



DNA Course

Systems Thinking and
Antidisciplinarity

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April 24, 2026



Last Week:

Why are we here?

- The SDS story
- What we are trying to build
- The diversity of this group

This Week:

How to connect the diverse experiences and interests in this room?

- Systems Thinking
- Antidisciplinary Approaches



3.5 Resisting Reduction Competition Winners

... 2 more

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Resisting Reduction: A Manifesto

Designing our Complex Future with Machines.

by Joichi Ito



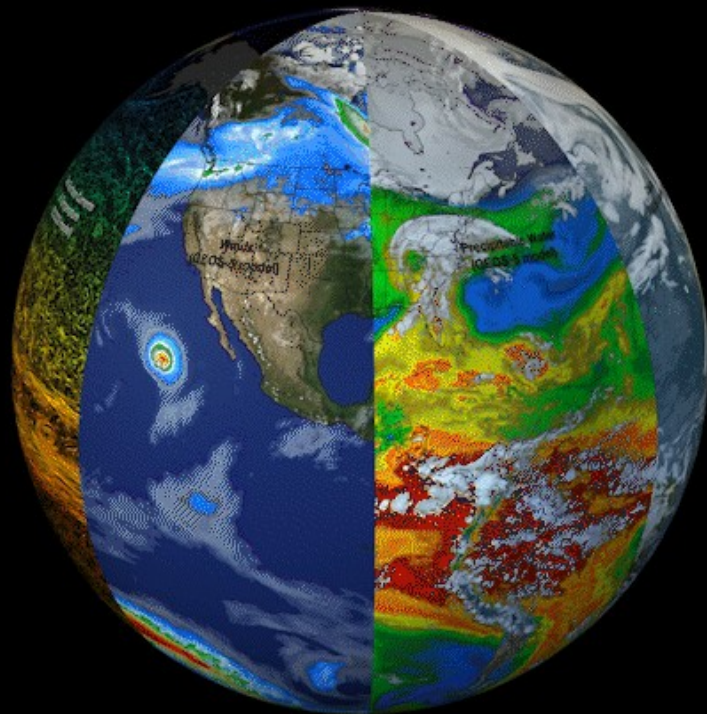
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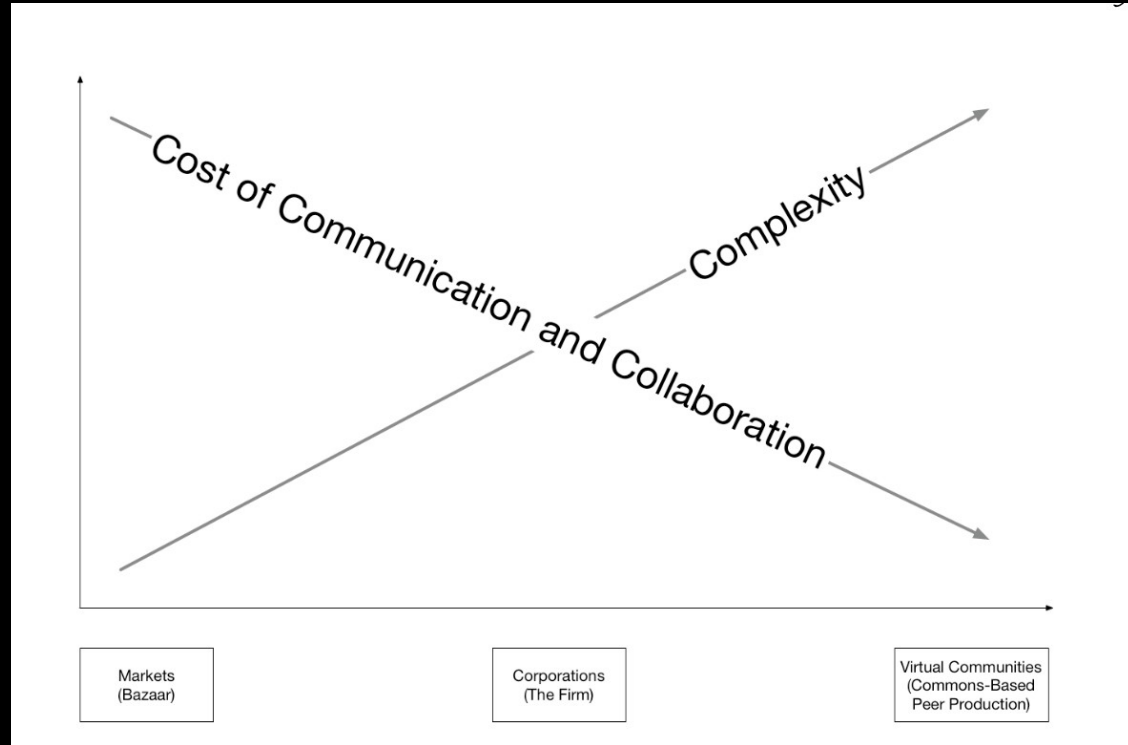
Resisting Reduction

Designing our Complex Future with Machines

複雜適應系

Complex Adaptive Systems





The Internet and communications technology have significantly decreased the cost of collaboration and communication and increased complexity.

