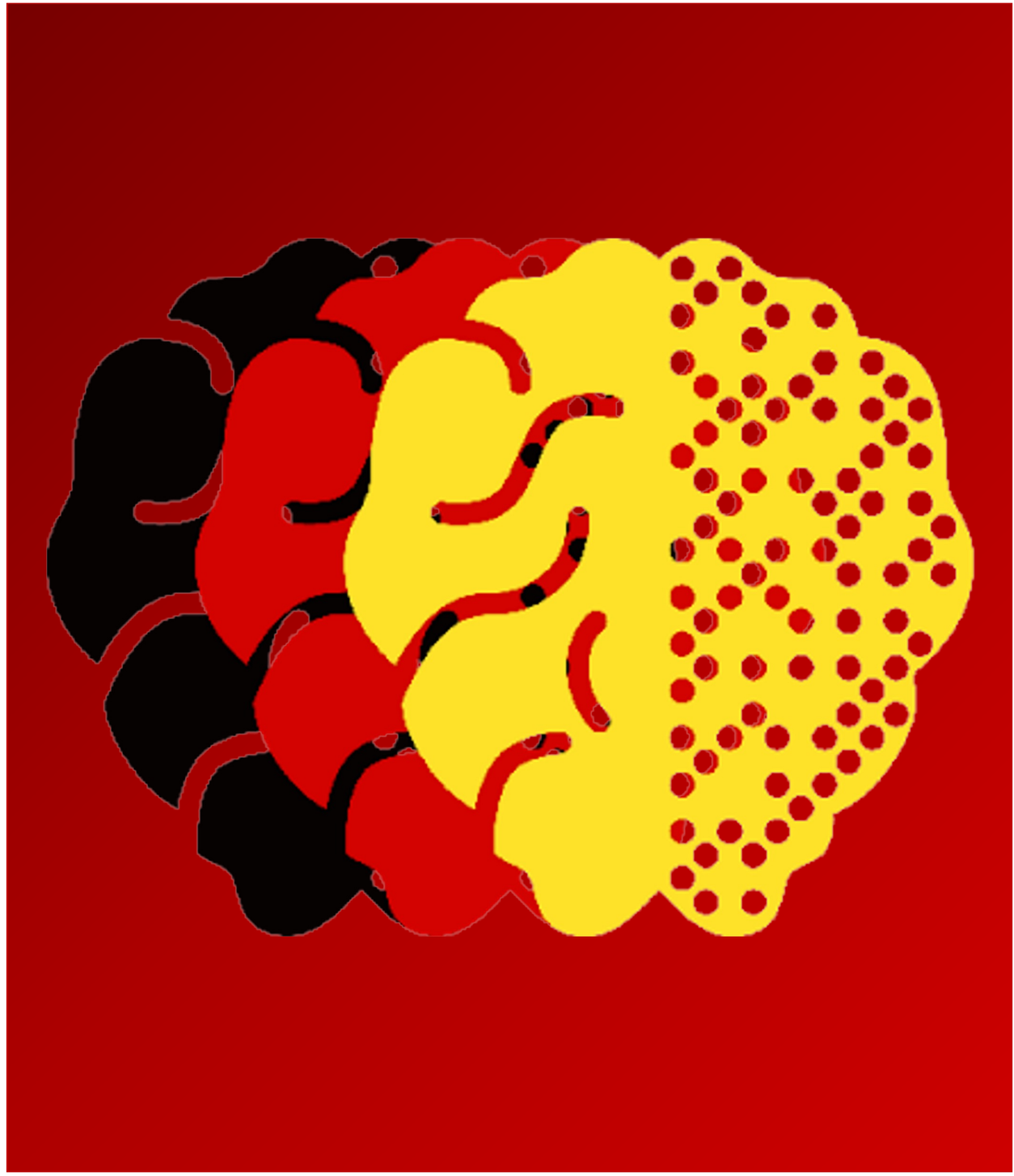
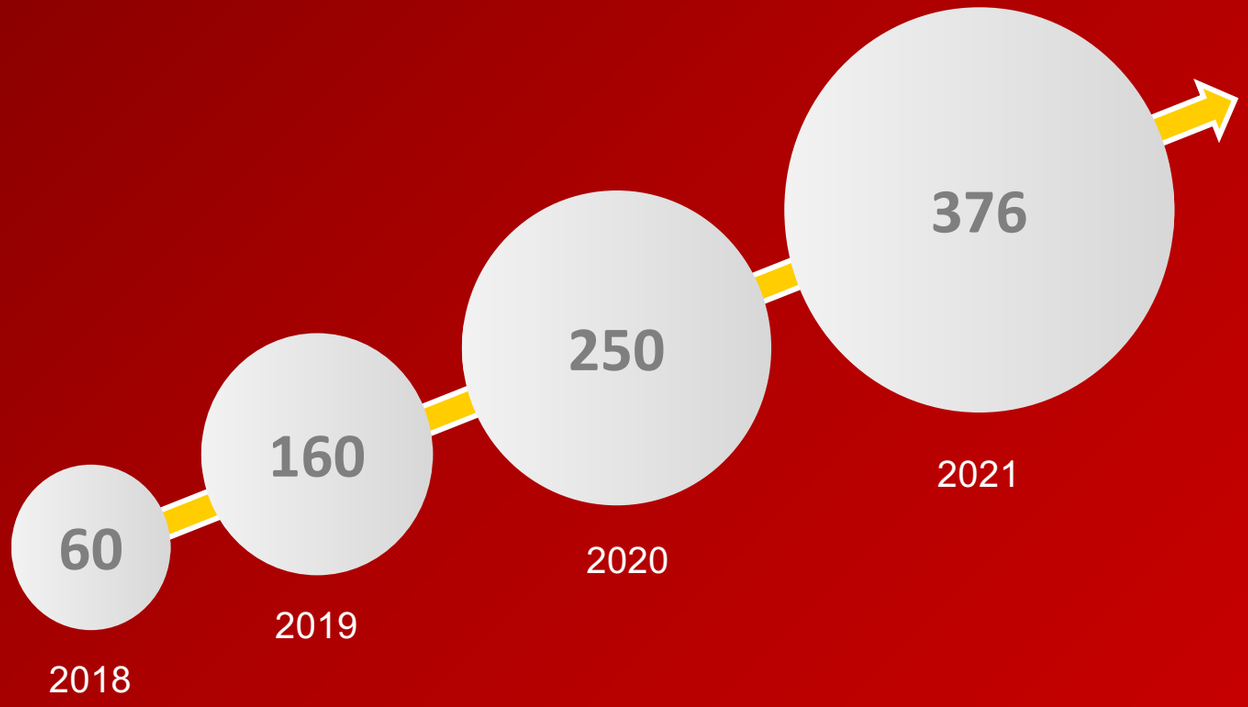
KI Bundesverband e.V.

