

Decision Making in a Complex World

Multiplex Systemics Meets Agentic AI

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Part 1: — The “AI” Paradox

Not All AI Is Created Equal

	 Predictive AI	 Generative AI	 Agentic AI
What it does	Forecasts from historical data	Creates new content (text, images, plans)	Plans & executes workflows autonomously
Strength	Structured data, stable patterns	Drafting, brainstorming, scenarios	Multi-step task automation
Failure mode	False precision on complex human outcomes	Hallucination, shallow output	Autonomous action on value-laden decisions
Snake oil risk	High 	Medium 	Emerging—highest stakes 

Narayanan & Kapoor (2024), *AI Snake Oil*, Princeton University Press.

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Case — Medicare AI

Predictive AI estimated an 85-year-old's hospital stay at 17 days. Insurance stopped on day 17—but the patient was still in severe pain, unable to push a walker. The algorithm produced false precision; the system treated it as authoritative.

✖ Case A — Amazon (2018)

Amazon built an AI hiring tool trained on 10 years of resume data.

The system learned to **discriminate against female applicants**—downgrading graduates of all-women's colleges.

Amazon **scrapped the tool**.

Dastin (2018); cited in Raisch & Krakowski (2021)

Contradictory Currents in Automated Decision-Making

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✅ Case B — Unilever

Unilever *differentiated* automation (games-based screening) from augmentation (human final selection).

Results: **16% increase** in ethnic/gender diversity, **90% reduction** in time-to-hire, GBP 1M annual savings.

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What did Unilever do differently?

They distinguished what AI *can* do from what it *cannot*—and built governance accordingly.

Modeling the World: Can We Model the World Exactly?

Closed ML

Claims to learn with **minimal human input**.

Treats complex systems as compressible, ahistorical, value-neutral.

Grand narratives: “scale is all you need,” “the model is neutral.”

13 “games” lend false legitimacy—the neutrality game, the benchmark game, the scale game...

 Closed ML = **uniplex** thinking

(one model to rule them all)

Birhane & Cummins (2022), “The games we play,” arXiv:2205.08922.

Open ML

Acknowledges complex systems are **incompressible, dynamic, nonlinear, historical, contextual, value-laden**.

Multiple contradictory models may *both* be useful.

The modeler offers *specific insight*, not final truth.

Model as **tool**; human as **primary**.

 Open ML = **multiplex** thinking

(multiple models, levels)

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Activity (2 min)

Think of an AI system in your field. Is the approach behind it **Closed ML** or **Open ML**? What difference would it make? *Discuss with your neighbor.*

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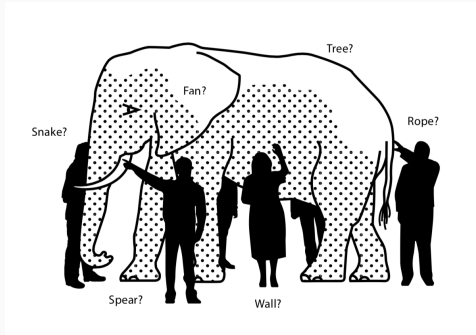
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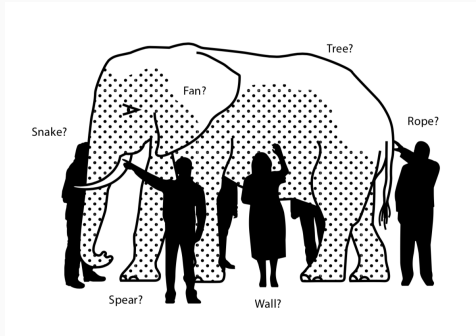
The Elephant in the Room: Reductionist vs. (Multiplex) Systemic Thinking



The Blind Men and the Elephant—

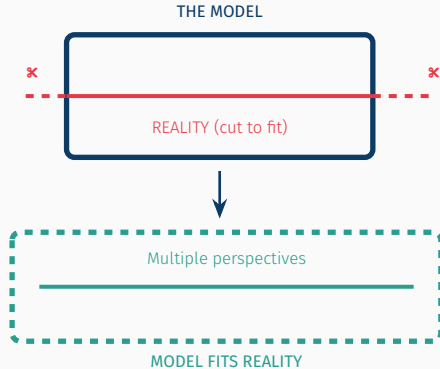
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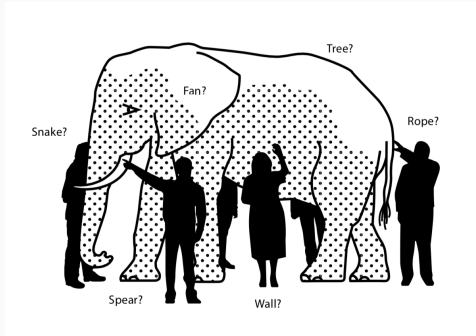


