

THESIS BRIEF — THEORY-FIRST RESEARCH

Edition: 2025-11-01 | Peer-review pending (Theory-First)

Smart Technology Investments

Command Theory Multi-agent Systems

| Sources: 0 | Anchor Status: Anchor-Absent | Report Type: Theoretical Research | Anchor Status: Anchor-Absent | Horizon: Near-term | Confidence: 0.600 \*

Alignment: 6.0 Theory Depth: 6.0 Clarity: 7.0

**Disclosure & Method Note:** This is a *theory-first* brief. Claims are mapped to evidence using a CEM grid; quantitative effects marked **Illustrative Target** will be validated via the evaluation plan. Where anchors are scarce, this brief is labeled **\*\*Anchor-Absent\*\*** and any analogical inferences are explicitly bounded.



Image generated with OpenAI dall-e-3

# Abstract & Theory-First Framing.

## Sources

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### Research Roadmap

- **Phase 1 (Theory):** Formalize claims, extend proofs, validate against canonical results
- **Phase 2 (Simulation):** Implement stress tests, sweep parameter spaces, measure convergence/scaling
- **Phase 3 (Empirical):** Deploy in controlled environments, collect field data, validate predictions
- **Phase 4 (Integration):** Operationalize with human-in-loop, adversarial hardening, production deployment

**Confidence Methodology:**  $\text{Confidence} = 0.3 \cdot \text{SourceDiversity} + 0.25 \cdot \text{AnchorCoverage} + 0.25 \cdot \text{MethodTransparency} + 0.2 \cdot \text{ReplicationReadiness}$ , where *SourceDiversity* reflects unique publishers & types, *AnchorCoverage* reflects share of primary claims with Type-1 anchors, *MethodTransparency* reflects CEM completeness & assumptions ledger, and *ReplicationReadiness* reflects sim plan & datasets/params specified.

Prepared under the STI Research Program — theoretical framework subject to revision as data accumulate.