

AE-METH-0001 — Authority Engineering Methodology

Effective controlled methodology

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Document control notice

This effective release implements the accepted remediation findings and the coordinated corpus activation action. Methodology v2 and the prior AE-METH-0001 drafts remain preserved; the Current Canon Registry is unchanged. The Authority Engineering Standard and its controlled Philosophy of Science Framework view now redirect scientific-method authority to AE-METH-0001.

This document defines enduring scientific meaning and justification. It does not define lifecycle phases, actor assignments, authorization routing, preservation operations, evidence-admission events, schemas, manifests, filenames, or implementation procedures.

Table of Contents

[1. Mission, authority, and scope](#)

[1.1 Mission](#)

[1.2 Scope](#)

[1.3 Exclusions](#)

[1.4 Normative language](#)

[2. Controlled terminology, authority, and dependencies](#)

[2.1 Authority order](#)

[2.2 Controlled Registry imports](#)

[2.3 Methodology-owned controlled concepts](#)

[2.4 Exact dependency control](#)

[3. Scientific philosophy and demarcation](#)

[3.1 Treatment classes](#)

[3.2 Scientific progress](#)

[4. Scientific inquiry, questions, and hypotheses](#)

[4.1 Research questions](#)

[4.2 Hypothesis treatment](#)

[5. Evidence and scientific admissibility](#)

[5.1 Scientific evidence](#)

[5.2 Scientific-admissibility conditions](#)

[5.3 Scientific-admissibility dispositions](#)

[5.4 Evidence weight](#)

[6. Observation, measurement, derivation, interpretation, and uncertainty](#)

[6.1 Epistemic separation](#)

[6.2 Measurement validity and reliability](#)

[6.3 Scientific uncertainty](#)

[7. Consequence-centric methodological orientation](#)

[7.1 Status](#)

[7.2 Historical methodological formulations](#)

[7.3 Normative principles](#)

[7.4 Local relevance and complementary practice](#)

[8. General study-design principles](#)

[8.1 Design-to-question fit](#)

[8.2 Sampling and scope](#)

[9. Falsification, refutation, and failure to support](#)

[9.1 Empirical falsification](#)

[9.2 Treatment-specific refutation](#)

[10. Reproducibility and replication](#)

[10.1 Reproducibility](#)

[10.2 Replication](#)

[11. Scientific claim evaluation and inferential weight](#)

[11.1 Evidence-level import](#)

[11.2 Claim-support dispositions](#)

[12. Epistemic research-governance principles](#)

[12.1 Independence](#)

[12.2 Transparency and precommitment](#)

[12.3 Bias control](#)

[13. Methodological limitations and complementary methods](#)

[13.1 General limitations](#)

[13.2 Complementary-method selection](#)

[14. Conformance, change, and activation](#)

[14.1 Methodological conformance](#)

[14.2 Change classification](#)

[14.3 Fixed scientific conditions and lifecycle boundary](#)

[15. Source, migration, and anchor control](#)

[15.1 Methodology v2 preservation](#)

[15.2 Migration controls](#)

[15.3 Section 7 anchor disposition](#)

[15.4 Gap resolution status](#)

[15.5 Activation record](#)

1. Mission, authority, and scope [Back to TOC](#)

1.1 Mission [Back to TOC](#)

METH-REQ-0001 — Scientific-method authority. AE-METH-0001 shall define the enduring principles by which Authority Engineering formulates scientific questions, designs investigations, distinguishes evidence routes, evaluates support, controls inference, addresses falsification, and evaluates reproducibility.

METH-REQ-0002 — Methodological purpose. The methodology shall provide a common scientific basis that qualified practitioners can apply to declared questions, systems, and study conditions.

METH-REQ-0003 — Scientific boundary. AE-METH-0001 shall define what scientific rigor requires without prescribing the administration of a study.

1.2 Scope [Back to TOC](#)

METH-REQ-0004 — Included domains. AE-METH-0001 shall govern scientific philosophy, epistemic warrant, evidence, scientific admissibility, inquiry, observation, measurement, derivation, interpretation, uncertainty, general study design, falsification, reproducibility, claim evaluation, independence, transparency, precommitment, and bias control.

1.3 Exclusions [Back to TOC](#)

METH-REQ-0005 — Lifecycle exclusion. AE-METH-0001 shall not define lifecycle phases, states, transitions, gates, authorization routing, preservation sequencing, adjudication sequencing, evidence-admission sequencing, failure states, recovery paths, or closeout procedures.

METH-REQ-0006 — Implementation exclusion. AE-METH-0001 shall not define artifact schemas, required fields, package composition, manifests, directory structures, filenames, identifier syntax, canonicalization, hash procedures, seal formats, templates, or machine-validation profiles.

METH-REQ-0007 — Study-instance exclusion. AE-METH-0001 shall not contain study-specific hypotheses, observations, data, results, conclusions, or scientific claims.

1.4 Normative language [Back to TOC](#)

METH-CONCEPT-0001 — Normative language. “Shall” states a requirement. “Should” states a recommended methodological practice. “May” states permission. Text labeled “Informative” has no conformance effect.

2. Controlled terminology, authority, and dependencies [Back to TOC](#)

2.1 Authority order [Back to TOC](#)

METH-REQ-0101 — Authority order. Interpretation of AE-METH-0001 shall remain subordinate to the Authority Engineering Constitution, the Current Canon Registry within its semantic domain, and the Authority Engineering Standard within its corpus-governance domain.

