

H CAPITAL LABS

HCL-STD-001

Research Standard

Version 1.0

A governance standard for conducting, documenting, reviewing, publishing, correcting, and maintaining H Capital Labs research.

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Owner	H Capital Labs
Document class	Standard
Review	AI-assisted adversarial review and author self-review
External peer review	Not conducted

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Document control

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Normative language

The words must, shall, required, and prohibited indicate mandatory controls. Should indicates a strong recommendation. May indicates an optional practice.

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1. Purpose and scope

HCL-STD-001 defines the mandatory governance system used by H Capital Labs to conduct, document, evaluate, review, publish, correct, and maintain research. Its purpose is to make research traceable, evidence-based, proportionate to uncertainty, reproducible where reasonably possible, and clearly separated from promotion.

The standard applies to research papers, frameworks, methodologies, experiments, datasets, research notes, failure reports, reviews, decision records, and any public claim materially presented as the result of H Capital Labs research.

A reader should be able to determine:

- 23. What question was studied and why it mattered.
- 24. What evidence was used and how it was evaluated.
- 25. How the evidence was analyzed.
- 26. Which conclusions are supported and which remain conditional.
- 27. What remains unknown or disputed.
- 28. How the work could be challenged, audited, or reproduced.
- 29. Whether the document is current, corrected, superseded, withdrawn, or archived.

2. Foundational principles

2.1 Truth before ego

Evidence may invalidate a preferred conclusion. Negative results do not represent failed research; concealing or distorting them does.

2.2 Evidence before opinion

The strength of evidence must be proportional to the importance and consequence of the claim.

2.3 Transparency before certainty

Assumptions, conflicts, limitations, missing data, methodological choices, and unresolved uncertainty must be disclosed.

2.4 Reproducibility before authority

Readers should not be expected to accept a conclusion merely because H Capital Labs published it.

2.5 Revision before defensiveness

Published work remains open to correction when stronger evidence or valid criticism emerges.

2.6 Research before promotion

Marketing may summarize research but may not overstate, cherry-pick, or conceal material limitations.

2.7 Proportional governance

The burden of documentation and review must match the consequence and maturity of the research.

3. Document classes and identifiers

Every controlled document receives a permanent identifier in the form HCL-[CLASS]-[NUMBER]. The identifier remains unchanged across revisions; the version number changes.

Code	Document class	Primary purpose
HCL-STD	Standard	Defines mandatory organizational rules
HCL-FWK	Framework	Defines a reusable decision or analytical system
HCL-MTH	Methodology	Defines a repeatable research method
HCL-RP	Research Paper	Presents a complete study and formal conclusion
HCL-RN	Research Note	Presents scoped, preliminary, or time-sensitive findings
HCL-EXP	Experiment Report	Documents a controlled test and its outcome
HCL-DS	Dataset Record	Documents provenance, structure, use, and limitations of a dataset
HCL-FR	Failure Report	Preserves knowledge from a failed or abandoned approach
HCL-REV	Review	Evaluates existing evidence or research
HCL-DEC	Decision Record	Documents a consequential organizational decision

Identifier rule

New document classes must not be created merely for convenience. Each class must represent a genuinely distinct purpose and be added through a controlled revision of this standard.

4. Research rigor tiers

Research governance is tiered to prevent both under-documentation and unnecessary bureaucracy.

Tier	Use	Minimum control	Public status
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Tier 1 — Research Log	Daily observations, early hypotheses, source notes, questions, discovery	Date, author, question/observation, evidence/source, interpretation, uncertainty, next action	Internal by default
Tier 2 — Research Note or Experiment	Preliminary findings, scoped tests, early validation, methodological experiments	Identifier, question, method, evidence, result, limitations, confidence, next test, references, AI disclosure where material	May be published only with a clear preliminary label
Tier 3 — Full Research Paper	Material public conclusions, strategic recommendations, research supporting consequential or commercial claims	Complete HCL-STD-001 process, including review, confidence, reproducibility, conflicts, legal-risk assessment, and checklist	Official publication

