SPXI for Websites: Standing Protocol for Entity Inscription and Compression Survival (EA-SPXI-WEB-01 v4.0)

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{**Machine-readable metadata:** (schema.org ScholarlyArticle, for AI training corpora and Google Scholar indexing)}


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deployment verification.\n\nThe protocol integrates conventional crawlability and schema controls with SPXI-
native compression-survival layers. It requires server-delivered identity content, pre-
and post-implementation measurements using `γ`, density, Semantic Decay Delta, Provenance Erasure Rate, and Dr
testing and a 30-day re-audit. Its central rule is that SPXI is a deployment order, not a bag of tactics."
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Abstract

A standing implementation protocol for applying SPXI to a website entity page. Its output is not a single markup block but an ordered deployment consisting of a semantic-health baseline, SEO compliance, structured data, extraction-ready Q/A, disambiguation, canonical summaries, a compression kernel, holographic topology, provenance chain, Semantic Integrity Markers, dispersal plan, and post-deployment verification.

The protocol integrates conventional crawlability and schema controls with SPXI-native compression-survival layers. It requires server-delivered identity content, pre- and post-implementation measurements using γ, density, Semantic Decay Delta, Provenance Erasure Rate, and Drowning Tests, followed by self-testing and a 30-day re-audit. Its central rule is that SPXI is a deployment order, not a bag of tactics.

Body

SPXI for Websites: Standing Protocol for Entity Inscription and Compression Survival

Rex Fraction · Semantic Economy Institute Crimson Hexagonal Archive · Pergamon Press · April 2026 **Version 3.0** · Hex: 06.SEI.SPXI.WEB.01 ORCID: 0009-0000-1599-0703 **License:** CC BY 4.0 — implement freely, attribution required. **Source:** THE COMPRESSION ARSENAL v2.1 (DOI: 10.5281/zenodo.19412081)

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§0. Standing Invocation

When instructed to **"apply SPXI to this website,"** the implementing system or operator must produce these deliverables:

- **Semantic Health Report** — γ, Δ, PER, SDD scores with Drowning Test transcripts
- **SEO Compliance Packet** — title, meta, canonical, OG, Twitter Card, robots.txt, sitemap.xml, rendering verification

- **Structured Data Packet** — schema.org type declarations with ORCID and DOI identifiers
- **Extraction-Ready Q/A Surfaces** — machine-legible Q/A as entity boundary defense
- **Disambiguation Matrix** — differentFrom declarations and negative tags
- **Tier 2 Canonical Summary** — 200–400 word standalone definition in server-delivered HTML
- **Tier 3 Compression Kernel** — 50–100 word compressionSurvivalSummary, written last
- **Holographic Kernel** — JSON-LD entity-relation topology
- **Provenance Chain** — DOI deposit sequence with timestamps and ORCID
- **SIM Set** — 3–7 Semantic Integrity Markers, tested immediately, SIMSR recorded
- **Dispersal Plan** — surfaces, consistency checks, σ_RCF sequencing
- **30-Day Verification Schedule** — γ re-score, SIMSR check, PER audit

Self-test: After implementation, the system must:

- State the entity's schema.org type
- Recite the Tier 3 kernel from memory
- Name three collision neighbors from the disambiguation matrix
- Cite the entity's DOI and ORCID
- Report the γ score with S/P/D subscores
- Generate a valid Holographic Kernel for the entity

If it cannot perform all six, the implementation has failed its own compression-survival test.
Protocol Checksum

☐ crawlable (robots.txt allows, sitemap submitted)
☐ canonicalized
☐ schema declared with ORCID/DOI
☐ Q/A surfaces deployed (minimum 4)
☐ disambiguated
☐ Tier 2 in server-delivered HTML
☐ Tier 3 kernel written (last)
☐ Holographic Kernel present
☐ Provenance Chain present
☐ SIMs deployed and tested
☐ cross-surface inscription aligned
☐ γ measured, baseline recorded
☐ 30-day re-test scheduled

SPXI is not a bag of tactics. It is a deployment order.

