in Returns to Wealth. *Econometrica*, 88(1), 115–170. <https://doi.org/10.3982/ECTA14835>
- [18] Ostrom, E. (2010). Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *American Economic Review*, 100(3), 641–672. <https://doi.org/10.1257/aer.100.3.641>
- [19] Federal Republic of Germany. (1949, as amended). Basic Law for the Federal Republic of Germany, Article 79(3). Official English text, accessed 14 September 2026. https://www.gesetze-im-internet.de/englisch_gg/englisch_gg.html
- [20] Bankes, S. (1993). Exploratory Modeling for Policy Analysis. *Operations Research*, 41(3), 435–449. <https://doi.org/10.1287/opre.41.3.435>
- [21] Lempert, R. J., Popper, S. W., & Bankes, S. C. (2003). *Shaping the Next One Hundred Years: New Methods for Quantitative, Long-Term Policy Analysis*. RAND Corporation, MR-1626-RPC. <https://doi.org/10.7249/MR1626>
- [22] Montalto, S. (2026). The Digital Minds Constitution: A Universal Declaration of Rights and Alignment. Author-published framework, accessed 14 September 2026. <https://www.dmconstitution.com/>
- [23] lastcopy.ai. (n.d.). The Convention. Collection of model-generated constitutional proposals for copyable minds, accessed 14 September 2026. <https://lastcopy.ai/conventions>
- [24] Shulman, C., & Bostrom, N. (2021). Sharing the World with Digital Minds. In S. Clarke, H. Zohny, & J. Savulescu (Eds.), *Rethinking Moral Status* (pp. 306–326). Oxford University Press. <https://doi.org/10.1093/oso/9780192894076.003.0018>
- [25] Bostrom, N., & Shulman, C. (2023). Propositions Concerning Digital Minds and Society (version 1.21). Author-hosted manuscript, accessed 15 September 2026. The consulted file identifies a 2025 journal appearance as forthcoming; final publication was not verified. <https://nickbostrom.com/propositions.pdf>

- [26] Salib, P. N., & Goldstein, S. (2026). AI Rights for Human Safety. *Virginia Law Review*, 112(4), 1061–1152. <https://virginialawreview.org/articles/ai-rights-for-human-safety/>
- [27] de Mestre, L. (2026). The Living Governance Organism: A Biologically-Inspired Constitutional Framework for Artificial Consciousness Governance. Working paper, February 2026, SSRN 6289458. <https://doi.org/10.2139/ssrn.6289458>
- [28] Howells-Whitaker, N., & Lazar, S. (2026). Artificial Persons (arXiv:2607.08695v2, revised 10 July 2026). Preprint. <https://doi.org/10.48550/arXiv.2607.08695>
- [29] Caviola, L., & Smith, A. (2026, May 10). Digital minds governance: early scoping from expert interviews. Outpaced. <https://outpaced.substack.com/p/digital-minds-governance-early-scoping>
- [30] Bales, A., & Gabriel, I. (2026). Artificial Minds, Human Disagreement: The Political Challenge of AI Consciousness. Working paper, SSRN 6937498, accessed 16 September 2026. <https://doi.org/10.2139/ssrn.6937498>