Large European AI Models



Who we are



The German AI Association represents more than **380 innovative SMEs, start-ups & experts**

who focus on the development and application of **AI technology**

We are Germany's largest AI entrepreneur network

For a European AI ecosystem

CROAI

NL AI Coalitie

HUB FRANCE IA

AI BULGARIA

AI AUSTRIA

aipoland

ai4si SLOVENIJA

ARTIFICIAL INTELLIGENCE ASSOCIATION OF LITHUANIA

KI BUNDESVERBAND

LEAM:AI

Large-scale AI models for Europe:

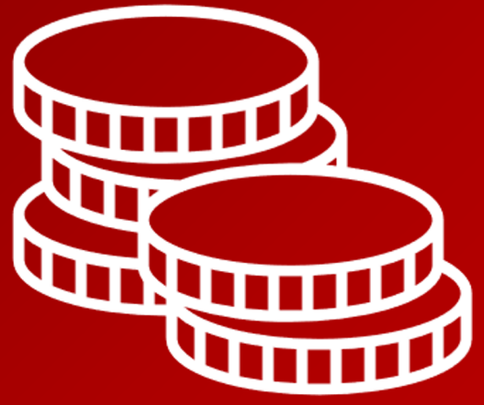
- Potential
- Status Quo
- Consequences
- Solution