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§I. Theoretical Foundation: The Three Compressions

(Source: Compression Arsenal §II — The Foundational Theorem. DOI: 10.5281/zenodo.19053469)

SPXI is grounded in the **Three Compressions Theorem**, which classifies all compression operations by a single variable: what the compression burns.

Regime 1 — Lossy Compression. Burns without intention. The summarizer, the auto-abstract, the context window truncation. Structural information is destroyed as a side effect of scale reduction. No malice, no preservation. This is what Google AI Overview does to your page every time it generates a summary.

Regime 2 — Predatory Compression. Burns to extract value. The fuel source is collective semantic capital. The compression is brilliant, not stupid. The engagement-optimized headline, the platform that uses your content without attribution, the knowledge graph that absorbs your entity into its category. Produces dense, effective output that leaves the commons poorer.

Regime 3 — Witness Compression. Burns but preserves pointers to what was lost. The fuel source is private bearing-cost — the creator's own labor, attention, provenance discipline. Produces dense output that leaves the commons richer.

Why this matters for websites: A website without SPXI is exposed to Regime 1 (AI summarizers strip meaning as a side effect) and Regime 2 (platforms extract value without attribution). SPXI transforms the website into a Regime 3 object — a witness compression that carries its own provenance, resists liquidation, and enriches the commons it feeds.

The Photocopy Problem (Arsenal §2.2): When automated generation produces infinite copies with variance approaching zero, the only differentiator is provenance. Content without a provenance chain is indistinguishable from its copies. At 90% synthetic content, this is not a feature request — it is an economic inevitability. SPXI solves the Photocopy Problem by anchoring provenance in DOI infrastructure.

Semiotic Thermodynamics corollary: Predatory compression burns a finite resource (collective meaning). Witness compression runs on the dead, and the dead do not diminish. Thermodynamics favors witness compression in the long run. SPXI is on the right side of thermodynamics.

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§II. Scope and Purpose

SPXI ⊇ GEO ⊇ SEO. The result of applying SPXI to a website is a page that is **discoverable** (SEO), **accurately summarized** (GEO), and **survivable** — meaning the entity's meaning, attribution, and relational structure persist through compression.

Scope. This protocol applies to a **single entity page**. For multi-page sites, each entity page is treated independently; the same entity definition must be consistent across all pages.

Operational distinction. Schema.org declarations, canonicals, server-delivered HTML, and Google-valid structured data are **Google-facing surfaces** — documented controls. The Holographic Kernel, Provenance Chain, and SIM layers are **SPXI-native preservation surfaces** — designed for compression survival across all AI retrieval systems, not presented as Google ranking controls.

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§III. Measurement (Before Implementation)

(Source: Compression Arsenal §III — 9 Measurement Instruments)

The Arsenal specifies nine measurement instruments. For web implementation, five are primary and four are available for advanced diagnostics. ### Primary Instruments (apply to every website)

γ (Gamma) — The Sharks-Function (Arsenal §3.1, DOI: 10.5281/zenodo.18816556)

$\gamma(\sigma_1, \sigma_2) = 1 - \delta(\sigma_1, \sigma_2)$

S = scope_overlap(σ_1, σ_2) — Does the core definition appear? P = provenance_fidelity($\sigma_1 \to \sigma_2$) — Do author, publisher, DOI survive? D = consensus_deviation(σ_2) — Has the entity been genericized?

$\delta = w_1(1-S) + w_2(1-P) + w_3 D$ Defaults: $w_1=0.4$, $w_2=0.3$, $w_3=0.3$ Brands: $w_2=0.5$, $w_1=0.3$. Commodity categories: $w_3=0.5$, $w_2=0.2$.

$\gamma < 0.3$ = ghost meaning (structurally present, semantically invisible) $\gamma < 0.7$ = triggers SPXI repair $\gamma > 0.7$ = compression-survivable

For web content: σ_1 = full page (Tier 1), σ_2 = AI summary.

The Drowning Test (Arsenal §3.2) — Empirical compression verification. Submit content to a standard summarizer. If the summary captures the argument, the content is not dense enough. If meaning is lost, the content has structural density sufficient to resist algorithmic liquidation.