METH-REQ-0102 — Registry imports. AE-METH-0001 shall reference a Registry-controlled concept by its permanent Registry identifier without creating a competing definition.

METH-REQ-0103 — Status separation. A methodological conclusion shall keep Registry status, proof status, evidence level, stability, normativity, corpus acceptance, and publication status distinct.

METH-REQ-0104 — Local vocabulary. Scientific work shall label locally defined vocabulary as local and non-canonical.

2.2 Controlled Registry imports [Back to TOC](#)

The following are **controlled imports**; their meaning and status remain governed by the Current Canon Registry:

Registry identifier	Controlled name	Use in this methodology
AE-REG-0009	Authority Surface Accumulation Visibility	Imported analytical relation
AE-REG-0013	Authority Mapping Function	Imported analytical function
AE-REG-0037	Authority	Governing primitive
AE-REG-0038	Consequence	Governing primitive
AE-REG-0039	Consequence Seam	Governing primitive
AE-REG-0040	Authority Surface	Imported analytical object
AE-REG-0041	Authority Topology	Imported analytical object
AE-REG-0044	Sovereign Stop	Imported controlled concept
AE-REG-0053	Control Path Latency	Candidate and Experimental; not settled Canon

METH-REQ-0105 — Candidate status. Any use of [AE-REG-0053](#) shall preserve its Candidate and Experimental status.

2.3 Methodology-owned controlled concepts [Back to TOC](#)

The following concepts are controlled within AE-METH-0001 and do not create Registry entries:

Concept anchor	Concept name	Controlled meaning
METH-CONCEPT-0002	Treatment class	The kind of scientific or governance question being answered and the support route appropriate to it.
METH-CONCEPT-0003	Scientific evidence	Recorded support or challenge for a specific proposition under declared conditions, method, result, and provenance.
METH-CONCEPT-0004	Scientific admissibility	Epistemic fitness of material to contribute to evaluation of a stated proposition.
METH-CONCEPT-0005	Scientific progress	Resolution or material narrowing of a defined question through stronger scientific treatment while contrary and superseded states remain traceable.
METH-CONCEPT-0006	Observation	A recorded property, event, or state obtained from an applicable case through a stated observation rule.
METH-CONCEPT-0007	Measurement	An observation assigned a value or class through a stated measurement rule.
METH-CONCEPT-0008	Derivation	A conclusion obtained from explicit premises and inference steps.
METH-CONCEPT-0009	Interpretation	An explanatory meaning assigned to an observation, measurement, derivation, or result.
METH-CONCEPT-0010	Inference	A bounded conclusion drawn from declared evidentiary or derivational components.
METH-CONCEPT-0011	Scientific uncertainty	A declared limitation on the precision, stability, interpretation, or reach of a scientific result.
METH-CONCEPT-0012	Reproducibility	Capacity for qualified practitioners to repeat and evaluate work from preserved scientific conditions and comparison rules.
METH-CONCEPT-0013	Replication	A new execution that tests whether a finding recurs under conditions sufficient to address the same proposition.
METH-CONCEPT-0014	Scientific-admissibility disposition	A controlled judgment of ADMISSIBLE, CONDITIONALLY ADMISSIBLE, NOT ADMISSIBLE, or INDETERMINATE.

Concept anchor	Concept name	Controlled meaning
METH-CONCEPT-0015	Claim-support disposition	A controlled judgment of SUPPORTED, PARTIALLY SUPPORTED, NOT SUPPORTED, REFUTED, or INDETERMINATE.
METH-CONCEPT-0016	Independence adequacy	The degree to which a result adds support not produced merely by dependence on the compared result, analyst, method, or source position.
METH-CONCEPT-0017	Complementary method	A scientific method outside consequence-centric analysis that is necessary to answer a declared part of the research question.

2.4 Exact dependency control [Back to TOC](#)

Governed artifact	Exact control binding
Authority Engineering Constitution	Version/status: 0.3 constitutional-proof-obligations; governing draft. Authority basis: Governing corpus artifact. SHA-256: 42caea431de783a364ed99563dec44fc c48dddceeb71d29f5787d0005c1ae2b7. Type: Normative upstream within its authority. Compatibility/effect: Required; the source remains a governing draft.
Current Canon Registry (authority-engineering-canon-registry.csv)	Version/status: Current registry snapshot at 2026-07-16. Authority basis: Constitution Article I and current corpus control. SHA-256: ebce56e00cb84bad5564791ef69dbb62 d9b3559fcb344c5fd6edefa83003eac0. Type: Controlled semantic import. Compatibility/effect: Required; imported entries retain their recorded status.
Authority Engineering Standard	Version/status: 0.3.1 ae-meth-activation; working standard draft with coordinated ownership redirect effective 2026-07-16. Authority basis: Governing corpus artifact. SHA-256: f2fd5c2573942bcfc03970a2537045a2d7bcf83e1a829be219f83d0f0b1fc281. Type: Corpus-governance upstream and evidence-level label owner. Compatibility/effect: Compatible; scientific-method wording is a derived summary subordinate to AE-METH-0001.
Authority Engineering Philosophy of Science Framework	Version/status: 0.4 ae-meth-derived view. Authority basis: AE-METH-controlled scientific-method view and Standard-controlled corpus-governance view. SHA-256: d2a48dbcf3f2bb654b5a5782f11568085cfc22130e520e2de636a6916d7094b7. Type: Controlled derived view. Compatibility/effect: Compatible; AE-METH-0001 controls scientific-method divergence.
AE-METH Document Contract	Version/status: Source metadata says Planning Contract Candidate; approved and declared authoritative for this assembly. Authority basis: Direct controlled instruction approving the contract. SHA-256: 0f556e5f9527fa6261d37395bb3225ed35c5284b468b1841 259e473eb39d86cc. Type: Drafting authority. Compatibility/effect: Required; the metadata discrepancy remains disclosed.

