

Nebula Layered Guide to Indicators, Computation, and Simulation Tools

Boundaries of applicability for precise quantification, comparative tools, and directional observation

The whole is sufficient to safeguard continued existence without engulfing the individual; resources can flow efficiently without turning people into instruments of efficiency; life can be happy, interesting, and enjoyable, while new meaning continually emerges and is carried forward.

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Version: V1.0 Methods Master Manuscript

Status: P06-NEBULA-010 | Current companion document for methods and validation / controlled methods master manuscript

Date: July 2026

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1 Purpose: formalization without false precision

Formalization aims to make Nebula's hypotheses comparable, simulatable, verifiable, and falsifiable, rather than compress human value, happiness, and meaning into a single civilizational score.

Resources, inventory, logistics, maintenance, risks, and system reliability need precise tools. Contributions, scarce-resource priorities, and multi-subject decisions need comparative tools. Happiness, meaning, personhood, and civilizational boundaries may use only directional observation and hard constraints. V1.0 establishes a common layered structure to prevent inability to calculate from becoming an excuse to refuse validation, and prevent calculability from being misused as a basis for domination.

2 A three-layer tool system

Layer	Applicable objects	Typical tools	Prohibited uses
I Precise quantification tools	Costs, energy, inventory, capacity, time, faults, responses, and reliability	Engineering formulas, statistics, optimization, simulation, and digital twins	Overall scores for personhood, meaning, or civilizational bottom lines
II Comparative tools	Contribution facts, project priorities, resource options, and decision weights	Vectors, ranges, rule matrices, rankings, scenarios, and sensitivity analysis	Fixed overall rankings across subdomains and automatic determination of basic rights
III Directional and boundary tools	Happiness conditions, subjecthood, culture, meaning, dignity, and irreversibility	Multidimensional dashboards, qualitative evidence, participatory assessment, hard constraints, and red lines	Individual scoring, punishment, credit, recruitment, insurance, and social hierarchy

3 Constrained comparison of integrated cost-effectiveness

An integrated comparison for option s is not simply benefits divided by costs. It first satisfies hard constraints H , then compares benefit vector B and cost vector C in a specific context W :

$$E_s = f(B_s, C_s \mid H_s, W_s, U_s)$$

H includes basic rights, safety, law, strategic redundancy, and irreversible risks. W is the goal mode of continued existence, happiness, or meaning, together with the current stage and phase. U is uncertainty. Options that fail H do not enter competition for high cost-effectiveness.

Vector	Suggested dimensions
Benefits B	Needs met, reliability, time, public accessibility, happiness opportunities, stronger capabilities, and ecological restoration
Costs C	Procurement, maintenance, energy, personnel, opportunity costs, environment, externalities, and exit and failure costs
Hard constraints H	Basic rights, life safety, law, minimum services, strategic security, and irreversible harm
Context W	Goal mode, stage, phase, region, culture, and resource characteristics
Uncertainty U	Missing data, model errors, correlations, tail risks, and unquantifiable components

3.1 Rules for using weights

- Weights apply only within specific matters, time periods, and responsible subjects.
- Different goal modes may use different weights, but hard constraints do not change with weights.

- Disclose main weights, their bases, sensitivities, and conflicts of interest.
- When slight weight changes can reverse a conclusion, do not treat rankings as definitive answers.
- Retain incomparable options and human deliberation rather than force everything into normalization.

4 Contribution-fact vectors and subdomain rules

Contributions do not establish an overall score for the whole person. A factual vector K is proposed to preserve effects within a specific subdomain, task, and time range:

$$K = (I, O, D, R, M, X, Q)$$

Symbol	Meaning	Examples
I Input	Resources, time, labor, knowledge, and risk	Open equipment time slots, care, funding, and professional judgment
O Output	Directly completed products, services, and capacity	Repaired facilities, completed proposals, and services provided
D Real-world strengthening	Actual outcomes for the capabilities of subjects, communities, and subdomains	Reduced risks, increased accessibility, and knowledge formed
R Responsibility	Execution, maintenance, accidents, and long-term commitments	Continuing operation and maintenance, quality guarantees, and bearing consequences
M Repair	Remedies, compensation, and structural improvements after errors	Accident reviews, redress for victims, and process upgrades
X Externalities	Effects on third parties, ecology, culture, and the future	Pollution, displacement, impacts on vulnerable groups, and public gains
Q Evidence quality	Sources, attribution, confidence, and unknowns	Independent verification, counterfactuals, and data gaps

Subdomains may develop comparison rules or contribution ranges based on K, but must preserve original facts, allow appeals, distinguish contributions from harm, and prohibit direct addition across subdomains into one person's total contribution.

