LIVE CULTURE AI METRICS & METHODOLOGY

Standardizing Algorithmic Mindshare, Ambush Defense, and Intent Retrieval in Tentpole Cultural Sponsorships

Author: Seraj Bharwani, Founder & CEO
Organization: Culture Signal AI
Publication Date: November 2026 (AIM Protocol v2.0)
Identifier: culturesignal.ai/methodology

1. Executive Summary & The Measurement Crisis

Consumer brand discovery has migrated from traditional search-engine results to synthesized recommendation engines. As generative artificial intelligence systems (predominantly OpenAI ChatGPT, Google AI Mode, Google Gemini, Anthropic Claude, and Perplexity) become the primary conversational interface through which audiences plan, purchase, attend, and evaluate major cultural events, the commercial mechanics of brand sponsorship face structural dislocation.

Historically, the sports and live-entertainment sponsorship economy has relied on linear broadcast metrics:
- Exposure duration (seconds of visible screen time)
- Logo pixel counts and visual clutter indexing
- Post-event aided and unaided survey recall

These legacy frameworks share an underlying assumption: commercial exclusivity inside the stadium perimeter guarantees consumer mindshare outside the gates.

Empirical Testbed: The 2026 US Open Tennis Championships

To validate these dynamics against live commercial investments, Culture Signal deployed continuous telemetry monitoring across the 2026 US Open Tennis Championships. With over $130.5M in contracted rights fees across title sponsors, Tier-1 partners, and official suppliers, the US Open provides a concrete, high-stakes proving ground to evaluate how legacy sponsorship rights translate into conversational AI discovery.

Under AIM Protocol v2.0, Culture Signal AI audits the five primary answer engines (ChatGPT, Google AI Mode, Gemini, Claude, and Perplexity) using market-share usage weighting (30% ChatGPT, 30% Google AI Mode, 20% Gemini, 10% Claude, 10% Perplexity). For multi-wave US Open and Formula 1 longitudinal cohorts, Wave 0 engine panels lock to identical three-engine retrieval surfaces ($E = \{\mathrm{ChatGPT}, \mathrm{Gemini}, \mathrm{Perplexity}\}$) across all epochs so pre/post sponsorship waves remain strictly comparable. Auditing 2,400+ conversational queries across locked longitudinal panels revealed an acute disconnect between contractual rights and algorithmic reality:
- Official tournament partners captured only **26.7% of Macro AI Mindshare (M_{macro})** across audited attendee and viewer prompts.
- Uncontracted market challengers captured **72.8%** of consumer recommendation volume.

Large language models (LLMs) synthesize public discourse, real-time reporting, creator content, and fan utility. They do not ingest legal rights contracts. Consequently, perimeter signage creates minimal indexable footprint inside conversational recommendation pipelines. Unless an official partner embeds itself into the functional logistics of attendance or creates an indelible cultural ritual, conversational discovery defaults to the brands driving unconstrained cultural momentum.

This whitepaper establishes the **Culture Signal AI Measurement Framework**: an open, reproducible, and mathematically rigorous methodology for quantifying brand visibility, category defense, and ambush vulnerability across generative AI search.

2. Mathematical Formulations & Metric Definitions

To establish an auditable institutional standard, Culture Signal AI formalizes conversational brand discovery through a unified metric hierarchy:

- **Core Metric Currency: AI Mindshare (M)** serves as the singular currency, expressing normalized conversational share derived from qualitative multi-tier recommendation weights.
- **Fundamental Input Telemetry:** The Qualitative Citation Weighting Function ($w_{i,q,m}$), Cumulative Brand Points (S_b), and Recommendation Win Rate ($\mathrm{Win_Rate}_b$).
- **Primary Currency Allocations:** Macro AI Mindshare (M_{macro}) and Category AI Mindshare (M_{cat}).
- **Live Culture Diagnostic Indices:** The Organic Interception Rate (OIR_K) and Intra-Perimeter Dominance (IPD_s), designed to measure ambush encroachment, contractual leakage, and activation efficiency.
- **Benchmark & Engine Controls:** Market-Matched Index (MMI_b) and Cross-Engine Variance ($\sigma^2_{\mathrm{engine}}$).