5. Required metadata, status, and versioning

5.1 Mandatory document metadata

- Document ID and title
- Document class
- Version and status
- Publication date and last-updated date
- Research lead, contributors, reviewer, and approval authority
- Research domain and keywords
- Confidence classification
- Reproducibility classification
- Supersedes and superseded-by fields
- Public URL and permanent filename

5.2 Status system

Status	Meaning
Concept	The question exists, but formal work has not begun
Planned	Scope and intent are approved
In development	Research or drafting is active
Internal review	Complete enough for structured review
Approved	Approved internally but not publicly released
Published	Publicly available as an official version
Under revision	A published document is being materially updated
Corrected	A published error has been formally corrected

Superseded	Replaced by a newer document or version
Withdrawn	Removed from active use because of a serious defect
Archived	Retained for historical reference but no longer active

5.3 Versioning

H Capital Labs uses Major.Minor versioning. Versions below 1.0 are developmental. Version 1.0 is the first approved public release. Minor versions cover clarifications or non-transformative additions. Major versions are required when the method, evidence, interpretation, or conclusion changes materially.

Prohibition

Silent replacement of a published file is prohibited. A revised public document must carry a new version number and an updated revision history.

6. Research lifecycle and stage gates

The official lifecycle is:

Question → Tier selection → Scope → Hypothesis → Pre-analysis challenge → Research plan → Confirmatory evidence collection → Exploratory analysis where appropriate → Analysis change log → Results → Post-analysis adversarial review → Confidence and reproducibility assessment → Legal-risk assessment → Approval → Publication → Dependency registration → Monitoring → Correction, revision, or closure

6.1 Stage gates

Gate 1 — Question approved

- Specific
- Relevant
- Answerable
- Worth the cost of investigation

Gate 2 — Research plan approved

- Hypothesis and falsification condition defined
- Variables, evidence requirements, methods, exclusions, and stopping rules recorded
- Known risks and commercial incentives disclosed

Gate 3 — Analysis complete

- Measurements separated from interpretations
- Confirmatory and exploratory analyses labeled
- Material changes logged

- Alternative explanations considered

Gate 4 — Publication approved

- Methodology, facts, citations, limitations, claims, confidence, reproducibility, conflicts, legal risk, and accessibility reviewed

7. Research questions, hypotheses, and analysis classification

7.1 Primary research question

Each project must define one primary research question identifying the subject, outcome, relevant conditions, and timeframe where applicable. Secondary questions may support but may not silently replace the primary question.

7.2 Hypothesis standard

- Testable and falsifiable
- Specific
- Written before the primary analysis
- Includes a stated falsification condition
- Preserved unchanged in the final document even when rejected

7.3 Confirmatory and exploratory analysis

Confirmatory analysis is defined before examining the relevant result. Exploratory analysis is created or modified after observing data or preliminary results. Both are valid, but they must be labeled accurately.

Change	Date	Reason	Before/after results	Effect on conclusion

8. Claims, evidence, sources, and citations

8.1 Claim classification

Classification	Meaning
Fact	Directly supported by reliable external evidence
Measurement	Produced through H Capital Labs measurement
Observation	Pattern directly observed in evidence
Interpretation	Explanation of an observation
Inference	Reasoned conclusion not directly measured

Hypothesis	Testable proposition awaiting sufficient evidence
Assumption	Input accepted for analytical purposes
Estimate	Approximate quantified judgment
Speculation	Plausible but weakly supported possibility
Recommendation	Proposed action derived from evidence and judgment

8.2 Evidence hierarchy

Evidence quality is claim-dependent. A source may be primary for one claim and weak for another.

Level	Typical examples	Use
A	Original datasets, official records, direct experiments, direct measurements, source code and logs, peer-reviewed primary research	Primary support where directly relevant
B	Systematic reviews, recognized institutional reports, official technical documentation, transparent high-quality datasets	Strong secondary support
C	Expert commentary, professional surveys, reputable journalism, documented case studies, market listings	Supporting evidence
D	Anonymous claims, anecdotes, promotional material, unverifiable testimonials, informal discussion	Lead generation only; insufficient alone for major conclusions

8.3 Source evaluation

30. Authority
31. Proximity to original evidence
32. Method transparency
33. Recency
34. Independence and conflicts
35. Consistency with other credible evidence
36. Suitability for the specific claim

8.4 Citation rules

- Cite original sources rather than summaries where practical.
- Do not cite search-results pages or AI-generated text as factual authority.
- Identify sources for tables, data, and adapted figures.
- Disclose commercial or affiliate relationships.
- Use permanent HCL document identifiers for internal references.

