

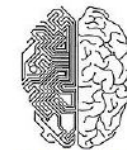
National AI Strategy

Ajit Jaokar
(Presented in a personal capacity)





Ajit Jaokar –
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Artificial Intelligence:
Cloud and Edge Implementations
University of Oxford



THE AI INITIATIVE







European Internet Forum
Political Leadership for Digital Society

11 OCTOBER 2023 | EUROPEAN PARLIAMENT

The Digital World towards 2040 report: a discussion with the author Ajit Jaokar

BREAKFAST DEBATE

Speakers



Pilar del Castillo

MEP, EIF Chair



Ajit Jaokar

Visiting Fellow for Artificial
Intelligence

UNIVERSITY OF OXFORD

Published 4 months ago

...

AI will improve everything

 **Satya Nadella**   @satyanadella · Feb 24

A fantastic example of AI's impact on agriculture.

[Show this thread](#)



Both Elon Musk and Satya Nadella shared about our project on AI in Agtech

Ajit Jaokar

MATHEMATICAL FOUNDATIONS OF ARTIFICIAL INTELLIGENCE

$$f: \mathbb{R}^n \rightarrow \mathbb{R}^m$$

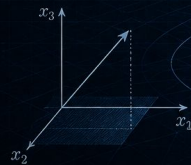
$$\nabla f(x)$$

$$\sum_{i=1}^n x_i w_i + b$$

$$Ax = b$$

$$P(y|x) = \frac{P(x|y)P(y)}{P(x)}$$

$$\min_{\theta} L(\theta) = \mathbb{E}_{(x,y) \sim \mathcal{D}} [\ell(f_{\theta}(x), y)]$$



$$G = (V, E)$$

$$\sigma(z_i) = \frac{e^{z_i}}{\sum_{j=1}^K e^{z_j}}$$

$$A = \begin{bmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{m1} & \cdots & a_{mn} \end{bmatrix}$$

$$Av = \lambda v$$

FROM THEORY TO INTELLIGENCE





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Managing Enterprise AI Risks: Governance, Operational, Cyber (online)

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You can sign up for [course news](#) to receive updates about our Technology and AI programme.

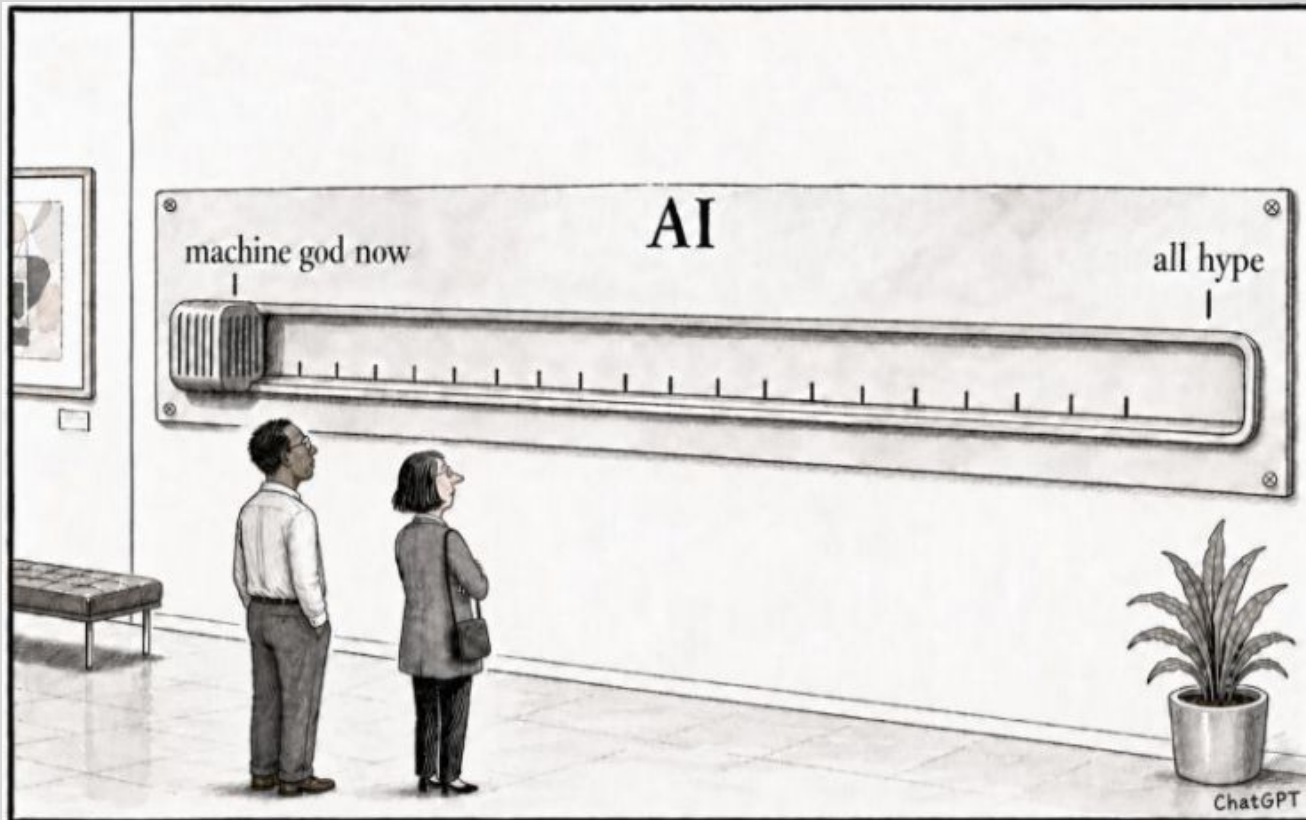
The application deadline for this course will be 9am (UK time) on 5 May 2026, or when the course is fully booked – whichever occurs first.