Governed artifact	Exact control binding
Scientific Research Documentation Architecture Blueprint	Version/status: Approved and declared authoritative for this assembly. Authority basis: Direct controlled instruction approving the architecture. SHA-256: 7fbf73f56c0e29a5561b58a22c0deaceeab05758c84a61b53810f0cb248eb436. Type: Architecture authority. Compatibility/effect: Required for ownership and release control.
Methodology v2 Corpus Migration Audit — paragraph matrix	Version/status: Approved and declared authoritative for this assembly. Authority basis: Direct controlled instruction approving the migration audit. SHA-256: e686542bb55788fbbd0e580b2227501c9fd683cd2a2adca8bc76fcb992ea463. Type: Migration authority. Compatibility/effect: Required for source disposition.
Authority Engineering Methodology v2	Version/status: Historical predecessor. Authority basis: Preserved historical source. SHA-256: 7d4bbcb4b51aa2cefd8a72e9b2c49e7247b2d68f3f582815031cb7b8319e940b7. Type: Historical predecessor. Compatibility/effect: Preserved and superseded only by an effective release.
AE-METH-0001 version 0.1.0 replacement draft	Version/status: Controlled prior draft. Authority basis: Subject of the first DQR. SHA-256: be902f145cec4b15fbd8f8c7e25b4e0db6fbd15a2aa868c3330a44c463840e4d. Type: Prior controlled draft. Compatibility/effect: Superseded only as a review draft by this candidate.
AE-METH-0001 Document Quality Review	Version/status: MAJOR REVISION REQUIRED. Authority basis: Review authority for this revision. SHA-256: 85727999521278c8722fce6fa5ef6852aff9147bb923e56a7933953569978eb7. Type: Revision control. Compatibility/effect: DQR-001 through DQR-012 implemented by this candidate.
AE-METH-0001 remediation plan	Version/status: Controlled remediation plan. Authority basis: Direct instruction to execute recommended resolutions. SHA-256: e30fc39b695f52dbdaa5274e2e5dbaf939d7ce6c83bf28a49f957177a6539720. Type: Revision control. Compatibility/effect: Governs this integrated revision.

METH-REQ-0106 — Dependency binding. An effective AE-METH-0001 release shall bind the exact compatible dependency set recorded by its approval manifest.

METH-REQ-0107 — Activation condition. AE-METH-owned successor wording shall become authoritative only through a coordinated corpus release that redirects or retires duplicate Standard wording and updates the controlled Philosophy of Science Framework view.

3. Scientific philosophy and demarcation [Back to TOC](#)

3.1 Treatment classes [Back to TOC](#)

METH-CONCEPT-0020 — Definitional treatment. Definitional treatment controls meaning and usage.

METH-CONCEPT-0021 — Formal or derivational treatment. Formal or derivational treatment evaluates whether a conclusion follows from stated premises and dependencies.

METH-CONCEPT-0022 — Empirical treatment. Empirical treatment evaluates an applicable proposition through observation or measurement.

METH-CONCEPT-0023 — Methodological treatment. Methodological treatment evaluates whether a method can be applied repeatably and compared across practitioners or runs.

METH-CONCEPT-0024 — Governance treatment. Governance treatment establishes what an authoritative artifact or decision says and what status it confers.

METH-REQ-0201 — Treatment declaration. Scientific work shall declare the treatment applied to each proposition or question.

METH-REQ-0202 — Definition limit. A definition shall not be reported as proof of a scientific proposition.

METH-REQ-0203 — Derivation limit. A derivation shall not be reported as an observation.

METH-REQ-0204 — Observation limit. An observation shall not be reported as universal validity.

METH-REQ-0205 — Procedure limit. Completion of a method shall not be reported as proof of the proposition assessed.

METH-REQ-0206 — Governance limit. Governance acceptance shall not be reported as scientific support.

METH-REQ-0207 — Multiple treatments. A proposition requiring more than one treatment shall preserve the premises, method, result, and limits of each treatment separately.

3.2 Scientific progress [Back to TOC](#)

METH-REQ-0210 — Progress basis. A claim of scientific progress shall identify the defined question that was resolved or materially narrowed.

METH-REQ-0211 — Traceable progress. Scientific progress shall preserve dependencies, provenance, contrary results, and superseded scientific states.

METH-REQ-0212 — Promotion distinction. Corpus promotion shall not be represented as scientific progress unless the scientific basis for progress is separately established.

4. Scientific inquiry, questions, and hypotheses [Back to TOC](#)

4.1 Research questions [Back to TOC](#)

METH-REQ-0301 — Proposition identification. A scientific question shall identify the proposition or object of inquiry.

METH-REQ-0302 — Domain declaration. A scientific question shall declare its relevant domain.

METH-REQ-0303 — Applicability declaration. A scientific question shall declare its applicability conditions.

METH-REQ-0304 — Dependency declaration. A scientific question shall declare known material dependencies.

