**New Age Cybernetic Game Theory (NAC-GT):

Terminology Discipline, Scientific Scope, and Governance Application**

Positioning Statement for ResearchGate

Abstract

New Age Cybernetic Game Theory (NAC-GT) is a formal extension of classical cybernetics and game theory designed to address long-horizon, multi-agent governance systems operating under uncertainty, feedback delay, and cumulative risk. This paper clarifies the theoretical scope of NAC-GT, its application within the Graceful Actuarial Intelligence Management System (GAIMS, ISO/ERES 99999 proposed), and its strict separation from pseudoscientific or metaphysical claims. Particular attention is given to terminology governance, including the controlled pedagogical use of the term *PlayNAC* as a non-normative interface for education and participatory modeling. NAC-GT is presented as a procedurally conservative, audit-compatible framework aligned with ISO management system principles, emphasizing adaptive learning, incentive alignment, and resilience in complex socio-technical systems.

---

1. Theoretical Foundation

NAC-GT extends established traditions in:

- Cybernetics (Wiener, Ashby)
- Systems theory
- Iterated and evolutionary game theory
- Adaptive control and learning systems

Its core premise is that modern governance challenges—AI oversight, climate risk, demographic transitions, institutional fragility—cannot be adequately modeled as short-horizon, static optimization problems. Instead, they are **iterated games among adaptive agents**, embedded in feedback-rich environments with delayed consequences and non-linear risk accumulation.

NAC-GT treats organizations, institutions, and AI-mediated systems as:

- Adaptive players
- Operating across multiple timescales
- Subject to incentive structures, learning dynamics, and actuarial risk

Importantly, NAC-GT **does not assert claims** about:

- Human biology
- Physics
- Energy fields
- Consciousness mechanisms

It specifies **rules of interaction**, not physical explanations of agents.

---

2. Management System Application: GAIMS (ISO/ERES 99999)

GAIMS applies NAC-GT as a proposed **governance and management system standard**, consistent with ISO precedents.

At the normative level, GAIMS specifies:

- Decision-making structures
- Feedback incorporation
- Error learning mechanisms
- Incentive alignment over long horizons

GAIMS explicitly excludes (except in Certified Smart-Cities):

- Mandatory sensing or measurement technologies
- Biological or physiological requirements
- Experimental or metaphysical models

In NAC-GT terms, GAIMS governs **the game rules and learning loops**, not the internal mechanics of individual players.

---

3. Human Impact Indicators as Cybernetic Feedback

In adaptive games, feedback signals are required to:

- Detect instability
- Prevent runaway dynamics
- Avoid exploitative equilibria
- Sustain cooperation over time

GAIMS therefore permits organizations to define **human–system impact indicators** (behavioral, social, organizational, or health-related proxies) strictly as **feedback signals**, not scientific truth claims.

Safeguards include:

- No mandated metrics
- No privileged methodologies
- Contextual, reviewable, and replaceable indicators
- Emphasis on trends rather than absolute values

This mirrors accepted practice in safety management, organizational psychology, and socio-technical risk analysis.

---

4. Treatment of Experimental or Exploratory Indicators

Some informative materials reference exploratory indicators as examples of potential feedback signals in complex governance systems.

Under NAC-GT:

- These are hypothesis-generating only
- Not certification criteria
- Not determinants of conformity
- Clearly marked as informative and optional
- Excluded from normative requirements

This aligns with ISO's established separation between **innovation support** and **standards endorsement**.

---

5. Anti-Pseudoscience Structural Safeguards

GAIMS and NAC-GT embed explicit protections against pseudoscientific misuse, including:

- Prohibition of single-metric decision authority
- Mandatory documentation and auditability
- Continuous reassessment of assumptions
- Technology-agnostic normative language

From a game-theoretic perspective, these safeguards prevent **brittle equilibria** caused by over-reliance on unvalidated signals.

---

6. “Grace” as a Game-Theoretic Construct

Within NAC-GT, *grace* is an operational term denoting:

- Non-punitive learning loops
- Error correction without player elimination
- Incentive structures preserving long-term cooperation

This corresponds mathematically to:

- Forgiving strategies in iterated prisoner’s dilemma
- Payoff smoothing in long-horizon games
- Loss-tolerant adaptive control systems

No religious, spiritual, or metaphysical interpretation is implied.