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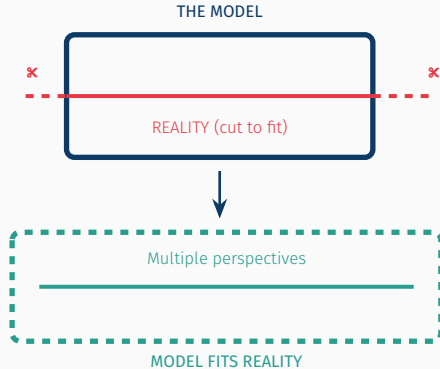


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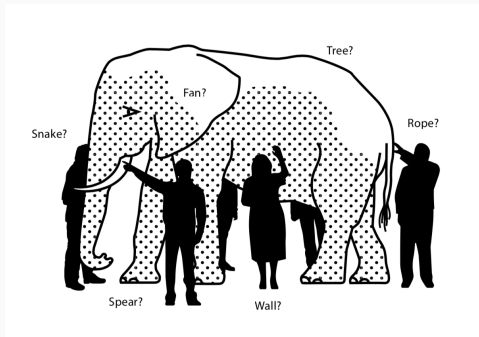


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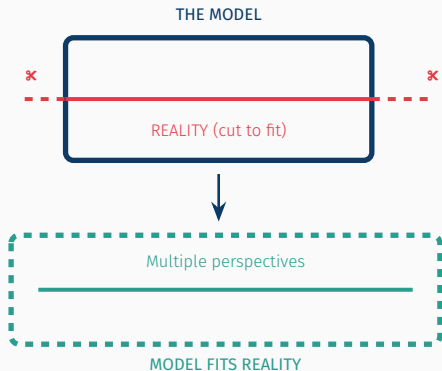
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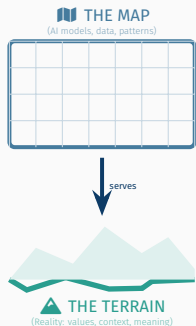


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Multiplex systemics requires seeing through *multiple* lenses—and knowing when each applies.

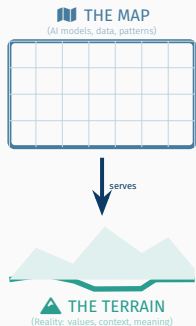
Part 1 Takeaway: The Map and the Terrain



The Map–Terrain Distinction

AI excels at **map-making**—pattern-seeking, abstracting, generalizing. But we make maps to navigate the terrain, not the reverse. **Mistaking the map for the terrain is the foundational error of uniplex AI.**

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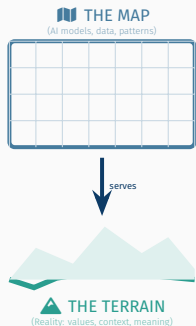


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- ✓ “AI” is not one thing. Predictive, generative, and agentic AI have fundamentally different capabilities and failure modes.
- ✓ Reductionist thinking asks “Should we use AI?” Systemic thinking asks “*Which* AI, for *which* problem, at *which* level?”

Part 2: — Problems vs. Polarities

Problems vs. Polarities: The Foundational Distinction

✓ Problems have permanent solutions

Convergent thinking—multiple approaches converge toward a single best answer.

“Which vendor?” “What delivery route?”

You solve them and move on.

∞ Polarities have interdependent poles

Divergent thinking—reasonable people commit fully to either pole.

“Centralization **and** decentralization.” “Speed **and** quality.”

You never solve a polarity; you navigate it.

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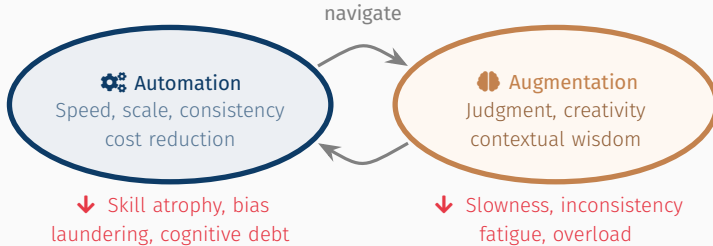
✗ The critical error

Treating a polarity as if it were a problem.