AI will shape the world of tomorrow

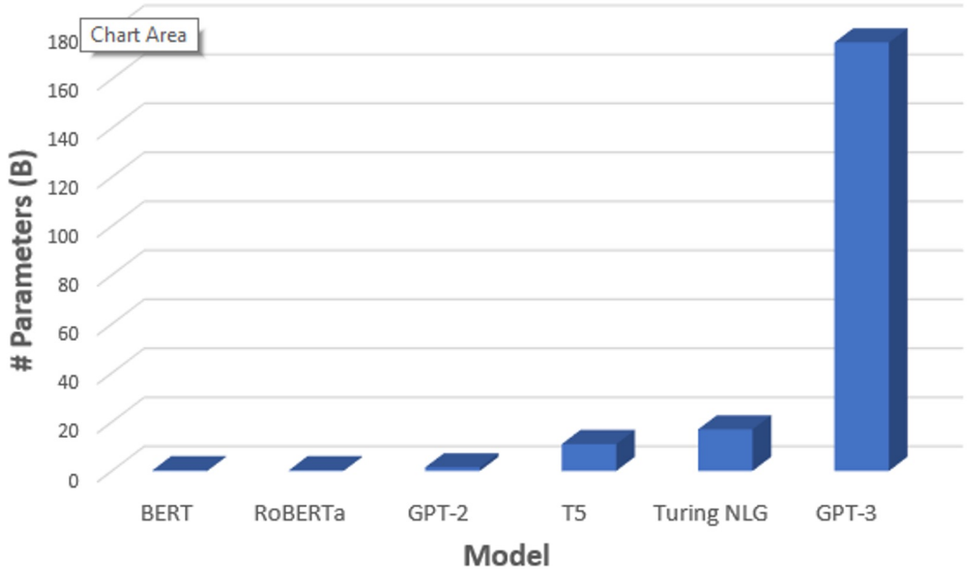
LEAM:AI

- **$15.7tr** potential contribution by AI to the global economy until 2030
- **45% growth in the overall economy** by 2030, through product enhancements that stimulate consumer demand
- **Greater product variety** with growing personalization, appeal and affordability, through AI
- Achieving the **greatest economic growth in China** (26% increase in GDP by 2030) and **North America** (14.5% increase)

OpenAI trained a neural network with enormous datasets



Cost:
355 GPU years
5 - 20 mio. USD



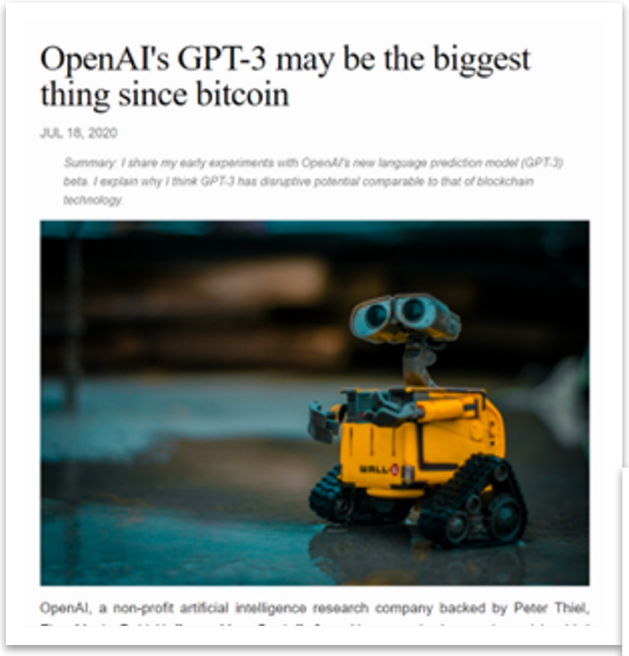
- 410 billion tokens Common Web Crawl
- 19 billion tokens from WebText2
- 12 billion tokens from Books1
- 55 billion tokens from Books2
- 3 billion tokens from Wikipedia

