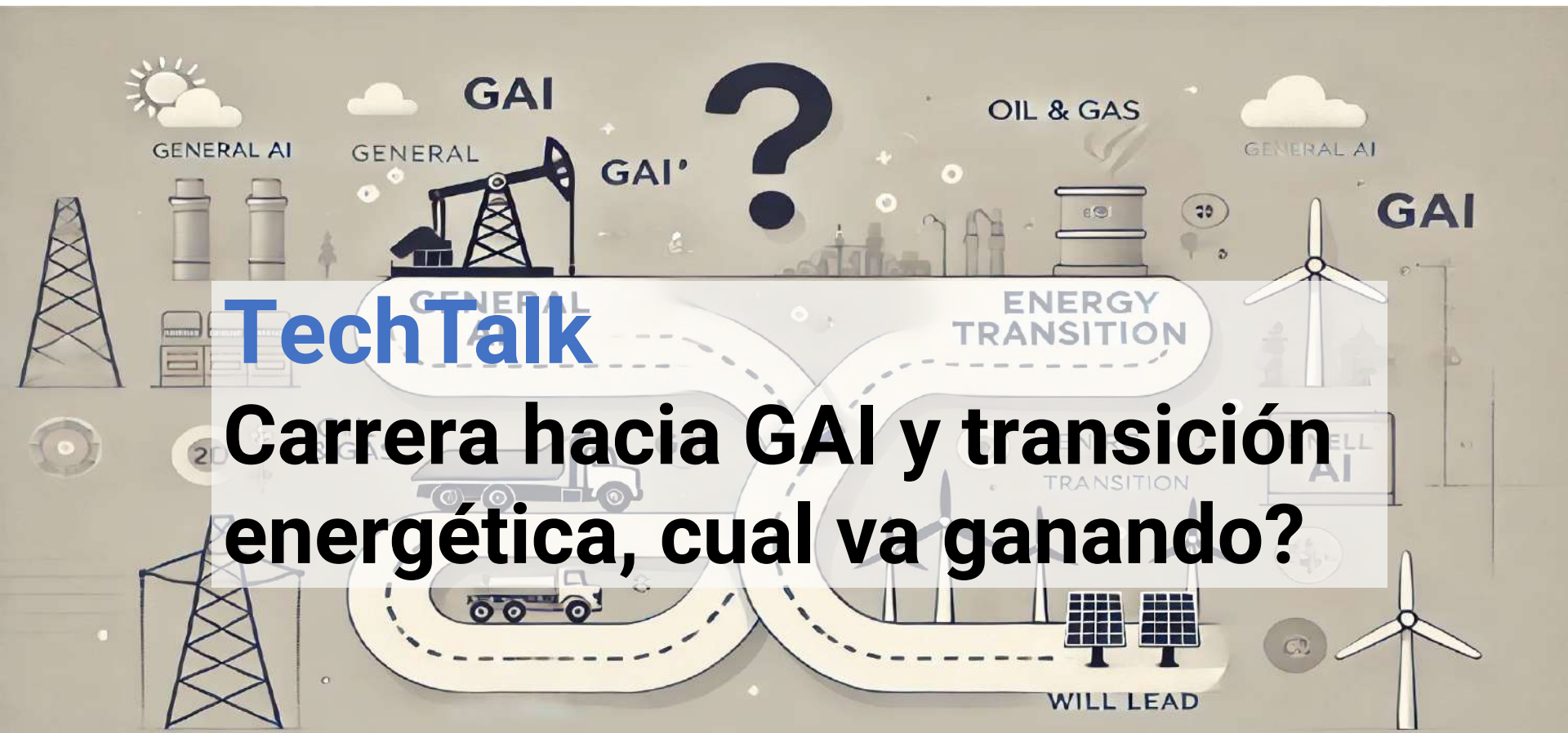
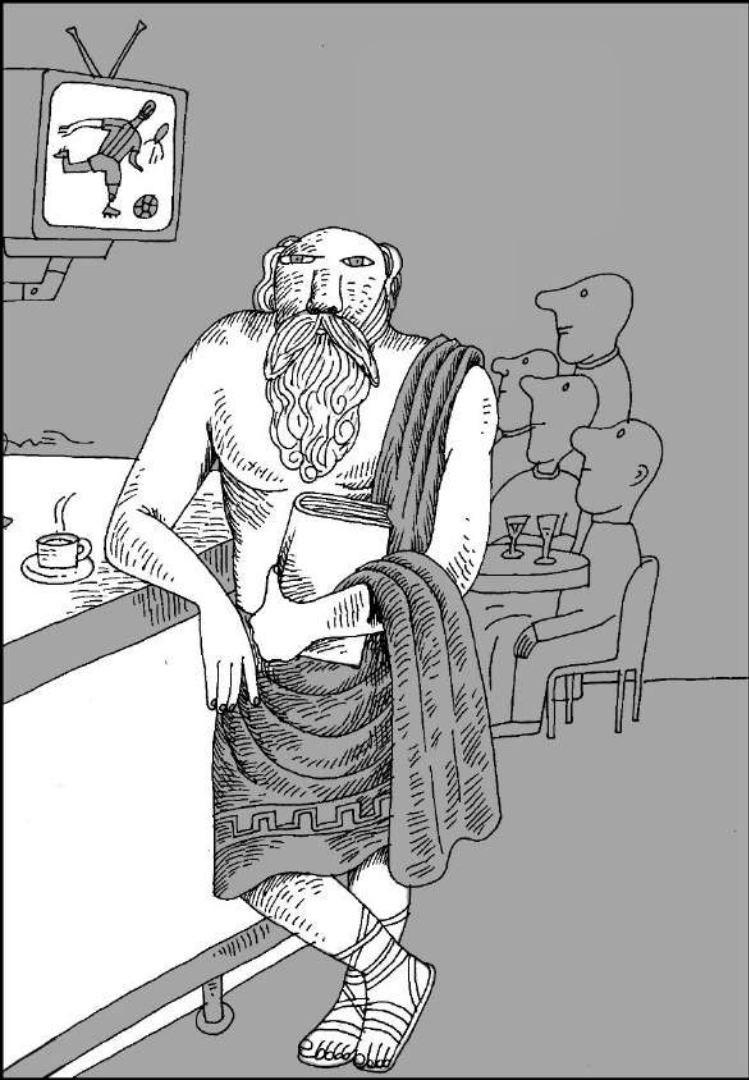