- Include author or institution, title, publisher, date, version, URL or DOI, and access date where applicable.

9. AI-assisted research and review

AI may assist with literature discovery, summarization, coding, data transformation, hypothesis generation, drafting, editing, contradiction detection, and scenario exploration. AI output is provisional and is not evidence merely because it is coherent.

- Material contributions must be disclosed.
- The AI system and role performed must be recorded.
- Material factual outputs must be independently verified.
- Responsibility for final methodology, claims, and conclusions remains human and organizational.
- AI-assisted adversarial review must preserve the prompt, issues identified, responses, changes made, unresolved objections, and source-verification status.

Standard disclosure

Artificial intelligence was used to assist with research organization, source discovery, analytical design, drafting, and review. AI-generated outputs were treated as provisional and were subject to human verification. Responsibility for the final methodology, claims, and conclusions remains with H Capital Labs.

10. Confidence and reproducibility

10.1 Confidence rubric

Dimension	Score
Evidence quality	1–5
Evidence consistency	1–5
Method validity	1–5
Reproducibility	1–5
Sensitivity to assumptions	1–5
Independent confirmation	1–5
Total	Classification
6–11	Very low
12–17	Low
18–23	Moderate
24–27	High

28–30	Very high
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The rubric creates an audit trail, not a probability. Critical weaknesses cap the final classification regardless of total score.

- Serious unresolved methodological defect: maximum Low
- Material dependence on one unverified source: maximum Moderate
- No independent confirmation: normally maximum High
- Non-reproducible results: cannot receive Very High without exceptional documented justification

10.2 Reproducibility classification

Status	Meaning
Full	Data, method, parameters, and materials are available
Substantial	Most materials are available; minor elements are restricted
Partial	Method is documented, but some data or systems are unavailable
Conceptual	Logic can be evaluated, but results cannot be independently reproduced
Not reproducible	Material constraints prevent reproduction
Not applicable	Reproduction does not meaningfully apply

10.3 Analytical transparency and artifact availability

A study may be analytically transparent without releasing every proprietary artifact. When material is withheld, the publication must state what is withheld, why, the effect on reproducibility, the minimum evaluation material provided, and whether confidential third-party audit is possible.

11. Review, adversarial challenge, and independence

11.1 Reviewer-independence classification

Classification	Meaning
Independent external review	Reviewer had no authorship or organizational role
Internal independent review	Reviewer belongs to H Capital Labs but did not author the work
AI-assisted adversarial review	AI was used to challenge claims, evidence, and methodology
Author self-review	The author performed structured review
Not formally reviewed	No formal review completed

Governance rule

No person or AI system that served as the primary author may be the sole reviewer and final approval authority for the same Tier 3 Research Paper. Where full independence is unavailable, the limitation must be disclosed.

11.2 Two-stage adversarial review

Pre-analysis challenge

- Is the question neutrally framed?
- Is the hypothesis falsifiable?
- Could the method structurally favor a desired result?
- Were criteria selected after choosing a preferred outcome?
- Are success and failure conditions explicit?
- Could commercial incentives influence the design?

Post-analysis challenge

- Are conclusions stronger than the evidence?
- Was contradictory evidence omitted?
- Were methods changed after results were observed?
- Could alternative explanations account for the result?
- Is correlation being treated as causation?
- Would the same method be accepted if it produced the opposite conclusion?

12. Weighted frameworks and sensitivity analysis

Any framework using numerical scores or weights must disclose why each criterion exists, how scores are defined, why weights were selected, whether they were chosen before results, which assumptions dominate, and whether alternate weights change the ranking.