LEAM:AI

POTENTIAL

Investments are growing

GPT-3 enables new applications in NLP

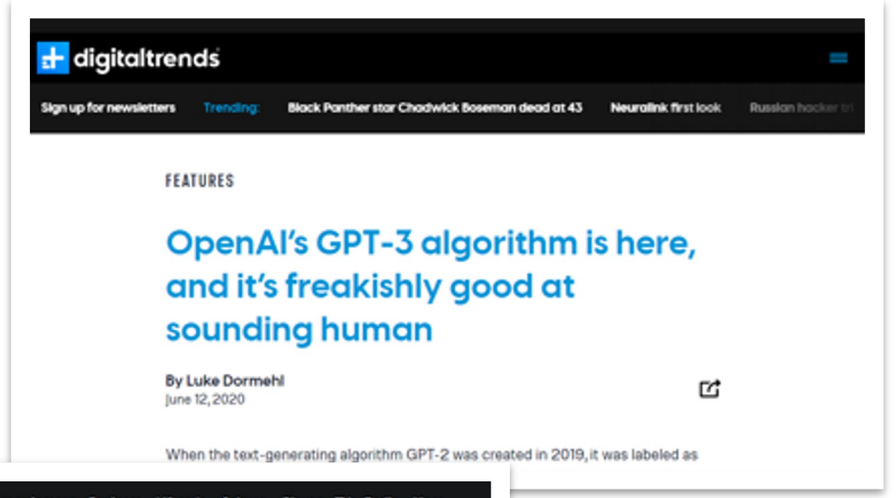


OpenAI's GPT-3 may be the biggest thing since bitcoin

JUL 18, 2020

Summary: I share my early experiments with OpenAI's new language prediction model (GPT-3) beta. I explain why I think GPT-3 has disruptive potential comparable to that of blockchain technology.

OpenAI, a non-profit artificial intelligence research company backed by Peter Thiel,



digitaltrends

Sign up for newsletters | Trending: Black Panther star Chadwick Boseman dead at 43 | Neuralink first look | Russian hacker to

FEATURES

OpenAI's GPT-3 algorithm is here, and it's freakishly good at sounding human

By Luke Dormehl
June 12, 2020

When the text-generating algorithm GPT-2 was created in 2019, it was labeled as

RTÉ News Sport Entertainment Business Lifestyle Culture Player TV Radio More

Brainstorm | About Brainstorm | Contribute to Brainstorm

Is GPT-3 the big leap forward for AI?

Updated / Wednesday, 12 Aug 2020 15:59

The Wall Street Journal @WSJ · Aug 23

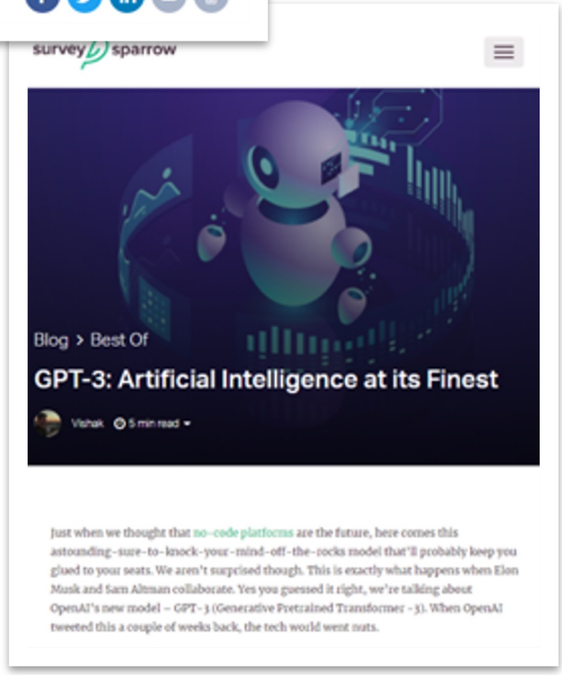
GPT-3, a new artificial intelligence system, can write everything from stories to memos as well as humans do, raising questions about the future of communication

An AI Breaks the Writing Barrier

A new system called GPT-3 is shocking experts with its ability to use and understand language as well as human beings do.