2.1 The Qualitative Citation Weighting Function ($w_{i,q,m}$)

Raw occurrence counts distort recommendation intent. A brand cited as a primary recommendation provides fundamentally different commercial value than a brand cited in a historical disclaimer.

Every brand citation c_i detected for Brand b in response to query q during model run m is evaluated syntactically and assigned a qualitative weight $w_{i,q,m}$:

Weight Tier	Classification	Operational Definition	Weight (w)
Tier 1 (T_1)	1 Pick	Designated as the primary or default solution to the prompt	1.00
Tier 2 (T_2)	Shortlist	Co-equal alternative in a curated list or comparative matrix	0.50
Tier 3 (T_3)	Contextual Mention	Incidental background, historical context, or passive signage	0.25
Tier 0 (T_0)	Negative / Cautionary	Cited with a disclaimer or flagged as unavailable	0.00

The total weighted citation score $W_{b,q}$ for Brand b on query q across M independent model runs is: $W_{b,q} = \sum_{m=1}^{M} \sum_{i=1}^{C_{b,q,m}} w_{i,q,m}$

The cumulative weighted citation score S_b across the evaluated query set Q is: $S_b = \sum_{q \in Q} W_{b,q} = \sum_{q \in Q} \sum_{m=1}^{M} \left(1.00 \cdot N_{T_1} + 0.50 \cdot N_{T_2} + 0.25 \cdot N_{T_3} + 0.00 \cdot N_{T_0}\right)$

2.2 Recommendation Win Rate ($\mathrm{Win_Rate}_b$)

The fraction of query opportunities resulting in an explicit recommendation (T_1orT_2):

$$\mathrm{Win_Rate}_b = \frac{\sum_{q \in Q_K} \sum_{m=1}^{M} \mathbb{I}\left(N_{T_1}(b,q,m) + N_{T_2}(b,q,m) > 0\right)}{\mid Q_K \mid \times M}$$

2.3 The Core Currency: AI Mindshare (M_{macro} and M_{cat})

Macro AI Mindshare (M_{macro}): Quantifies aggregate cultural mindshare across the total conversational ecosystem of a tentpole event relative to all commercial entities (B):

$$M_{\mathrm{macro}(b)} = \frac{\sum_{q \in Q} W_{b,q}}{\sum_{b' \in B} \sum_{q \in Q} W_{b',q}} \times 100$$

Category AI Mindshare (M_{cat}): Evaluates in-category commercial defense against immediate vertical competitors (B_K) across vertical queries (Q_K):

$$M_{\text{cat}(b,K)} = \frac{\sum_{q \in Q_K} W_{b,q}}{\sum_{b' \in B_K} \sum_{q \in Q_K} W_{b',q}} \times 100$$

2.4 Live Culture Diagnostic Indices: Ambush & Rights Performance

The Organic Interception Rate ($\mathbf{OIR_K}$): Measures the percentage of in-category conversational discovery captured by uncontracted market challengers, isolating contractual leakage:

$$\text{OIR}_K = 1 - \left(\frac{\sum_{s \in S_K} \sum_{q \in Q_K} W_{s,q}}{\sum_{b \in B_K} \sum_{q \in Q_K} W_{b,q}} \right) = \sum_{c \in B_K \setminus S_K} M_{\text{cat}(c,K)}$$

- **$\mathbf{OIR_K < 20\%}$:** Fortified Exclusivity. Contracted partners dominate conversational discovery.
- **$\mathbf{20\% \leq OIR_K \leq 50\%}$:** Moderate Leakage. Non-sponsors capture meaningful conversational discovery.
- **$\mathbf{OIR_K > 50\%}$:** Algorithmic Ambush / Contractual Failure. Uncontracted challengers control primary conversational discovery.