5 Decision matrices and weight ranges

Multi-subject decision-making may combine eligibility thresholds, veto boundaries, weight ranges, and public deliberation rather than use a fixed formula.

Decision element	Formalization method	Boundary
Affected rights	Required seats, consent or veto boundaries, and ranges of impact	Basic personality rights cannot be canceled through majority weighting
Professional judgment	Qualifications, evidence quality, peer disagreement, and scope of responsibility	Expertise cannot monopolize values
Real-world responsibility borne	Execution, maintenance, risks, and responsibility for failure	Bearing responsibility does not confer permanent control
Real contributions	Historical facts limited to relevant subdomains and matters	Cannot purchase civilizational sovereignty

Decision element	Formalization method	Boundary
Public legitimacy	Statutory procedures, representative authorization, openness, and terms of office	Procedural legality cannot conceal harm to basic rights
AGI analysis	Model reliability, explanations, disconfirming evidence, and scenario coverage	Must not become the subject holding final decision-making weight

5.1 Tool intensity for L0-L3

Matter level	Tool focus
L0	Precise optimization + exception thresholds + sample audits
L1	Professional rule matrices + affected-subject participation + risk ranges
L2	Multiple options, multi-subject weight ranges, public questioning, and sensitivity analysis
L3	Hard constraints, multiple deliberations, human rights-bearing subjects, and strict vetoes; no automatic overall-score decisions

6 Directional observation of happiness conditions

Happiness tools observe civilizational conditions rather than judge individuals with scores. Multidimensional dashboards at regional and group levels are proposed, combining anonymous statistics, subjects' own accounts, long-term narratives, and service data.

Dimension	Observable content	Prohibited proxies
Survival and the body	Basic services, care, sleep, pain, and accessibility	Lifespan or healthcare spending alone
Daily life and time	Discretionary time, commuting, leisure, and public space	Platform activity and consumption expenditure
Relationships	Loneliness, care pressures, access to help, and community connections	Numbers of messages and contacts
Autonomy	Privacy, refusal, migration, exit, and starting again	Acceptance rates of algorithmic recommendations
Exploration and culture	Access to learning, travel, nature, and diverse cultures	Participation in mainstream culture
Conditions for creation and meaning	Resources, communities, feedback, and access to long-term projects	Contribution-value or influence rankings

Every happiness indicator should be used for public decisions, independent research, and community improvement, with an explicit prohibition on its use in individual credit, insurance, recruitment, judicial decisions, educational selection, and allocation of basic rights.

7 Process evidence for the emergence and continuity of meaning

Meaning cannot be quantified as a total, but its operating conditions and real-world processes can be observed.

- Do subjects voluntarily form directions, expressions, and actions?
- Do relationships, communities, and structures carry these forward without possessing subjects?
- Do real-world consequences feed back, and are errors and harm seen?
- Are new capabilities, relationships, responsibilities, and directions jointly formed by multiple subjects?
- Are there bearers to carry forward experience, responsibility, and civilizational memory?
- Can subjects still exit, delete, forget, and reinterpret?
- Is meaning being unilaterally declared by contribution values, official narratives, or AGI?

8 Stage-phase-goal-mode modeling

Every simulated scenario must specify three-dimensional coordinates. The same resource scheduling has different permissions and goals in startup and stable stages, in continued-existence and happiness modes, and in sensing and execution phases.

Model dimension	Example variables
Stage	Interface maturity, autonomy level, institutional trust, migration proportion, and original-system availability
Phase	Permission scope, time pressure, participating subjects, data openness, and circuit-breaker thresholds
Goal mode	Continued-existence priority, happiness expansion, meaning projects, and their hard constraints
Scale	Individual, household, community, city, state, international, and civilizational
Resource type	Basic, public, specialist, happiness, strategic, and irreversible resources

9 Simulation, sensitivity analysis, and stress tests

- Baseline simulation: costs, risks, and service outcomes without Nebula coordination;
- Counterfactual comparisons: consequences of different connection scopes, algorithms, governance, and exit mechanisms;
- Sensitivity analysis: effects of weights, data errors, and demand changes on conclusions;
- Tail risks: extreme disasters, malicious subjects, communication outages, and common-cause model failures;
- Game-theoretic tests: strategy changes by enterprises, governments, individuals, and platforms pursuing self-interest;
- Fairness stress tests: whether higher average efficiency transfers costs to vulnerable groups;
- Rollback drills: whether original systems can recover after new-system failure and how long this takes.