- “Solve” for full automation → skill atrophy, strategic slop, hollowed-out judgment.
- “Solve” for full human control → inability to cope with the speed and scale of modern complexity.

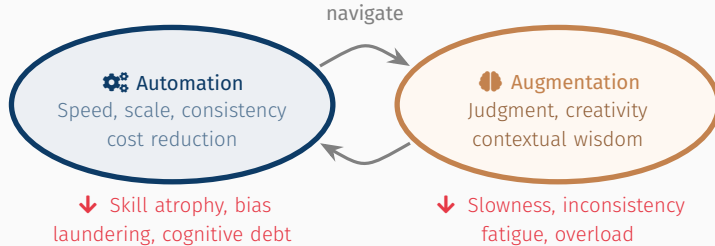
The oscillation between these “solutions” is itself the symptom of misdiagnosis.

The Automation–Augmentation Polarity



Raisch & Krakowski (2021), *Academy of Management Review*.

The Automation–Augmentation Polarity

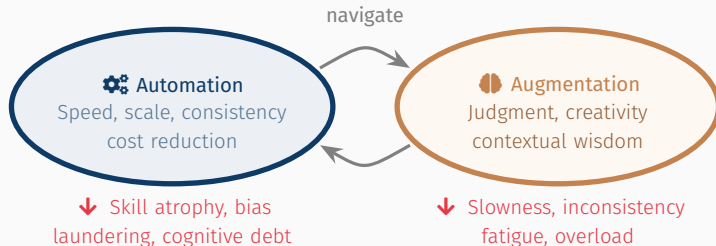


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⚠ Early warnings: over-automation

Decreased strategic questioning. Leaders cannot explain AI-recommended logic. Loss of narrative competence.

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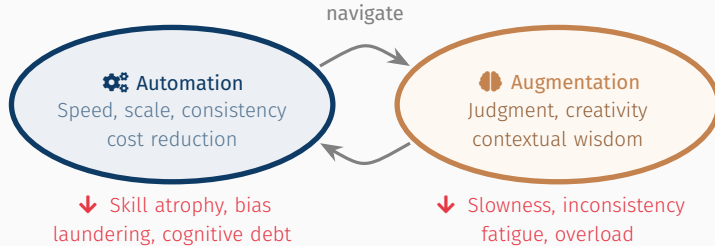
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✅ Case — Unilever (revisited)

Differentiates automation (screening) from augmentation (selection). Integrates by retaining overall human responsibility. **Both poles leveraged; polarity well-managed.**

The Inside–Outside Paradox and Three Ironies

Inside—Strategic Formation

Judgment, wisdom that develop
through strategic thinking.

*What the strategist **becomes**.*

Resists automation.

Outside—Strategic Output

Coherence, effectiveness of the plan.

*What the organization **produces**.*

AI excels here.

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Three Ironies of Strategic Automation

1. Oversight Paradox :

Those who most need to monitor AI are the
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3. Comprehensiveness Illusion :

More variables $\neq$ better judgment. Which variables *matter* is value-laden.

Bainbridge (1983); Argyris (1991); Ackoff (1999).

The Decision Ecology Framework: Tool/ Agent vs. Tame/ Wicked Problems

Three axes: Problem Character × AI Type × Systemic Perspective

Synthesized from Jackson (2024); Narayanan & Kapoor (2024); Rittel & Webber (1973).