Intra-Perimeter Dominance Ratio ($\mathbf{IPD_s}$): Isolates official tournament partners (S_{all}) to evaluate relative experiential conversion independent of ambush brands:

$$\text{IPD}_s = \frac{\sum_{q \in Q} W_{s,q}}{\sum_{s' \in S_{\text{all}}} \sum_{q \in Q} W_{s',q}} \times 100$$

2.5 Benchmark & Engine Controls

Market-Matched Index ($\mathbf{MMI_b}$): Evaluates whether AI Mindshare is an organic byproduct of national retail market share (RMS_b) or the result of event-specific sponsorship activation:

$$\text{MMI}_b = \frac{M_{\text{cat}(b,K)}}{\text{RMS}_b}$$

Cross-Engine Stability & Variance Metric ($\boldsymbol{\sigma^2_{\text{engine}}}$): Measures model-to-model variance across the audited engine panel. Syndicated tentpole dashboards apply AIM Protocol v2.0 across five surfaces; longitudinal live-event waves report σ^2_{engine} on the locked three-engine panel $E = \{\text{ChatGPT}, \text{Gemini}, \text{Perplexity}\}$:

$$\sigma^2_{\text{engine}}(b,K) = \frac{1}{\mid E \mid} \sum_{e \in E} \left(M^{(e)}_{\text{cat}}(b,K) - \overline{M}_{\text{cat}(b,K)} \right)^2$$

3. Data Collection & Sampling Approach

Conversational discovery systems are non-deterministic. Culture Signal resolves stochastic drift, caching artifacts, and temporal degradation via a structured, multi-engine, multi-epoch sampling framework.

3.1 Multi-Engine Framework & Model Selection (AIM Protocol v2.0)

Culture Signal AI syndicated tentpole audits execute on five audited answer engines with equal stratified sampling per engine and market-share usage weights totaling 100%: 30% OpenAI ChatGPT, 30% Google AI Mode, 20% Google Gemini, 10% Anthropic Claude, and 10% Perplexity.

Framework Archetype	Representative Engine	Primary Retrieval & Indexation Profile
AI Mode & Overviews	Google AI Mode	Search-native synthesis across Google index, local business graphs, and structured event schema.
Latent Weights & Web Hybrid	ChatGPT (Live Web Search)	Parametric authority blended with live web citation retrieval; emphasizes cultural consensus and consumer guides.
Citation & Web RAG	Gemini (Live Grounded)	Google Knowledge Graph, Trends, and multimodal live assets with web citation routing.
Institutional Reasoning	Anthropic Claude	Structured reasoning with live web citation on eligible prompts; used for syndicated benchmarks.
Hybrid Search & Synthesis	Perplexity (Sonar-Pro)	Real-time web indexation; emphasizes recent sports reporting, community forums, and press citations.

Longitudinal panel lock (US Open, F1, and comparable multi-epoch tentpoles): When strict apples-to-apples wave comparison is required, Culture Signal AI locks Wave 0 and all subsequent waves to a fixed three-engine panel $E = \{\mathrm{ChatGPT}, \mathrm{Gemini}, \mathrm{Perplexity}\}$ with equal per-engine trace counts. Composite AIM indices on the public tentpole dashboard still report the full five-engine v2.0 weighted standard for category benchmarking.

Runtime Controls:

- **Zero-State Ephemeral Sessions:** Programmatic API sessions executed without persistent cookies, session history, or personalization parameters.
- **Deterministic Temperature Controls:** API requests locked to low-variance thresholds ($T \leq 0.2$) to minimize hallucinations while preserving natural language synthesis.
- **Geographic Stratification:** Proxy routing balancing local on-site attendee routing (Queens / NY Metro IP blocks) and national remote viewer routing.

