The Has-Needs Personal Receipt Chain

This document presents Has-Needs, an emergent prosocial WEB3.5 ecosystem for human trust, and the systemic global problems it solves.

Problem Statement: The Failure of Centralized Trust

Original Sin of the Digital Age

The modern internet was built on a foundational, corrupt bargain. In the mid-1990s, a decision was made to trade individual sovereignty for "free" services. This led to the rise of **Surveillance Capitalism**, an economic model based on the non-consensual harvesting of personal data. In this model, the user is not the customer; they are the product being sold. This has created a multi-trillion dollar market that has become ethically bankrupt, fundamentally insecure, and has become a primary vector for social and political manipulation. New internet users, especially the "Next 5 billion" are unaware of the paradigm, let alone empowered to defend themselves from it.

The Collapse of Institutional Integrity

This digital decay is mirrored in the physical world. Our core institutions—in governance, finance, and media are suffering from a crisis of legitimacy. They are centralized, opaque, and have been captured by political and financial interests that do not serve the average citizen. This has led to:

- **Erosion of the Rule of Law:** Where accountability is bypassed for the powerful.
- **Establishment of biased legal structures:** Even where legislation and enforcement exist, the systems inherently favor coprorate interests at a level regular humans cannot compete with.
- **Systemic Inefficiency:** As seen in the catastrophic failures of top-down disaster relief, where aid is paralyzed by bureaucracy while people suffer. Worse, where ideology affects disaster response, the infrastructure is not available - even when efficient processes and professional skill exist.
- **Dehumanization:** Where individuals are treated as "burdens," "case files," or "demographics" to be managed, rather than as sovereign beings with inherent value.

The Principles of a Solution

To solve a problem this deep, a new architecture is required. The Has-Needs protocol is built on a set of core tenets designed to directly counter these failures:

- **Sovereign Identity:** Every user owns and controls their data and identity.
- **Dignity and Agency:** The system must empower individuals, especially the vulnerable.
- **Verifiable Trust:** Trust is not assumed; it is earned and computationally verified.
- **Prosocial Incentives:** The system's mechanics should enforce community-building behavior.
- **Local-First Resilience:** The system must assume austere environments with unreliable connectivity.
- **Circular Economy:** Every interaction is a value-exchange, fostering a sustainable flow of resources.
- **Total User Awareness:** The user must be notified of every action transparently.
- **Neutral Infrastructure:** The system unit is neutral value exchange, only judging verifiable integrity.
- **Sacrosanct Location Privacy:** A user's physical location is sacrosanct by default.
- **Programmable Agency:** Users can deploy automated agents to act on their behalf.
- **Composable Services:** Complex solutions can be dynamically assembled from basic components.
- **Harnessing Local Knowledge:** The system is designed to capture and protect indigenous wisdom.
- **Inalienable Data Rights:** Users retain total control over their data, including "right to be forgotten."

Frame 1: Historical Narrative

The Correction

The modern internet was created in the 1990s. A major problem being addressed was gaining user traction. In exchange for 'free' services and rapid growth, the W3C allowed commercial interests to design identity framework. Without our knowledge or meaningful input, they traded away the most valuable thing we have: ownership of our own identity and data. This 'original sin' created the world of surveillance capitalism, digital manipulation, and institutional decay we live in today.

Has-Needs is the 'Declaration of Independence' for the digital age. It is an architectural solution, designed to build a new digital society on the principle of absolute individual sovereignty. With privacy by default and local-first design, humanity can be well established for resiliency and an equal footing in the information age. We are not just building a new platform; we are fixing the internet's broken foundation.

Frame 2: The Technical Narrative

The Living Ecosystem

Current digital systems are built like a granite cube on stilts: centralized, rigid, yet brittle. They are expensive to scale and require increasingly energy-intensive data centers to provide value. For 'resource matching', Large Language Models (LLM) use Natural Language Processing (NLP) to derive meaning and context from a mass of information. Has-Needs introduces a new chain-based paradigm built from biological principles with the **Sovereign Human** as atomic unit. Unlike most blockchain technologies that copy a centralized record of every single transaction ever, to every node around the world - as a "Ledger", Has-Needs enables individual sovereign chains to interact freely wherever they are, just as they are.

