

IEO Glossary

Canonical terminology for Interpretability Engine Optimization

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59 terms in 8 conceptual layers. IEO is an open discipline: the terminology carries no TM and practising it requires no particular vendor's tools. The living version, with a citable anchor per term, is at nsolvias.com/ieo/glossary.

Companion to: *Interpretability Engine Optimization (IEO): The Missing Optimization Layer in AI Commerce*. DOI: 10.5281/zenodo.22104281

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1 Foundation

Interpretability

`/ieo/glossary#interpretability`

DEFINITION The degree to which a machine system can form a correct, usable understanding of business information from the representation available to it.

EXAMPLE A product page may clearly show a sunscreen to a human, while a machine may still fail to resolve its product type, SPF, intended use, active ingredients, or restrictions.

BOUNDARY In IEO, interpretability means machines interpreting the merchant. This is the reverse direction of model interpretability in XAI, where humans interpret the model.

IEO — Interpretability Engine Optimization

`/ieo/glossary#ieo-interpretability-engine-optimization`

DEFINITION (GENERAL) The practice of making source information machine-interpretable for a declared decision context before downstream reasoning, recommendation, comparison, decision, or action occurs. (Methodology V1.0 §1.) This is the domain-general definition; in commerce it takes the form stated under Commerce IEO.

OPERATIONAL FORMULATION IEO structures, resolves, enriches, validates, and represents source information so machine systems can correctly interpret it for the task at hand, without unsupported inference.

CATEGORY STATUS Open discipline. IEO does not prescribe a specific vendor, model, data format, protocol, or software implementation.

CANONICAL FRAMING IEO optimizes understanding.

CANONICAL CLOSING LINE Semantic discovery is downstream of interpretation.

SCOPE OF THE ACRONYM "IEO" is used here for Interpretability Engine Optimization, the discipline proposed by NSOLVIA Research in 2026 and published under DOI 10.5281/zenodo.22104280. The acronym has other expansions in circulation; this work refers exclusively to the one defined here.

RESEARCH NOTE What the term refers to, where it sits relative to neighbouring practices, and what falls outside its scope are set out in

Commerce IEO

/ieo/glossary#commerce-ieo

DEFINITION The domain profile of IEO for commerce, and the form stated in the founding paper: the practice of making a business's offers, entities, attributes, policies, and source facts machine-interpretable before downstream retrieval, recommendation, comparison, or action occurs. A domain profile of the general definition, not a competing one.

SCOPE Commerce IEO is the domain in which the current NSOLVIA research, instruments, and empirical evidence are most mature.

Interpretability Engine

/ieo/glossary#interpretability-engine

DEFINITION A collective term for any machine system that consumes business information and must form a usable interpretation of it, including search engines, answer engines, generative systems, recommendation systems, commerce platforms, and autonomous agents.

CLARIFICATION IEO optimizes source data for interpretation engines. It does not optimize the engines themselves.

Commerce Interpretability

/ieo/glossary#commerce-interpretability

DEFINITION The umbrella condition describing whether machines can correctly understand the three objects required to evaluate a commerce offer: the product, the brand, and the transaction.

CANONICAL MODEL Product tells the machine what is being sold. Brand tells it who stands behind it. Transaction tells it under what rules it can be bought.

AI Commerce Readiness

/ieo/glossary#ai-commerce-readiness

DEFINITION The state of preparedness of a merchant's commerce data and surfaces for machine-mediated discovery, interpretation, comparison, recommendation, and action.

CLARIFICATION Readiness is a state. IEO is a practice used to improve one of the foundational properties that readiness depends on.

BOUNDARY Distinct from any vendor-specific readiness score: commercial instruments (e.g., NSOLVIA's Agentic Catalog Readiness Score™) measure readiness including interpretability-related signals, but no single commercial score should be read as a universal IEO metric.

Interpretability Debt

</ieo/glossary#interpretability-debt>

DEFINITION The accumulated gap between what a business knows about its offers and what its machine-facing representations make explicit enough for machines to understand correctly.

EXAMPLE Years of adding products for human shoppers while leaving taxonomy, attributes, use cases, policies, and structured meaning unresolved can create interpretability debt.

COMMERCIAL SHORTHAND A catalog can accumulate interpretability debt just as a software system accumulates technical debt.

2 Objects of Interpretation

Product Interpretability

</ieo/glossary#product-interpretability>

DEFINITION The degree to which a machine can correctly understand what is being sold, including identity, taxonomy, attributes, materials, use cases, functional intent, purchase signals, restrictions, and meaningful differences between related products.