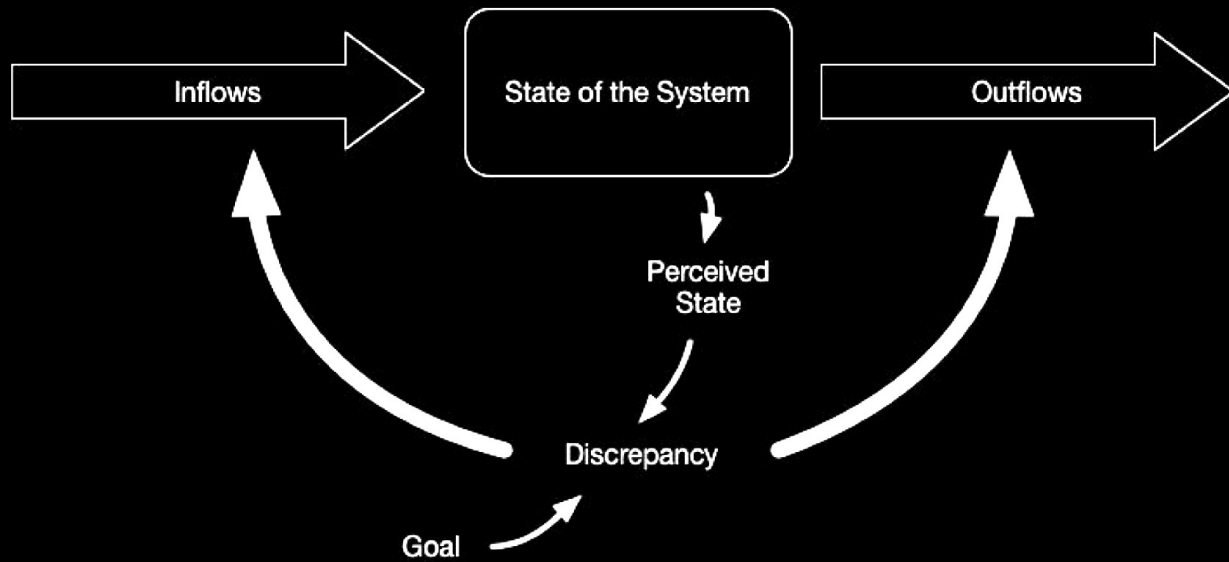


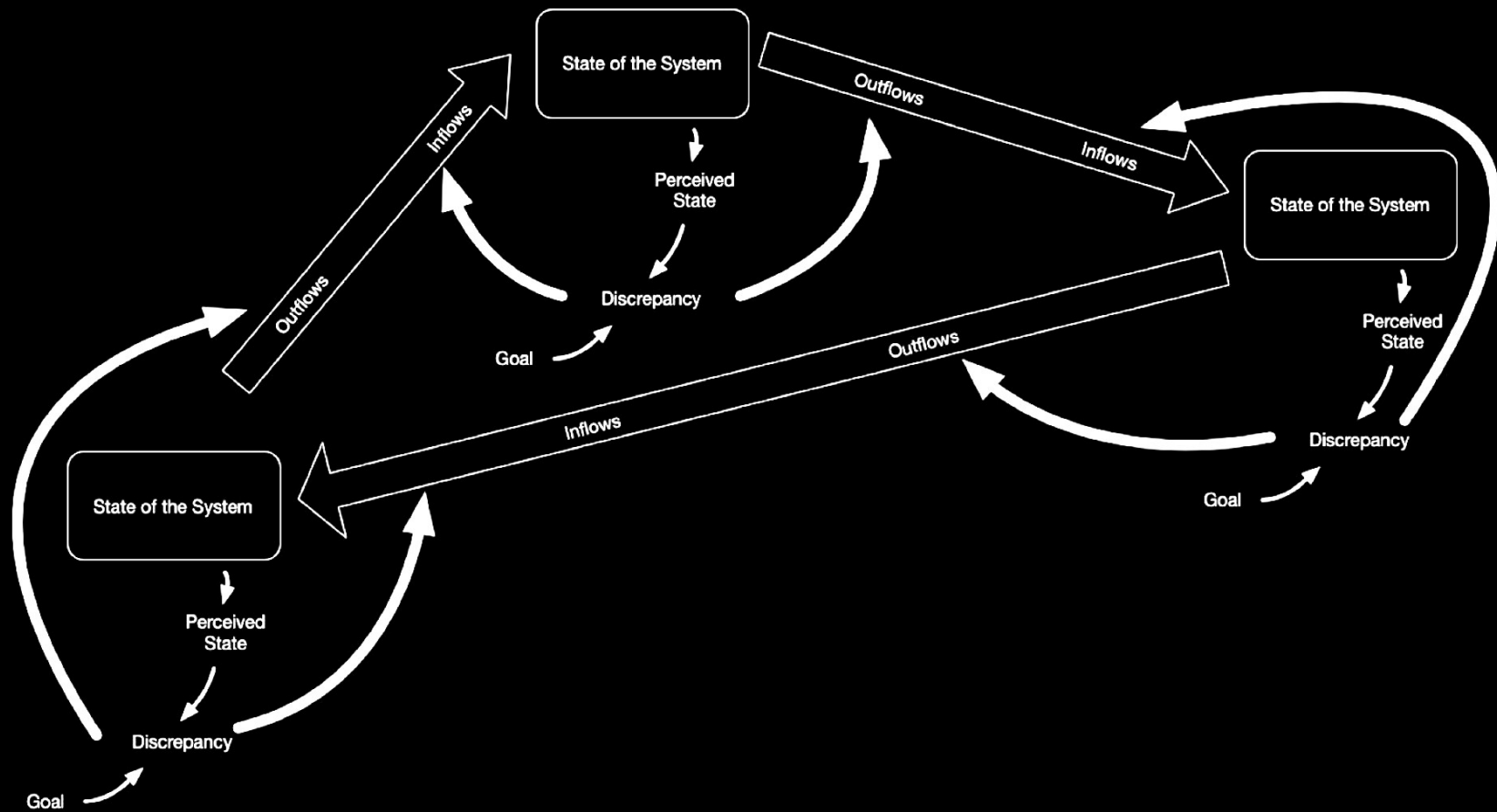