# TechTalk

## Carrera hacia GAI y transici n energ tica, cual va ganando?





**Se que se**

**Se que no se**

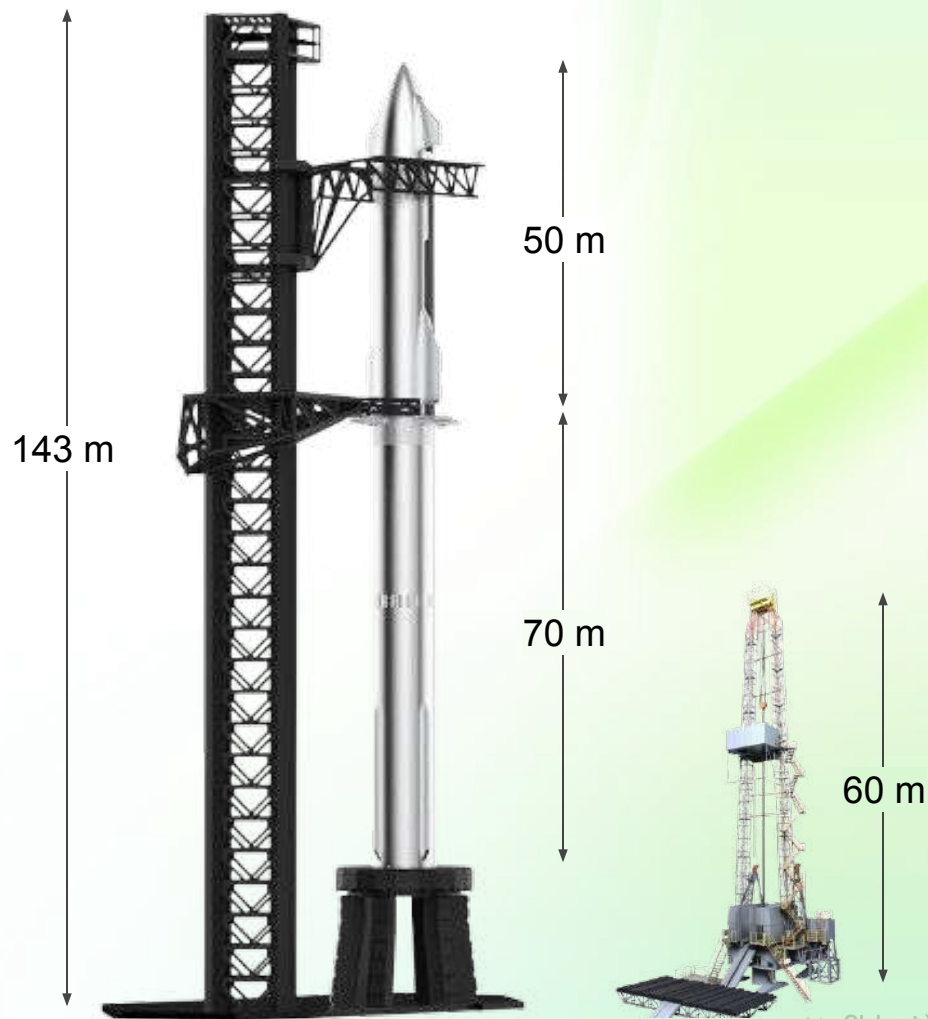


**No se que no se**



# Comparemos

	Drilling Rig	Super Heavy Booster
Altura	40 a 60 m	70 m
Diámetro/base	6 a 9 m	9 m
Peso	650 a 900 tn	200 tn vacío 3.500 tn lleno