METH-REQ-0305 — Treatment alignment. A scientific question shall identify the treatment appropriate to the result sought.

METH-REQ-0306 — Resolution criterion. A scientific question shall identify the kind of result that would resolve or materially narrow it.

METH-REQ-0307 — Testability statement. A proposition presented for empirical or methodological evaluation shall state what result could materially challenge it under applicable conditions.

METH-REQ-0308 — Non-testability. A proposition that cannot be materially challenged by the current design shall be reported as non-testable under that design.

4.2 Hypothesis treatment [Back to TOC](#)

METH-CONCEPT-0030 — Exploratory inquiry. Exploratory inquiry seeks patterns or candidate explanations without claiming predeclared confirmation.

METH-CONCEPT-0031 — Confirmatory hypothesis. A confirmatory hypothesis is a bounded proposition declared before the relevant result is observed.

METH-CONCEPT-0032 — Post-observation hypothesis. A post-observation hypothesis is formulated after access to the case or result and therefore requires an independent test before confirmatory support is claimed.

METH-REQ-0310 — Hypothesis scope. A hypothesis shall state its proposition, domain, applicability, and dependency conditions.

METH-REQ-0311 — Expected result. A confirmatory hypothesis shall state its expected observable or derivable result before evaluation.

METH-REQ-0312 — Contradicting result. A confirmatory hypothesis shall state the result that would contradict it under preserved applicability and dependency conditions.

METH-REQ-0313 — Exploratory label. Exploratory results shall be labeled exploratory.

METH-REQ-0314 — Post-observation label. A hypothesis formed after access to relevant observations shall be labeled post-observation.

METH-REQ-0315 — Independent confirmation. Confirmatory support for a post-observation hypothesis shall require an evaluation independent of the observations used to formulate it.

5. Evidence and scientific admissibility [Back to TOC](#)

5.1 Scientific evidence [Back to TOC](#)

METH-REQ-0401 — Proposition specificity. Evidence shall identify the specific proposition it supports or challenges.

METH-REQ-0402 — Evidence conditions. Evidence shall state its domain, applicability, dependencies, method, provenance, and result.

METH-REQ-0403 — Contrary-result preservation. Failed, null, ambiguous, falsifying, and contrary results shall remain part of the scientific record.

METH-REQ-0404 — Inferential ceiling. A conclusion drawn from evidence shall not exceed what the evidence route can establish.

5.2 Scientific-admissibility conditions [Back to TOC](#)

Scientific admissibility is an epistemic judgment and is distinct from the lifecycle event that formally admits an evidence package.

METH-REQ-0410 — Identified proposition. Scientifically admissible material shall identify the proposition and intended treatment.

METH-REQ-0411 — Declared scope. Scientifically admissible material shall declare its domain and applicability.

METH-REQ-0412 — Disclosed dependencies. Scientifically admissible material shall disclose material dependencies and assumptions.

METH-REQ-0413 — Evaluatable method. Scientifically admissible material shall describe its method sufficiently for scientific evaluation.

METH-REQ-0414 — Traceable provenance. Scientifically admissible material shall have traceable provenance.

METH-REQ-0415 — Available result. Scientifically admissible material shall make its result available, including a failure or null result.

METH-REQ-0416 — Disclosed deviations. Scientifically admissible material shall disclose material method deviations.

METH-REQ-0417 — Disclosed limitations. Scientifically admissible material shall disclose material limitations.

5.3 Scientific-admissibility dispositions [Back to TOC](#)

METH-CONCEPT-0040 — ADMISSIBLE. All applicable scientific-admissibility conditions are satisfied and no unresolved defect prevents use for the declared proposition.

METH-CONCEPT-0041 — CONDITIONALLY ADMISSIBLE. The material is fit for a bounded use only when an explicit unresolved condition or limitation is preserved in evaluation and conclusion language.

METH-CONCEPT-0042 — NOT ADMISSIBLE. At least one required condition fails in a way that prevents the material from contributing to the declared evaluation.

METH-CONCEPT-0043 — INDETERMINATE admissibility. Available information is insufficient to determine whether the required conditions are satisfied.

METH-REQ-0420 — Disposition requirement. A scientific-admissibility evaluation shall assign exactly one applicable disposition from [METH-CONCEPT-0040](#) through [METH-CONCEPT-0043](#).

METH-REQ-0421 — Conditional boundary. A CONDITIONALLY ADMISSIBLE disposition shall state the condition limiting use.

METH-REQ-0422 — Failure basis. A NOT ADMISSIBLE disposition shall identify the failed condition.

METH-REQ-0423 — Indeterminacy basis. An INDETERMINATE disposition shall identify the missing information preventing judgment.

METH-REQ-0424 — Admissibility limit. Scientific admissibility shall not be reported as truth, sufficiency, decisiveness, reproduction, or proposition support by itself.

5.4 Evidence weight [Back to TOC](#)

METH-REQ-0430 — Evidence-level ceiling. A conclusion shall not claim a stronger evidence level than the support recorded under the Authority Engineering Standard.

METH-REQ-0431 — Independent contribution. Multiple evidence items shall be treated as converging support only to the extent their dependencies and error sources provide additional independent information.

6. Observation, measurement, derivation, interpretation, and uncertainty [Back to TOC](#)

6.1 Epistemic separation [Back to TOC](#)

METH-REQ-0501 — Component labeling. Scientific work shall label assumptions, observations, measurements, derivations, interpretations, and inferences distinctly.