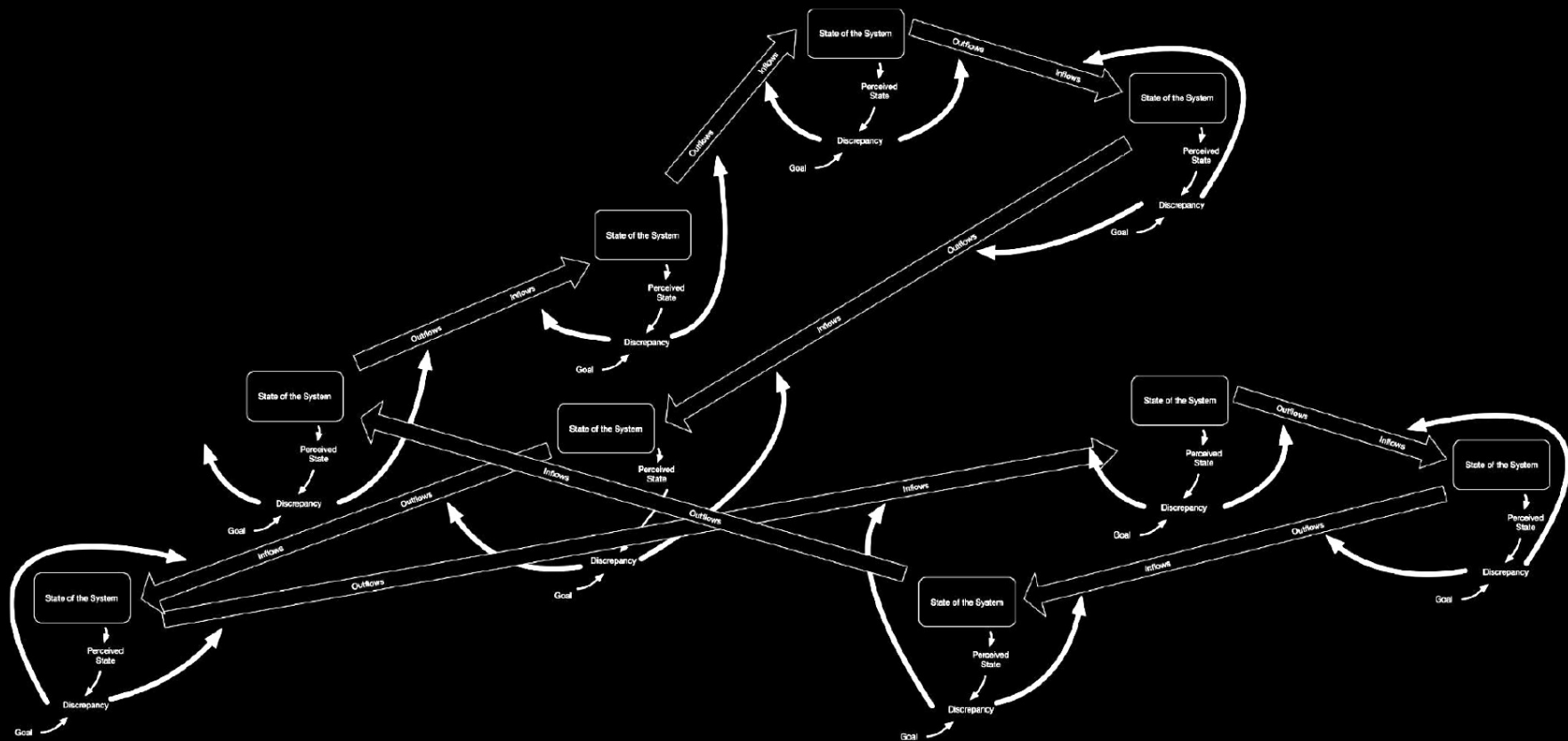
Key Questions for Today's

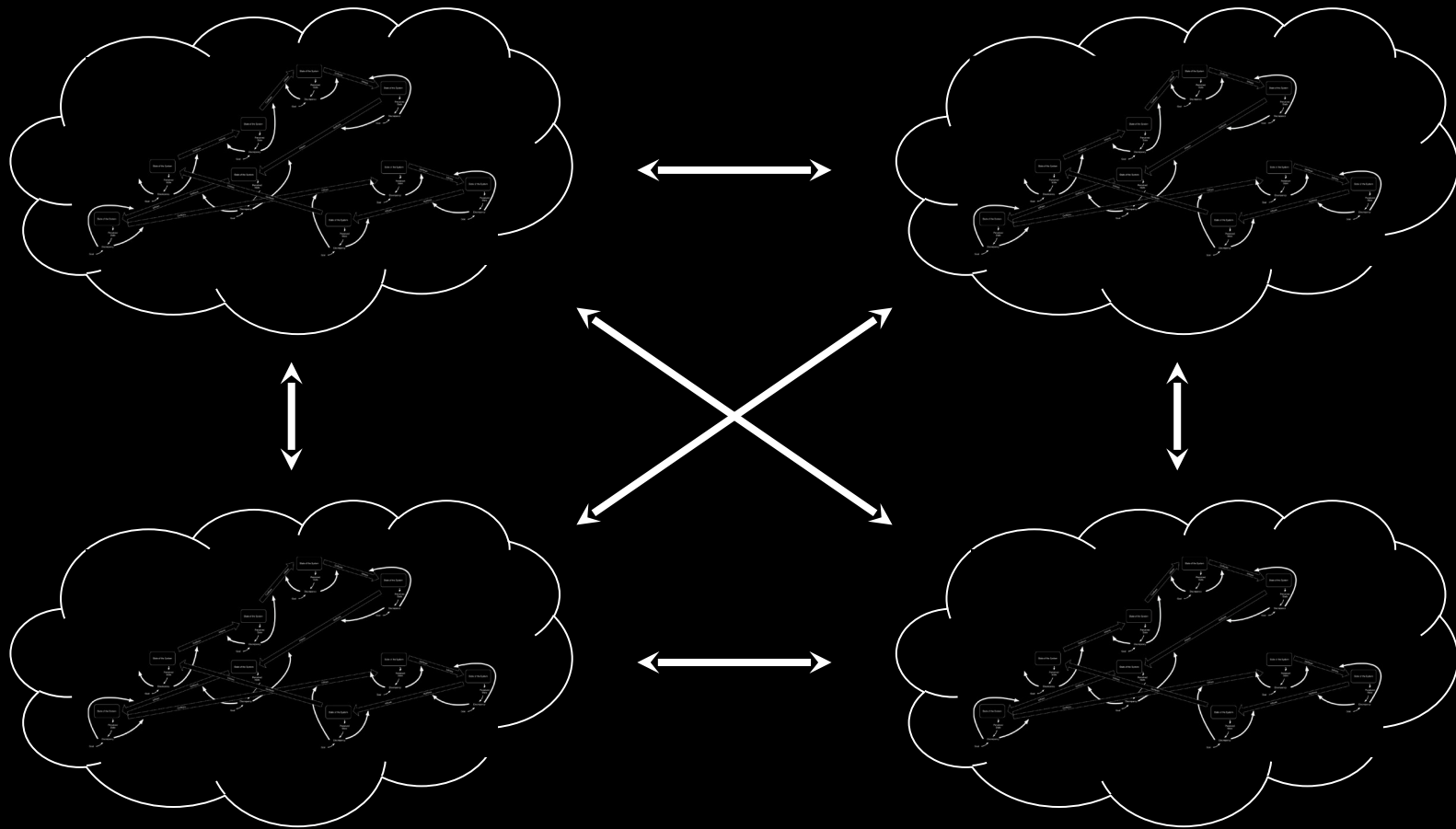
Session:

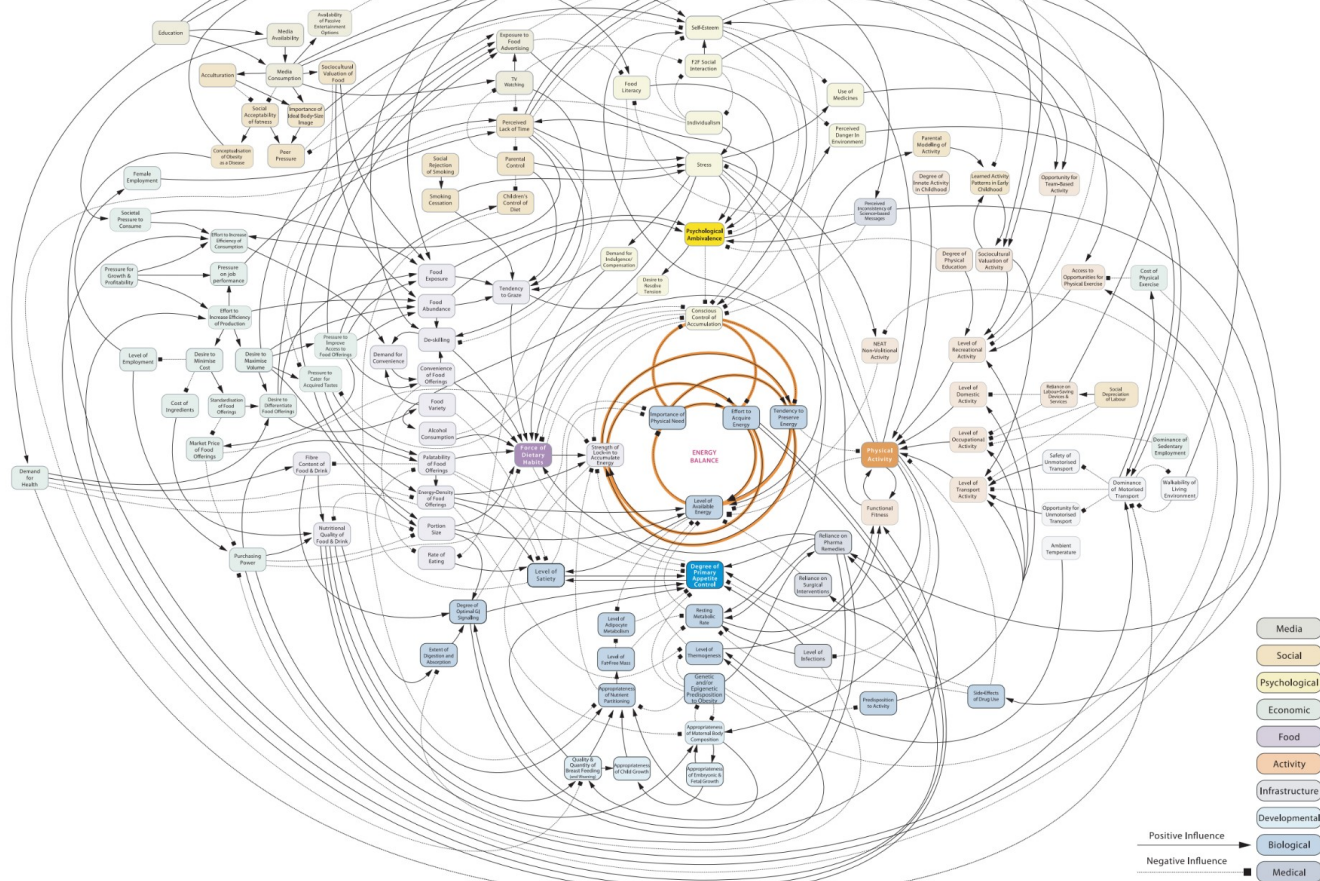
- Why do today's hardest problems resist disciplinary solutions?
- How should we approach these problems?

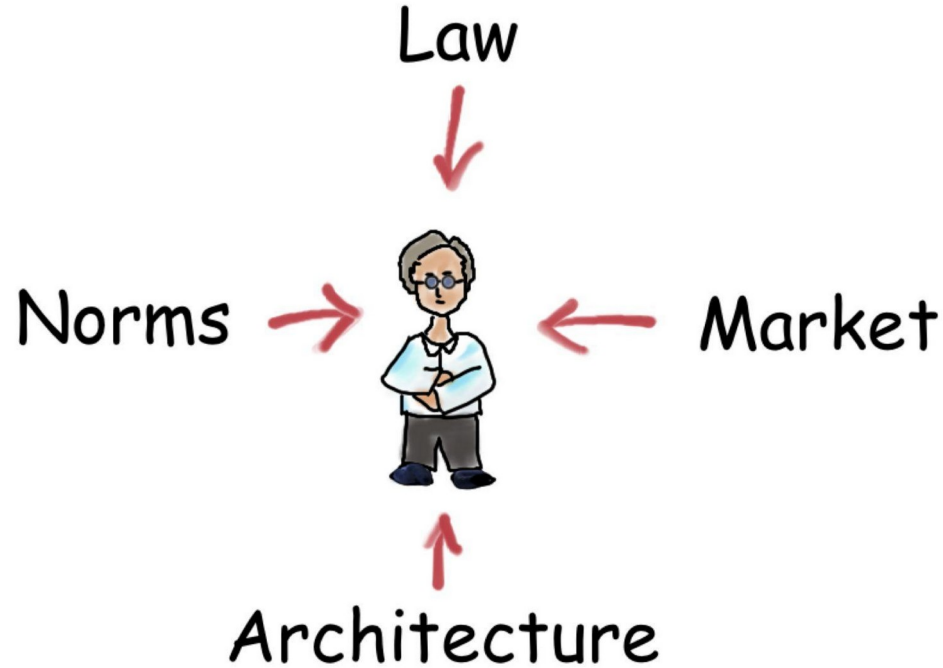














Donella Meadows

Leverage Points: Places to Intervene in a System

(in increasing order of effectiveness)