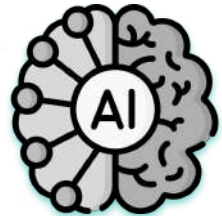
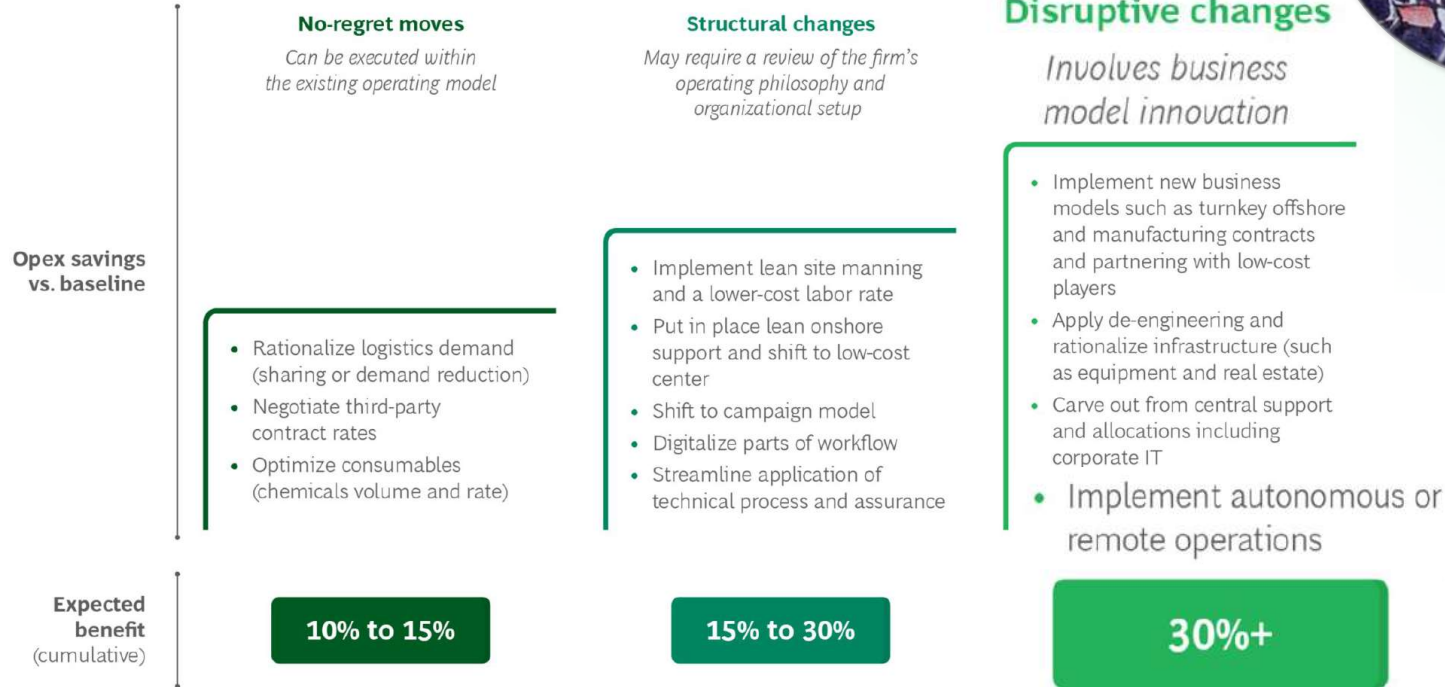
# Inteligencia Artificial

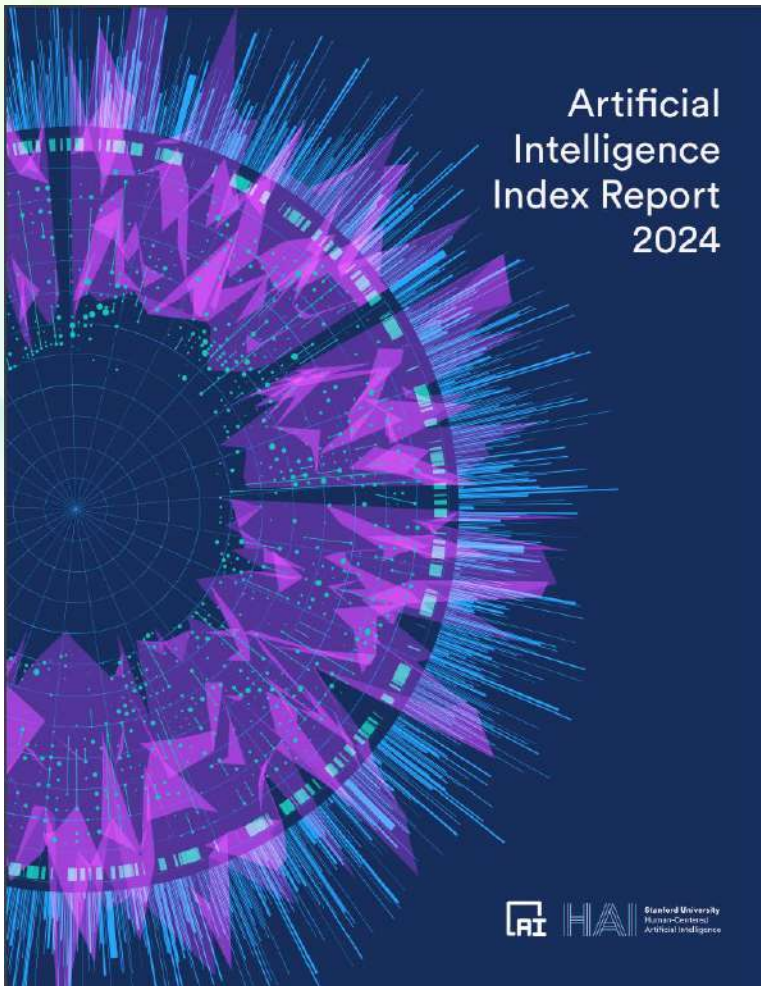
Ahí vamos de nuevo...