At minimum, test:

37. Original weights
38. Equal weights
39. Immediate-needs weighting
40. Long-term strategic weighting
41. Reasonable optimistic assumptions
42. Reasonable conservative assumptions

Classification	Meaning
Robust	Winner remains stable under reasonable alternatives
Moderately stable	Winner changes only under material assumption changes
Fragile	Small changes alter the ranking
Indeterminate	Evidence does not support a reliable ranking

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13. Publication, legal risk, and research-marketing separation

13.1 Publication requirements

- Permanent identifier assigned
- Metadata complete
- Citations checked
- Status and version correct
- Limitations disclosed
- Confidence and reproducibility assessed
- Conflicts disclosed
- Public file matches approved version
- Website and downloadable file metadata match
- Revision history present
- Links and supporting files tested
- Accessibility reviewed

13.2 Legal and compliance triggers

Legal or compliance review must be considered before publication when research includes:

- Expected returns or performance claims
- Recommendations concerning securities or financial instruments
- Client or personal data
- Paid testimonials
- Regulated activities
- Personalized financial guidance
- Third-party proprietary datasets
- Claims about legal rights or obligations
- Product comparisons creating material commercial liability
- Claims likely to be interpreted as solicitation or financial promotion

Until qualified review is available, H Capital Labs must use conservative language, avoid guarantees, distinguish research from advice, preserve supporting evidence, and avoid implying regulatory approval.

13.3 Separation of research and marketing

Marketing may summarize research but may not omit material limitations, convert correlation into causation, imply guaranteed outcomes, cherry-pick favorable results, use backtests as proof of future returns, present preliminary work as validated fact, alter confidence classifications, or conceal conflicts of interest.

14. Corrections, withdrawal, dependencies, and archival control

14.1 Correction severity

Severity	Examples	Required action
Minor	Spelling, formatting, broken link, citation formatting	Correct in next minor version and record in revision history
Material	Incorrect figure, data-processing mistake, unsupported claim, meaningful omission	Mark as corrected, publish a correction notice, explain the change, reassess conclusions
Critical	Fabricated evidence, invalid core methodology, materially reversed conclusions, serious ethical or legal breach	Withdraw, preserve archival record, publish reason, replace only after full review

No silent disappearance

Published research must not disappear without explanation. Withdrawn or superseded work must retain an archival record and status notice.

14.2 Publication dependency register

Each published document must record dependent artifacts, including the canonical web page, PDF, X post, product page, charts, marketing copy, email announcements, datasets, source repositories, and external articles. Material corrections require review of each dependency.

15. Failure-report safeguards

Failure Reports preserve institutional learning. They evaluate systems, hypotheses, assumptions, processes, decisions, and evidence—not personal worth.

- Avoid emotional or humiliating language.
- Avoid personal blame unsupported by evidence.
- Avoid presenting hindsight as certainty.
- Avoid naming individuals unnecessarily.
- Do not assume every unsuccessful experiment was preventable.
- Identify salvageable code, data, methods, contacts, documentation, and lessons.

16. Website and library publication model

Each public research entry should contain:

- Document ID and title
- Abstract
- Document class and research domain
- Authors, contributors, and review classification
- Publication date, last updated, version, and status

- Confidence and reproducibility classifications
- Keywords
- Read-online and PDF links
- Supporting materials and related documents
- Revision history
- Recommended citation

The website record, PDF metadata, file name, and revision history must agree.

17. Governance, annual review, and effectiveness

17.1 Annual review

HCL-STD-001 must be reviewed at least once every twelve months. The review must examine which controls improved quality, which created friction, which failures were not prevented, which fields were misunderstood, which new risks emerged, and what should be strengthened or simplified.

17.2 Definition of success

The standard succeeds if it causes H Capital Labs to make fewer unsupported claims, expose uncertainty clearly, preserve research history, correct errors visibly, produce work others can evaluate, separate research from promotion, and improve its methods over time.

It fails if it becomes ceremonial paperwork that does not influence real decisions.