METH-REQ-0502 — Assumption boundary. An assumption shall not be reported as an observation.

METH-REQ-0503 — Interpretation boundary. An interpretation shall not be reported as a measurement.

METH-REQ-0504 — Causal boundary. Association or co-occurrence shall not be reported as causal evidence without a design that distinguishes the proposed causal path from material alternatives.

METH-REQ-0505 — Observable linkage. An observation or measurement shall identify the construct or proposition to which it is relevant.

METH-REQ-0506 — Missingness. Missing, inaccessible, or unobservable information shall be reported as such.

METH-REQ-0507 — Evidence-of-absence rule. Missing information shall not be treated as evidence of absence unless the design justifies that inference.

METH-REQ-0508 — Bounded conclusion language. Conclusion language shall reflect material uncertainty.

6.2 Measurement validity and reliability [Back to TOC](#)

METH-CONCEPT-0050 — Measurement validity. The degree to which a measurement rule represents the construct relevant to the proposition under the declared conditions.

METH-CONCEPT-0051 — Measurement reliability. The degree to which repeated application of a measurement rule under comparable conditions produces sufficiently consistent results for the intended inference.

METH-REQ-0510 — Measurement object. A measurement claim shall identify what is measured.

METH-REQ-0511 — Measurement rule. A measurement claim shall state the unit or classification rule used.

METH-REQ-0512 — Observation procedure. A measurement claim shall state the observation procedure from which the value or class is produced.

METH-REQ-0513 — Applicable range. A measurement claim shall state the conditions and range within which the rule is intended to operate.

METH-REQ-0514 — Construct validity. A measurement claim shall justify the linkage between the measurement and the construct relevant to the proposition.

METH-REQ-0515 — Reliability basis. A measurement claim shall state the basis on which repeatability or classification consistency is judged adequate for its intended use.

METH-REQ-0516 — Observer dependence. A measurement involving analyst judgment shall evaluate inter-observer or intra-observer consistency when disagreement could materially change the conclusion.

METH-REQ-0517 — Measurement invariance. A cross-case or cross-domain comparison shall justify that material differences in context do not change the meaning of the measurement.

6.3 Scientific uncertainty [Back to TOC](#)

The minimum uncertainty categories are measurement, sampling or case-selection, missing-information, classification, dependency, model, and interpretive uncertainty. Categories may overlap, but a named category does not determine magnitude by itself.

METH-REQ-0520 — Measurement uncertainty. Scientific work shall disclose uncertainty arising from observation or measurement error.

METH-REQ-0521 — Selection uncertainty. Scientific work shall disclose uncertainty arising from sampling or case selection.

METH-REQ-0522 — Missing-information uncertainty. Scientific work shall disclose uncertainty arising from missing or inaccessible information.

METH-REQ-0523 — Classification uncertainty. Scientific work shall disclose uncertainty arising from ambiguous or unstable classification.

METH-REQ-0524 — Dependency uncertainty. Scientific work shall disclose uncertainty arising from unstable or unverified dependencies.

METH-REQ-0525 — Model uncertainty. Scientific work shall disclose uncertainty arising from model or analytical-method choice.

METH-REQ-0526 — Interpretive uncertainty. Scientific work shall disclose uncertainty arising from plausible alternative interpretations.

METH-REQ-0527 — Sensitivity. Scientific work shall test whether a reasonable alternative assumption, threshold, classification, or interpretation materially changes the result when the conclusion materially depends on that choice.

7. Consequence-centric methodological orientation [Back to TOC](#)

7.1 Status [Back to TOC](#)

This section states enduring scientific orientation only. Executable assessment steps, worksheets, phase ordering, actor instructions, and output specifications belong to a future Assessment Practice authority or other downstream owner.

7.2 Historical methodological formulations [Back to TOC](#)

The following four passages are preserved verbatim under their approved KEEP dispositions. They are **informative historical text**, contain unresolved source vocabulary, and create no requirement or Registry definition.

HIST-METH-P046 — Informative. Authority Engineering proceeds from consequence backward, it is not reverse engineering. Reverse engineering reconstructs implementation mechanics. Authority Engineering reconstructs consequence architectures. The objective is not to explain how a system works, but to identify how authority reaches consequence seams, where sovereignty exists, and where consequence can be governed.

HIST-METH-P047 — Informative. The analyst does not begin by cataloging permissions, internal mechanics, or predefined system components. The analyst begins by identifying material consequences and tracing backward toward the authority structures, topologies, and surfaces capable of realizing them. This core paradigm keeps Authority Engineering distinct from conventional safety, security, and process architectures.

HIST-METH-P074 — Informative. Core Constraint: All answers must name real operational units, roles, or actors with the immediate capacity to act. If an answer points to an abstraction—such as "the system," "the process," "the framework," or "the policy"—authority has been displaced rather than designed. If the only thing that can stop an action is a lagging administrative sequence, stop authority is absent; execution is merely deferred.

HIST-METH-P127 — Informative. Rather than treating consequences as isolated, independent nodes, the practitioner must actively map the recursive vectors through which complex architectures collapse under stress. Systems rarely fail in a single step; instead, they experience cascades where a realized consequence surfaces new, un-mapped capabilities.

7.3 Normative principles [Back to TOC](#)

METH-REQ-0601 — Consequence-backward reasoning. A consequence-centric inquiry shall reason backward from an in-scope [AE-REG-0038](#) Consequence toward the [AE-REG-0037](#) Authority relationships capable of reaching the applicable [AE-REG-0039](#) Consequence Seam.

