

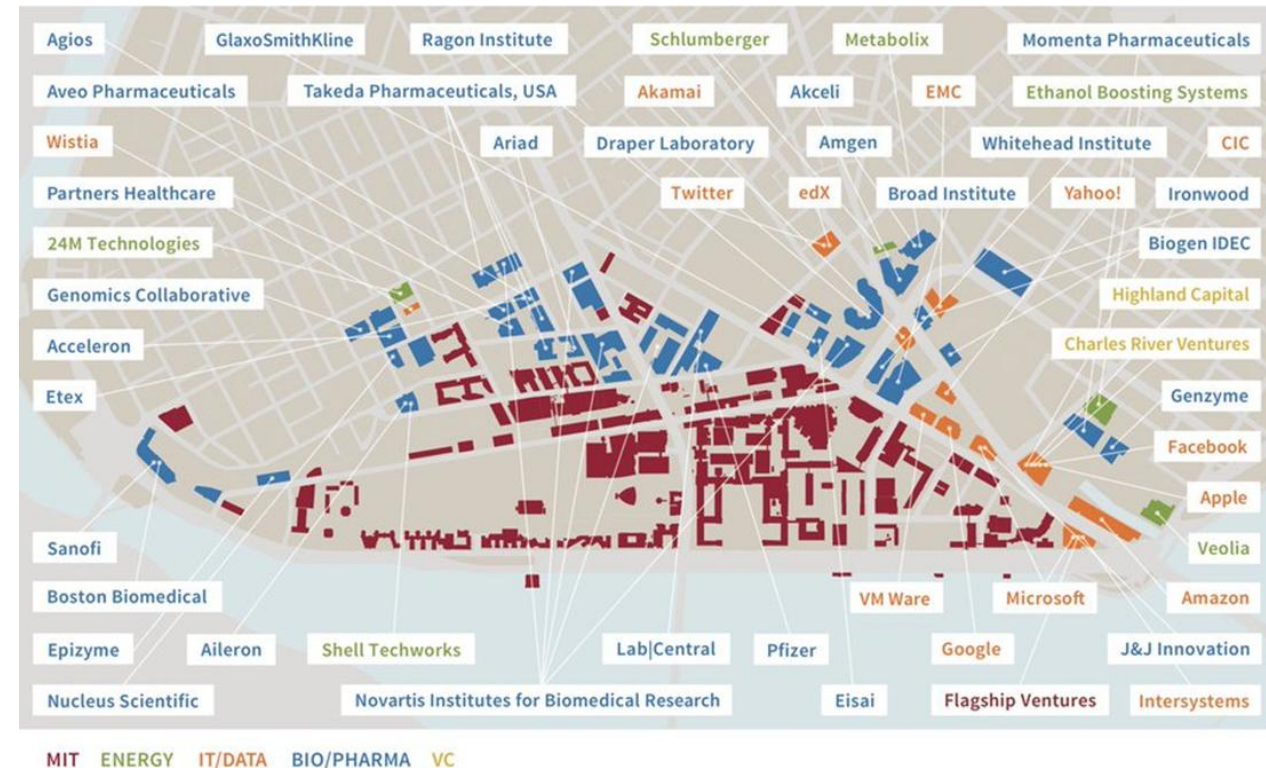
“Science and Society: From Knowledge Factories to Future Creation”

António Câmara

May 14th, 2026

What is the mission of science?

- Produce papers?
- Train employees?
- Create new industries and futures?



MIT is associated with 80+ Nobel Prizes and created 4000+ companies since 1945

From the Lab to the World

[Rio Fly-Over](#)

[Ynvisible Factory](#)

