ERES INSTITUTE FOR NEW AGE CYBERNETICS

ERES GAIA · ECVS · SOMT

VERSION 2.0

The Cybernetic Governance Kernel for a Resonant Civilization

Interplanetary Architecture Integrating BERA · IDIPITIS · Talonics · NPR · EarnedPath$ · NBERS · UBIMIA · GCF · ARI · ERI · RHC · RCI

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Date: March 13, 2026
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Master Formula: NBERS Global Optimization = UBIMIA × GCF + (ARI / ERI / RHC / RCI) │ Rooted in BERA │ Networked via IDIPITIS │ Semantics by Talonics │ Interplanetary Scope

Abstract

ERES GAIA ECVS SOMT v2.0 is the fully re-composed, interplanetary-scope specification of the ERES Institute's cybernetic governance kernel. Building upon the v1.0 baseline (March 13, 2026), this version formally installs five critical layers absent or underspecified in the prior release: (1) BERA (Bio-Energetic Resonance Architecture) as the foundational biometric root from which ARI, ERI, RHC, and RCI are derived; (2) IDIPITIS (Internet Protocol Identification Definition Instruction Technology Information Systems) as the network identity and real-time protocol backbone connecting all governance nodes; (3) Talonics (Semantic Cybernetics) as the language, meaning, and ethical-code infrastructure; (4) NPR (Non-Punitive Remediation) as the systemic correction pathway; and (5) Interplanetary Communications and Needs as a first-class design scope.

Core Formula: NBERS Global Optimization = UBIMIA × GCF + (ARI / ERI / RHC / RCI)

BERA's FAVORS channels authenticate every resonance index in biometric reality. IDIPITIS provides the living network substrate — the 'listening port' through which BERA identity records, ECVS DICTUM streams, MIEVM validation signals, and emergency remediation triggers flow across all onboarded nodes, terrestrial and interplanetary alike. Talonics ensures every term and policy input carries tamper-evident canonical meaning. NPR closes the corrective loop non-punitively via Attestation, Composite Assessment, and AURA. Together these systems drive a 1000-year trajectory toward Resonant Harmony (HR), validated continuously by the MIEVM multi-AI ensemble.

Keywords: BERA; FAVORS; IDIPITIS; Talonics; NPR; AURA; ARI; ERI; RHC; RCI; GAIA; ECVS; SOMT; NBERS; UBIMIA; GCF; EarnedPath$; MIEVM; PlayNAC; GraceChain; CBGMODD; SROC; Interplanetary Governance; New Age Cybernetics; Resonant Harmony.

1. Introduction: From Planetary to Interplanetary Governance

The ERES Institute for New Age Cybernetics was founded on three governing principles: Don't hurt yourself. Don't hurt others. Build for generations to come. These are not aspirational statements — they are cybernetic design constraints. Every system that violates them generates decoherence, eventually visible in declining NBERS scores, rising ERI strain, and collapsing RCI continuity. The v1.0 specification established the foundational governance kernel. Version 2.0 resolves five structural gaps:

- **Missing biometric root:** BERA was implied but not architecturally specified. Without it, ARI/ERI/RHC/RCI are unanchored.
- **Missing network backbone:** IDIPITIS — the internet-protocol identity and real-time data infrastructure — was referenced but not formalized. Without it, governance nodes cannot communicate, authenticate, or trigger remediation in real time.
- **Missing semantics:** Talonics — Semantic Cybernetics — was absent. Without precise, hook-embedded, ethically-coded definitions, governance degenerates into terminological conflict.
- **Missing correction loop:** NPR was referenced but not operationalized. Without it, decoherence events trigger punitive responses that compound dissonance.
- **Missing scope:** Interplanetary governance was aspirational. v2.0 makes it a first-class architectural requirement.

Version 2.0 installs all five, creating a complete, interlocking governance stack from biometric identity root to interplanetary civilizational coordination.