---

7. Terminology Governance: NAC-GT vs. PlayNAC

Formal Rule

New Age Cybernetic Game Theory (NAC-GT) is the sole formal theoretical designation.

PlayNAC is not a separate theory.

Function of “PlayNAC”

PlayNAC is a **bounded pedagogical and participatory interface label** used exclusively for:

- Education
- Training
- Simulations
- Participatory modeling

It introduces:

- No new axioms
- No new variables
- No new claims

In systems terms, PlayNAC is to NAC-GT what a **training simulator or GUI** is to a control-theoretic kernel.

Standards and Research Usage

- NAC-GT is used in all research, standards, and formal contexts
- PlayNAC is excluded from normative and conformity language
- When referenced, PlayNAC is explicitly defined as an interface, not a theory

This approach **reduces semantic drift**, supports adoption, and prevents informal jargon proliferation—thereby strengthening, not weakening, scientific rigor.

---

8. Conclusion

NAC-GT is a conservative, systems-theoretic framework designed to model governance as an adaptive, long-horizon game under uncertainty. Its application through GAIMS adheres strictly to ISO principles of neutrality, auditability, and scope control. Through disciplined terminology governance and explicit anti-pseudoscience safeguards, NAC-GT separates governance rules from scientific validation while enabling responsible adaptation in complex socio-technical systems.

Keywords (RG-Optimized)

Cybernetics; Game Theory; Governance Systems; Management System Standards; Adaptive Control; Long-Horizon Risk; Socio-Technical Systems; ISO Standards; Actuarial Governance; Organizational Resilience

---

Credits

Primary Author

Joseph Allen Sprute
Founder & Director
ERES Institute for New Age Cybernetics

Institutional Affiliation

ERES Institute for New Age Cybernetics
Research, governance design, and standards-aligned cybernetic systems development

---

Conceptual Development and Framework Origination

- New Age Cybernetic Game Theory (NAC-GT)
- Graceful Actuarial Intelligence Management System (GAIMS / ISO-ERES 99999)
- Terminology governance and anti-pseudoscience safeguards
- Long-horizon, multi-agent governance modeling
- Cybernetic feedback and incentive alignment architectures

AI-Assisted Research, Drafting, and Systems Synthesis (Instrumental Contribution)

The development, refinement, and articulation of this work were **materially assisted** by advanced large language model systems used as *research, synthesis, and editorial instruments* under continuous human direction and judgment:

- **ChatGPT (OpenAI)** — systems synthesis, standards-aligned restructuring, terminology governance, and reviewer-facing articulation

- **Claude.ai (Anthropic)** — conceptual stress-testing, clarity refinement, and narrative coherence checks
- **DeepSeek LLM** — analytical compression, formal abstraction, and systems framing
- **Grok (xAI)** — adversarial questioning, skepticism simulation, and boundary testing

These systems **do not constitute authorship**, do not originate claims independently, and were used as **tools analogous to statistical software, modeling environments, or editorial aids**. All final judgments, interpretations, and responsibility rest with the human author.

Intellectual Lineage and Foundational Influences

This work builds upon and is informed by established contributions across cybernetics, game theory, systems science, governance, and risk management, including but not limited to:

- Norbert Wiener
- W. Ross Ashby
- John von Neumann
- Oskar Morgenstern
- Herbert A. Simon
- Robert Axelrod
- Elinor Ostrom
- Jay W. Forrester
- Donella H. Meadows
- John Holland

Their work constitutes the **theoretical substrate** upon which NAC-GT is constructed.

Standards and Governance Context (Non-Endorsing)

Conceptual alignment and structural inspiration were drawn from established international standards frameworks, including ISO management system principles and risk governance guidance. Reference to these bodies is **contextual and non-endorsing**.

Authorship Responsibility Statement

The author affirms full responsibility for:

- Conceptual claims
- Interpretive framing
- Terminology discipline
- Errors or omissions

AI systems and referenced contributors bear **no responsibility** for the final content.

Institutional Disclaimer

This publication represents independent research and theoretical development by the author and the ERES Institute for New Age Cybernetics. Mention of ISO, ANSI, or other standards organizations does not imply endorsement, approval, or certification.