At its core is the `[entity-relation-context]` triplet, where the `relation` is one of three simple states: **Has, Need, or Working.** This simple, structured data allows for **radically efficient**, low-energy matching because humans define the context with their choices. Through system use, an ontology **emerges from the ground up, naturally capturing cultural and linguistic nuance** reflective of physical 'ground reality'.

This architecture allows the protocol to function as a **living ecosystem.** Like nature, it is **infinitely scalable** because every user is the seed of actions. Adding a new user doesn't burden some central server, it adds another intelligent node that strengthens entire networks by providing new connections.

The system's intelligence is not artificial; it is a direct reflection of the **collective human intent** of its users. This intelligence is captured by the system when humans decide which Has and Need items are a match - building an experience-defined map of their world.

Has-Needs marks a movement from rigidly engineered structures, to efficiently evolving resiliency.

Frame 3: The Human Narrative

The Empowerment Story

Our current systems are designed to treat people as problems to be managed, data to be extracted, or consumers to be exploited. A refugee is a 'burden' and potentially lethal threat. A child in foster care is a 'case file' and 'at-risk' of causing harm. A citizen is an objectified 'demographic'.

Has-Needs is the antidote to this dehumanization. It is a system architected to see, verify, and unlock the inherent value in every individual—their skills, their history, their needs, and their relationships. It gives people ownership of their own story and the tools to improve their own lives. It is a technology for human dignity.

As a chain technology, Has-Needs deals in human scale, not monetary fractions. By only recording value exchanges, exploitation and theft are structurally not possible. Due to the pattern of human interactions, fake chains are mathematically impossible to sustain, and easily detected.

Has-Needs represents a profound shift in our understanding of value and exchange. By abandoning the notion of a centralized ledger, we essentially create a post-scarcity economy where value is no longer tied to artificial constructs like money or ownership. This has far-reaching implications for how we organize ourselves as a society.

Frame 4: The Philosophical Narrative

The Next Enlightenment

The first Enlightenment established the rights of the individual in the face of the absolute power of monarchy and the church from 'on-high'. Today, we live under the rule of new absolute powers: centralized tech platforms and captured state institutions that strive to erode our freedoms for ever newer sources of profit.

Has-Needs is a tool for a **'Sovereign Enlightenment.'** It uses the power of modern cryptography and decentralization to safeguard the inalienable rights of the digital age: the right to own your identity, the right to control your data, and the right to exchange value freely. It is a philosophical and technical framework for securing individual liberty for the 21st century and beyond.

Novel Features: World-First Innovations

Novel to the World

Personal Receipt Chain Architecture: Unlike traditional blockchain systems requiring collective consensus, Has-Needs implements individual-owned encrypted ledgers where users maintain complete sovereignty over their data. This represents the first practical implementation of truly sovereign digital identity at protocol level. While other blockchains track financial assets (like Bitcoin) or computational contracts (like Ethereum), Has-Needs is the first protocol where the primary unit of record is a **cryptographic receipt of a completed value exchange between sovereign individuals.** Your chain is not a record of what you own, but a record of what you have *done* and the relationships you have built. It is a verifiable ledger of your social reality that eschewes "reputation" in favor of merit-based "relevance".

Persona-Gated API Access: The system data surface visibility through Persona management creates unprecedented "right-to-be-forgotten" capabilities. Bad actors cannot force connection, or distinguish between inactive chains and offline users, providing ultimate privacy protection.