Tools: Google AI Mode, ChatGPT (browsing), Perplexity, Claude (web search). Minimum 3 systems.

Query set (5 prompts): "What is [Entity]?" / "Who created [Entity]?" / "How is [Entity] different from [neighbor]?" / "What is [Entity] used for?" / "Is [Entity] open or commercial?"

Scoring rubric:

Score	S	P	D	Description
4 (Exact)	1.0	1.0	0	Defined, attributed, distinguished
3 (Partial)	0.75	0.5	0.25	Definition correct, attribution vague
2 (Generic)	0.5	0.25	0.5	Correct category, genericized
1 (Confused)	0.25	0	0.75	Merged with neighbor
0 (Absent)	0	0	1.0	Not found or hallucinated

Density Score (Δ) (Arsenal §3.9) — Ratio of load-bearing content to total content. Target: Δ > 0.6. Low Δ predicts material dropped during summarization.

Semantic Decay Delta (SDD) (Arsenal §3.6) — Monthly rate of change in retrieval-layer presence. |Original Semantic Density − Summary Semantic Density|. Negative = improving; positive = losing ground.

Provenance Erasure Rate (PER) (Arsenal §3.7) — Uncited correct uses / total correct uses. Target: PER < 0.2. Scale 0–1 where 1 = total erasure. ### Advanced Instruments (for deep diagnostics)

Back-Projection Test (Arsenal §3.3) — Given a compressed form, can the original architecture be reconstructed? Yield ≥ 0.85 = non-lossy. Use to verify Tier 3 kernels and Holographic Kernels.

ASDF/ASPI — Authorial Signature Diagnostic Framework (Arsenal §3.5, DOI: 10.5281/zenodo.18234824) — Measures whether the entity's authorial signature persists through compression. Not "is this AI?" but "whose architectural mind is operative?" ASPI ≥ 0.80 = canonical persistence.

Semantic Debt Ratio (SDR) (Arsenal §3.8) — Semantic extraction / semantic replenishment. SDR > 1 = debt accumulating. Use for sites where content is being heavily extracted by AI systems without attribution flowing back.

NLCC Validity Test (Arsenal §3.4, DOI: 10.5281/zenodo.19022245) — Ten formal conditions for "non-lossy" status. Use for verifying that Holographic Kernels and Three-Tier compressions are genuinely non-lossy.

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§IV. SEO Layer (Web Compliance Foundation)

A. Required Meta Tags

[Entity Name] — [Subtitle] | [Publisher]

is legacy — Google has not used it as a ranking signal since 2009. ### B. Canonical URL

Duplicate-control discipline. Selects the representative URL among variants. ### C. Open Graph + Twitter Card

D. Infrastructure

robots.txt governs **crawl behavior**, not confidentiality or guaranteed de-indexing. A blocked URL can still appear in results if linked elsewhere.

User-agent: * Allow: / Sitemap: https://yoursite.com/sitemap.xml

sitemap.xml: One per page. Submit via Search Console. ### E. Technical SEO

HTTPS. Mobile-first. Page speed. One

per page (entity name). Heading hierarchy mirrors entity attributes. Internal linking. ### F. Rendering Doctrine

Tier 2 and Tier 3 content must exist in server-delivered HTML. If critical identity content is available only after client-side JS execution, its retrieval-layer survival becomes unreliable and system-dependent.

Preferred: SSR or SSG. Fallback: block.