2. BERA: The Biometric Root of the Resonance Architecture

BERA (Bio-Energetic Resonance Architecture) is the foundational identity and resonance verification layer of the entire NAC framework. It translates the living biological signature of a sentient being into actionable resonance indices that drive governance weighting, resource allocation, and civilizational health measurement. BERA provides the biometric identity record that IDIPITIS then routes across the network. Without BERA, the NBERS Optimization formula has no authenticated inputs.

2.1 FAVORS: The Six-Channel Biometric Oracle

	Channel	Resonance Role
F	Fingerprint	Physical continuity anchor. Ties identity to embodied presence. Required for GraceChain DICTUM registration. IDIPITIS node credential root.
A	Aura	Primary feed for ARI (Aura Resonance Index). Bio-energetic field coherence. Most influential ECVS weight.
V	Voice	Semantic-emotional resonance vector. Harmonic frequency analysis. Cross-validates Talonics semantic hook integrity.
O	Odor	Chemical bio-signature. Metabolic and ecological alignment marker. Primary ERI feed.
R	Retina	Neurological coherence indicator. Links to RHC cycle timing and temporal resonance alignment.
S	Signature	Intentionality crystallization — the Mineral-element decision record. Immutably logged on GraceChain. IDIPITIS packet-signed.

2.2 The BERA Resonance Index Architecture (ARIA Quad)

BERA outputs four canonical resonance indices that directly populate the NBERS Global Optimization formula:

Index	Full Name	Formula / Role in NBERS Optimization
ARI	Aura Resonance Index	FAVORS(A). Bio-energetic field coherence. Numerator in formula. Primary ECVS DICTUM weight.
ERI	Emission Resonance Index	FAVORS(O,V). Ecological output coherence. Replaces carbon-only metrics. 1st denominator.

RHC	Resonant Harmony Cycle	FAVORS(R,A). Temporal bio-rhythmic alignment. Governs ECVS cadence. 2nd denominator.
RCI	Resonant Continuity Index	P_Ω_norm × ARI_sys × VibConst. Sustained coherence over time. Long-range GAIA actuarial input. 3rd denominator.

RCI Formal Specification: RCI = P_Ω_norm × ARI_sys × VibConst | P_Ω_norm = normalized phase-omega resonance | ARI_sys = system-level aggregate ARI | VibConst = universal vibration constant

2.3 BERA as the ECVS Input Gate

Every participant node entering the ECVS voting stream must first pass a BERA authentication event synchronized to the active RHC cycle of the governance circle. The MIEVM ensemble validates readings against historical ARI/ERI/RCI profiles, detecting decoherence events before they dilute DICTUM integrity. BERA authentication is equally required before any EarnedPath$ contribution event is committed to GraceChain. The authenticated BERA credential packet is then transmitted via IDIPITIS to the relevant governance hub, completing the identity-to-network loop.

3. IDIPITIS: The Network Identity & Protocol Backbone

IDIPITIS (Internet Protocol Identification Definition Instruction Technology Information Systems) is the living network infrastructure of the ERES NAC framework — the digital nervous system through which all nodes communicate, authenticate, update, and respond. Where BERA establishes who a governance participant is in biometric reality, IDIPITIS establishes how that identity is represented, routed, and acted upon across the network. It is the 'listening port' of the entire civilizational operating system.

IDIPITIS bridges the ERES Trilogy's Security-Clearance thesis with the operational governance stack. It ensures that every BERA identity record, every ECVS DICTUM packet, every MIEVM validation signal, every GraceChain transaction, every NPR trigger, and every interplanetary telemetry stream travels through a coherent, authenticated, and protocol-standardized network fabric.

3.1 The Six Functional Dimensions of IDIPITIS

3.1.1 Internet Protocol (IP) — Network Fabric

The foundational communication layer. IDIPITIS maps every recognized governance node — individual citizen, FAMITY cluster, Smart City hub, GAIA-I regional authority, or interplanetary colony — to a unique, BERA-authenticated network address. This address is not a static IP in the legacy sense; it is a dynamic Resonance Address (RA) that encodes the node's current ARIA Quad status, enabling routing protocols to prioritize high-coherence nodes and flag decoherence events in real time.