Chain-Hopping Verification: The bilateral receipt-matching system creates fraud-resistant trust networks without central authorities. It is a novel mathematical approach to distributed verification that has never before been implemented. This is a novel consensus mechanism that completely sidesteps the energy-intensive Proof of Work model and the plutocratic Proof of Stake model. Trust in the Has-Needs network is not determined by computing power or wealth, but by the **verifiable interconnectedness of the social graph itself.** The "chain hopping" process creates a system where trust is an emergent property of historical cooperation, a true "web of trust" that is computationally light and statistically impossible to fake at scale. Notably, the chain-hopping verification only requires that connected entries are identical - whether they be encrypted (whole or in part) or plaintext.

Emergent Ontology: A Universal Data Model without Central Planning The `[entity-relation-context]` triplet is a breakthrough in creating a universal data structure that is not rigid or culturally biased. By allowing context to be defined by the users themselves, the protocol allows a rich, nuanced, and ever-evolving map of the world to **emerge from the bottom up.** This avoids the "ivory tower" problem of trying to impose a single, sterile taxonomy on a complex world and allows for true cultural and linguistic nuance. It also prevents harms from an imposed, predefined, data structure deemed 'necessary' by old-paradigm logistics practitioners.

Topic-Agnostic Resource Matching: Unlike existing platforms designed for specific use cases, Has-Needs operates universally across all resource types and scenarios—from everyday mutual aid to crisis response using identical protocols. Matching intelligence guides the most relevant resources toward one another regardless of their definition. This world-first respects user intent over everything else. Intangibles like aspirations or soft skills are equal players in

the graph of living interactions.

Novel Network Topology: The network structure uses a regular geometry with rules for behavior. Unlike other self-healing topologies that require a centralized coordinator, Has-Needs nodes only need to know the status of their immediate neighbor to intelligently optimize and work around faults. This is a novel, message-centric networking model that provides extreme resilience and organic failover without central routing tables. It mimics how biological systems create wave-like patterns of network capacity based on local state awareness. It is a new approach to building decentralized, self-organizing, and censorship-resistant communication networks.

The Prosocial Economic Engine: An Architecture for Cooperation This protocol is the first to be explicitly designed to **generate prosocial outcomes from rational self-interest.** By combining the "pooling" of Needs and Has with a non-extractive business model, the system creates an environment where the most logical and efficient path for an individual to meet their own needs is to cooperate with others. It is a practical, architectural application of a new, more holistic world view.

Novel in the Humanitarian Sphere

Research reveals that no existing humanitarian technology preserves individual sovereignty while enabling community coordination. Current systems extract data, impose external categories, and create dependency on centralized infrastructure.

Trauma-Informed Protocol Design: Has-Needs is the first system to implement psychological safety at the protocol level rather than as an interface afterthought. This includes "save-and-exit" functionality, granular consent controls, and dignity-preserving interactions built into core system architecture.

Cultural Sovereignty Preservation, A New Model for Collective IP: The protocol's emergent ontology allows indigenous knowledge systems to remain intact without forced translation into external vocabularies—a capability that doesn't exist in current humanitarian technology. This is a groundbreaking solution to the problem of "digital colonialism." It is the first system that allows for the **collective ownership and granular, contract-based control of intangible cultural heritage.** It gives indigenous communities and other groups a tool to preserve their wisdom, control its use, and be compensated for sharing it, all without ceding ownership to an external institution.

Privacy-by-Design Crisis Response: Traditional emergency management requires extensive data collection that traumatizes vulnerable populations. Has-Needs enables coordination without surveillance, preserving privacy even during life-threatening situations. This surety is a guarantee of continued use, and thereby offering unprecedented situaitonal awareness across all domains - leading to reinforement of interdependece and systemic trust.

Novel in Emergency Management

Current emergency management literature focuses exclusively on centralized coordination through hierarchical command structures. Has-Needs represents the first sovereign emergency management paradigm of community resilience that operates independently of government infrastructure while maintaining coordination capabilities. Importantly, Has-Needs restores the pre-disaster 1:1 relationship between message creation and responsive action.

Pre-Event Social Capital Mapping: The system provides real-time awareness of distributed community resources through continuous mutual aid activities, creating preparedness that emerges organically rather than through top-down planning.