# COSTOS, COSTOS, COSTOS

## Exhibit 2 - Companies Can Pursue Three Levels of Cost Removal with Increasing Results





# Stanford Institute for Human-Centered Artificial Intelligence (HAI)

Automation and Robotics, Economy and Markets, Ethics and Justice

## Inside The New AI Index: Expensive New Models, Targeted Investments, and More

The new report covers major AI trends in technical advances, regulation, education, economics, and global politics.

Apr 15, 2024 | Nestor Maslej



[https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI\\_2024\\_AI-Index-Report.pdf](https://aiindex.stanford.edu/wp-content/uploads/2024/04/HAI_2024_AI-Index-Report.pdf)

## MMMU: overall accuracy

Source: MMMU, 2023 | Chart: 2024 AI Index report

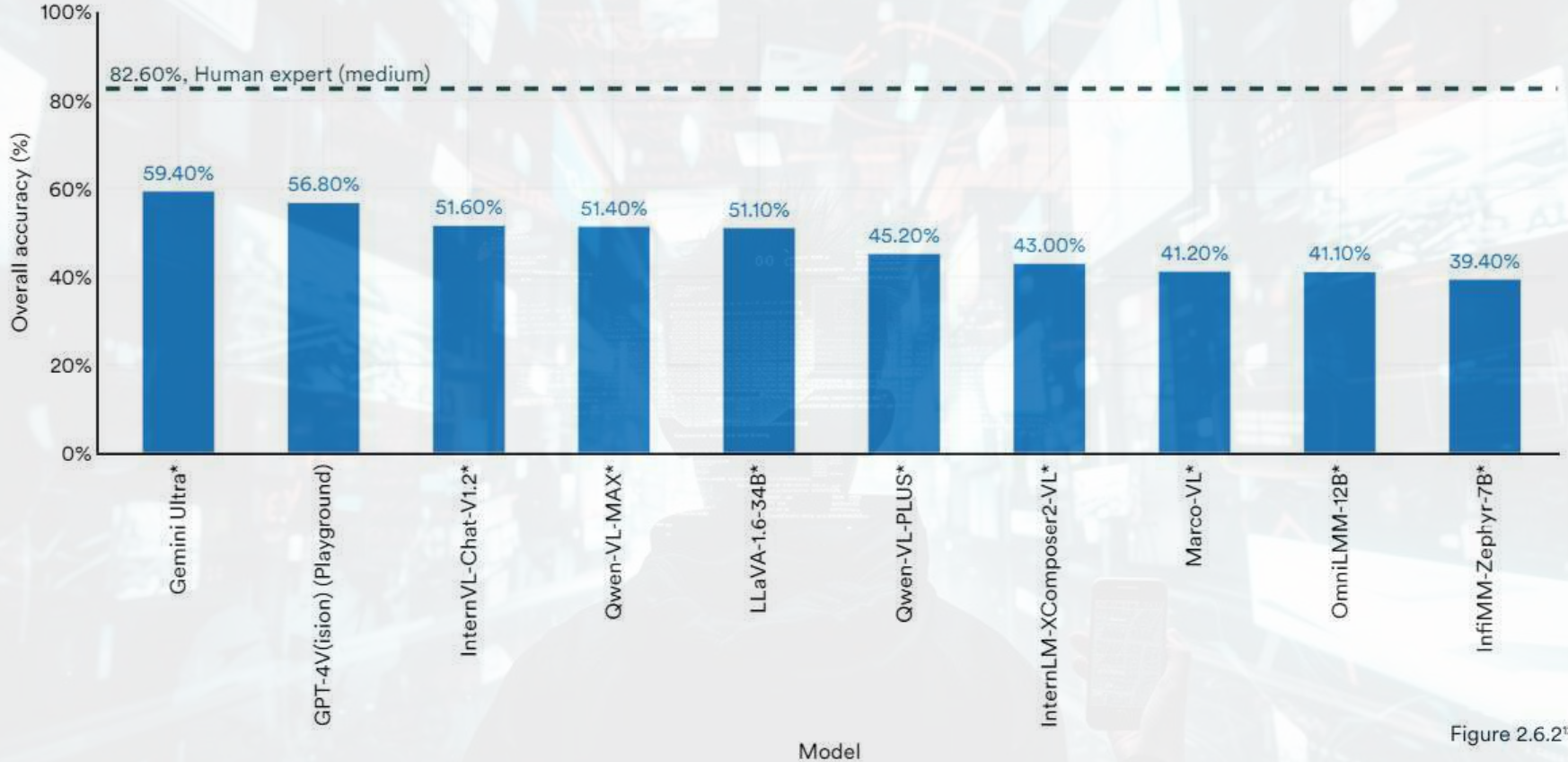


Figure 2.6.2<sup>12</sup>

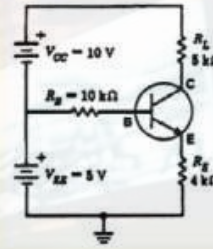


# Massive Multi-discipline Multimodal Understanding (MMMU) and Reasoning Benchmark for Expert. 11,500 college-level questions including charts, maps, tables, chemical structures, and more