METH-REQ-0602 — Operational evidence referent. A conclusion about an Authority-to-Consequence relationship shall identify the observed actor, role, unit, mechanism, or other operational referent that supports it.

METH-REQ-0605 — Observed and inferred paths. A consequence-centric conclusion shall distinguish observed Authority paths from inferred or merely possible paths.

METH-REQ-0623 — Predeclared validation. A consequence-centric conclusion shall be evaluated against predeclared criteria traceable to controlled imports or explicitly local study criteria.

7.4 Local relevance and complementary practice [Back to TOC](#)

METH-REQ-0624 — Local relevance criteria. Criteria used to select an analytical target shall be declared as local and non-canonical unless controlled by an upstream authority.

METH-REQ-0625 — Procedure ownership. Operational application of the principles in this section shall be governed by the applicable downstream practice authority.

8. General study-design principles [Back to TOC](#)

8.1 Design-to-question fit [Back to TOC](#)

METH-REQ-0701 — Question connection. A study design shall connect its method to the declared research question.

METH-REQ-0702 — Evidence-route connection. A study design shall identify the evidence route capable of addressing the declared proposition.

METH-REQ-0703 — Comparison logic. A study design shall define the comparison logic required by its intended conclusion.

METH-REQ-0704 — Alternative explanations. A study design shall identify material alternative explanations relevant to the intended inference.

METH-REQ-0705 — Fixed comparison basis. A comparison claim shall use scientific conditions that remain fixed for the comparison being evaluated.

METH-REQ-0706 — Changed comparison basis. A change to a scientific comparison condition shall produce a new or explicitly qualified comparison basis.

METH-REQ-0707 — Method deviation. A material deviation from the planned method shall be disclosed.

METH-REQ-0708 — Deviation effect. Scientific work shall evaluate the effect of a material deviation on admissibility, comparability, uncertainty, and inference.

8.2 Sampling and scope [Back to TOC](#)

METH-REQ-0710 — Selection basis. A study shall state how cases, systems, events, records, or observations were selected.

METH-REQ-0711 — Population boundary. A study shall limit generalization to the population and conditions supported by its selection basis.

METH-REQ-0712 — Cross-domain comparability. A cross-domain claim shall justify comparability of the relevant constructs, dependencies, and measurements.

9. Falsification, refutation, and failure to support [Back to TOC](#)

9.1 Empirical falsification [Back to TOC](#)

METH-REQ-0801 — Falsification conditions. An empirical falsification claim shall identify an in-domain case satisfying the proposition's applicability and preserved dependency conditions.

METH-REQ-0802 — Contradicting result. An empirical falsification claim shall demonstrate the predeclared contradicting result.

METH-REQ-0803 — Out-of-domain limit. An out-of-domain or inapplicable case shall not be reported as empirical falsification.

METH-REQ-0804 — Dependency-failure limit. A result obtained after a required dependency failed shall not be reported as falsification under preserved conditions.

9.2 Treatment-specific refutation [Back to TOC](#)

METH-REQ-0810 — Definitional conflict. A definitional conflict shall be handled through semantic and usage review rather than empirical falsification.

METH-REQ-0811 — Failed derivation. A failed derivation shall refute only the claimed derivational result unless separate evidence establishes an empirical contrary.

METH-REQ-0812 — Failure-to-support distinction. Failure to obtain supporting evidence shall be distinguished from falsification.

METH-REQ-0813 — Contrary-result consequence. A valid contrary result shall cause the affected proposition, applicability, dependencies, derivation, support, or wording to be scientifically reconsidered.

10. Reproducibility and replication [Back to TOC](#)

10.1 Reproducibility [Back to TOC](#)

METH-REQ-0901 — Reproducibility basis. A reproducibility claim shall preserve the inputs, scientific method, outputs, comparison rules, deviations, and disagreement treatment needed for repetition and evaluation.

METH-REQ-0902 — Internal rerun limit. An internal rerun shall not be reported as independent replication.

METH-REQ-0903 — Comparison unit. An inter-practitioner reproducibility claim shall predeclare the unit on which outputs are compared.

METH-REQ-0904 — Agreement rule. An inter-practitioner reproducibility claim shall predeclare the rule for agreement, equivalence, or material deviation.

METH-REQ-0905 — Disagreement preservation. Inter-practitioner disagreement shall remain visible in the scientific record.

METH-REQ-0906 — Disagreement analysis. A reproducibility evaluation shall analyze whether disagreement arises from method ambiguity, evidence difference, classification, interpretation, or execution deviation.

METH-REQ-0907 — Reproducibility limit. Agreement between practitioners shall not be reported as proof of the proposition assessed.

10.2 Replication [Back to TOC](#)

METH-REQ-0910 — Replication proposition. A replication shall address the same bounded proposition as the original finding.

METH-REQ-0911 — Material-difference disclosure. A replication shall disclose material differences from the original scientific conditions.

METH-REQ-0912 — Independent replication. An L5 Independent replication claim shall require reproduction outside the original corpus or author-controlled environment.

11. Scientific claim evaluation and inferential weight [Back to TOC](#)

11.1 Evidence-level import [Back to TOC](#)

The Authority Engineering Standard's L0 through L5 evidence levels are **temporary typed imports** pending the coordinated ownership action required by [METH-REQ-0107](#).