Overview

This course equips you to oversee Artificial Intelligence initiatives as a strategic asset and enterprise risk, enabling confident senior-level oversight without requiring a technical



**Presentation in a personal capacity and
views my own**



*“at least there are only two positions, otherwise
we might need to consider a range of possible
benefits and risks”*

Source Ethan Mollick

https://www.linkedin.com/posts/emollick_share-7454045317999755264-KKV6?utm_source=share&utm_medium=member_desktop&rcm=ACoAAAAALygB6595VOB18Tf3yzLN-f3LAgnAabw



National Approaches at a Glance

Different starting points. Different models. Shared urgency.



US



Innovation-first; federal preemption at state AI laws.



Stargate compute infrastructure; AI Action Plan framing AI as national competitiveness.



Export controls and ally alignment at the core.



China



State-led: \$140B+ semiconductor investment; open-source models; sovereign AI stack.



Digital Silk Road, K Visa for AI talent, and scale-driven industrial policy.



Pursuing global standards influence and tech diplomacy.



EU



Rights-based regulation: AI Act; focus on safety, transparency, and fundamental rights.



AI Continent Plan and JUPITER initiative for compute; Digital Decade targets.



Brussels Effect shaping global AI governance and standards.



India



IndiaAI Mission; sovereign LLMs and public compute infrastructure.



Digital Public Infrastructure (DPI) advantage; Aadhaar, UPI, and ONDC.



AI skilling and startup ecosystem driving talent scale.



Singapore



Talent leadership: regulatory sandbox model; pro-innovation environment.



National AI Strategy 2.0; investing in compute, talent, and applied AI adoption.



Global connector positioning for AI governance and export of solutions.



No one-size-fits-all path — but each approach reflects deliberate choices about risk, scale, and strategic priorities.

The Seven Pillars of AI Competitiveness

A comprehensive framework covering the **full spectrum** of national strengths—and vulnerabilities.



Interdependent by nature: Strength in one pillar depends on—or is constrained by—others.