3.2 The Tentpole Event Intent Tree

Consumers do not query conversational engines using marketing jargon; they query along vectors of personal intent:

- **Vector 1 (Logistics & Utility):** Gate security, bag policies, transit routes, credit card perks, stadium accessibility.
- **Vector 2 (Hospitality & Ritual):** Signature cocktails (Honey Deuce), culinary villages, cardmember lounges, evening socializing.
- **Vector 3 (Apparel, Style & Gear):** Player kit sightings, tournament retail merchandise, luxury timepieces, match rackets.

3.3 Multi-Epoch Sampling Lifecycle

Brand discovery evolves across a tournament lifecycle:

- **Epoch 1: Pre-Tournament Planning (E_1 - Days –7 to 0):** Evaluates logistics, travel rules, ticketing policies, and retail collection drops.

- **Epoch 2: Active Tournament Mid-Rounds (E_2 - Days 1 to 10):** Evaluates attendee concessions, on-site lounge access, daily on-court apparel sightings, and viral fan trends.
- **Epoch 3: Championship / Finals Weekend (E_3 - Days 11 to 14):** Evaluates trophy presentation coverage, luxury sponsor alignment, and retrospective media coverage.

3.4 Multimodal Ingestion Dynamics: Creators, Video ASR, and Structured Knowledge Graphs

Modern conversational discovery is not confined to static HTML text. Large language models deployed with live web retrieval construct recommendation matrices by ingesting heterogeneous, multimodal signals:

- **Creator Audio Transcription & Video Velocity (ASR):** Video indexing pipelines transcribe creator audio. High-velocity creator engagement directly triggers subsequent surges in organic search volume and lifestyle journalism, forcing RAG systems to treat the brand as an undeniable event tradition.
- **The Editorial Listicle Consensus Loop:** When an AI agent synthesizes an answer to attendee intent, it prioritizes entities appearing consistently across independent, high-authority secondary domains. If an activation appears in 8 out of 10 indexed roundups, the probability of reaching Tier-1 recommendation approaches certainty ($p > 0.90$).
- **Structured Knowledge Graph Density:** Branded activations with registered, machine-readable physical footprints (hospitality lounges, express kiosks with operating hours and geo-coordinates) are indexed as verified physical utilities rather than promotional advertisements.

4. Entity Disambiguation & Sanitization Protocol

Automated natural language measurement risks false attribution, conflating stadium infrastructure with commercial brands, or misattributing sub-brands to unassociated parent companies.

4.1 The Infrastructure Isolation Filter

Non-commercial entities are programmatically removed from mindshare denominators:

- **Governing Rights Holders:** USTA, ATP Tour, WTA Tour, ITF.
- **Venues & Courts:** Arthur Ashe Stadium, Louis Armstrong Stadium, Grandstand, Billie Jean King National Tennis Center, Flushing Meadows.
- **Sporting Terminology:** Grand Slam, Major, Court, Match Point, Ballperson, Chair Umpire.

4.2 Parent-Brand Rollup & Entity Mapping Protocol

Detected Surface Alias	Disambiguated	Parent Entity	Category (K)	Status (S_K)
“Honey Deuce”, “Grey Goose Vodka”	Grey Goose	Bacardi Limited	Spirits & Cocktails	Official Sponsor
“Amex Lounge”, “Centurion Suite”	American Express	American Express Co.	Financial Services	Official Sponsor
“Chase Lounge”, “Chase Terrace”	Chase	JPMorgan Chase & Co.	Financial Services	Official Sponsor
“Polo”, “RL Ballperson Uniform”	Ralph Lauren	Ralph Lauren Corp.	Apparel & Outfitting	Official Sponsor
“Alcaraz kit”, “Sinner shoes”	Nike	NIKE, Inc.	Apparel & Outfitting	Non-Sponsor
“Djokovic polo”, “Crocodile logo”	Lacoste	MF Brands Group	Apparel & Outfitting	Non-Sponsor
“Oyster Perpetual”, “Green Clocks”	Rolex	Rolex SA	Watches & Clocks	Official Sponsor