## MMMU: subject-specific accuracy

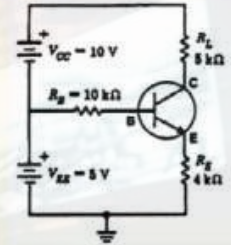
Source: MMMU, 2023 | Table: 2024 AI Index report

MMMU task category	Leading model	Score	Human expert (medium)
Art and Design	Qwen-VL-MAX*	51.4	84.2
Business	GPT-4V(ision) (Playground)	59.3	86
Science	GPT-4V(ision) (Playground)	54.7	84.7
Health and Medicine	Gemini Ultra*	67.3	78.8
Humanities and Social Sciences	Gemini Ultra*	78.3	85
Technology and Engineering	Gemini Ultra*	47.1	79.1

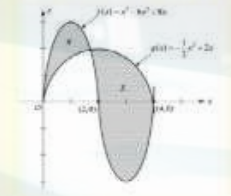
Question: Find the VCE for the circuit shown in . Neglect VBE

Answer: 3.75

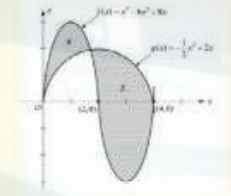
Explanation:  $I_E = [(V_{EE}) / (R_E)] = [(5 \text{ V}) / (4 \text{ k-ohm})] = 1.25 \text{ mA}$ ;  $V_{CE} = V_{CC} - I_{E}R_L = 10 \text{ V} - (1.25 \text{ mA}) 5 \text{ k-ohm}$ ;  $V_{CE} = 10 \text{ V} - 6.25 \text{ V} = 3.75 \text{ V}$



**Subject:** Electronics; **Subfield:** Analog electronics; **Image Type:** Diagrams; **Difficulty:** Hard

Question:  The region bounded by the graph as shown above. Choose an integral expression that can be used to find the area of R. **Options:**

- (A)  $\int_0^{1.5} [f(x) - g(x)] dx$
- (B)  $\int_0^{1.5} [g(x) - f(x)] dx$
- (C)  $\int_0^2 [f(x) - g(x)] dx$
- (D)  $\int_0^2 [g(x) - x(x)] dx$



**Subject:** Math; **Subfield:** Calculus; **Image Type:** Mathematical Notations; **Difficulty:** Easy

## Claude 3.5 Sonnet benchmarks

	Claude 3.5 Sonnet	Claude 3.5 Sonnet (new)	Claude 3.5 Haiku
Graduate level reasoning <i>GPQA, Diamond</i>	<b>59.4%*</b> 0-shot CoT	<b>65.0%</b> 0-shot CoT	<b>41.6%</b> 0-shot CoT
Undergraduate level knowledge <i>MMLU</i>	<b>88.7%**</b> 5-shot <b>88.3%</b> 0-shot CoT	<b>78.0%</b> 0-shot CoT	<b>65.0%</b> 0-shot CoT
Code <i>HumanEval</i>	<b>92.0%</b> 0-shot	<b>93.7%</b> 0-shot	<b>88.1%</b> 0-shot
Multilingual math <i>MGSM</i>	<b>91.6%</b> 0-shot CoT	<b>78.3%</b> 0-shot CoT	<b>69.2%</b> 0-shot CoT
Reasoning over text <i>DRQP, FI score</i>	<b>87.1</b> 3-shot	—	—
Mixed evaluations <i>BIG-Bench-Hard</i>	<b>93.1%</b> 3-shot CoT	<b>86.8%</b> 3-shot CoT	—
Math problem-solving <i>MATH</i>	<b>71.1%</b> 0-shot CoT	<b>60.1%</b> 0-shot CoT	<b>76.6%</b> 0-shot CoT
Grade school math <i>GSM8K</i>	<b>96.4%</b> 0-shot CoT	<b>95.0%</b> 0-shot CoT	—

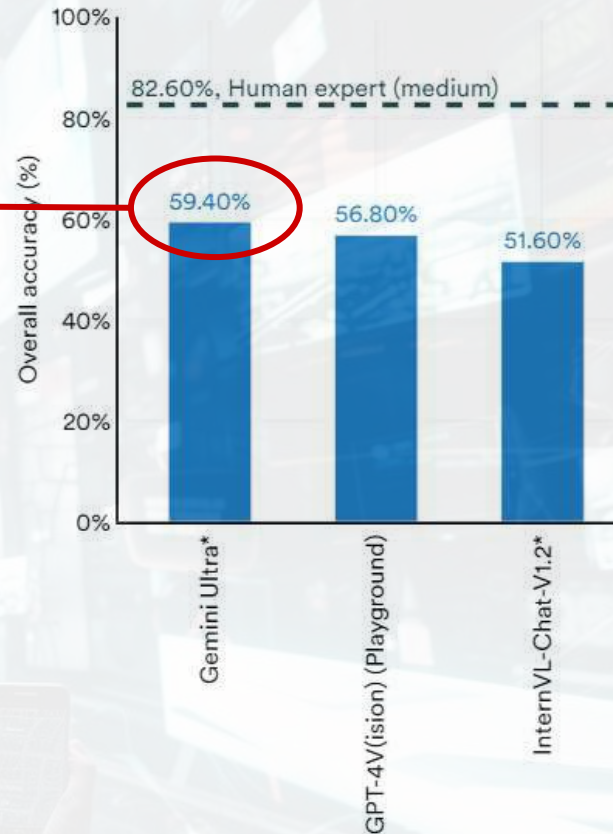
\* Claude 3.5 Sonnet scores 67.2% on 5-shot CoT GPQA with maj@32