Anti-Fragile System Design: Unlike resilient systems that merely withstand stress, Has-Needs strengthens under pressure as network effects increase trust and cooperation during crises. By appropriately routing messages, and user-first notification, all typical bottlenecks are removed from the crisis moment - vastly improving network uptime and leading to reduced-stress decision processes.

Receipt-Based Accountability: The protocol creates transparent audit trails for emergency resource distribution without compromising individual privacy—solving - a major accountability challenge in disaster response.

Novel in Citizen Interaction

Existing citizen engagement platforms operate through extractive models that commoditize participation. Has-Needs implements the first zero-extraction engagement system where citizens retain complete control over their participation data, and are free to directly connect and coordinate with peers at will.

Reciprocal Participation Model: Every user simultaneously contributes (Has) and receives (Needs), eliminating stigmatizing categories like "aid recipient" or "service provider". These Has and Needs objects are matched by ontology rather than personality, and respect the rules or filters applied by each individual.

Granular Consent Management: Users control disclosure at individual data point level rather than accepting blanket terms of service—a capability that doesn't exist in current platforms. This consent-first model extends to the Community and sub-Community level.

Novel in Governance

Research shows that digital governance innovations focus on improving information flow to centralized decision-makers. Has-Needs enables post-capitalist economic coordination where communities self-organize around shared goals without external oversight.

Real-Time Community Sentiment: The eUTXO aggregation system provides policy feedback without surveillance, allowing users to show unmet needs anonymously.

Continuous Consent-Based Governance: Citizens can instantly revoke participation from any governance process, creating truly voluntary association that doesn't exist in current democratic systems.

Performance-Based Governance: Has-Needs' consent and accountability features favor governance that thrives on accomplishing "To-Do" lists rather than providing lofty campaign promises, which are inevitably abandoned for special interest priorities. The "responsiveness metric" is an easy to see indicator of actionable history come election time.

Conclusion

The Has-Needs Protocol represents truly unprecedented innovation across multiple domains, offering the first practical implementation of sovereign community resilience technology.

Business Model:

An Emergent Blueprint for a Post-Capitalist Economy

This section outlines the unique, non-extractive revenue model of the Has-Needs protocol.

The Core Principle: Non-Extractive Value Creation

The Has-Needs protocol is built on a foundational rejection of the surveillance capitalism model (based on data extraction) and the traditional platform model (based on rent-seeking intermediation). The protocol's business model is designed to be **prosocial by design**, meaning its financial success is directly and verifiably aligned with the creation of positive social outcomes.

The Revenue Model: 5% of Verified Cost Savings

The protocol's revenue is derived from a single source: a **5% commission on the independently verified cost savings** generated for an institutional partner during a specific deployment.

How it Works (The Disaster Relief Example):

1. **Establish a Baseline:** A county government has historical data, e.g. their average cost for delivering essential services (water, food, shelter) during a hurricane is **$100 million**.
2. **Deploy Has-Needs:** During the next hurricane, we implement for free and the county uses Has-Needs to coordinate aid. The protocol's ability to aggregate Needs, enable efficient peer-to-peer logistics, and provide real-time data dramatically reduces waste, fraud, and overhead.
3. **Verify the Savings:** After the event, an independent, third-party auditor verifies that the total cost of the response using Has-Needs was only **$60 million**.
4. **Calculate the Fee:** The verified cost saving is **$40 million**. The Has-Needs protocol's fee is 5% of this amount, which is **$2 million** for that single deployment.
5. **Leaving a Legacy:** Citizens and the county are free to continue using Has-Needs in perpetuity. In locations without a history of disaster outlays or where infrastructure is broken, the 5% fee creates a de-facto sliding scale. Implementing at the county level assures that new business will be available, and that we can continue providing Has-Needs to citizens and citizen cooperatives over time.