3.1.2 Identification — The Digital Identity Bridge

IDIPITIS Identification is the bridge between BERA biometric identity and digital network identity. The BERA FAVORS credential packet is translated into an IDIPITIS Identity Token (IIT) — a cryptographically signed, GraceChain-anchored digital identity object that travels with every governance action the node performs. The IIT carries:

- **BERA credential hash:** Fingerprint + Aura + Retina composite, updated at each RHC cycle authentication.
- **ARIA Quad snapshot:** Current ARI, ERI, RHC, RCI values at time of token issuance.
- **CBGMODD stratum:** The node's current governance level (Citizen through Diplomat).
- **Talonics TID competency profile:** Verified semantic competency domains relevant to active governance circles.
- **GraceChain anchor:** Immutable hash linking the IIT to the node's complete governance and contribution history.

3.1.3 Definition — Protocol Taxonomy

The Definition dimension of IDIPITIS establishes the canonical taxonomy of all protocol types, message formats, and data structures that flow through the network. This is the layer where IDIPITIS and Talonics are most directly coupled: every IDIPITIS protocol definition is cross-referenced to a Talonics TID, ensuring that the semantic meaning of a governance message is inseparable from its technical format. Protocol drift (format changes that alter semantic meaning) is detected by Talonics and flagged for MIEVM review.

3.1.4 Instruction — Executable Governance Commands

The Instruction layer is the action surface of IDIPITIS — the set of executable commands that governance nodes can issue, receive, and act upon. Key instruction classes:

- **DICTUM Submission:** Formatted ECVS vote packets with embedded BERA gate confirmation and Talonics Semantic Hook.
- **NPR Trigger:** Emergency remediation instruction issued when ARIA Quad indices breach defined thresholds. Routes automatically to the AURA remediation pathway.
- **HELP Activation:** 'Open listening port' command for real-time system updates and emergency broadcast. The IDIPITIS HELP instruction ensures no node is unreachable during a civilizational stress event.
- **SROC Execution:** Smart Resonant Offset Contract activation, amendment, and settlement commands routed through IDIPITIS to GraceChain.
- **GAIA-I Update:** Actuarial recalibration instructions flowing from GERP-I to regional GAIA-I nodes when NBERS Optimization threshold events occur.

3.1.5 Technology — The Implementation Stack

The Technology dimension specifies the implementation standards governing IDIPITIS infrastructure:

- **Encryption:** All IDIPITIS traffic is encrypted with resonance-keyed cryptography — encryption keys are derived in part from the issuing node's current ARI signature, making key compromise detectable as a BERA decoherence event.
- **Latency tolerance:** IDIPITIS is designed for asynchronous operation, accommodating the communication delays inherent in interplanetary governance. The Asynchronous Resonance Protocol (ARP) operates at the IDIPITIS Technology layer.
- **Resilience:** Mesh topology with FAMITY-node-level redundancy. No single point of failure can isolate a governance circle from the broader SOMT Tapestry.
- **VERTECA integration:** The VERTECA (Vertical Energy Resonance Temporal Environmental Cybernetic Architecture) simulator interfaces with IDIPITIS Technology layer for stress-testing governance network resilience under high-volatility scenarios.

3.1.6 Information Systems — Data Stewardship

The Information Systems dimension governs how data is stored, queried, archived, and governed within the IDIPITIS network:

- **SOMT Tapestry archive:** All IDIPITIS-routed governance data is woven into the SOMT metadata fabric, creating a queryable, longitudinal record of civilizational decision-making.