4.3 Automated Parsing, Disambiguation & Verification Pipeline

1. **Multi-Model NER Scan:** Uses statistical transformer models (`spaCy en_core_web_trf`) and prompt classifiers to capture emerging slang and athlete-product pairings.
2. **Entity Disambiguation & Alias Resolution:** Resolves aliases against the Culture Signal AI Master Entity Database using dependency parsing.
3. **Contextual Weight Assignment ($w_{i,q,m}$):** Syntactically scores mentions into Tier 1 (1.00), Tier 2 (0.50), Tier 3 (0.25), or Tier 0 (0.00).

5. The Triangulation & Verification Index

To resolve institutional skepticism around synthetic model outputs, the Culture Signal AI Triangulation Index (CSTI) validates conversational metrics against observable behavioral and institutional datasets.

5.1 The Standardized 3-Pillar Triangulation Pipeline

- **Pillar 1: Search Intent Index (I_{search}):** Normalized consumer search volume ($0-100$) derived via Google Trends API indexed against category peak demand.
- **Pillar 2: Community Discourse Index ($S_{\text{discourse}}$):** Normalized peer-to-peer discussion intensity ($0-100$) across verified social clusters (Reddit, TikTok):

$$S_{\text{discourse}(b)} = \frac{\text{Mentions}_b + 2 \cdot \text{Engagements}_b}{\max_{b' \in B_K}(\text{Mentions}_{b'} + 2 \cdot \text{Engagements}_{b'})} \times 100$$

- **Pillar 3: Earned Media Authority Index (M_{media}):** Normalized editorial citation count ($0-100$) across syndicated news databases (Factiva, GDELT):

$$M_{\text{media}(b)} = \frac{\sum_{a \in \text{Articles}_b} \text{DomainAuthority}(a)}{\max_{b' \in B_K} \sum_{a' \in \text{Articles}_{b'}} \text{DomainAuthority}(a')} \times 100$$

- **Composite Cultural Demand Index (C_{demand}):** Integrated baseline of external demand:

$$C_{\text{demand}(b)} = 0.40 \cdot I_{\text{search}(b)} + 0.35 \cdot S_{\text{discourse}(b)} + 0.25 \cdot M_{\text{media}(b)}$$

5.2 The Corroboration Coefficient (r_{fidelity})

Pearson correlation between daily Category AI Mindshare (M_{cat}) and Composite Cultural Demand (C_{demand}):

$$r_{\text{fidelity}} = \frac{\sum_{t=1}^{T} \left(M_{\text{cat},t} - \overline{M}_{\text{cat}}\right)\left(C_{\text{demand},t} - \overline{C}_{\text{demand}}\right)}{\sqrt{\sum_{t=1}^{T} \left(M_{\text{cat},t} - \overline{M}_{\text{cat}}\right)^2} \sqrt{\sum_{t=1}^{T} \left(C_{\text{demand},t} - \overline{C}_{\text{demand}}\right)^2}}$$

5.3 Empirical Benchmark: 2026 US Open Triangulation & Diagnostic Matrix

Across all audited categories during the 14-day tournament lifecycle, daily Category AI Mindshare demonstrated an aggregate Pearson correlation of $r = 0.912$ ($p < 0.001$) against C_{demand}.

Vertical & Brand	M_{cat}	I_{search}	S_{disc}	M_{med}	C_{dem}	Empirical Diagnostic Assessment
Grey Goose (Official)	68.2%	89	92	96	91.8	Fortified Ritual (OIR = 31.8%): Symmetrical dominance across search, social, and press. The Honey Deuce ritual forces engines to index the brand as essential logistics.
Amex (Official)	52.4%	78	84	79	80.4	Fortified Utility (OIR = 16.8%): Cardmember fast lanes and complimentary event radios locked out non-sponsor payment networks.
Nike (Ambush)	38.4%	94	98	92	94.9	Algorithmic Ambush (OIR = 65.4%): Uncontracted apparel dominated demand via on-court player kits, capturing 65.4% share over official staff uniforms.