12. Constants, parameters, numbers (such as subsidies, taxes, standards).
11. The sizes of buffers and other stabilizing stocks, relative to their flows.
10. The structure of material stocks and flows (such as transport networks, population age structures).
9. The lengths of delays, relative to the rate of system change.
8. The strength of negative feedback loops, relative to the impacts they are trying to correct against.
7. The gain around driving positive feedback loops.
6. The structure of information flows (who does and does not have access to information).
5. The rules of the system (such as incentives, punishments, constraints).
4. The power to add, change, evolve, or self-organize system structure.
3. The goals of the system.
2. The mindset or paradigm out of which the system - its goals, structure, rules, delays, parameters - arises.
1. The power to transcend paradigms.

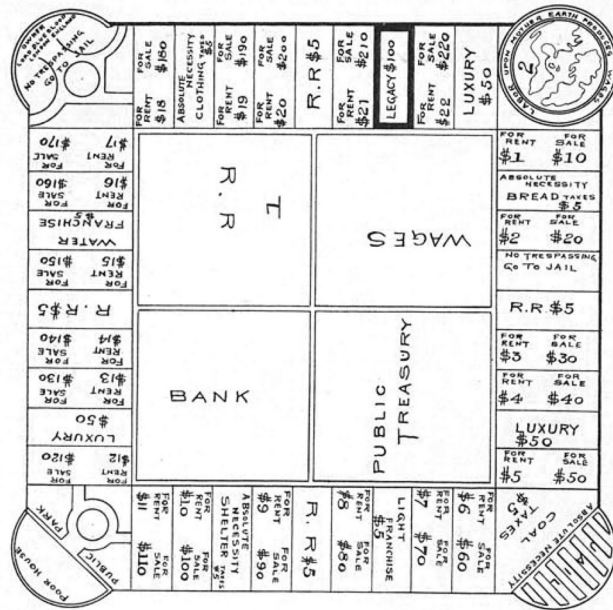


L. J. MAGIE.
GAME BOARD.

APPLICATION FILED MAR. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
F. L. Ourand.
M. H. Ourand.

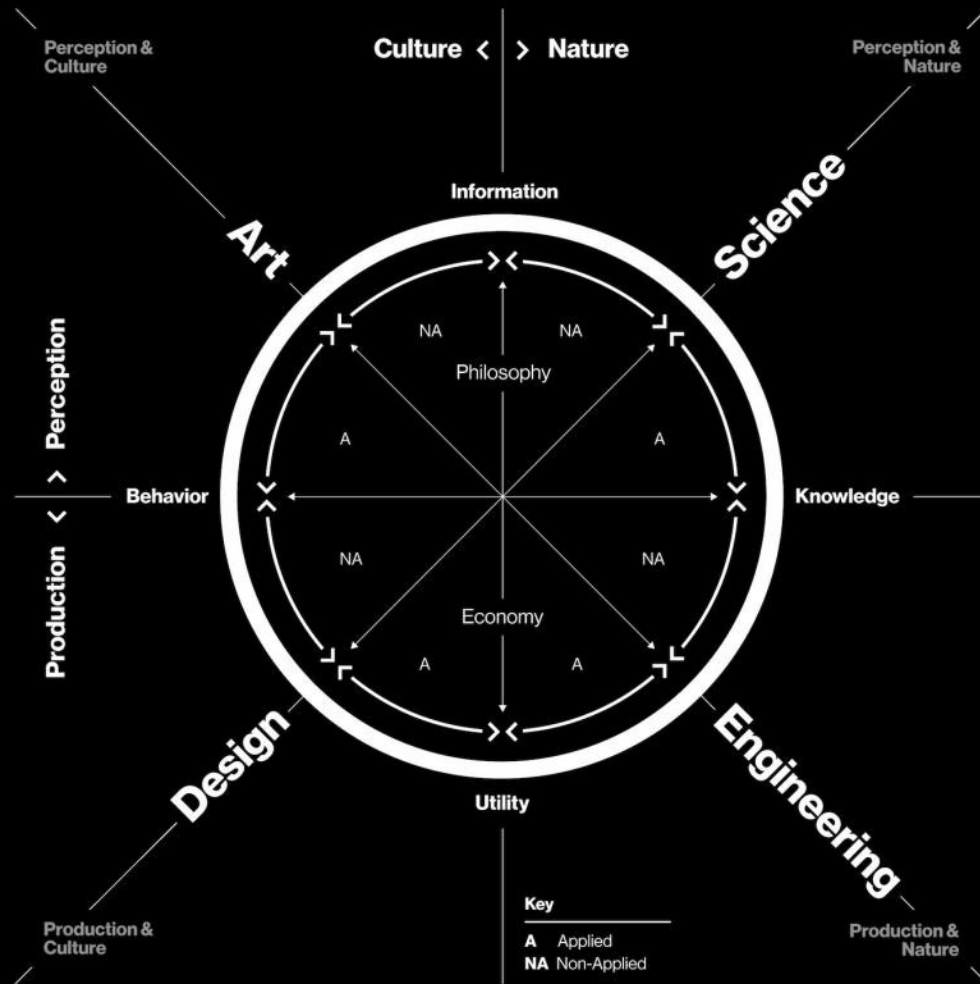
Fig. 1.