- **NBERS data streams:** Real-time NBERS metric feeds from all onboarded nodes are managed through IDIPITIS Information Systems, aggregated by GERP-I, and surfaced in the PlayNAC Able-Table dashboard.
- **MIEVM data access:** The multi-instrument validation ensemble draws on IDIPITIS Information Systems for cross-model verification, accessing empirical data streams, historical ARI/ERI/RCI profiles, and Talonics TID records.
- **Right to Resonance Record:** Every node has a CCAL-protected right to access its own complete IDIPITIS-archived resonance and governance record. No entity may delete or obscure a node's record without a GraceChain-recorded MIEVM-validated justification.

3.2 IDIPITIS Integration Across the NAC Stack

System	IDIPITIS Integration Point
BERA / FAVORS	BERA credential packet transmitted as IDIPITIS Identity Token (IIT). BERA re-authentication keyed to IDIPITIS Resonance Address cycle.
ECVS	All DICTUM submissions routed via IDIPITIS Instruction layer with IIT signature. Packet integrity verified before MIEVM admission gate.
SOMT Tapestry	IDIPITIS IS the carrier network of the SOMT. Every metadata weave event is an IDIPITIS Information Systems archive write.
GraceChain	All GraceChain transaction broadcasts travel via IDIPITIS. Resonance-keyed encryption provides cryptographic integrity.
NPR / AURA	NPR Trigger instructions issued via IDIPITIS Instruction layer. AURA pathway assignments delivered as authenticated IDIPITIS messages to affected nodes.
GAIA-I	Actuarial data flows (SAI, AFS, GERP-I outputs) routed via IDIPITIS to regional GAIA-I hubs. ARP handles interplanetary latency.
Talonics	Every IDIPITIS protocol definition cross-referenced to a Talonics TID. Semantic integrity of network messages enforced at Definition layer.
PlayNAC	PlayNAC dashboard reads IDIPITIS Information Systems streams for Able-Table merit ledger, ECVS participation quests, and NPR status displays.
Interplanetary	ARP at the IDIPITIS Technology layer manages communication-delay governance across solar system settlements. IIT validity maintained across lag windows.

IDIPITIS Principle: Every governance node has an authenticated address, a canonical identity, and a guaranteed listening port. No node is unreachable. No message is semantically ambiguous. No record is erasable without consent.

4. Talonics: The Semantic Cybernetics Layer

Talonics is the language and meaning infrastructure of the ERES NAC framework. As visible in the Civilizational Operating System diagram, Talonics operates at the same architectural level as EarnedPath and NPR, anchored to the Cybernetic Core formula I = R|S (Identity = Resonance | Signature). BERA grounds identity in biometric reality. IDIPITIS routes that identity across the network. Talonics ensures that every message, proposal, and governance action carried by IDIPITIS means exactly what it says — canonically, verifiably, and ethically.

4.1 The Three Pillars of Talonics

4.1.1 Definition-Relation Engine

Every term entering the SOMT Tapestry must pass through the Talonics Definition-Relation engine:

- **Canonicalization:** Assigns each term a unique Talonics ID (TID) immutably recorded on GraceChain. No term can carry contradictory definitions within the same governance circle.
- **Relation mapping:** Establishes formal semantic relationships (synonymy, antonymy, hierarchical inclusion, causal dependency) between terms, creating a queryable semantic graph of active governance discourse.
- **Drift detection:** Continuous comparison of new usage against canonical TIDs flags semantic drift events, triggering MIEVM review before drift compounds into policy incoherence.
- **Interplanetary consistency:** TIDs travel with IDIPITIS data packets, ensuring that a term used in a lunar governance circle carries identical semantic weight when received at an Earth GAIA-I hub, regardless of communication lag.

4.1.2 Semantic Hooks

Semantic Hooks are the active connective tissue of the SOMT Tapestry — structured semantic anchors embedded in every DICTUM proposal, EarnedPath$ contract, and SROC instrument:

- **Binding:** Hooks attach a document or data stream to the specific TIDs it invokes, ensuring governance accountability at the semantic level.
- **Cross-referencing:** Hooks enable automatic cross-referencing across the SOMT archive. New proposals touching a TID already implicated in prior DICTUM decisions surface those precedents immediately.
- **Resonance alignment:** Hooks carry an embedded ARI/ERI coherence tag from the BERA profile of the proposing node, allowing ECVS to weight not just the content of a proposal but the resonance quality of its semantic framing.