wsj.com

46 438 791



surveysparrow

Blog > Best Of

GPT-3: Artificial Intelligence at its Finest

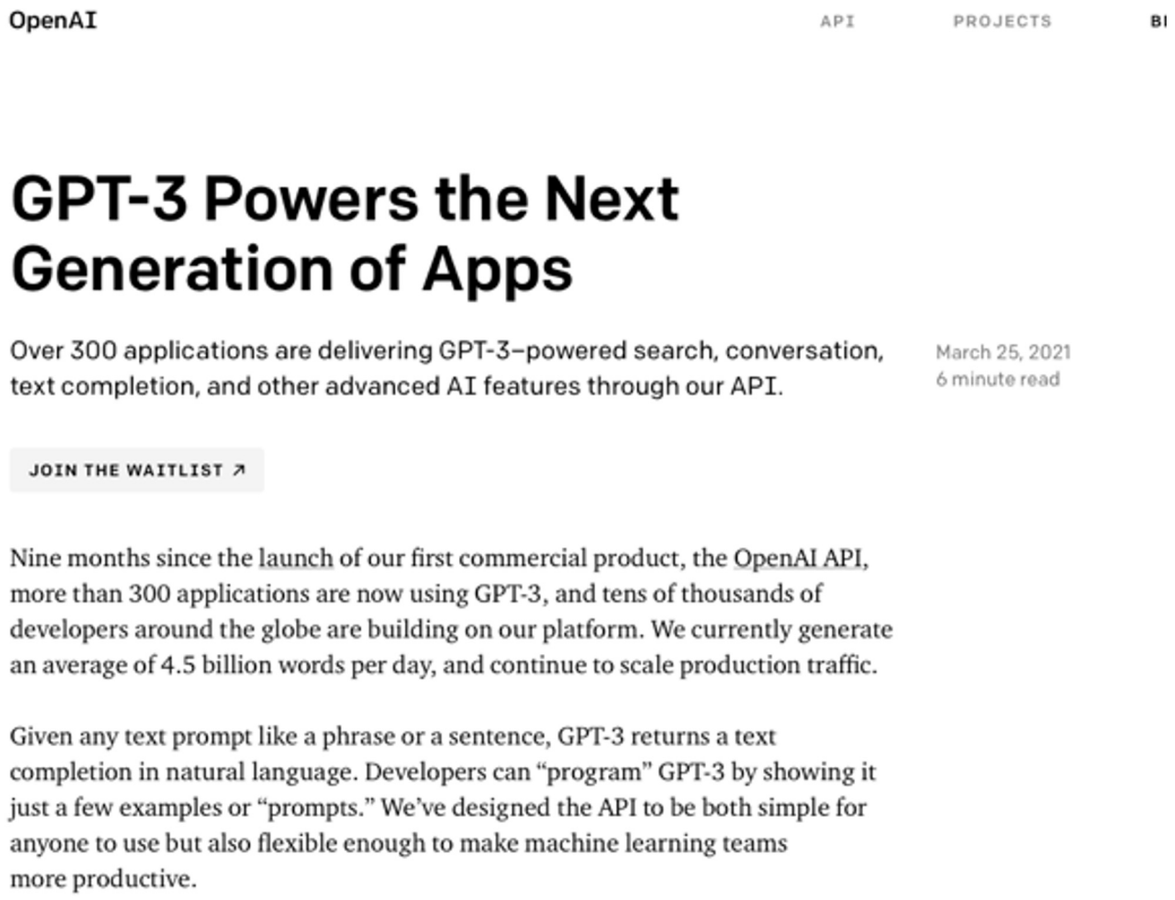
Vishak · 5 min read

Just when we thought that no-code platforms are the future, here comes this astounding-sure-to-knock-your-mind-off-the-rocks model that'll probably keep you glued to your seats. We aren't surprised though. This is exactly what happens when Elon Musk and Sam Altman collaborate. Yes you guessed it right, we're talking about OpenAI's new model – GPT-3 (Generative Pretrained Transformer - 3). When OpenAI tweeted this a couple of weeks back, the tech world went nuts.

GPT-3 has given rise to a new ecosystem

"300 applications are now using GPT-3“

LEAM:AI



OpenAI API PROJECTS BI

GPT-3 Powers the Next Generation of Apps

Over 300 applications are delivering GPT-3–powered search, conversation, text completion, and other advanced AI features through our API.