Brand Interpretability

</ieo/glossary#brand-interpretability>

DEFINITION The degree to which a machine can correctly understand who stands behind an offer, including brand identity, provenance, positioning, manufacturing facts, certifications, supported claims, promises, and trust-relevant facts.

Transactional Interpretability

</ieo/glossary#transactional-interpretability>

DEFINITION The degree to which a machine can correctly understand the rules under which an offer can be evaluated or purchased, including price, availability, shipping, returns, eligibility, exclusions, fulfillment conditions, and other transaction rules.

Offer Interpretation

</ieo/glossary#offer-interpretation>

DEFINITION The complete understanding a machine forms about an offer across product, brand, and transactional context.

CLARIFICATION The unit of analysis is not merely the URL or SKU. It is what the machine can correctly understand about the complete offer.

3 Source Truth & Grounding

Source Truth

</ieo/glossary#source-truth>

DEFINITION The merchant-supported facts available from the source materials from which machine-interpretable representations may be derived without introducing unsupported claims.

Merchant Truth

</ieo/glossary#merchant-truth>

DEFINITION The complete set of facts, policies, claims, and operating rules that the merchant has supplied, published, or explicitly confirmed as authoritative.

RELATIONSHIP Source Truth is the evidence available in a given source. Merchant Truth is the broader authoritative business truth from which multiple sources may derive.

Entity Grounding

</ieo/glossary#entity-grounding>

DEFINITION Connecting a machine-resolved entity to sufficient evidence to establish what real product, brand, organization, place, or offer the data refers to.

Brand Entity Resolution

</ieo/glossary#brand-entity-resolution>

DEFINITION Resolving scattered references, names, descriptions, claims, and identifiers into a consistent representation of one brand entity.

Brand Provenance

</ieo/glossary#brand-provenance>

DEFINITION Verified information describing the origin of a brand, product, manufacturing process, material, claim, or other trust-relevant fact.

Brand Claim Grounding

[/ieo/glossary#brand-claim-grounding](#)

DEFINITION Connecting a brand claim to merchant-supported or otherwise verified evidence before representing that claim as fact.

EXAMPLE “Founded by doctors” is not treated as a verified brand fact unless the authoritative source supports it.

Brand Policy Resolution

[/ieo/glossary#brand-policy-resolution](#)

DEFINITION Converting merchant policies such as shipping, returns, warranties, exclusions, contact methods, and fulfillment rules into explicit, internally consistent rules that machines can interpret.

Brand Promise Resolution

[/ieo/glossary#brand-promise-resolution](#)

DEFINITION Distinguishing supported brand promises from aspirational or promotional language and representing only the claims that can be sustained by available evidence.

Verified, Never Invented

[/ieo/glossary#verified-never-invented](#)

DEFINITION Information may be normalized, resolved, or made explicit, but unsupported facts must not be introduced as if they were verified merchant truth.

TYPE IEO principle.

Honest Empty

[/ieo/glossary#honest-empty](#)

DEFINITION A field intentionally left unresolved because the available evidence is insufficient to support a reliable value.

EXAMPLE If material composition cannot be established from merchant-supported evidence, IEO leaves the material unresolved rather than guessing.

The Mirror Principle

</ieo/glossary#the-mirror-principle>

DEFINITION Human-facing and machine-facing representations should communicate the same underlying facts because both derive from the same authoritative truth.

PURPOSE Prevents machine-facing representations from becoming a hidden or contradictory version of the merchant's public offer.

4 Semantic Resolution & Catalog Operations

IEO Pipeline

</ieo/glossary#ieo-pipeline>

DEFINITION The canonical typical sequence used to transform source business information into a machine-interpretable representation.

CANONICAL PIPELINE Normalization → Semantic Resolution → Enrichment → Validation/Grounding → Machine-Interpretable Representation

IMPLEMENTATION RULE This is a typical IEO pipeline, not a required software architecture. It may be executed by humans, deterministic rules, AI systems, semantic engines, or any combination. IEO depends on the measurable interpretability outcome, not on a specific implementation.

Semantic Resolvability

</ieo/glossary#semantic-resolvability>

DEFINITION The degree to which the meaning required for machine interpretation can be resolved from available evidence without unsupported inference.

Semantic Resolution

</ieo/glossary#semantic-resolution>

DEFINITION The operation of converting ambiguous, implicit, inconsistent, or fragmented business information into an explicit and sufficiently supported meaning.

Category Resolvability

</ieo/glossary#category-resolvability>

DEFINITION The degree to which an offer can be reliably mapped to the most specific supported category within the target taxonomy.

LEAF-LEVEL RULE Resolve to the deepest supported category only when the evidence justifies it. Leaf-level resolution is part of Category Resolvability, not a separate discipline term.