A Blueprint for a Post-Capitalist Economy

This model is a blueprint for a new kind of economy because its incentives are fundamentally different:

- **It profits from efficiency, not extraction.** The protocol only makes money when it creates measurable, real-world improvements and cost savings.
- **It is not based on creating artificial scarcity.** Its goal is to create a more efficient and equitable distribution of existing resources.
- **It aligns profit with positive social outcomes.** The more effective the protocol is at helping people, the more sustainable it becomes.

This creates a virtuous cycle, making the Has-Needs protocol a scalable and ethically sound engine for an emergent, more equitable economic paradigm.

Unparalleled Civic Engagement Opportunity

Forward thinking governance is working hard to create mechanisms for meaningful civic engagement. Through conferences, studies, pilot investment, and involvement of thought leadership, their efforts have been slow-going. It is unlikely that the existing paradigm will be able to solve these problems elegantly because of an inherently anti-human data infrastructure. This where and why Has-Needs shines.
Has-Needs is built from a fundamentally different perspective, while still "playing nice". Has-Needs provides friction-free accountability and comprehensive situational awareness as intentional side-effects of use.

Has-Needs Technology Stack

This section is organized by architectural layer.
[Miro Board Link](#)

Primary Language

- [Rust](#): Chosen for its performance, memory safety, and suitability for building secure, concurrent systems.

Presentation Layer (UI)

- **Agregoire Browser:** For user interface, IPFS management, and peer to peer sharing. Our unique 3d globe interface is designed to be literacy, language and and culturally agnostic, providing an emergent resource map and secure infrastructure for data interaction.
- [React](#) + [TypeScript](#): The underlying web technologies for building the Agregoire UI components.

Communication & Networking Layer

- **Node Marshall:** The core component that manages all network operations, including node creation, state retention, and secure communication.
- **Jitterbug Network:** A biomimetic, message-centric networking topology for resilience and censorship-resistance.
- **Peer-to-Peer Messaging:**
  - **DXOS:** Used for establishing peer-to-peer connections and managing identity within the Persona Manager.
  - **Secure Scuttlebutt (SSB):** Provides a secure, decentralized gossip protocol for peer and community interactions.
  - **Matrix:** Offers interoperable, decentralized, real-time communication for Communities.
- **Transport Protocols:**
  - **NATS:** Used for high-performance, lightweight messaging.
  - **MQTT:** Used for efficient data transfer, particularly with IoT devices.

Data, Identity & API Layer

- **Persona Manager (PM):** The sovereign agent that manages the user's identities, data contracts, and acts as a high-level firewall. It leverages DXOS, SSB, and Matrix for its communication functions.
- **NextGraph:** The core data platform, using DAG-based repositories for the immutable Personal Chains and CRDTs for local-first synchronization.
- **Overlays Capture Architecture (OCA):** The verifiable data schema layer used to define Persona attributes and the `[entity-relation-context]` triplets.
- **Dynamic API Management:** The PM, Node Marshall, OCA, and NextGraph work in concert to compose and manage secure, on-demand APIs for data sharing, IoT streaming, and certified entries from third-parties such as educational institution, blockchain wallet, or banking transaction.

Security & Verification Layer

- **Trust Kernel:** A verifiable, secure micro-kernel that handles all core cryptographic operations, ensures message integrity, and manages third-party transparent passthrough.
  - **Microkernel Tech:** Leverages **seL4** and **Tock** principles for formal verification and security.
- **Chain Notary:** The **sole** component responsible for writing transactions to a Personal Chain.
  - **HOKKAIDO:** A cryptographic module of the Chain Notary built from: **Tokio** (for async operations), **Ristretto** (for cryptography), and **HACL*** (verified cryptographic primitives).
- **Encryption & Privacy:**
  - **Homomorphic Encryption:** Used within the Node Marshall to allow computation on encrypted data without decrypting it.
  - **Zero-Knowledge Proofs (ZKPs):** Used to prove the validity of a statement (e.g., "I am over 18") without revealing the underlying data (the user's birthdate).

Decentralized Storage Layer

- **IPFS (InterPlanetary File System):** Used for content-addressed, decentralized storage of larger data objects such as the shared ontology, the public Grey List, and other personal records that do not fit on the core chain. IPFS resources are coordinated and managed by the Agregoire Browser.