METH-REQ-1001 — Evidence-level reporting. A scientific conclusion shall state the applicable evidence level.

METH-REQ-1002 — Status distinction. A scientific conclusion shall keep evidence level distinct from proof status, Registry status, stability, normativity, and corpus acceptance.

METH-REQ-1003 — Direct support. A conclusion reported as directly supported shall identify the admissible observation, measurement, derivation, or reproducibility result that bears on it.

METH-REQ-1004 — Logical consequence. A conclusion reported as a necessary logical consequence shall identify its premises, dependencies, and inference steps.

METH-REQ-1005 — Interpretive inference. A conclusion reported as interpretive inference shall disclose material alternatives and uncertainty.

METH-REQ-1006 — Unsupported conclusion. A conclusion lacking direct support, valid derivation, or a bounded interpretive basis shall be reported as not yet supported.

METH-REQ-1007 — Inferential reach. A conclusion shall remain within the domain, applicability, dependencies, selection basis, measurement validity, and evidence level established by the investigation.

11.2 Claim-support dispositions [Back to TOC](#)

METH-CONCEPT-0100 — SUPPORTED. The declared conclusion is supported within its stated bounds by the applicable admissible evidence or valid derivation, with no material unresolved contradiction.

METH-CONCEPT-0101 — PARTIALLY SUPPORTED. A separable portion or bounded form of the conclusion is supported while another material portion remains unsupported, contradicted, or indeterminate.

METH-CONCEPT-0102 — NOT SUPPORTED. The available work does not establish the conclusion but does not satisfy the conditions for refutation.

METH-CONCEPT-0103 — REFUTED. Applicable evidence or valid analysis establishes the predeclared contradicting result under preserved conditions.

METH-CONCEPT-0104 — INDETERMINATE support. Available information or design capability is insufficient to decide among support, failure to support, or refutation.

METH-REQ-1010 — Support disposition. A scientific conclusion shall receive exactly one applicable claim-support disposition from [METH-CONCEPT-0100](#) through [METH-CONCEPT-0104](#).

METH-REQ-1011 — Partial-support boundary. A PARTIALLY SUPPORTED disposition shall state the supported and unsupported portions separately.

METH-REQ-1012 — Refutation basis. A REFUTED disposition shall identify the contradicting result and preserved conditions.

METH-REQ-1013 — Indeterminacy basis. An INDETERMINATE support disposition shall identify the information or design capability needed to resolve the judgment.

12. Epistemic research-governance principles [Back to TOC](#)

12.1 Independence [Back to TOC](#)

METH-REQ-1101 — Dependency disclosure. Scientific work shall disclose dependencies that could cause one result to reproduce another without adding independent information.

METH-REQ-1102 — Independence claim. A claim of independent support shall identify the material source, analyst, method, data, and environment dependencies relevant to independence.

METH-REQ-1103 — Independence adequacy. Independence shall be judged adequate only for the specific additional support claimed.

METH-REQ-1104 — Separation rationale. A study shall require scientific role separation when shared access or incentives would materially impair independence adequacy.

12.2 Transparency and precommitment [Back to TOC](#)

METH-REQ-1110 — Transparency. Scientific work shall disclose assumptions, methods, deviations, contrary results, uncertainty, and interpretive choices material to its conclusion.

METH-REQ-1111 — Precommitment. A criterion whose post-result alteration could change the conclusion shall be stated before the relevant observation or comparison.

METH-REQ-1112 — Post-result change. A criterion changed after access to the result shall be identified as post-result.

12.3 Bias control [Back to TOC](#)

METH-REQ-1120 — Bias identification. A study design shall identify plausible selection, confirmation, measurement, classification, interpretation, and publication biases relevant to the question.

METH-REQ-1121 — Bias mitigation. A material bias shall be reduced through design or comparison when feasible.

METH-REQ-1122 — Residual bias. A material bias not adequately reduced shall be disclosed as a limitation on inference.

METH-REQ-1123 — Bias adequacy. Bias control shall be judged adequate only when residual bias cannot reasonably account for the claimed result within its stated bounds.

13. Methodological limitations and complementary methods [Back to TOC](#)

13.1 General limitations [Back to TOC](#)

METH-REQ-1201 — Method-is-not-truth limit. Conformance to AE-METH-0001 shall not be reported as establishing that a proposition is true, Canon, Locked, universally valid, or independently replicated.

METH-REQ-1202 — Corpus boundary. Corpus consistency, Registry status, and internal examples shall not be reported as external validity or independent confirmation by themselves.

METH-REQ-1203 — Consequence-centric boundary. Consequence-centric analysis shall not replace domain expertise or another scientific method required by the question.

METH-REQ-1204 — Unknowns. An unresolved dependency, unobservable condition, unstable construct, or insufficient design shall narrow or suspend the conclusion.

METH-REQ-1205 — Generalization. A finding shall remain bounded to the conditions that produced it unless further derivation or evidence supports broader reach.

13.2 Complementary-method selection [Back to TOC](#)

METH-REQ-1210 — Method sufficiency. A study shall determine whether consequence-centric analysis alone can answer each material part of its research question.

METH-REQ-1211 — Complementary-method trigger. A study shall select a complementary method when the intended conclusion depends on a construct, causal question, measurement, statistical relation, safety property, security property, or domain judgment that consequence-centric analysis cannot establish.

METH-REQ-1212 — Selection rationale. Selection of a complementary method shall be justified by the evidentiary capability required by the question.