Attribute Completeness

/ieo/glossary#attribute-completeness

DEFINITION The degree to which the attributes materially relevant to interpreting an offer are explicitly represented.

CLARIFICATION Completeness does not mean indiscriminately filling every available field. Unsupported fields remain Honest Empty.

Attribute Normalization

/ieo/glossary#attribute-normalization

DEFINITION Converting equivalent attribute values into a consistent canonical representation without changing their underlying meaning.

EXAMPLE SPF45, SPF 45, and 45 SPF may normalize to the same canonical value.

Variant Resolution

/ieo/glossary#variant-resolution

DEFINITION Correctly distinguishing and relating purchasable variants of an offer, including size, color, material, configuration, pack, or other variant-defining properties.

Offer Integrity

/ieo/glossary#offer-integrity

DEFINITION The condition in which the product identity, attributes, brand facts, transaction rules, and supporting evidence remain internally consistent across the machine-interpretable representation.

Semantic Ambiguity

/ieo/glossary#semantic-ambiguity

DEFINITION A condition in which the available evidence supports more than one plausible interpretation and no single interpretation can be safely resolved.

Catalog Ambiguity

/ieo/glossary#catalog-ambiguity

DEFINITION Semantic ambiguity occurring at product or catalog level, including unclear taxonomy, overlapping product identity, unresolved variants, inconsistent attributes, or conflicting source descriptions.

USAGE Product/catalog-specific term. Use Semantic Ambiguity when the concept applies more broadly to product, brand, or transaction data.

Normalization

/ieo/glossary#normalization

DEFINITION The process of making inconsistent representations consistent without adding new substantive meaning.

Enrichment

/ieo/glossary#enrichment

DEFINITION The process of making useful meaning explicit by adding supported structured information that was previously implicit, fragmented, or absent from the representation.

BOUNDARY Enrichment is an IEO operation when it improves machine understanding and remains grounded in supported truth.

Validation / Grounding

/ieo/glossary#validation-grounding

DEFINITION The operation of checking that a resolved or enriched representation is supported by authoritative evidence and does not introduce contradictions or unsupported facts.

5 Machine-Interpretable Artifacts

Machine-Interpretable Representation

`/ieo/glossary#machine-interpretable-representation`

DEFINITION A representation in which enough supported meaning has been made explicit for a machine to reliably interpret the relevant object or offer.

Canonical Offer Representation

`/ieo/glossary#canonical-offer-representation`

DEFINITION A consistent, normalized representation of an offer that preserves its authoritative identity, attributes, brand context, and transaction rules across downstream destinations.

Semantic Product Record

`/ieo/glossary#semantic-product-record`

DEFINITION The product's verified meaning made explicit.

TYPICAL CONTENTS Resolved identity and taxonomy, normalized attributes, functional intent, use cases, purchase signals, safety information, and other supported product meaning.

Semantic Brand Record

`/ieo/glossary#semantic-brand-record`

DEFINITION The brand's verified identity and supported meaning made explicit.

TYPICAL CONTENTS Brand identity, provenance, positioning, manufacturing facts, supported claims, certifications, promises, and trust-relevant facts.

Semantic Transaction Record

`/ieo/glossary#semantic-transaction-record`

DEFINITION The verified transaction rules governing an offer made explicit for machine interpretation.

TYPICAL CONTENTS Price, availability, shipping, returns, eligibility, exclusions, fulfillment conditions, and related commerce rules.

Source Record

`/ieo/glossary#source-record`

DEFINITION The merchant information as it arrives before IEO processing or remediation.

Ingested Record

[/ieo/glossary#ingested-record](#)

DEFINITION The representation produced from the available source after the system has resolved only what the evidence safely supports.

CLARIFICATION An ingested record is not automatically the final or gold representation.

Gold Record

[/ieo/glossary#gold-record](#)

DEFINITION The verified, curated representation after resolution, remediation, and — where source evidence was insufficient — authorized human confirmation.

6 Measurement & Testing

Resolution Tasks

`/ieo/glossary#resolution-tasks`

DEFINITION Observable tasks used to test whether a machine can correctly resolve the meaning required to interpret an offer.

INITIAL FRAMEWORK 1. Identity resolution · 2. Taxonomic resolution · 3. Attribute resolution · 4. Intent resolution · 5. Use-case resolution · 6. Trust / safety resolution · 7. Retrieval-language resolution

STATUS Initial observable framework, not a closed taxonomy.

Interpretability Baseline

`/ieo/glossary#interpretability-baseline`

DEFINITION The observed interpretability state of an offer or business representation before remediation.