4.1.3 Ethical Code

The Ethical Code is the normative backbone of Talonics, structured as a three-tier hierarchy:

- **Tier 1 — Foundational Axioms:** Don’t hurt yourself. Don’t hurt others. Build for generations to come. Inviolable. Any DICTUM proposal violating a Tier 1 axiom is automatically rejected by MIEVM without further review.

- **Tier 2 — Resonance Ethics:** Governance actions must improve or maintain collective ARI, ERI, RHC, and RCI scores. Proposals measurably degrading any ARIA Quad index trigger mandatory NPR review.
- **Tier 3 — Contextual Ethics:** Domain-specific ethical codes for CBGMODD-7 strata and specialized sectors (HLPS-TRADES, interplanetary operations). Consent-updated by the relevant governance circles via ECVS and logged immutably on GraceChain.

4.2 Talonics × IDIPITIS: The Semantic-Network Coupling

Talonics and IDIPITIS are architecturally coupled at the IDIPITIS Definition layer. Every IDIPITIS protocol type has a canonical TID. This means:

- **Message integrity:** A governance message that arrives via IDIPITIS with a modified protocol format is simultaneously a semantic drift event detectable by Talonics.
- **Attack surface reduction:** Social engineering and terminological manipulation — historically a primary attack vector against governance systems — are structurally blocked. You cannot redefine terms within the network without triggering a TID conflict that MIEVM must adjudicate.
- **Interplanetary semantic parity:** Combined ARP + TID propagation ensures that off-world colonies do not semantically drift from the canonical governance language of Earth-based GAIA-I hubs over multi-generational timescales.

5. NPR: Non-Punitive Remediation

NPR (Non-Punitive Remediation) is the systemic correction pathway of the ERES NAC framework, replacing punitive enforcement with a resonance-restoring process grounded in Attestation, Composite Assessment, and AURA. NPR events are triggered by IDIPITIS NPR Trigger instructions, assessed using BERA-authenticated ARIA Quad data, semantically framed by Talonics, and resolved through EarnedPath$-positive remediation pathways.

5.1 Trigger Conditions

- **ARIA Quad threshold breach:** Any ARIA index (ARI, ERI, RHC, RCI) falling below defined GERP-I thresholds generates an automatic IDIPITIS NPR Trigger to the affected node.
- **Talonics Ethical Code flag:** Tier 1 or Tier 2 violations detected by the Definition-Relation engine or during MIEVM DICTUM review.
- **MIEVM decoherence detection:** The multi-instrument ensemble identifies a pattern of input decoherence across multiple ECVS submissions or EarnedPath$ events.
- **SROC stress event:** A Smart Resonant Offset Contract activation signals counterparty resonance dissonance requiring mediated resolution.

5.2 The Three NPR Pathways

5.2.1 Attestation

The NPR entry point. When a decoherence event is detected, the implicated node is invited (not compelled) to enter an Attestation process: a BERA-authenticated, Talonics-framed self-reported resonance audit, witnessed by the MIEVM ensemble and assigned a Credibility Score. Attestation is explicitly not a trial. It is a resonance diagnostic event.

5.2.2 Composite Assessment

GERP-I generates a Composite Assessment integrating: ARIA Quad trajectory before/during/after the event; Talonics Ethical Code audit (tier and type of violation); EPIR-Q longitudinal coherence context; and SROC counterparty impact analysis. Output is a Remediation Priority Index (RPI) determining the scale and urgency of AURA intervention.