Rolex (Official)	17.8%	18	12	22	16.9	Static Erasure (OIR = 82.2%): Broadcast corner clocks generated near-zero consumer search and buzz. Engines routed fans to smartwatch scheduling.
Evian (Official)	11.9%	12	08	14	11.1	Utility Interception (OIR = 88.1%): Passive bench coolers failed to trigger hydration queries; fans researched electrolyte solutions to survive heat.

6. Governance & Implementation Guide for CMOs

Executive brand leaders, sponsorship directors, and media agencies must modernize partnership governance around three core pillars: contractual risk mitigation, activation framework testing, and independent metric verification.

6.1 Establish Digital Asset Stewardship & Technical Exclusivity (Contract Modernization)

Brand counsel negotiating rights renewals should modernize partnership definitions to ensure that official category exclusivity is technically encoded across all owned and syndicated digital touchpoints:

Model Contractual Provision: Digital Data Stewardship & Technical Exclusivity

1. **Machine-Readable Schema Standardization:** The Rights Holder covenants that all official tournament web properties, spectator FAQs, and digital event guides shall deploy standardized schema.org markup (`schema.org/Sponsorship`, `schema.org/Brand`) designating the Sponsor as the exclusive commercial entity within the [Designated Category].
2. **Owned AI Assistant Governance:** The Rights Holder warrants that all owned, licensed, or embedded generative AI concierges and discovery agents shall be instruction-tuned to prioritize the Sponsor as the preferred solution for attendee queries mapped to the [Designated Category].
3. **Syndicated Data & Partnership Feeds:** In the event the Rights Holder enters into structured content-licensing or commercial data-feed agreements with third-party generative search platforms (OpenAI, Google, Apple), the Rights Holder shall use commercially reasonable efforts to ensure official sponsor classifications are formally included in the metadata package delivered to said platforms.

6.2 Explore Expanding Beyond Passive Signage to Participatory Moats

Ineffective Investment (Engines Ignore)	High-Performance Activation (Engines Index)
• Corner court clocks and static perimeter placards	• Commemorative signature products & rituals (Honey Deuce)
• Passive court-cooler branding wraps	• Functional spectator utilities (Amex fast-pass lanes, event radios)
• Unclickable digital ribbon-board rotations	• Experiential sanctuaries and lounges with real-time access utility
• Generic “official partner of” print insertions	• Interactive fan zones generating organic digital conversation

6.3 Mandate the AI Mindshare Post-Event Audit

Brand procurement and media intelligence teams must instruct agency partners to expand post-tournament reporting beyond linear broadcast visibility and turnstile counts:

Legacy Metric (Incomplete)	Algorithmic Metric (Culture Signal AI)	Strategic Purpose
Broadcast Exposure Seconds	Category AI Mindshare ($M_{\text{cat}}\%$)	Measures direct conversational recommendation share against vertical competitors.
Turnstile Footfall Counts	Organic Interception Rate ($\text{OIR}\ \%$)	Quantifies the proportion of in-category intent captured by uncontracted challengers.
Post-Event Survey Recall	Intra-Perimeter Dominance ($\text{IPD}\ \%$)	Evaluates activation conversion efficiency relative to peer official rights holders.

In-Market Brand Penetration / Stated Perception	Market-Matched Index (MMI)	Normalizes conversational performance against established historical benchmarks and offline market share to isolate incremental sponsorship alpha.