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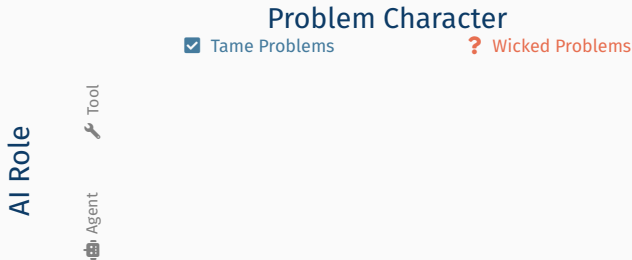
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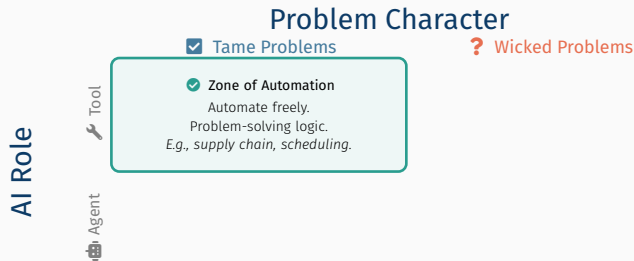
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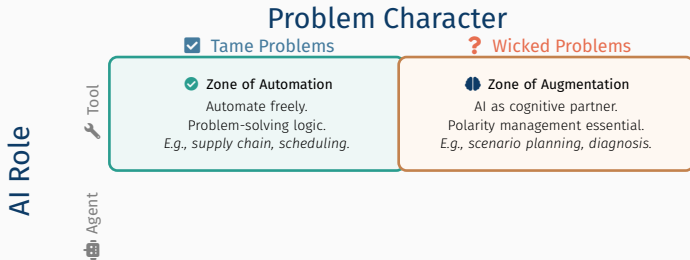
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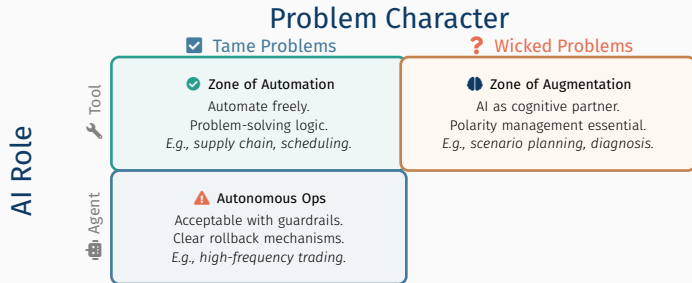
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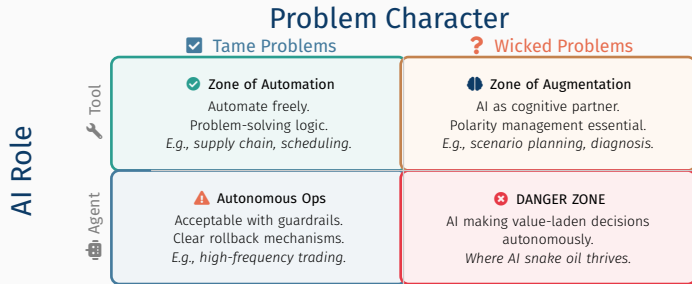
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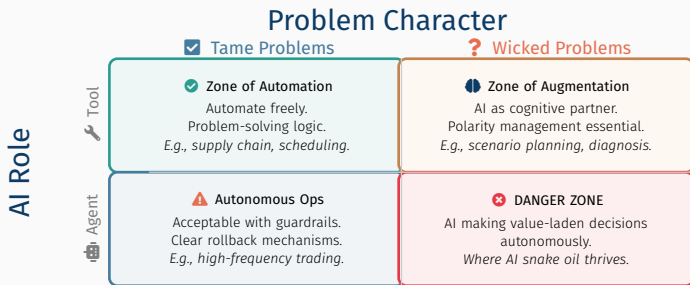
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The Decision Ecology Framework: Activity

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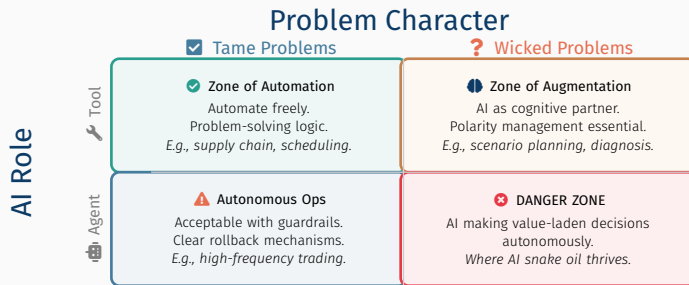
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Activity (2 min) — Scenario Cards

Classify your scenario: (a) Problem or polarity? (b) Which AI type?
(c) Which zone? (d) What goes wrong if misclassified?

The Decision Ecology Framework: Activity

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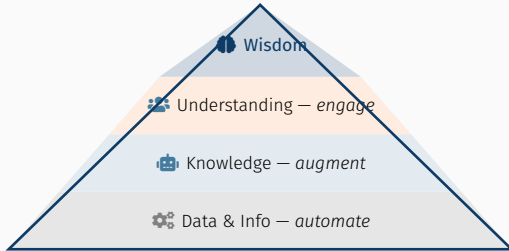
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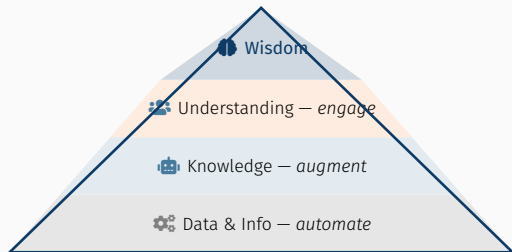
“Your hospital wants AI to predict discharges” / “Your university wants AI to evaluate PhD applications” / “Your city wants AI to allocate social housing” / “Your company wants AI to generate the strategic plan”