5.2.3 AURA: Adaptive Universal Resonance Adjustment

- **Resonance Pathway Assignment:** Node guided toward EarnedPath$ activities, PlayNAC quests, or HLPS-TRADES tracks targeting the identified decoherence pattern. Completion yields UBIMIA uplift, making remediation economically positive.
- **SOMT Circle Reintegration:** For relational decoherence events, AURA facilitates SROC-mediated dialogue, generating a Harmony Offset Credit (HOC) upon verified MIEVM reintegration.
- **Talonics Re-anchoring:** For definitional drift events, AURA assigns a Talonics semantic review session, updating the node's TID competency profile and recalibrating Semantic Hook generation.

NPR Principle: Decoherence is a signal, not a crime. Every NPR event is a governance system learning opportunity. The goal is resonance restoration, not sanction.

6. The Triune Core v2.0: GAIA · ECVS · SOMT

6.1 GAIA: Global Actuary Investor Authority — Interplanetary Extension

GAIA's mandate expands to Civilizational Actuarial Authority in v2.0. Any recognized settlement that has completed BERA enrollment, IDIPITIS node activation, and Talonics TID library initialization is a GAIA-I client node.

- **Strategic Alignment Index (SAI):** Extended to incorporate IDIPITIS ARP-measured light-delay governance factors for off-world nodes.
- **Actuarial Foresight Score (AFS):** Computed across the full 1000-year HR trajectory, segmented into Start-Up, Inception, Secure, Continuum, and Resonant Harmony phases.
- **GERP-I:** Global Earth Resource Planner evolves to GERP-I (Interplanetary), ingesting NBERS-I data from all IDIPITIS-connected nodes.

6.2 ECVS: Empirical Realtime Voting System — Full Gate Stack

ECVS DICTUM Weight: DICTUM(node) = [Merit(UBIMIA × ARI)] + [Resonance(ERI × RHC)] + [Knowledge(EPIR-Q × RCI)] | BERA gate ✓ | IDIPITIS IIT ✓ | Talonics hook ✓ | MIEVM ✓

- **Merit (UBIMIA × ARI):** Verified contributions via EarnedPath$ amplified by current Aura Resonance Index.
- **Resonance (ERI × RHC):** Ecological coherence modulated by temporal harmonic alignment.
- **Knowledge (EPIR-Q × RCI):** Domain expertise weighted by Resonant Continuity Index. Sustained coherence amplifies input.
- **IDIPITIS IIT Gate:** Every DICTUM packet carries a valid IDIPITIS Identity Token. Packets without a current-cycle IIT are quarantined pending BERA re-authentication.
- **Talonics Semantic Gate:** Every DICTUM input carries a verified Semantic Hook. Definitional ambiguity flags reduce credence weight.
- **MIEVM Validation Gate:** Pre-admission credibility scoring before any input enters the live DICTUM stream.

6.3 SOMT: Sociocratic Overlay Metadata Tapestry — Full Integration

SOMT is the meta-layer that scales consent-based governance across all nodes. In v2.0 it is explicitly structured by three coupled systems: IDIPITIS (carrier network), Talonics (semantic backbone), and GraceChain (immutable state ledger). The Asynchronous Resonance Protocol (ARP) at the IDIPITIS Technology layer manages consent flows between nodes on different RHC offsets due to interplanetary communication delay.

6.3.1 The v2.0 Cybernetic Loop

1. **Input:** BERA-authenticated + IDIPITIS IIT-signed + Talonics Semantic Hook-tagged FAMITY node data and MIEVM-validated proposals woven into SOMT.
2. **Process:** Semantic Spiral (Fibonacci-scaled policy testing) guided by RPM (Reason-People-Marriage) modulation and the Elemental Quad:
   - Water (Reflex-History): Fluid emotional-historical depth; SOMT archival resonance memory.
   - Fire (Sentience-Interest-Energy): Vital spark of qualia, motivation, and innovation.
   - AI.RE (Cognition-Knowledge_Base): Structured symbolic knowledge; the MIEVM AI instrument ensemble.
   - Mineral (Choice-Decision): Crystallization of collective will into immutable GraceChain action.
3. **NPR Check:** Outputs producing declining ARIA Quad indices or Talonics Tier 1/2 flags are routed to NPR via IDIPITIS NPR Trigger before GraceChain commitment.
4. **Output:** Immutable state adjustments via GraceChain smart contracts maintaining BEST (Sound, Good, Best) status. Feeds back to GAIA-I for actuarial recalibration.