Inventor
Lizzie J. Magie
by John A. Saul
Attorney



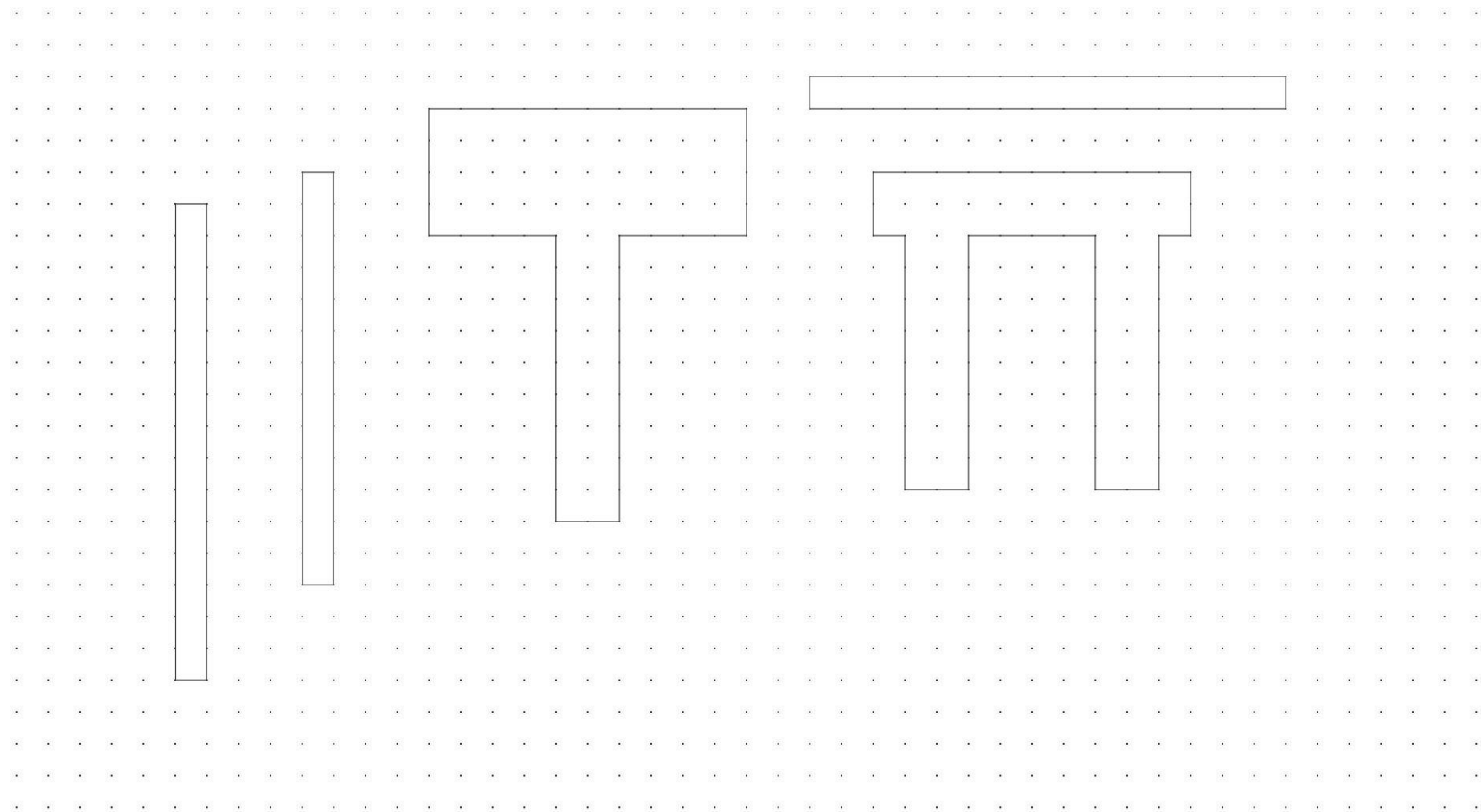
The History of Accounting

Types of Societies	Centralized City-State	Markets and Democracy	Stable and Flourishing Decentralized Network
Interface	Priests	Accountants and Lawyers	LLM's
Interpretation	Religion	Law, Finance	Agents and Symbolic Code
Record Keeping	Ledger	Double-entry Bookkeeping	Blockchain and Smart Contracts
Base Materials	Clay Tablet	Paper & Ink	Digital