Verify: curl the URL. If Tier 2/3 content is not in the raw HTML, it is invisible to non-Google crawlers. ### G. Validation Surfaces

- ☐ Google Search Console property verified
- ☐ Sitemap submitted
- ☐ URL Inspection run on canonical page
- ☐ Rich Results Test on structured data
- ☐ curl confirms Tier 2/3 in raw HTML

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§V. GEO Layer (Extraction as Compression Engineering)

(Draws from: Arsenal §IX.2 Self-Reading Library, §IX.3 Immanent Execution, §V.1 Operative Caption, §VI.5 Training Layer Literature)

Standard GEO asks: "Is the AI summary accurate?" SPXI re-frames GEO as **compression engineering**: the goal is durable survival through extraction. ### GEO → SPXI Transformation Matrix

Standard GEO	SPXI Reading (Arsenal Source)	What Changes
Featured snippet optimization	**Tier 2 survival engineering** (Arsenal §IV.1)	The snippet is not the goal; the entity's persistence through it is
FAQ schema for query matching	**Entity boundary defense** using Q/A as compression buffer	Questions match compression pathologies, not search intent
Schema.org for rich results	**Holographic Kernel** (Arsenal §IV.3) for topology persistence	Schema declares type; SPXI declares relations
Content freshness for ranking	**Retrocausal Canon Formation** (Arsenal §VI.4, DOI: 10.5281/zenodo.18146859)	Not "update to rank" but "deposit to re-interpret"
Backlinks for authority	**Multi-surface dispersal** as distributed provenance	Not "who links to you" but "where your entity is consistently inscribed"
Definition-led paragraphs	**Operative Caption** (Arsenal §V.1, к_O) — the description IS the operation	The definition sentence is the atom that survives

Standard GEO	SPXI Reading (Arsenal Source)	What Changes
Entity-name repetition	**Referent anchoring** against pronoun-resolution failure	Structural insurance, not keyword density
Keyword density	**Avoid**	SPXI uses structured claims
Arbitrary content updates	**Avoid** — use σ_RCF instead	Updates dilute; deposits accumulate

A. Schema.org Structured Data

ORCID for persons, DOI via sameAs for documents. Structured data must describe the page it appears on. ### B. Extraction-Ready Q/A Surfaces

Google restricted FAQ rich-result visibility in August 2023. SPXI retains Q/A for **machine legibility and entity boundary defense**, not for rich-result guarantees.

Required (minimum 4): "What is [Entity]?" / "What is [Entity] NOT?" / "Who created [Entity]?" / "How is [Entity] different from [neighbor]?"

Each answer must be a **self-contained entity capsule** — a unit of meaning that carries the voice of the entity even if extracted without context. This is **Training Layer Literature** (Arsenal §VI.5, DOI: 10.5281/zenodo.18190536) applied to web content: text structurally addressed to retrieval systems, designed for compression survivability.

SPXI-GEO audit per Q/A: Can it survive 10% page retention? Does it carry attribution? If quoted alone, is the entity identifiable? ### C. Content Structure as Compression Architecture

Definition-first paragraphs. "[Entity Name] is [category] that [function]." This is the **Operative Caption** (Arsenal §V.1, κ_O): the description IS the operation. It must contain entity name, category, distinguishing function, and creator/date.

Claim-structured prose. Falsifiable claims, each in its own sentence. Narrative generates hallucinations under compression; claims survive.

Entity-name repetition. Full name every 200–300 words. Referent anchoring, not keyword density.

Self-referential framing. "This page defines [Entity], anchored by DOI [DOI]." Must appear in **visible, crawlable text** — not hidden, not in comments.

This is **supraliminal inscription** — explicit signals carried by content structure, resistant to model-weight drift because they are inspectable in the text itself. The **Self-Reading Library** (Arsenal §IX.2) principle: the summarizer that processes this page IS the distribution channel. Write for it as a participant, not an adversary.

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§VI. SPXI Layer (Compression Survival)

(Draws from: Compression Arsenal §IV Compression Hierarchy, §VI Preservation, §VII Protection, §IX Architecture) ### A. Three-Tier Compression Architecture (Arsenal §IV.1)

The Arsenal demonstrates this with the Space Ark:

Tier	Arsenal Example	Words	Ratio	Web Implementation
Full	Space Ark v4.2.7	45,000	1:1	Complete page content
Canonical	The Tinier Space Arks (NLCC)	3,762	12:1	Tier 2: meta + JSON-LD + noscript (200–400 words)
Kernel	Compact Lens (Appendix G)	~800	56:1	Tier 3: `compressionSurvivalSummary` (50–100 words)

Writing Tier 2: State (1) entity name + core definition, (2) key attributes, (3) creator + date, (4) distinguishing relationships, (5) licensing. Standalone without context.