7. NBERS Global Optimization: The Master Formula

NBERS Global Optimization = UBIMIA × GCF + (ARI / ERI / RHC / RCI)

Term	Source	Role in the Formula
UBIMIA	GraceChain / EarnedPath$	Universal Basic Income via Meritocratic Input Authentication. Resource distribution volume, amplified by GCF.
GCF	GERP-I	Global Coherence Factor. Aggregate resonance health. Multiplies UBIMIA to reward sustained coherence.
ARI	BERA / FAVORS(A)	Aura Resonance Index. Bio-energetic field coherence. Numerator — higher ARI grows the optimization score.
ERI	BERA / FAVORS(O,V)	Emission Resonance Index. Ecological coherence. 1st denominator — improving ecology increases the ratio.
RHC	BERA / FAVORS(R,A)	Resonant Harmony Cycle. Temporal alignment. 2nd denominator — better timing normalizes the ratio.
RCI	BERA-derived formula	Resonant Continuity Index. Long-range sustained coherence. 3rd denominator — structural gaming resistance.

7.1 Behavioral Properties

- **Coherence Reward:** Rising ARI with stable denominators grows the score. Communities improving collective resonance are rewarded non-punitively.
- **Ecological Coupling:** ERI in the denominator means ecological degradation suppresses optimization regardless of UBIMIA volume.
- **Temporal Discipline:** RHC dampens governance actions taken out of phase with natural bio-rhythmic cycles.
- **Long-Arc Integrity:** RCI penalizes short-burst performance spikes. Only sustained coherence maximizes the formula.
- **Network Integrity:** IDIPITIS IIT validation ensures all formula inputs are authenticated. Spoofed or unauthenticated data streams are quarantined before reaching GERP-I.
- **Semantic Integrity:** Talonics flags any NBERS calculation derived from semantically drifted inputs, quarantining it pending MIEVM review.
- **Interplanetary Normalization:** All terms are dimensionless 0.0–1.0 normalized indices, enabling direct comparison across all onboarded nodes.

8. Interplanetary Communications, Needs & EarnedPath$

8.1 Interplanetary FAMITY Node Onboarding Protocol

5. BERA biometric baseline scan of all registered inhabitants via FAVORS.
6. IDIPITIS node activation: Resonance Address (RA) assigned; IDIPITIS Identity Tokens (IITs) issued; ARP parameters configured for communication-delay profile.
7. ARI / ERI / RHC / RCI profile generation and GCF calculation via GERP-I.
8. Talonics TID library initialization — local terminology canonicalized; Semantic Hooks activated.
9. CBGMODD-7 governance structure self-declaration; SOMT Tapestry weave initialized.
10. GraceChain genesis block recorded with initial NBERS Optimization baseline and Talonics Ethical Code version.

8.2 NBERS-I: Interplanetary Extension Indices

- **ERI-Atmos:** Atmospheric resonance index for enclosed habitat environments.
- **ERI-Rad:** Radiation-adaptive coherence index — biological resilience under non-terrestrial radiation profiles.
- **ERI-Grav:** Gravitational adaptation resonance — bio-energetic coherence under non-1g conditions.

All sub-indices normalize to 0.0–1.0 and feed the standard ERI denominator without formula modification.