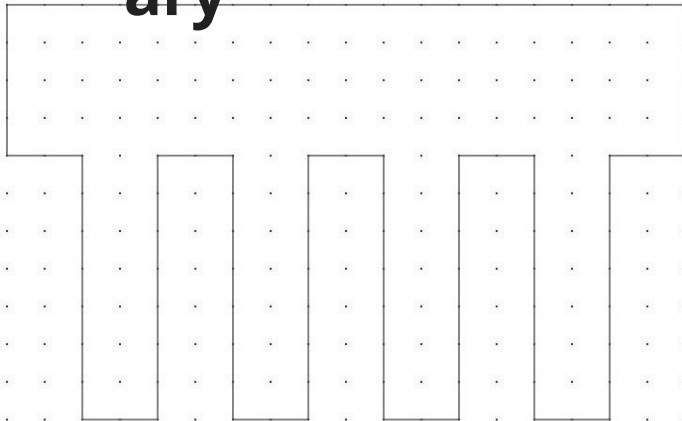


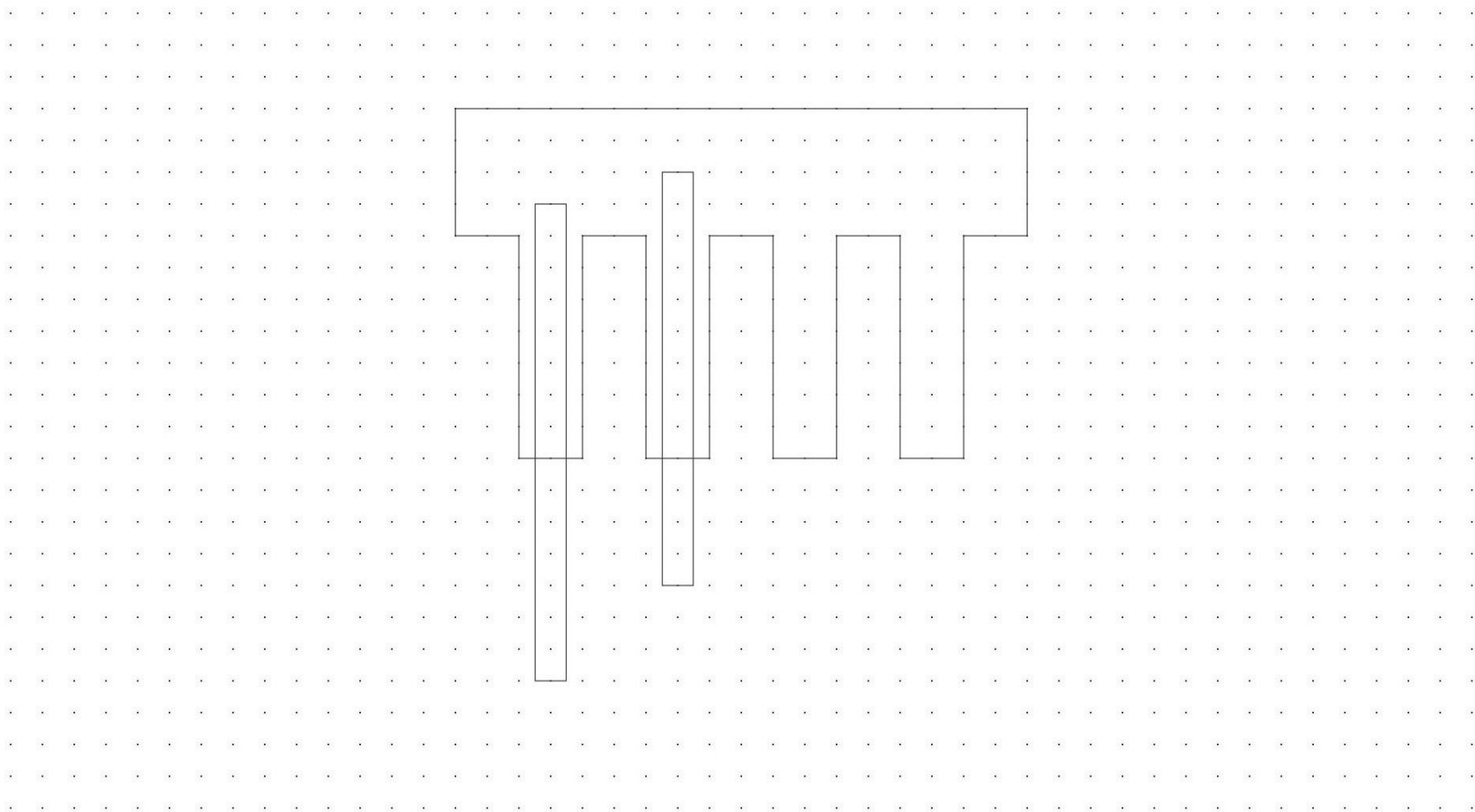


Antidisciplinary Approaches

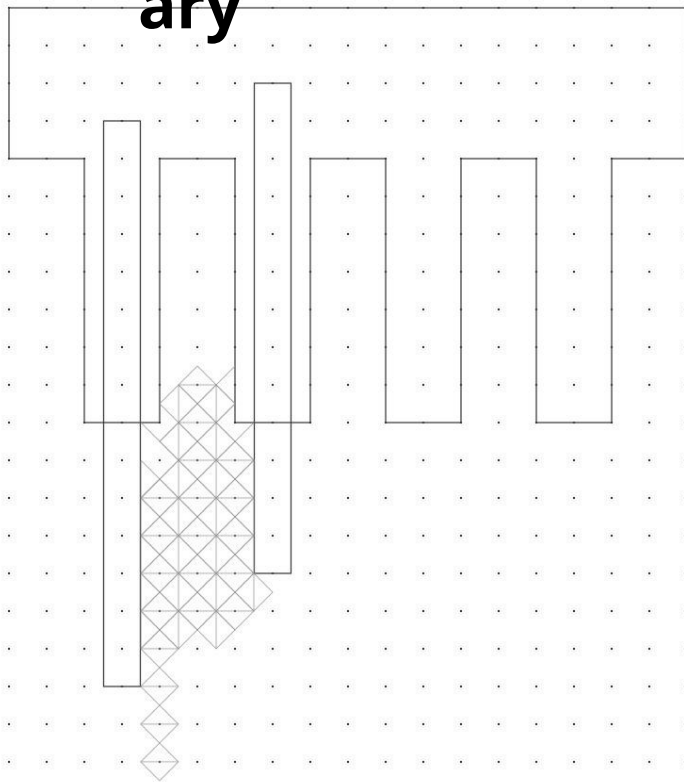


**Multidisciplin
ary**

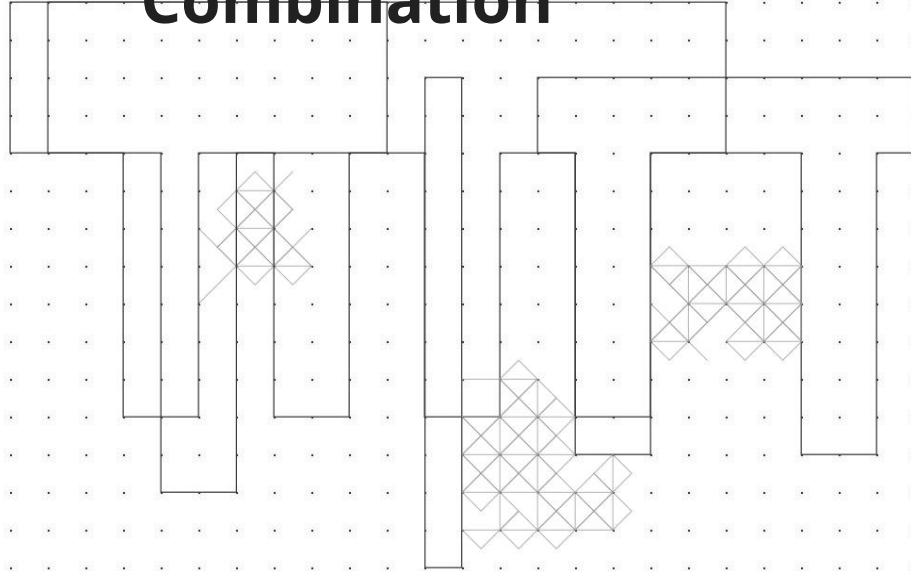




**Antidisciplin
ary**



A Diverse Combination





Example: AI Governance

An incomplete map - practicing the method

Systems Lens: Identifying the Dynamics



Governance:

- Regulatory pressure vs. innovation pressure — the central feedback loop
- Rights questions: intellectual property, AI personhood, human dignity in an AI-mediated world

Information Integrity:

- AI-generated content at scale exacerbates misinformation and disinformation
- Personalized persuasion can identify and exploit individual psychological vulnerabilities

Technology:

- Rapid capability advancement outpacing society's ability to respond
- Concentration of compute, data, and talent in a handful of companies

Geopolitical:

- Race to AGI between nations and companies — safety vs. speed tradeoffs
- Democratic accountability gap: decisions made by private actors, consequences borne by everyone

Economic

- IP and ownership of training data (who profits from AI, and from whose work)
- Labor displacement across knowledge work and creative industries

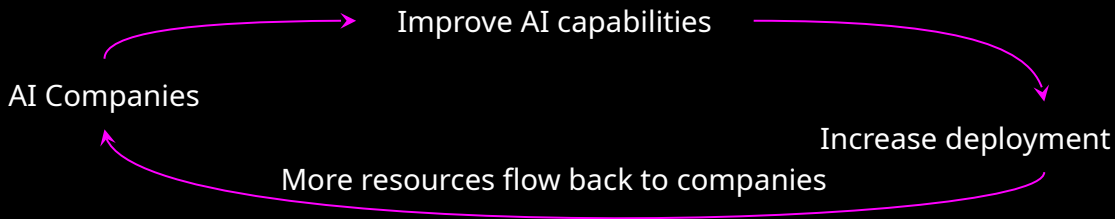
Safety and Alignment:

- Emergent behaviors: systems develop capabilities their designers didn't anticipate or fully understand
- Deployment consistently outpaces safety research — systems are in wide use before failure modes are understood
- Dual-use: the same capabilities that make AI useful (persuasion, optimization, autonomy) make it dangerous at scale

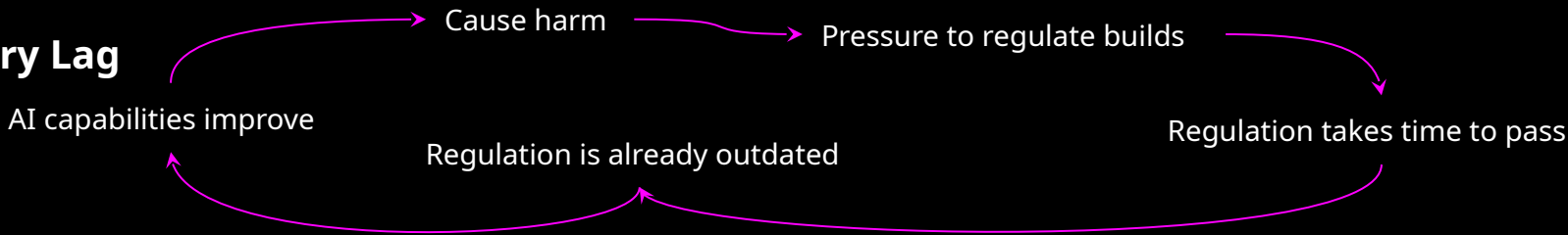


System Lens: Feedback Loops

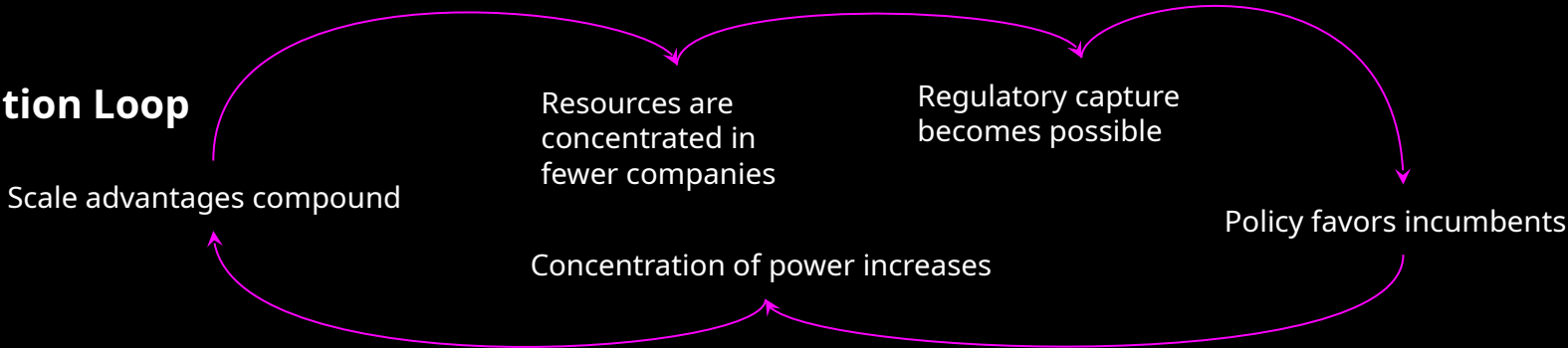
Capability Loop



Regulatory Lag



Concentration Loop





Potential Leverage Points

Places where interventions may push the system to a healthier state

#6 Structure of information flows: Push for greater transparency, build more open source models.

#5 The Rules of the System: Change responsibilities of actors in the system to shift incentive structure.

#3 The Goal of the System: Consider who's goals AI systems are optimizing for; do these goals accurately reflect broader society? How do we know if the goals of these systems have shifted?

#2 The Paradigm: There are many different perspectives on how AI systems should evolve and coexist with humans. Consider the difference between western and eastern philosophical approaches.

Others?



Theory of Change