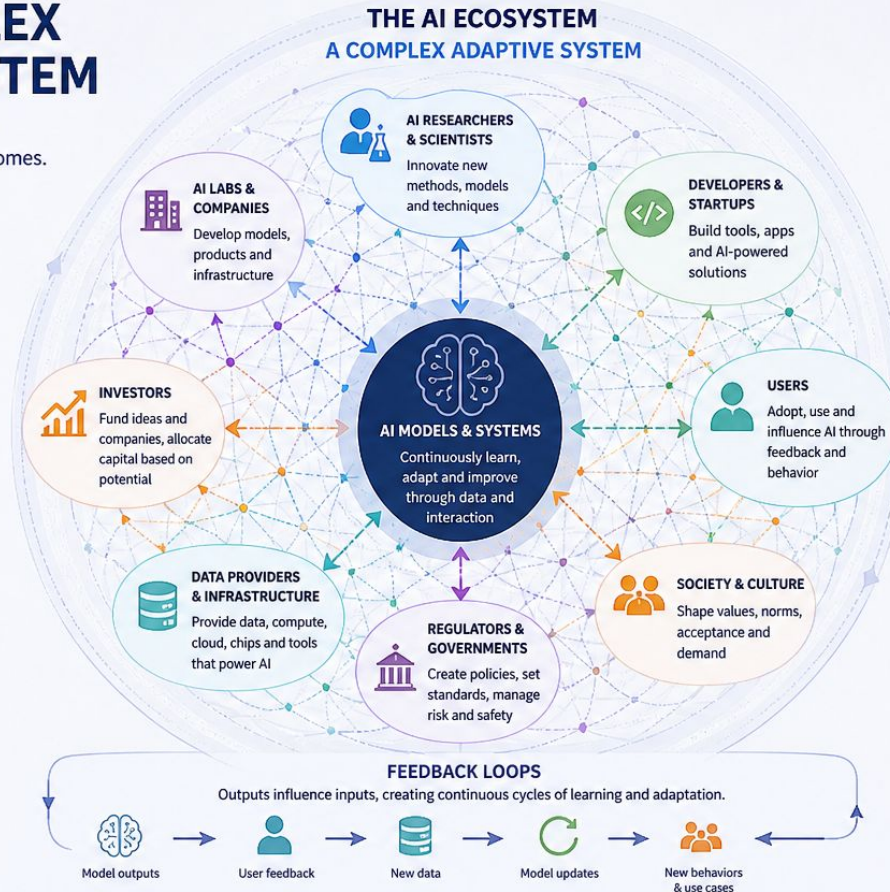
Measured consistently.
Interpreted contextually.

AI AS A COMPLEX ADAPTIVE SYSTEM

Many agents. Countless interactions.
Continuous adaptation. Emergent outcomes.

KEY FEATURES OF A COMPLEX ADAPTIVE SYSTEM

- MULTIPLE AGENTS**
Diverse actors pursuing their own goals
- INTERACTIONS**
Agents interact in nonlinear ways, influencing each other
- ADAPTATION**
Agents learn, evolve and adjust based on feedback
- EMERGENCE**
System-level patterns and capabilities arise that are not designed by anyone
- SELF-ORGANIZATION**
Order and structure emerge without central control









EMERGENT OUTCOMES

-  New capabilities (e.g., reasoning, generation, planning)
-  New industries & business models
-  Productivity & economic transformation
-  New risks & challenges (e.g., bias, misuse, concentration)
-  Shifts in work, skills & society

SYSTEM CHARACTERISTICS

-  Decentralized
-  Dynamic
-  Nonlinear
-  Path dependent
-  Often unpredictable

EXAMPLES OF AI SYSTEM LEVEL EMERGENCE

-  Transformers changed the entire landscape
-  Open source movements accelerate innovation
-  Capabilities emerge that no one explicitly designed
-  New roles and professions are created
-  Global standards and norms evolve
-  Societal debate shapes policy and direction

THE BIG PICTURE

No single actor controls the system. The future of AI emerges from the interactions of many adaptive agents. The best way to navigate it is to learn, adapt and contribute.



AI as a complex Adaptive System

A **Complex Adaptive System (CAS)** is a system made up of many interacting parts (called *agents*) that adapt or change their behavior over time in response to each other and to their environment.