We Still Follow an Old Innovation Model

**Academia, innovation & industry –
traditional model**
(Francis Bacon; 1561 – 1626)



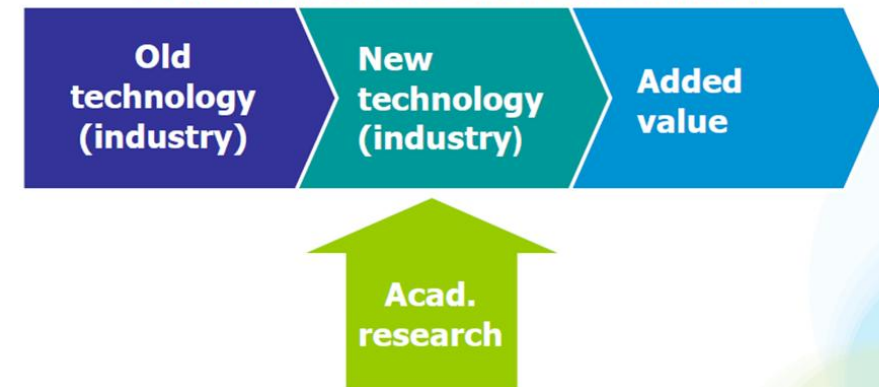
LINEAR TECHNOLOGY EVOLUTION



**Academia, innovation & industry:
the Californian model**
(Adam Smith; 1723 – 1790)



BRANCHED TECHNOLOGY EVOLUTION MODEL



* Leary et al
2002

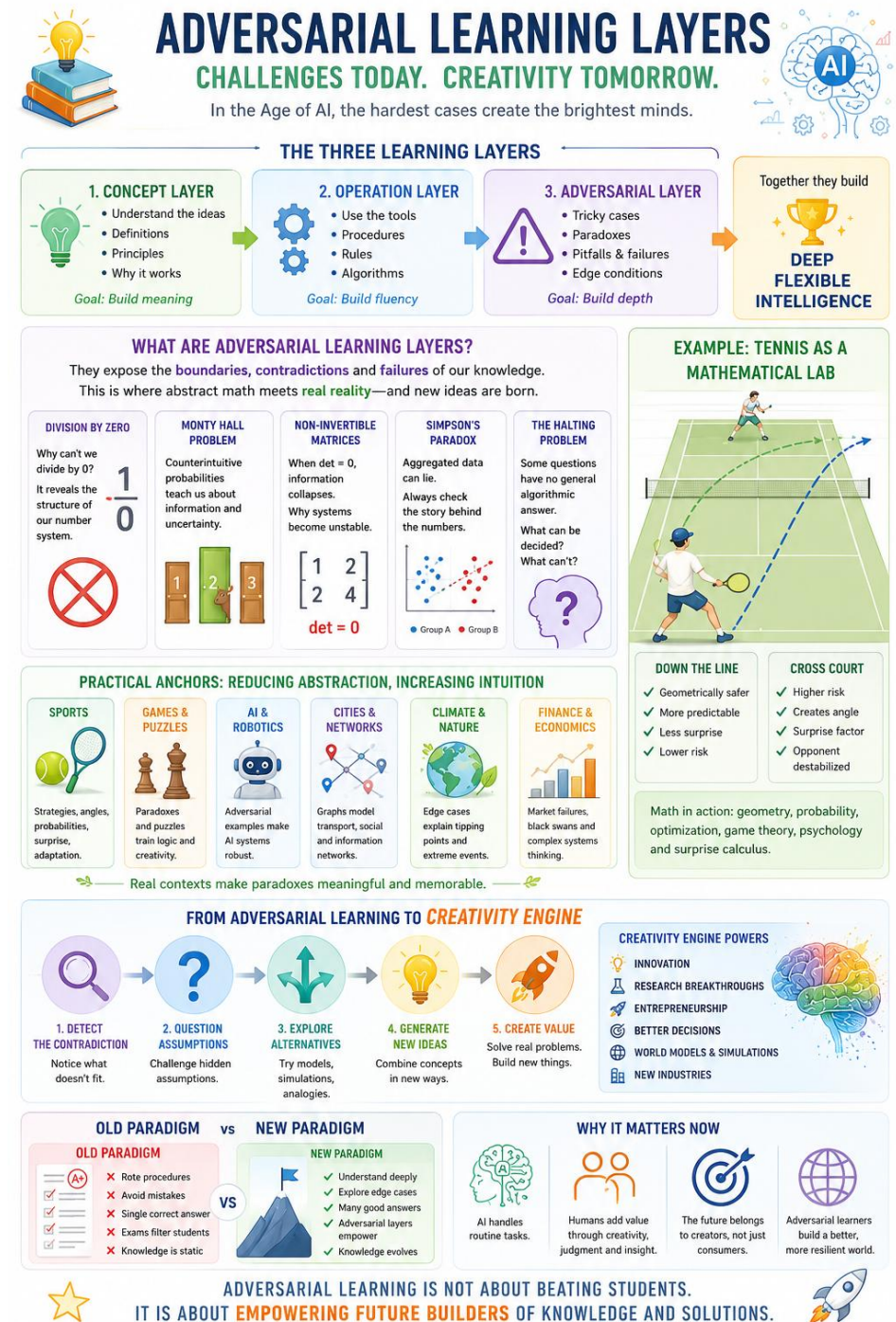
**More than half of economic growth during 1945 – 2002 is
attributed to innovation within the high-technology sector***

Portugal and much of Europe optimize existing systems.
MIT-like systems create new industries.

The Adversarial Layer

- Major inspiration: Amidi's [Computer Science Cheat Sheets for Computer Science](#), MIT and Stanford
- The conceptual level gives meaning (why things work).
- The operational level gives fluency (how to do things).
- The adversarial level develops robustness — the ability to face “trick” or non-trivial problems where concepts are tested in disguise, combined, or inverted.
- Portuguese culture: Adversarial Layer is the fear engine. MIT and Stanford culture: Adversarial Layer is the creativity engine

António Câmara, [Tennis, Humans and Machines](#), 2026



AI Changes Science Itself

AI changes:

- research,
- education,
- publishing,
- sovereignty,
- intellectual property,
- cognition itself.