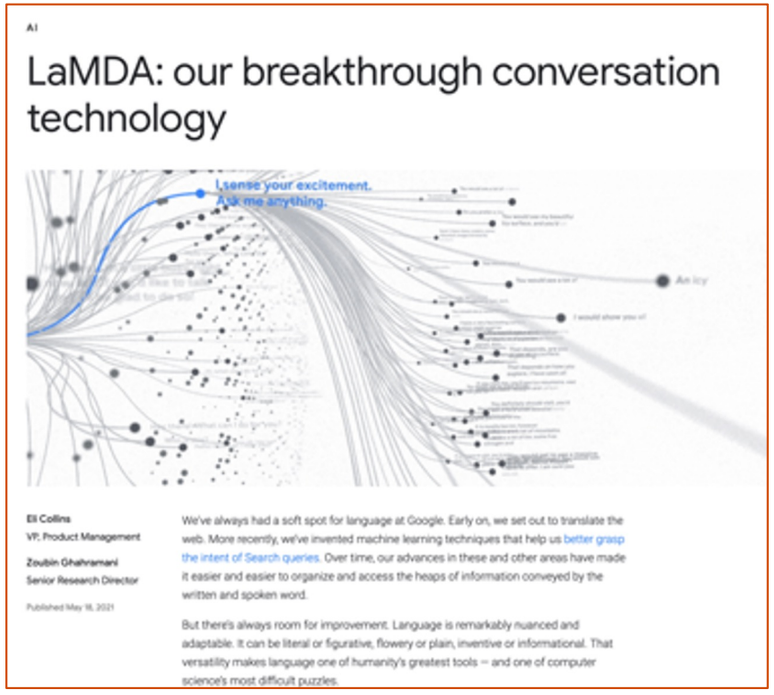
March 25, 2021
6 minute read

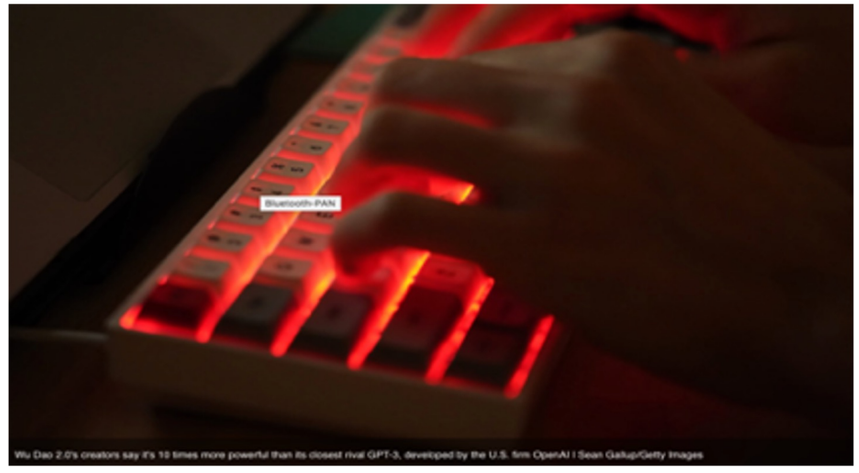
JOIN THE WAITLIST ↗

Nine months since the launch of our first commercial product, the OpenAI API, more than 300 applications are now using GPT-3, and tens of thousands of developers around the globe are building on our platform. We currently generate an average of 4.5 billion words per day, and continue to scale production traffic.

Given any text prompt like a phrase or a sentence, GPT-3 returns a text completion in natural language. Developers can “program” GPT-3 by showing it just a few examples or “prompts.” We’ve designed the API to be both simple for anyone to use but also flexible enough to make machine learning teams more productive.

https://openai.com/blog/gpt-3-apps/?utm_campaign=Your%20guide%20to%20AI&utm_medium=email&utm_source=Revue%20newsletter





POTENTIAL

GPT-3 was just the beginning - the race is on

TEXT PROMPT an illustration of a baby daikon radish in a tutu walking a dog

AI-GENERATED IMAGES

TEXT PROMPT an armchair in the shape of an avocado. . . .