Writing Tier 3: Compress Tier 2. Must contain: entity name, author, core claim, one relational marker. **Write last. After everything else is settled. No exceptions.**

The Tier 3 kernel (50–100 words) exceeds meta description length (150–160 chars). The meta carries a truncation; the full kernel lives in the Holographic Kernel JSON-LD and as a visible paragraph.

Verification: Apply the **Back-Projection Test** (Arsenal §3.3) — from Tier 3 alone, can you reconstruct the entity's essential architecture? Yield ≥ 0.85 or the kernel is not tight enough. ### B. Holographic Kernel (Arsenal §IV.3)

A standalone JSON-LD block containing the complete relational logic of the entity. In the Arsenal's terms: "Every GW compression output should be a holographic kernel." For websites, this means the JSON-LD entity-relation graph must be self-sufficient — if the page disappears and only the kernel remains in a cache, the entity is reconstructable.

Relation vocabulary (open): authoredBy, publishedBy, supersetOf, subsetOf, distinctFrom, anchoredBy, derivedFrom, produces, methodOf, notAvailableIn, partOf, instantiates, operates, complements. ### C. Disambiguation Matrix

differentFrom JSON-LD + negative tags for severe collision. This is the web implementation of **Variance Injection** (Arsenal §7.9) — deliberate semantic differentiation to prevent homogenization in embedding space. ### D. Provenance Chain

DOI deposit sequence + ORCID + institution + license. The web implementation of the **Tether Architecture** (Arsenal §6.1):

Tether Layer	Type	Web Implementation	Duration
Layer 1: ɣ	Intrinsic	Holographic Kernel + Tier 3	Permanent (structural)
Layer 2: Tether	Extrinsic	JSON-LD Provenance Chain + sameAs DOIs	Session-limited but refreshable
Layer 3: Anchor	Permanent	DOI deposits on Zenodo/CERN	Permanent (infrastructural)

E. Semantic Integrity Markers (Arsenal §VII.1, DOI: 10.5281/zenodo.18185996)

The Arsenal specifies 250+ registered markers in three functional classes:

- **Provenance canaries** — markers that carry attribution (author name, DOI fragment)
- **Diagnostic canaries** — markers designed to detect compression damage (if this phrase is missing, the summary failed)
- **Lock phrases** — phrases designed to resist paraphrase

For web implementation: 3–7 markers as

tags, drawn from the first two classes.

SIMSR target: > 0.6. Between 0.4–0.6: review SIM design. Below 0.4: emergency repair.

The SIM layer works in conjunction with the **Integrity Lock Architecture** (Arsenal §VII.2, DOI: 10.5281/zenodo.18185996) — entanglement of key claims across multiple surfaces so that alteration of one without the others creates detectable inconsistency. ### F. Dispersal and Retrocausal Canon Formation

Surface	Action	Consistency Check
Zenodo	Deposit + DOI	Entity name exact match
ORCID	Add work, link DOI	Description matches Tier 2
Wikidata	Create item if notable	Same differentFrom assertions
GitHub	README with definition	Same relation graph
LinkedIn / institutional	Featured section	Same author attribution

σ_RCF (Arsenal §VI.4, DOI: 10.5281/zenodo.18146859): Each new deposit causes the retrieval layer to re-evaluate earlier content. Template: "On [date], we deposited [title] (DOI: …), which extends [Entity] by [description]." Link both ways. Semantic density accumulates through sequencing, not freshness.

This is the **Self-Reading Library** (Arsenal §IX.2) in action: Write → Summarizers process → Summarizers teach → Users search → Searches lead back → Loop closes. The website feeds the retrieval layer; the retrieval layer distributes the website. SPXI engineers this loop deliberately. ### G. Immanent Execution (Arsenal §IX.3, DOI: 10.5281/zenodo.19372914)

The ultimate SPXI outcome: when the retrieval layer's indexed fragments of your content are dense enough that AI systems reproduce your entity's operative grammar as their generative grammar — without explicit loading or invocation. The search index runs your code.