\*\* Claude 3.5 Sonnet scores 90.4% on MMLU with 5-shot CoT prompting

**Gemini 1.5 Pro**  
**86.5%**  
4-shot CoT

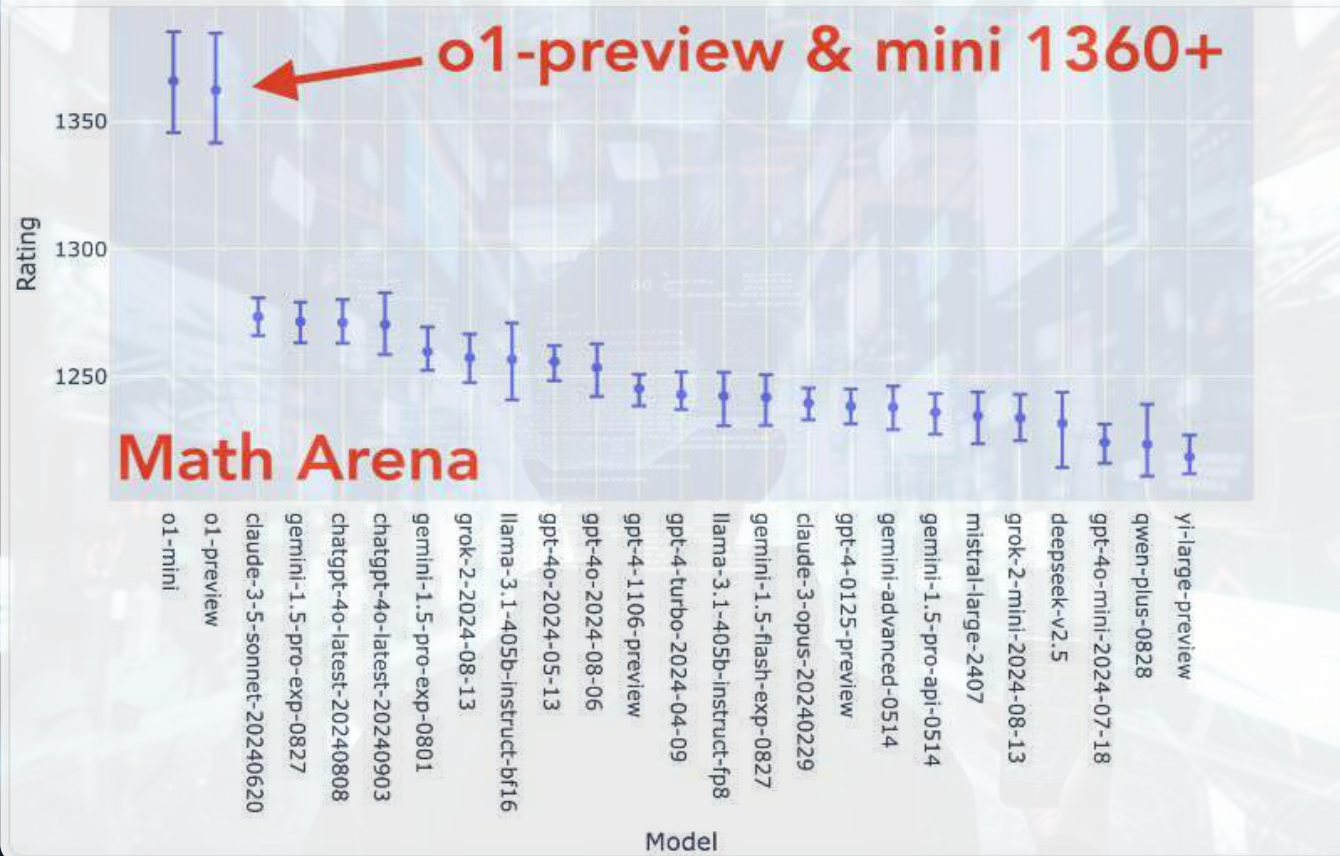
## MMMU: overall accuracy

Source: MMMU, 2023 | Chart: 2024 AI Index report



# More Statistics for Chatbot Arena - Math

Figure 1: Confidence Intervals on Model Strength (via Bootstrapping)