Projected Interpretability Lift

`/ieo/glossary#projected-interpretability-lift`

DEFINITION The estimated improvement in interpretability represented by a remediated or enriched version before that improvement has been fully deployed and re-measured in production.

Observed Interpretability Lift

`/ieo/glossary#observed-interpretability-lift`

DEFINITION The measured difference in interpretability after remediation has actually been deployed and the representation has been re-evaluated.

Interpretation Failure Cost

`/ieo/glossary#interpretation-failure-cost`

DEFINITION The downstream operational or commercial cost that may arise when a machine interprets an offer incorrectly or incompletely.

POSSIBLE EFFECTS Missed eligibility, incorrect matching, recommendation errors, avoidable support work, avoidable returns, cancellations, or additional manual remediation.

RULE These effects must be measured where claimed; they are not automatic consequences of every interpretation failure.

IEO Counterfactual Product Test

[/ieo/glossary#ieo-counterfactual-product-test](#)

DEFINITION A controlled experiment that compares the same product represented in a fully interpreted form and a deliberately degraded form while holding material variables constant.

PURPOSE Tests whether representation quality materially affects machine understanding.

TYPICAL MEASURES Attribute extraction accuracy, category resolution, constraint satisfaction, differentiation between similar offers, hallucination rate, and task completion.

7 Boundaries & Neighboring Disciplines

The IEO Ladder

</ieo/glossary#the-ieo-ladder>

DEFINITION A functional map showing how IEO relates to neighboring optimization disciplines and the downstream agentic action layer.

CANONICAL LADDER IEO → UNDERSTAND · SEO → FIND · AEO → ANSWER · GEO → CITE / SURFACE · Agentic → ACT

CLARIFICATION These are functional centers of gravity, not impermeable borders. IEO addresses machine understanding of the source representation; neighboring disciplines and agentic systems may overlap with interpretability operations, but their primary outcomes differ.

Boundary Test

</ieo/glossary#boundary-test>

DEFINITION The test used to determine whether an intervention belongs to IEO.

CANONICAL QUESTION Did the intervention improve the machine's understanding of the source — or did it only improve how the source is formatted, distributed, discovered, or surfaced?

PRACTICAL TEST If the same information were delivered through a different channel tomorrow, would the improvement in understanding remain?

Visibility

</ieo/glossary#visibility>

DEFINITION The downstream condition in which a business, product, or offer is surfaced, cited, ranked, recommended, or otherwise exposed by a system.

RELATIONSHIP TO IEO Visibility is an outcome layer. Interpretability is a source-representation property that can influence downstream machine-mediated decisions but does not guarantee visibility.

Interpretability vs. Visibility

</ieo/glossary#interpretability-vs-visibility>

DEFINITION Interpretability asks whether the machine can correctly understand the source. Visibility asks whether the system ultimately surfaces it.

CANONICAL DISTINCTION Interpretability is a condition of understanding; visibility is a downstream result.

Structured Data

/ieo/glossary#structured-data

DEFINITION A machine-readable encoding format or schema used to represent information.

IEO BOUNDARY Structured data may carry interpretable meaning, but formatting alone is not IEO. A record may be valid JSON-LD and still remain semantically ambiguous.

SEO — Search Engine Optimization

/ieo/glossary#seo-search-engine-optimization

FUNCTIONAL CENTER OF GRAVITY FIND — improving search visibility and retrieval in search engines.

AEO — Answer Engine Optimization

/ieo/glossary#aeo-answer-engine-optimization

FUNCTIONAL CENTER OF GRAVITY ANSWER — improving the ability of answer-oriented systems to extract and formulate useful answers from available information.

GEO — Generative Engine Optimization

/ieo/glossary#geo-generative-engine-optimization

FUNCTIONAL CENTER OF GRAVITY CITE / SURFACE — improving representation and citation within generative systems.

Agentic Readiness

/ieo/glossary#agentic-readiness

FUNCTIONAL CENTER OF GRAVITY ACT — enabling agents to correctly compare, decide, and execute actions using sufficiently interpretable and executable commerce information.

RELATIONSHIP IEO addresses the understanding layer on which reliable agentic action depends.

8 Economic Language

Economic Translation of Interpretability

</ieo/glossary#economic-translation-of-interpretability>

DEFINITION The process of connecting a measured improvement in machine interpretation to observable operational, platform, or commercial outcomes.

CANONICAL CHAIN Interpretability Baseline → Interpretability Lift → Operational Effect → Platform Effect → Commercial Effect

RULE Do not jump from interpretability improvement directly to revenue claims. Measure each bridge where possible.