10 Data quality, bias, and uncertainty

Problem	Response
Missing data	Show gaps; do not disguise model-filled values as known facts
Selection bias	Compare nonparticipants, vulnerable subjects, and silent groups
Attribution difficulties	Preserve multiple explanations and counterfactuals; do not rush to allocate contributions
Model drift	Continuously monitor, recalibrate, and reduce autonomy

Problem	Response
Indicators replacing goals	Periodically review whether behavior revolves around indicators instead of actual outcomes
Rare risks	Do not eliminate human review and strategic redundancy on the basis of average accuracy

11 Indicator governance, anti-manipulation safeguards, and prohibited uses

- Disclose indicator definitions, versions, weights, data sources, and limitations.
- Disclose conflicts of interest between decision-makers, model suppliers, and assessed subjects.
- Preserve original facts to avoid having only an overall score that cannot be reviewed.
- Detect indicator gaming, contribution arbitrage, performed happiness, and data contamination.
- Retire indicators periodically; historical continuity does not justify permanent use.
- Personhood, basic rights, love, happiness, and meaning must not enter a unified credit score.
- Every automated decision must provide access to human appeals and real-world correction.

12 Tool combinations for city validation

Validation task	Tool combination
Infrastructure and resources	Precise quantification + digital twins + stress tests
Resource Pool use	Rights facts + cost-utility + contribution vectors + exit records
Happiness Ladder	Regional-condition dashboards + voluntary surveys + life narratives + difference analysis
Dream Garden	Opportunity distribution + minimum experiments + failure and exit + cultural participation
Human-machine governance	Matter classification + decision matrices + auditing + appeals and accident reviews
Continuity of meaning	Process evidence + memory permissions + records of deletion and reinterpretation

13 Version evolution and acceptance

V1.0 provides a verifiable formal grammar rather than a fixed global formula. Later work should develop concrete parameters in city and subdomain pilots, publicly compare different weights and rules, and preserve differences between cultures, regions, and resource types.

- Precise tools allow reproducible calculation and explain errors.
- Comparative tools preserve facts, ranges, rules, and sensitivities.
- Directional tools are not converted into individual overall scores.
- All tools can be corrected by real-world consequences.
- Model failure does not block appeals, rights, or basic services.

Reading guide and personalized further reading

P06-NEBULA-010 | V1.0 | Methods master manuscript on formalization and safeguards against false precision

What this manuscript covers

Distinguishes objects that can be precisely quantified, those that can only be compared, and those that permit only directional observation; provides boundaries for simulation, sensitivity analysis, stress testing, data quality, and resistance to manipulation.

Current stage

Methods tools across stages. Formalization serves comparison, validation, and falsification; it cannot compress personhood, happiness, meaning, basic rights, or civilizational direction into a single overall score.

Continue reading

1. Upward | Nebula General Framework | V1.3-R2 Continuity Track

Return formal tools to the boundaries of the three-layer interface and permission continuity.

<https://www.civitas.top/en/documents/p06-nebula-013/#r2>

2. Toward resources | Nebula Startup Edition Resource Pool Specialist Manuscript

See when resources, costs, reliability, and integrated cost-effectiveness can be precisely quantified.

<https://www.civitas.top/en/documents/p06-nebula-002/>

3. Toward coordination | Nebula Real-World Coordination Layer

Understand why comparing options cannot automatically generate authorization and execution.

<https://www.civitas.top/en/documents/p06-nebula-003/>

4. Toward happiness | Nebula Startup Edition Happiness Ladder Specialist Manuscript

Examine why happiness permits only directional observation rather than ranking by overall scores.

<https://www.civitas.top/en/documents/p06-nebula-004/>

5. Toward meaning | Nebula Emergence and Continuity of Meaning Specialist Manuscript

Examine process evidence for meaning and boundaries of quantification.

<https://www.civitas.top/en/documents/p06-nebula-007/>

6. Toward validation | Nebula City-Scale Integrated Validation Plan

Place models, indicators, and stress tests into a real-world validation loop.

<https://www.civitas.top/en/documents/p06-nebula-009/>

Stable website entry

<https://www.civitas.top/en/documents/p06-nebula-010/>

Nebula family entry

<https://www.civitas.top/en/families/p06-nebula/>

Complete library

<https://www.civitas.top/en/library/>