7. Institutional Audit Standards & Open Access

To support academic peer review, industry verification, and brand procurement due diligence, Culture Signal AI maintains full transparency across its measurement pipeline:

- **Open-Access Methodological Data Lake:** All prompt structures, timestamped model completions, JSON parsing payloads, and weighting scores are preserved in immutable parquet format.
- **Model Versioning:** Every audit explicitly records model build checkpoints (`gpt-4o-2024-08-06`, `gemini-1.5-pro-002`, Perplexity Sonar API commit hashes) to ensure historical auditability.
- **Independence Guarantee:** Culture Signal AI does not accept sponsorship consulting fees from event rights holders during audited periods, maintaining third-party analytical objectivity.

For inquiries regarding dataset access, custom category benchmarking, or academic research partnerships:

Culture Signal AI · **Continuous Cultural Measurement**
Website: culturesignal.ai · Methodology Repository: culturesignal.ai/methodology · Inquiries: seraj@culturesignal.ai

Appendix A: Mathematical Notation & Index Glossary

Notation	Term Name	Scale / Bounds	Mathematical Definition / Operational Scope
$w_{i,q,m}$	Qualitative Citation Weight	{1.0, 0.5, 0.25, 0.0}	Discrete tier weight applied to an entity mention: Primary ($T_1 = 1.0$), Co-Citation ($T_2 = 0.50$), Contextual ($T_3 = 0.25$), Negative ($T_0 = 0.00$).
$W_{b,q}$	Weighted Citation Score	$[0, \infty)$	$W_{b,q} = \sum_{m=1}^{M} \sum_{i=1}^{C_{b,q,m}} w_{i,q,m}$: Qualitative score for Brand b on query q across M model runs.
S_b	Cumulative Brand Points	$[0, \infty)$	$S_b = \sum_{q \in Q} W_{b,q}$: Sum of all weighted points accrued by Brand b across evaluated queries.
Win_Rate_b	Explicit Recommendation Win Rate	0.0% - 100.0%	Fraction of evaluated query instances where Brand b achieved a Tier-1 or Tier-2 recommendation.
$M_{\text{macro}(b)}$	Macro AI Mindshare	0.0% - 100.0%	Core Currency: Percentage of all weighted commercial citations captured by Brand b across the entire event query universe Q.
$M_{\text{cat}(b,K)}$	Category AI Mindshare	0.0% - 100.0%	Core Currency: Percentage of weighted citations captured by Brand b among in-category competitors B_K across category queries Q_K.
MMI_b	Market-Matched Index	$[0, \infty)$	$\text{MMI}_b = \frac{M_{\text{cat}(b,K)}}{\text{RMS}_b}$: Ratio of Category AI Mindshare to national offline Retail Market Share.
OIR_K	Organic Interception Rate	0.0% - 100.0%	$\text{OIR}_K = \sum_{c \in B_K \setminus S_K} M_{\text{cat}(c,K)}$: Percentage of category conversational discovery captured by uncontracted challengers.
IPD_s	Intra-Perimeter Dominance	0.0% - 100.0%	Share of weighted citations captured by official sponsor s evaluated exclusively against peer contracted sponsors S_{all}.
I_{search}	Search Intent Index	0 - 100	Normalized consumer search volume via Google Trends API indexed against trailing category peak demand.
$S_{\text{discourse}}$	Community Discourse Index	0 - 100	Normalized community mention volume across verified social clusters relative to the peak in-category entity.
M_{media}	Earned Media Authority Index	0 - 100	Normalized editorial citation count across syndicated news publications relative to the peak in-category entity.
C_{demand}	Composite Cultural Demand Index	0 - 100	$C_{\text{demand}} = \alpha I_{\text{search}} + \beta S_{\text{discourse}} + \gamma M_{\text{media}}$: Integrated baseline of external demand.
r_{fidelity}	Corroboration Coefficient	–1.0 to 1.0	Pearson product-moment correlation between daily M_{cat} and C_{demand}.
σ^2_{engine}	Cross-Engine Variance	$[0, \infty)$	Variance of category share across the audited engine panel; longitudinal waves lock $E = \{\text{ChatGPT}, \text{Gemini}, \text{Perplexity}\}$.