Instead of being controlled by a central authority, the system's overall behavior **emerges** from these local interactions. like an Ant colony

AI as a complex Adaptive System

Key features of a Complex Adaptive System

- **Multiple agents**
Many individual components (people, cells, organisms, companies, etc.)
- **Interactions**
Agents interact with each other, often in nonlinear ways (small changes can have big effects)
- **Adaptation**
Agents learn or evolve based on experience or feedback
- **Emergence**
The system shows patterns or behaviors that aren't obvious from the individual parts
(e.g., traffic jams, market trends)
- **Self-organization**
Order arises without a central controller

AI as a complex Adaptive System

Applied to AI

1. Agents (who/what participates)

AI labs (e.g. OpenAI, Google DeepMind) - Developers and startups - Governments and regulators - Users (individuals, enterprises) - Models themselves (increasingly agentic systems) Each of these **acts independently but influences others**

2. Interactions (how the system evolves)

Competition (model releases, benchmarks) - Collaboration (open-source, research sharing) - Regulation (policies shaping behavior) - Market feedback (what users adopt) These interactions are **nonlinear**

A single paper or model (e.g., transformers) can reshape everything

AI as a complex Adaptive System

3. Adaptation (learning + evolution)

Models improve via training and feedback loops - Companies pivot strategies - Governments update policies Users change behavior (prompting, workflows) The system is constantly **learning about itself**

4. Emergence (unexpected system-level outcomes)

Examples:

- Sudden capability jumps (e.g., reasoning, coding ability)
- New roles (AI Product Manager, Forward Deployed Engineer)
- Entire industries (AI copilots, agent platforms)
- New risks (alignment, misinformation, systemic dependence)

No single actor *designed* these outcomes—they emerged

AI as a complex Adaptive System

5. Self-organization (no central control)

There is no “AI global planner”

Yet we see:

- Convergence on architectures (transformers)
- Standardization (APIs, benchmarks)
- Ecosystem layering (models → tools → apps → agents)