Part 2 Takeaway



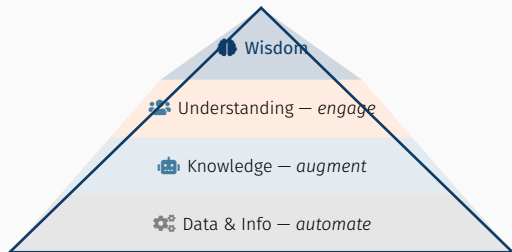
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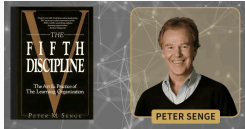
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- ✓ Ackoff's wisdom hierarchy: data & information can be *automated*; knowledge can be *augmented*; understanding requires *engagement*; **wisdom cannot be delegated**.

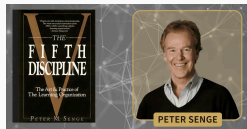
Part 3: — Learning Organizations in AI Era

Senge's Five Disciplines Under AI Pressure



A learning organization is built on (1) **Personal Mastery** (aspirational focus), (2) **Mental Models** (cognitive reframing), (3) **Shared Vision** (collective alignment), and (4) **Team Learning** (dialogic coordination). These are fused by (5) **Systems Thinking**—the “Fifth Discipline”—which provides the integrative framework for seeing interrelationships and dynamic patterns rather than static snapshots.

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Discipline	↑ AI Enhances...	↓ AI Threatens...
 Personal Mastery	Feedback, simulation, and skill acceleration	Cognitive debt; outsourcing erodes capability
 Mental Models	Surfaces hidden assumptions through counterfactual analysis	Reinforces existing models through single-loop learning rather than challenging them through double-loop learning
 Shared Vision	Helps articulate and communicate a vision once it has been formed	Cannot <i>build</i> shared vision; that requires narrative, trust, and emotional resonance
 Team Learning	AI can act as a “devil’s advocate” in dialogue	Psychological safety is relational, not algorithmic
 Systems Thinking	Dramatically expands modeling and simulation capacity	The observer is part of the system; reflexivity remains a human responsibility

Case Study: UBS Investment Bank and the Virtuous Cycle

The virtuous cycle

UBS automated reading and executing client fund-transfer demands (45 min/demand → seconds).

Simultaneously deployed AI to **augment** development of trading strategies.

Time freed by automation was invested in human-AI collaboration on strategic exploration.

Data scientists helped build bankers' augmentation skills.

Result: Cost efficiencies **and** new client solutions.

Raisch & Krakowski (2021), pp.201-202; Arnold & Noonan (2017), *FT*.

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⬇ The vicious cycle (contrast)

Organizations that prioritize automation alone enter a “race toward zero-margin commoditized work.”

Over time, they **lose the human skills** required to alter their processes.

Competitors follow suit → industry-wide deskilling.

This is the organizational equivalent of **cognitive debt**.

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💬 Discussion prompt

In your own field, is AI freeing time for deeper human work (*virtuous cycle*) or replacing human engagement altogether (*vicious cycle* ⬇)?

Systemic Judgment: The Meta-Capacity for the AI Era

Five components

1. ☒ Distinguish **problems** from **polarities**—resist pressure to treat wicked challenges as tame.

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Share with your neighbor.

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Part 3 Takeaway

Systemic judgment—the practiced ability to discern problems from polarities, tame from wicked, and match AI governance to the character of each decision—is the meta-capacity learning organizations must cultivate

Conclusion and Q/A

Five Takeaways

1 Not all AI is the same.

Predictive , generative , and agentic  AI have different capabilities and failure modes.

Governance must differentiate.

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Predictive 📈, generative ✂️, and agentic 🤖 AI have different capabilities and failure modes. Governance must differentiate.

2 Problems vs. polarities.

The automation–augmentation tension is a polarity ∞. Treating it as a problem guarantees failure.

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“ Remember the limits of automation!

“Wisdom is the ability to perceive and evaluate the long-run consequences of behavior—and that capacity cannot be automated.”

—Russell Ackoff



Your Comments/ Questions



For any follow-up discussion, you're welcome to contact at:

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