Publicly funded knowledge increasingly trains external AI systems that later sell intelligence back to us.

António Câmara, [Portugal, Ai and the Future, 2026](#)



Humans and Machines

Human Dimension	Machine Counterpart	Distinction
Conscience	Optimization	Moral reasoning, empathy
Soul	Algorithms	Emotional depth, meaning-making
Dexterity	Automation	Embodied precision & improvisation
Body Intelligence	Sensors	Non-verbal awareness, movement learning
Multimodality	Multimodal AI	True sensory integration, continuous creativity
Surprise	Prediction	Generative risk-taking, miracles

YVision Mirror Verse

Mirror	Human Capability	Function
Mirror² (Surprise)	Creativity	Generates unexpected connections and ideas
North	Conscience	Guides moral reasoning and alignment
Pulse	Soul	Measures and strengthens emotional coherence
Lucid	Dreaming	Translates imagination into digital prototypes
Flow	Body Intelligence	Synchronizes physical movement and cognition
Craft	Dexterity	Enhances manual and creative craftsmanship
Wall	Shared Perspectives	Enables collective insight and empathy

Each Mirror functions as a stand-alone app, yet all are interconnected through shared data, symbolic logic, and multimodal interfaces

Mentors Matter

- Tennis
 - Alfredo Vaz Pinto (CT Jamor)
 - João Lagos (DAC)
 - Joaquin Moure (Spanish National Team)
- Science
 - IJ Good (Virginia Tech)
 - Donald Drew (Virginia Tech)
 - David Marks (MIT)
 - Pete Loucks (Cornell)
 - Donella Meadows (Dartmouth)
- Entrepreneurship
 - Jack Lang (Cambridge and Raspberry Pi)



[20.000 players at Lyon's City of Lights project](#)

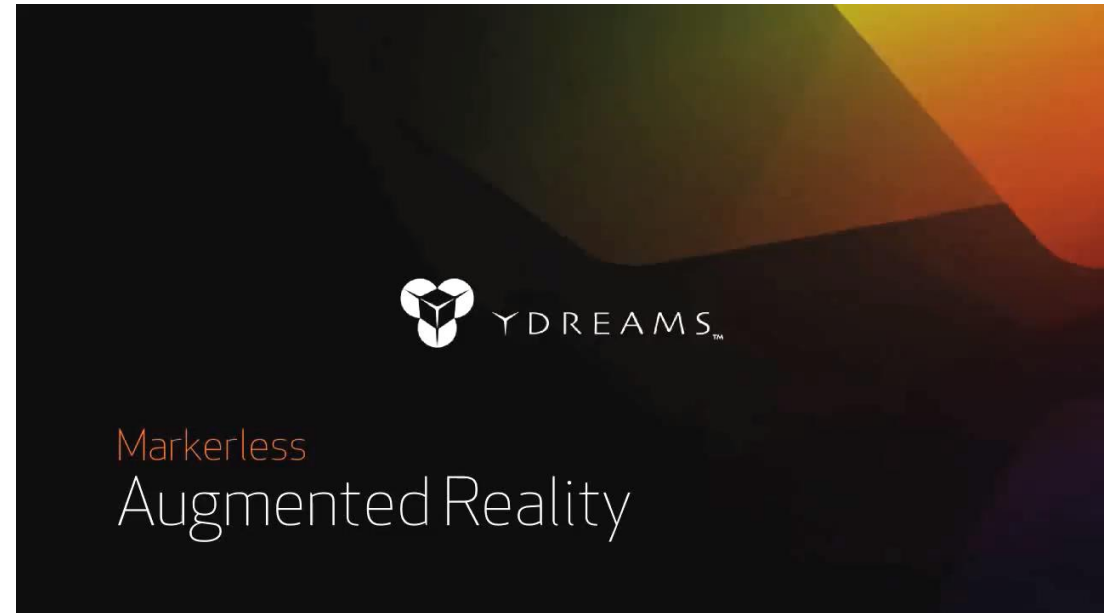
Risk

- Risk is unavoidable
- Frontier science requires ambiguity
- Most institutions optimize safety, but breakthrough science requires discomfort
- If you only work on safe projects, AI will eventually outperform you



The Challenge: “What future will you help create?”

- Don't become only paper producers
- Don't become AI operators
- Become creators, model builders, entrepreneurs, explorers.



[YDreams' AR with depth sensors](#)

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Seixal Criativo
Sunday News

The YDreams Collection