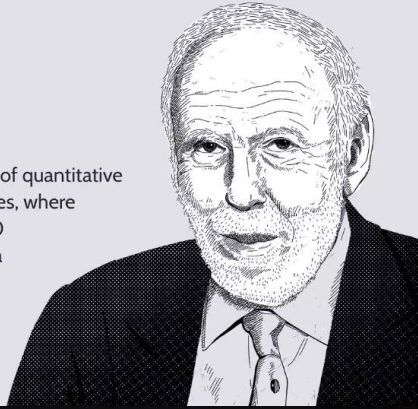
Order arises **organically**

Jim Simons

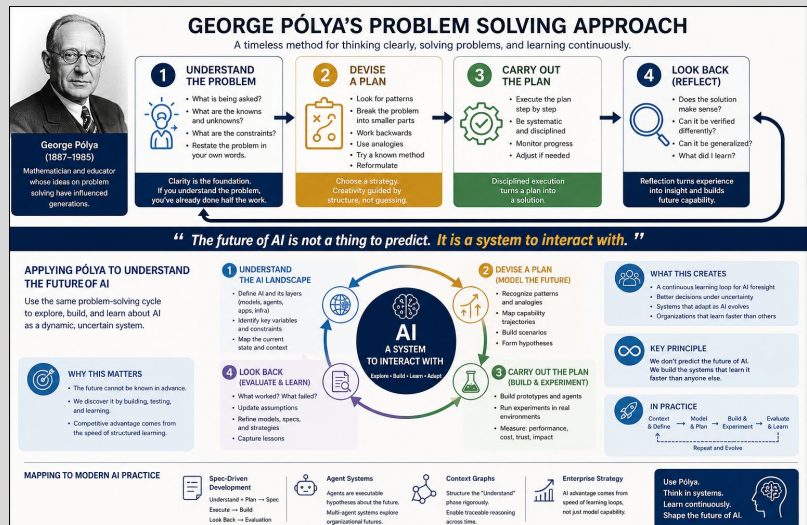
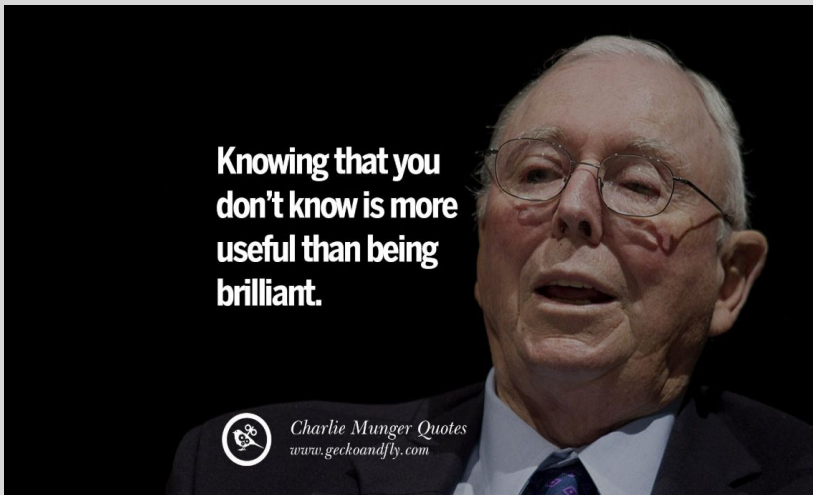
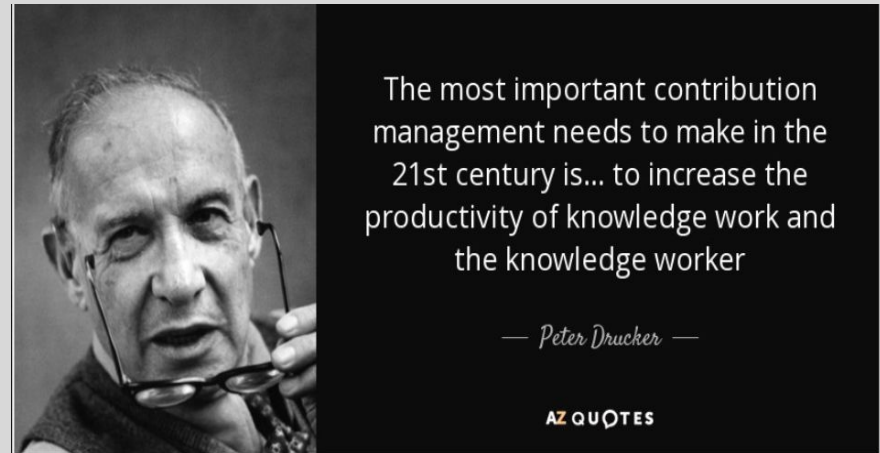
Born: April 25, 1938
Died: May 10, 2024

Investor

- Known as the “Quant King,” founder of quantitative hedge fund Renaissance Technologies, where he served as CEO from 1982 to 2010
- Before his career in finance, he was a master code breaker for the NSA, a successful mathematician, and a professor at MIT and Harvard
- Served as the chair of the mathematics department at



Jim Simons, Early AI Investopedia / Julie Bang



A systems-thinking framework for AI evolution for policymakers

The policy analysis canvas

A. Polya: define the problem

Polya's method asks: **understand the problem, devise a plan, carry out the plan, look back.**

For AI policy, this means policymakers should not start with regulation. They should first define the problem precisely.

B. Drucker: define the institution

Peter Drucker would ask: **What is the purpose of the institution, and how does AI improve or distort performance?**

For policymakers, this means AI should be assessed not only as a technology but as a force reshaping institutions: government, education, health, courts, defence, labour markets, firms, and civil society.

C. Munger: define incentives and failure modes

Charlie Munger would ask: **What are the incentives? What are the second-order effects? What psychological or structural biases distort judgement?**

For AI policy, this is critical because AI systems are shaped by incentives: compute concentration, data advantage, platform power, geopolitical competition, speed-to-market pressure, surveillance incentives, and regulatory arbitrage.

D. Simons: define evidence and indicators

Jim Simons' approach was empirical: collect data, find patterns, test models, update continuously.

For policymakers, this means AI governance should be evidence-driven, not slogan-driven. Policy should be treated like a model that must be tested against real-world signals.

Strategic questions for policymakers

The framework can be reduced to ten questions:

1. What new AI capability has appeared?
2. Which institutions will adopt it first?
3. Which workflows will change?
4. Who gains power from this change?
5. Who becomes vulnerable?
6. What failure modes appear at scale?
7. What incentives accelerate unsafe use?
8. What evidence should be monitored?
9. What governance response is proportionate?
10. When should the policy be revised?