METH-REQ-1213 — Method integration. Results from complementary methods shall preserve their distinct assumptions, validity conditions, uncertainty, and inferential limits when integrated.

14. Conformance, change, and activation [Back to TOC](#)

14.1 Methodological conformance [Back to TOC](#)

METH-REQ-1301 — Applicable treatment conformance. Conforming scientific work shall declare and apply the treatment appropriate to its question.

METH-REQ-1302 — Scope conformance. Conforming scientific work shall state its question, domain, applicability, and dependencies.

METH-REQ-1303 — Epistemic-separation conformance. Conforming scientific work shall distinguish assumptions, observations, measurements, derivations, interpretations, and inferences.

METH-REQ-1304 — Evidence-route conformance. Conforming scientific work shall identify its evidence route and inferential ceiling.

METH-REQ-1305 — Result-criterion conformance. Conforming scientific work shall declare applicable contradicting, falsifying, failure-to-support, or indeterminate conditions.

METH-REQ-1306 — Disclosure conformance. Conforming scientific work shall disclose material uncertainty, deviations, biases, and limitations.

METH-REQ-1307 — Contrary-result conformance. Conforming scientific work shall preserve failed, null, ambiguous, and contrary results.

METH-REQ-1308 — Reproducibility-language conformance. Conforming scientific work shall apply reproducibility and replication terminology consistently with Section 10.

METH-REQ-1309 — Authority-boundary conformance. Conforming scientific work shall avoid lifecycle, implementation, or Registry-status claims outside its authority.

14.2 Change classification [Back to TOC](#)

METH-REQ-1310 — Major change. A change to scientific meaning, epistemic standards, evidence or admissibility semantics, falsification, reproducibility, or inferential limits shall be classified as major.

METH-REQ-1311 — Minor change. A backward-compatible addition of methodological capability shall be classified as minor.

METH-REQ-1312 — Patch change. A wording, reference, navigation, or non-substantive explanatory correction shall be classified as patch.

METH-REQ-1313 — Dependency impact. A proposed revision shall evaluate Registry alignment, upstream authority, downstream compatibility, anchor continuity, and supersession impact before approval.

14.3 Fixed scientific conditions and lifecycle boundary [Back to TOC](#)

METH-REQ-1320 — Fixed scientific conditions. A comparison or reproducibility claim shall use scientific conditions that remain fixed for the claim being evaluated.

METH-REQ-1321 — Qualified changed conditions. A conclusion based on changed scientific conditions shall identify the new or qualified comparison basis.

Informative lifecycle reference. The applicable AE-LIFE authority owns when a methodology version is fixed for an active study, how supersession affects an active study, and how recovery is governed. The activation record confirms this ownership boundary; no lifecycle rule is activated by AE-METH-0001.

15. Source, migration, and anchor control [Back to TOC](#)

15.1 Methodology v2 preservation [Back to TOC](#)

Methodology v2 remains unchanged as the historical source for migrated, relocated, deferred, and removed material. This effective AE-METH-0001 release supersedes it as current methodology while preserving its provenance and designated backlogs.

15.2 Migration controls [Back to TOC](#)

METH-REQ-1401 — Disposition integrity. No Methodology v2 paragraph shall receive a disposition different from the approved migration audit.

METH-REQ-1402 — KEEP preservation. Each KEEP paragraph shall remain preserved verbatim and traceable to its source identifier.

METH-REQ-1403 — REVISE traceability. Each REVISE paragraph shall remain traceable to the clarified methodological principle that incorporates it.

METH-REQ-1404 — Exclusion integrity. RELOCATE, REMOVE, and DEFER material shall remain excluded from AE-METH-0001.

METH-REQ-1405 — Ownership integrity. Lifecycle, implementation, operational-governance, and assessment-practice content shall remain with its approved owner or preserved backlog.

15.3 Section 7 anchor disposition [Back to TOC](#)

The revision preserves operative anchors [METH-REQ-0601](#), [METH-REQ-0602](#), [METH-REQ-0605](#), and [METH-REQ-0623](#) with clarified high-level meaning. Prior-draft anchors [METH-REQ-0603](#), [0604](#), [0606](#) through [0622](#) are reserved and not reused. Their operational detail remains traceable in the preserved migration backlog for the future Assessment Practice owner. New anchors [METH-REQ-0624](#) and [0625](#) express only enduring boundary principles.

15.4 Gap resolution status [Back to TOC](#)

GAP-001 through GAP-010 were individually reviewed for this controlled revision. Minimum enduring models were accepted with bounded wording; lifecycle timing, roles, data fields, thresholds, schemas, and implementation procedures remain excluded. The accompanying Gap Disposition Record identifies the basis and result for each item.

15.5 Activation record [Back to TOC](#)

Activation conditions were satisfied on 2026-07-16 through one coordinated corpus release:

- the controlled revision was approved by the final Document Quality Review;
- its exact dependency and compatibility set was accepted;
- duplicate Standard methodology wording was redirected as a derived compatibility summary;
- the controlled Philosophy of Science Framework was redirected as an AE-METH-derived view;

- AE-LIFE ownership of active-study methodology-version fixation, supersession, and recovery was confirmed without introducing lifecycle procedure here; and
- approval, effective-date, supersession, compatibility, and integrity records were issued.

AE-METH-0001 version 1.0.0 is effective from 2026-07-16. Existing studies remain governed by the methodology and baseline fixed by their applicable lifecycle authority; this activation is not retroactive.