Appendix A — HCL-TPL-001 Research Paper template

43. Document metadata
44. Executive summary
45. Primary research question and secondary questions
46. Background and significance
47. Original hypothesis and falsification condition
48. Scope, exclusions, and time horizon
49. Definitions
50. Methodology
51. Data and sources
52. Analysis
53. Results
54. Alternative explanations
55. Adversarial review
56. Limitations
57. Conclusion
58. Recommendations and reversal conditions
59. What we know / believe / do not know
60. Confidence assessment
61. Reproducibility statement
62. AI-assistance disclosure
63. Conflicts of interest
64. Future work
65. References
66. Appendices
67. Revision history

Template rule

The original hypothesis must remain visible in the final paper even when rejected.

Recommendations must state evidence, conditions, main risk, reversal condition, and review date.

Appendix B — HCL-TPL-002 Research Note template

68. Document control
69. Question
70. Reason a Research Note is appropriate
71. Current evidence
72. Preliminary analysis
73. Preliminary finding
74. Limitations
75. Confidence
76. Next test
77. AI disclosure

78. References

79. Revision history

Research Notes must use proportionate language such as suggests, is consistent with, provides preliminary support, or does not yet establish.

Appendix C — HCL-TPL-003 Experiment and Failure Report template

C.1 Experiment Report

80. Document control and experiment ID

81. Objective

82. Experimental hypothesis

83. Success criteria

84. Failure criteria

85. Experimental design

86. Results

87. Interpretation

88. Decision

89. Lessons

90. Reproducibility and supporting files

91. Revision history

C.2 Failure Report

92. Original objective

93. Original reasoning

94. Resources committed

95. Failure definition

96. Evidence of failure

97. Root-cause analysis

98. What should have been noticed earlier

99. Salvageable assets

100. Decision and closure

101. Preventive changes

102. Lessons for future projects

103. Related documents

104. Revision history

Appendix D — HCL-CHK-001 Pre-publication checklist

Identity and control

☐ Permanent ID assigned

☐ Correct class, version, and status

☐ Publication date set

☐ Lead, contributors, reviewer, and approval authority identified

- ☐ Permanent filename and website metadata match

Research question and scope

- ☐ Primary question explicit and answerable
- ☐ Scope and exclusions documented
- ☐ Key terms defined
- ☐ Original hypothesis preserved
- ☐ Falsification condition stated

Methodology

- ☐ Method sufficiently documented
- ☐ Variables, criteria, weights, assumptions, and rules disclosed
- ☐ Deviations recorded
- ☐ Sensitivity and robustness considered

Evidence and data

- ☐ Material claims supported
- ☐ Original sources preferred
- ☐ Source conflicts and provenance documented
- ☐ Missing data and transformations disclosed
- ☐ Exclusions logged
- ☐ Licensing respected

Analysis and reasoning

- ☐ Measurements separated from interpretation
- ☐ Correlation not presented as causation
- ☐ Alternative and contradictory evidence considered
- ☐ Selection bias, leakage, and overfitting assessed where relevant
- ☐ Conclusions do not exceed evidence

Adversarial review

- ☐ Strongest counterargument documented
- ☐ Hidden assumptions sought
- ☐ Material criticism addressed
- ☐ Unresolved criticism remains visible
- ☐ Commercial incentives evaluated

Transparency

- ☐ Limitations complete
- ☐ Confidence and reproducibility justified
- ☐ AI assistance and verification disclosed

☐ Conflicts and funding disclosed

Publication quality

☐ Summary matches paper

☐ Tables and figures labeled

☐ Citations and quotations checked

☐ Links and files work

☐ PDF and web versions match

☐ Accessibility reviewed

☐ No placeholders remain

☐ Legal/privacy review completed where required

Knowledge boundary

☐ What we know is evidence-supported

☐ What we believe is clearly interpretive

☐ What we do not know identifies material unknowns

☐ Future work follows genuine gaps

Appendix E — Revision history

Version	Date	Status	Change	Approved by
0.1	2026-08-01	Draft	Initial structured draft	H Capital Labs
0.2	2026-08-01	Draft	Added operational templates and review checklist	H Capital Labs
0.3	2026-08-01	Publication candidate	Integrated adversarial-review amendments, tiers, review classifications, confidence rubric, legal triggers, and dependency register	H Capital Labs
1.0	2026-08-01	Approved for publication	First consolidated public standard	H Capital Labs