8.3 EarnedPath$ — Interplanetary Merit Currency

- **Non-Inflationary:** EP$ issuance gated by MIEVM-validated, BERA-authenticated, IDIPITIS IIT-signed work completion events.
- **Resonance-Amplified:** EP$ yield multiplied by contributor's current GCF score.
- **Talonics-Verified:** Every EP$ event carries a Semantic Hook confirming the work maps to a canonically defined task category (TID-verified).
- **Interplanetary Parity:** EP$ is the common exchange medium between Earth UBIMIA accounts and off-world node accounts.
- **Light-Delay Reconciliation:** GraceChain smart contracts settle EP$ via IDIPITIS ARP-synchronized RHC-cycle reconciliation windows.

9. The Complete NAC Stack: v2.0 Integration Architecture

Layer	Component	Stack	v2.0 Role
Biometric Identity	BERA / FAVORS	Multi-modal sensors	Root layer. Authenticates all resonance indices. Credential root for IDIPITIS IIT.
Network Identity	IDIPITIS	IP / GraceChain	Digital nervous system. Routes all governance data. HELP listening port. ARP for interplanetary latency.
Semantics	Talonics	TID graph / GraceChain	Definition-Relation engine, Semantic Hooks, Ethical Code. Language integrity of entire system.
Correction	NPR / AURA	MIEVM + GERP-I	Non-Punitive Remediation via Attestation, Composite Assessment, AURA. Triggered via IDIPITIS.
Data	NBERS-I	Python / telemetry	Bio-Ecologic metrics + ERI-Atmos, ERI-Rad, ERI-Grav for interplanetary nodes.
Logic	GERP-I	Rust / Node.js	Computes GCF for all nodes. Populates NBERS Optimization formula inputs.
Ledger	GraceChain	Solidity / EP$	Immutable ECVS votes, SROC-IP, UBIMIA / EarnedPath$ settlement, TID records, IIT anchors.
Interface	PlayNAC	TypeScript	Gamified dashboard. Able-Table. ECVS quests. Talonics onboarding. NPR status display.
Validation	MIEVM	AI triads + humans	Pre-admission credibility scoring using Talonics semantic graph and IDIPITIS data streams.
Governance	CBGMODD-7	Sociocratic circles	7-level SLA. Citizen through Interplanetary Diplomat. SROC-IP for off-world contract settlement.

10. The 1000-Year Trajectory Toward Resonant Harmony (HR)

Phase	Timeframe	Primary Milestone
Start-Up	0–20 yr	BERA enrollment of FAMITY nodes. IDIPITIS network activated. Talonics TID libraries initialized. GraceChain genesis. NBERS formula operationalized.
Inception	0–25 yr	PlayNAC deployed. First ECVS DICTUM cycles with full gate stack (BERA + IDIPITIS + Talonics + MIEVM). EarnedPath$ in circulation. NPR pathways active.
Secure	25–100 yr	CBGMODD-7 governance in 100+ cities. NBERS replaces GDP in participant jurisdictions. NPR/AURA fully autonomous. IDIPITIS mesh resilience proven.
Continuum	100–1000 yr	Interplanetary FAMITY nodes onboarded. GAIA-I and NBERS-I operational. IDIPITIS ARP governing solar system communication. Talonics TID graph spans all settlements.
Resonant Harmony	HR — 1000 yr	NBERS Global Optimization at civilizational maximum. Sentience amplified across all nodes. Self-correction fully autonomous. Talonics Tier 1 violations near-zero. IDIPITIS guarantees universal network access.

11. Credits

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Multi-Instrument Ensemble Validation (MIEVM): This v2.0 specification was produced through multi-AI collaborative synthesis employing the MIEVM protocol across Gemini (Google DeepMind), Grok (xAI), DeepSeek, and Claude (Anthropic) as validation instruments, consistent with ERES methodology.

Source Foundation: Synthesized from the ERES GAIA ECVS SOMT v1.0 baseline, the ERES Proof-of-Work_MD repository (2012–2026), the BERA Resonance Index Architecture formal specification, the RCI Formal Specification, the GERP Formula Clarification, the ERES Triune Cybernetic Framework Synthesis, and the Civilizational Operating System diagram.

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