 **Faroe Islands: AI Evolution Through a Systems Lens ?**



1. Polya Lens → What is the “AI problem” in the Faroe Islands?

Policymakers here should **resist copying large-country AI agendas.**

The real problems are structurally different:

Core national constraints

- Small population (~50,000)
- Geographic isolation
- Heavy reliance on fisheries and aquaculture
- Limited labour pool
- High cost of public service delivery
- Climate exposure (oceans, weather, sustainability)

Therefore, the AI problem becomes:

“How do we use AI to augment a small, high-trust society to maintain resilience, sovereignty, and economic sustainability?”

Not:

- “How do we regulate frontier models?”
- “How do we compete with the US/China?”

2. Drucker Lens → Which institutions are transformed?

In a micro-state, institutions are fewer—but more tightly coupled.

Critical institutions in the Faroe system

1. Fisheries & aquaculture (economic backbone)
2. Public administration (small but centralised)
3. Healthcare (capacity constrained)
4. Education (small talent pipeline)
5. Transport & infrastructure (weather-dependent)

3. Munger Lens → Incentives and failure modes

Incentive structure in the Faroe Islands

Positive incentives

- High trust society → easier adoption
- Centralised governance → faster coordination
- Strong public sector → easier policy rollout

Risky incentives

- Dependence on external AI providers
- Limited internal AI expertise
- Risk of vendor lock-in
- Over-reliance on automation due to labour shortages

4. Simons Lens → Evidence, data, and signals

Capability indicators

- AI usage in fisheries (forecast accuracy)
- AI in public services (processing time reduction)

Adoption indicators

- % of public sector using AI copilots
- SME AI adoption rate

Risk indicators

- AI-related incidents (errors, bias)
- dependency on external providers

Economic indicators

- productivity in fisheries
- diversification beyond fisheries

Policy as a model (Simons approach) - similar to Musk

Each policy should be treated like a trading strategy:

- hypothesis: "AI improves healthcare access"
- data: patient outcomes, waiting times
- test: pilot programmes
- update: scale or abandon

THEY DO THAT BY THINKING FROM 'FIRST PRINCIPLES': BUILDING THEIR REASONING FROM THE GROUND UP. I WOULD ENCOURAGE PEOPLE TO USE THE MENTAL TOOLS OF PHYSICS AND APPLY THEM BROADLY IN LIFE. THEY ARE THE BEST TOOLS."



How A True Engineer Thinks

 Nic Munoz

 2.6k



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Implications

The Faroe Islands should NOT try to be:

- an AI superpower
- a frontier model builder

Instead, it can become:

AI for resilience

Focus areas:

climate adaptation fisheries sustainability - healthcare access

**AI is not a growth story for the Faroe Islands.
It is a survival, resilience, and sovereignty story.**

And if done well: It becomes a **global model for how small societies thrive in the age of AI**





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Former Google DeepMind researcher's AI startup raises record \$1.1 billion seed funding to pursue superintelligence





Tá ókunnufólk kom á leið - Heimablíðni

Anna and Óli manage the farm as the 9th generation. For many years, they have tended to the farm and its livestock honouring the traditions handed down to them.

The boom in Nordic cuisine inspired them to serve unique local food prepared with Faroese recipes, and they decided to invite guests into their home for a taste of the Faroe Islands.

This worked out better than they ever dared to dream. Life on the farm soon gained a new and highly enjoyable side: merry moments with guests, often from afar, who want to experience the hospitality of a Faroese home in good company.

In addition to the Nordic languages, the hosts speak both English and German. For their work Anna and Óli received the 2017 Nordic Food Prize EMBLA in the category 'Food Destination'.

This book introduces the ingredients used and the work that goes into preparing them. We follow the annual cycle of livestock and crops, see how everything grows and matures until it is ready for the dining table in a cosy living room with a view of fjords and islands.

INNOVATION > SUSTAINABILITY

Faroe Islands: 100 % Renewable Goal With Global Relevance



By [Mattias Goldmann](#), Contributor. © Mattias Goldmann is CEO of the ...
for [We Don't Have Time](#)

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Thank you! - Takk fyri