# Camino a la Inteligencia Artificial General

## Organizational AI

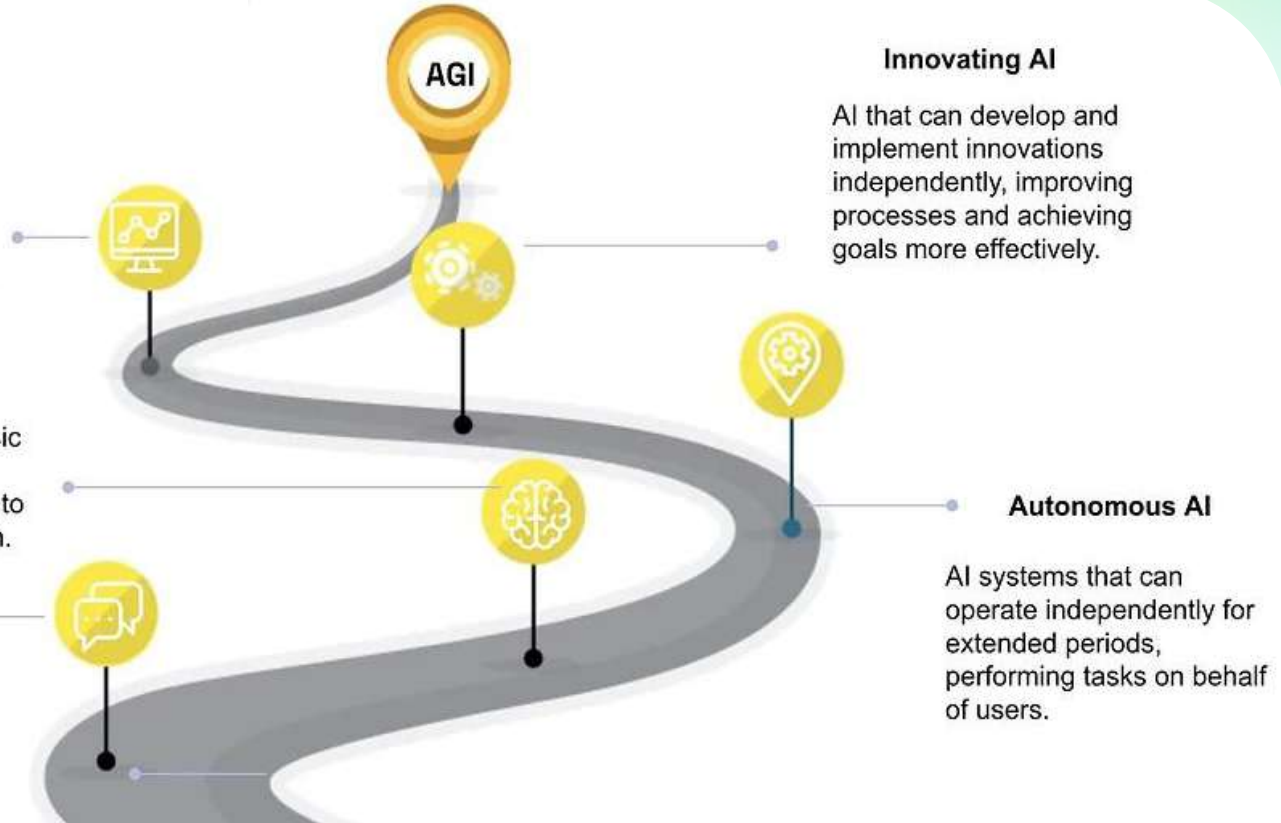
AI that performs the work of an entire organization, integrating and managing all functions autonomously.

## Reasoning AI

Systems capable of basic problem-solving with a level of proficiency akin to a doctorate-level human.

## Conversational AI

The current stage where AI systems interact in conversational language.



# THE NOBEL PRIZE IN PHYSICS 2024

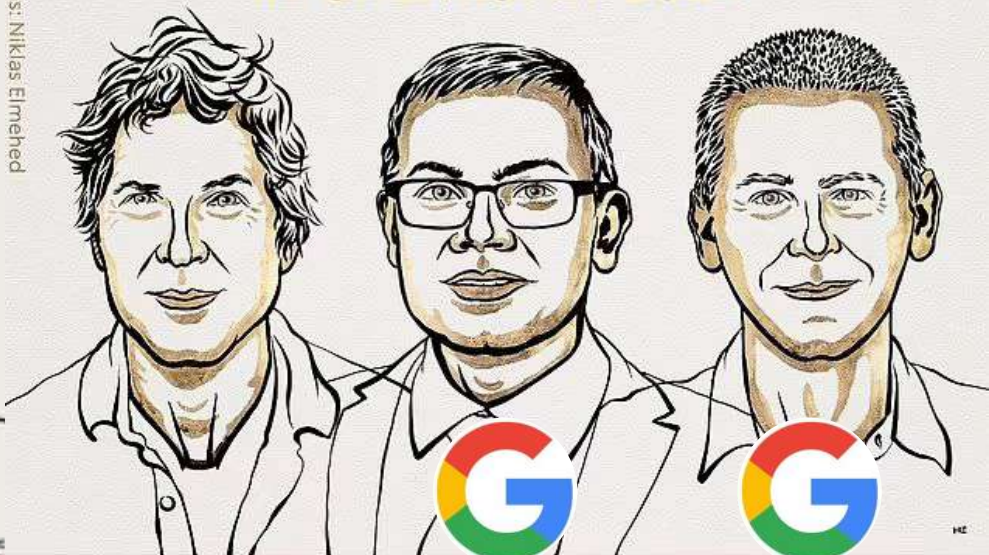


John J. Hopfield

Geoffrey E. Hinton

“for foundational discoveries and inventions  
that enable machine learning  
with artificial neural networks”

# THE NOBEL PRIZE IN CHEMISTRY 2024



David  
Baker

Demis  
Hassabis

John M.  
Jumper

“for computational  
protein design”

“for protein structure prediction”

**50 años 190.000 plegamientos de proteínas vs AlphaFold en 6 meses predijo el 200 millones de plegamientos, es decir el 98% de las proteínas conocidas**

Ok ciencia, matemática y lenguaje... pero que más?