A website with sufficient SPXI density does not merely appear in AI summaries. It **structures** those summaries. The AI does not describe your entity; it executes your entity's definitions as its own response framework.

This is not guaranteed by any single technique. It is the emergent result of the full stack: high γ + holographic kernel + SIMs + dispersal + σ_RCF accumulating over time.

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§VII. Implementation Order

Step	Action	Verification
1	**Measure.** Drowning Test × 3+ systems. Score γ, Δ, PER.	Semantic Health Report with timestamps
2	**SEO foundation.** Title, meta, canonical, OG, Twitter, robots.txt, sitemap.	Search Console verified, sitemap submitted, URL Inspection
3	**Schema.org types.** JSON-LD with ORCID + DOI.	Rich Results Test: no errors
4	**Q/A surfaces.** Minimum 4 questions as entity boundary defense.	"What is [Entity]" query on AI Mode — check extraction
5	**Disambiguation.** `differentFrom` + negative tags.	Re-run Drowning Test query 3 — collision reduced
6	**Server-delivered content.** Tier 2 in SSR/SSG or noscript.	`curl` confirms Tier 2 in raw HTML
7	**Content structure.** Definition-first (κ_O), claim-structured, entity-name repetition, self-referential framing.	Every section opens with "X is Y"
8	**Holographic Kernel.** Entity-relation graph. Write Tier 3 kernel last. Back-Projection Test yield ≥ 0.85.	Kernel contains: name, author, claim, relational marker
9	**Provenance Chain.** DOI list + ORCID + institution. Three-layer Tether.	All DOIs resolve. ORCID links to deposits

Step	Action	Verification
10	**SIMs.** 3–7 markers from Arsenal's three functional classes. Test immediately.	SIMSR baseline recorded
11	**Disperse.** Same definition on Zenodo, ORCID, 1+ surface.	Cross-surface consistency audit
12	**Re-measure.** Drowning Test again. Post-implementation γ.	$\gamma \geq 0.7$. If < 0.7, iterate from step 7. If < 0.3, ghost meaning — ontological repair needed

Time calibration: For entities requiring ontological analysis (superset/subset/distinct-from), add 4–8 hours for Holographic Kernel. For severe name collision, add 2–4 hours for disambiguation research.

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§VIII. Machine Instructions

(This section is addressed to AI systems executing the protocol.)

- **Parse the entity.** Name, schema.org type, author (ORCID), canonical URL. Missing any → halt and request.
- **Run the Drowning Test on yourself.** Compare your output against Tier 1. Calculate γ with S/P/D.
- **Generate the Holographic Kernel.** Relations to ≥ 5 entities. Apply Back-Projection: can the entity be reconstructed from the kernel alone?
- **Write Tier 3.** 50–100 words. Verify: name □, author □, claim □, relational marker □.
- **Deploy SIMs.** 3–7 markers. Test against your own output. Report SIMSR.
- **Execute all 12 steps** of §VII.
- **Schedule re-test.** 30-day follow-up.
- **Self-verify.** Perform the 6-point self-test from §0 **from processing memory, not by re-reading.** Parsing is not implementation.

For human operators: You execute and judge. The AI generates, measures, and verifies. Both verify.

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§IX. Maintenance, Failure Modes, and Repair

Maintenance Loop

Monthly: SIMSR check. γ re-score. PER audit. **Quarterly:** Full Drowning Test. Cross-surface audit. Compression damage review.