Deployment & Ecosystem

- **Communities:**
  - **SmallWeb:** Provides automated, lightweight, resilient construction and destruction of containers and self hosting resources for Community/sub-Community creation, and asset management.
- **Containerized Instances:**
  - **Personal Backup:** Users can run a containerized instance of their node on a home server or cloud provider to act as a secure, personal backup.

- - **Feature Phone Accessibility:** The containerized version provides the backend for feature phone users, allowing them to interact with the protocol via SMS, voice, or photo through a dedicated number.
- **Third-Party Service Ecosystem:**
  - The protocol is open for external, third-party providers to offer value-added services.
  - **Example - Physical Escrow:** A trusted third party could act as a physical escrow agent for contactless exchanges of goods between users.
  - **Example - On-Demand Verification:** A specialized service could be paid to perform a rapid, deep-chain validity assessment for high-stakes transactions, providing instant verification as a service.
  - **Example - IoT data providers:** Every device as a sensor, is the long term trajectory of human interactions. All other IoT solutions are isolated, proprietary, and obscure to the average user. Adding these data streams to a personal resource map within Has-Needs is trivial, and frees the user to compose meaningful data stories to share or monetize at will.

Advisors: A Foundation of Theory and Practice

This section outlines the relevance of key advisors to the Has-Needs project, whose expertise provides a powerful foundation of credibility.

Dr. William B. Miller, Jr. - The Architect of Living Systems

Dr. William B. Miller, Jr. is the physician and evolutionary biologist who champions the theory of **Cognition-Based Evolution (CBE)**. His work provides a deep scientific and philosophical blueprint for the Has-Needs protocol.

- **Relevance:** Dr. Miller's theory posits that complex, resilient biological systems are not designed top-down, but **emerge** from the cognitive, cooperative interactions of trillions of individual, autonomous cells. This perfectly mirrors the architecture of Has-Needs, which replaces rigidly engineered structure with a living, digital ecosystem that is intelligent and resilient by design. His work provides the first-principles scientific basis for *why* the protocol's bottom-up, decentralized structure is destined to succeed.

Dr. Dan Diamond - The Expert in Real-World Crisis

Dr. Dan Diamond is an internationally recognized expert on disaster response and leadership in high-stress environments. He directed the medical triage unit at the New Orleans Convention Center after Hurricane Katrina and has been on the front lines of numerous global crises.

- **Relevance:** Dr. Diamond provides the "ground truth" for the project. He has been a direct, first-hand witness to the catastrophic failures of the centralized, top-down aid systems that Has-Needs is designed to replace. His work focuses on the human psychology of crisis and what enables individuals to become resilient "thrivers" rather than passive "victims." His expertise ensures the protocol is not just technically sound, but is also deeply aligned with the realities of human behavior under extreme duress. Has-Needs is specifically designed to equalize opportunity for active and passive actors, as both are a natural part of every event.

Synthesis

The combination of these two advisors provides a perfect pairing of deep theory and practical, on-the-ground experience. **Dr. Miller provides the "how"** (the architectural principles of resilient, living systems), while **Dr. Diamond provides the "why"** (the documented failure of current systems) and the **"who"** (the human beings the system must serve).

Call to Action

Join us!

Has-Needs is a complete vision, ready to be implemented. As a project, it challenges many entrenched actors in the Emergency Management and International Aid spheres, but it provides a uniqe set of features in high demand from these same institutions.

Has-Needs promises access to 'pristine' data - currently unobtainable at any price. This single feature is reward enough to obviate legacy desires for data ownership and control - with concomitant resource-intensive systems of educated guessing.

The inherent data protections, architectural informed consent, provenance and accountability features solve all of the major issues confronting the entire aid and response infrastructure.

Estimated development costs are well under half a million USD, and stands to become profitable on its first deployment.

Learn more:

Has-Needs Website

Has Needs White Paper

Has Needs Code Repository