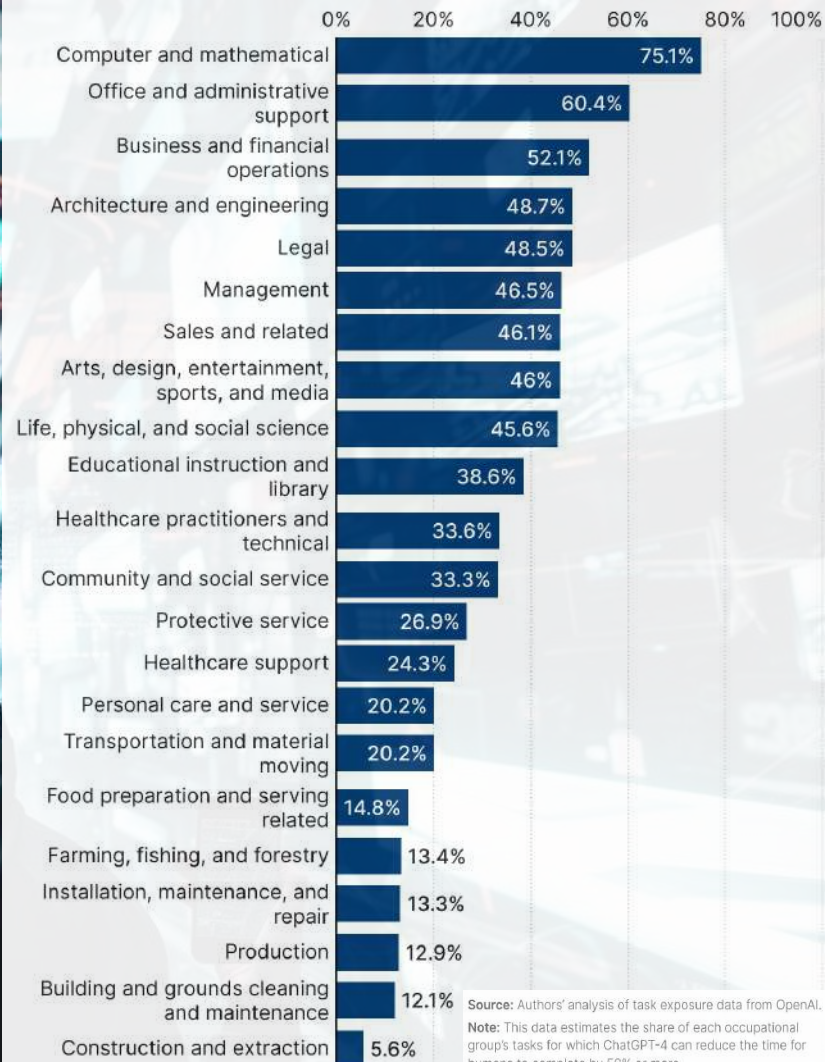
WHERE THE  
**ROBOTS**  
GROW

BROOKINGS

## Generative AI, the American worker, and the future of work

*“Existing generative AI technology already has the potential to significantly disrupt a wide range of jobs. We find that more than 30% of all workers could see at least 50% of their occupation’s tasks disrupted by generative AI.”*

Ref: <https://www.brookings.edu/articles/generative-ai-the-american-worker-and-the-future-of-work/>





1997





## > Resumen Take Aways

Los avances son disruptivos y ocurren en días o semanas, con modelos como GPT-4, o1 y Claude 3.5 mostrando rendimientos equivalentes, lo que se asemeja a una carrera armamentista.

La integración multimodal y el razonamiento avanzado han transformado la IA: ya no es solo un chat, sino que combina texto, imágenes y audio, mejorando tareas complejas con técnicas como "Chain-of-Thought". Esta evolución en las capacidades de razonamiento está en marcha, proyectando que el 30% de los trabajos podría verse afectado en un 50%

Usar sistemas gratuitos no es realmente "gratis", ya que las IA se entrenan con los datos e interacciones que proporcionamos. El uso inapropiado de estas herramientas puede exponer información crítica de las empresas.

Si bien es posible desarrollar casos de uso simples y pruebas de concepto con modelos gratuitos o genéricos, los desarrollos empresariales requieren acceso a modelos, equipos técnicos, licencias e infraestructura profesional.





xiaomi

**DARK** Factory





# Integrated Operations Control Center (IOCC) in Midland, Texas

<https://www.chevron.com/newsroom/2022/q3/meet-the-brains-of-the-oilfield>



SPACEX

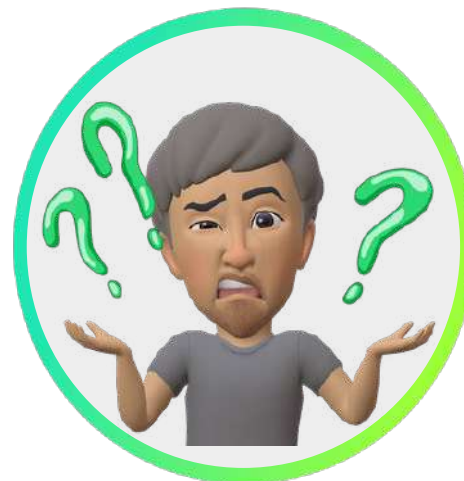
13-Oct-2024





# Muchas gracias!

# Conclusiones?



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