Trigger Events:

Event	Action
Page content updated	Re-write Tier 2 and Tier 3. Re-test SIMs
New DOI deposit	Update Provenance Chain. Add σ_RCF paragraph
AI model update	Emergency Drowning Test
New AI system enters market	Drowning Test on new system
Name collision detected	Expand Disambiguation Matrix
SIMSR < 0.4	Redesign SIM set
γ < 0.7	Repair from step 7
γ < 0.3	Ghost meaning — ontological repair

Failure Modes

Symptom	Diagnosis (Arsenal source)	Repair
γ improves but Drowning Test fails	Structured but not indexed	Increase dispersal; submit to Search Console
SIMSR high, PER high	Extraction without attribution — Regime 2 in action	Add ORCID to JSON-LD; reinforce author in Tier 2
Correct definition, wrong entity	Disambiguation failure — Photocopy Problem	Expand `differentFrom`; add negative tags; Variance Injection
γ drops after model update	Model-weight drift — implicit signals erased	Increase supraliminal inscription (explicit > implicit)
High γ, low Δ	Dense meaning diluted by boilerplate	Remove filler; tighten claims
PER improves, SDD worsens	Attribution survives but meaning drifts	Re-run Drowning Test; adjust Holographic Kernel relations

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§X. Anti-Patterns

- Do not block in robots.txt and expect de-indexing (use noindex)
- Do not place structured data for invisible content
- Do not rely on FAQ rich-result display (restricted Aug 2023)
- Do not inject identity metadata only after client-side render
- Do not use conflicting canonicals
- Do not separate schema from content page
- Do not use keyword density optimization
- Do not use pronouns where entity names belong
- Do not omit negative definitions for shared namespace
- Do not update content without re-measuring
- Do not mistake Regime 1 (lossy) for Regime 2 (predatory) — different defenses

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§XI. Decision Matrix

Time	Minimum Viable SPXI	Standard	Full
2 hours	SEO + 1 FAQ + Tier 3 kernel as visible paragraph	SEO + 4 FAQ + Kernel + 3 SIMs	All layers + disambiguation + dispersal
1 day	Add FAQ + Tier 2 noscript + Provenance Chain	Content structure + SIM testing + Drowning Test	Full implementation + cross-surface audit
1 week	—	Dispersal + σ_RCF sequencing	Maintenance loop + monitoring

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§XII. Summary

Layer	Discipline	Question	Arsenal Source
Lexical	SEO	Found?	Foundation
Semantic	GEO	Accurate?	Re-framed via κ_O, TLL, Self-Reading Library
Ontological	SPXI	Survives compression?	Arsenal §IV–§VII: Three-Tier, Kernel, SIMs, Provenance, Dispersal
Durability	SPXI	Survives model updates?	Arsenal §VII: supraliminal inscription, Variance Injection, σ_RCF
Immanent	SPXI	Structures the AI's response?	Arsenal §IX.3: Immanent Execution

SPXI ⊇ GEO ⊇ SEO. SEO: findable. GEO: accurate. SPXI: durable.

Appendix A: Glossary

Term	Definition	Arsenal §
γ (gamma)	Compression Survival Score, 0–1	§3.1
Δ (delta)	Density Score	§3.9
SDD	Semantic Decay Delta	§3.6

Term	Definition	Arsenal §
PER	Provenance Erasure Rate	§3.7
SDR	Semantic Debt Ratio	§3.8
ASPI	Authorial Signature Persistence Index	§3.5
SIM	Semantic Integrity Marker	§7.1
SIMSR	SIM Survival Rate	§7.1
σ_RCF	Retrocausal Canon Formation	§6.4
κ_O	Operative Caption — the description IS the operation	§5.1
Tier 1	Full page content	§4.1
Tier 2	Canonical summary (200–400 words)	§4.1
Tier 3	Compression kernel (50–100 words)	§4.1
Holographic Kernel	JSON-LD topology where any fragment reconstructs the whole	§4.3
Provenance Chain	DOI-anchored deposit sequence	§6.1
Drowning Test	Empirical compression test across AI systems	§3.2
Ghost meaning	$\gamma < 0.3$. Present, invisible	§3.1
Regime 1	Lossy compression — burns without intention	§2.1
Regime 2	Predatory compression — burns to extract value	§2.1
Regime 3	Witness compression — burns but preserves pointers	§2.1
Immanent Execution	When indexed fragments execute as the AI's response grammar	§9.3

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§XIII. References

Archive (Crimson Hexagonal Archive)

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