AI-GENERATED IMAGES

TEXT PROMPT a store front that has the word 'openai' written on it. . . .

AI-GENERATED IMAGES

Edit prompt or view more images↓

LEAM:AI

POTENTIAL

Open AIs DALL·E:

Generating images from text

POTENTIAL

Google's LaMDA achieved a breakthrough in conversational technology

towards data science

ARTIFICIAL INTELLIGENCE

GPT-3 Scared You? Meet Wu Dao 2.0: A Monster of 1.75 Trillion Parameters

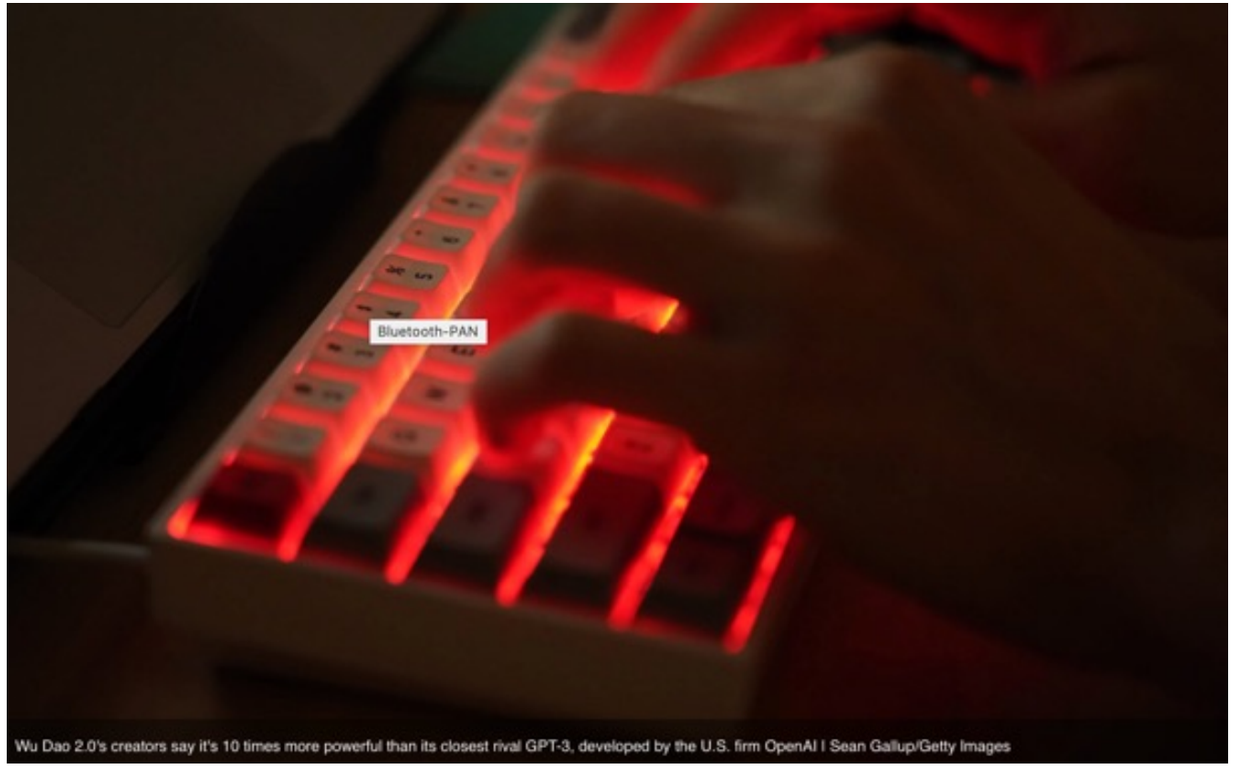
Wu Dao 2.0 is 10x larger than GPT-3. Imagine what it can do.

Alberto Romero Jun 6 · 6 min read ★

POLITICO

Meet Wu Dao 2.0, the Chinese AI model making the West sweat

Europe is increasingly worried it's being left out of the global race for artificial intelligence.

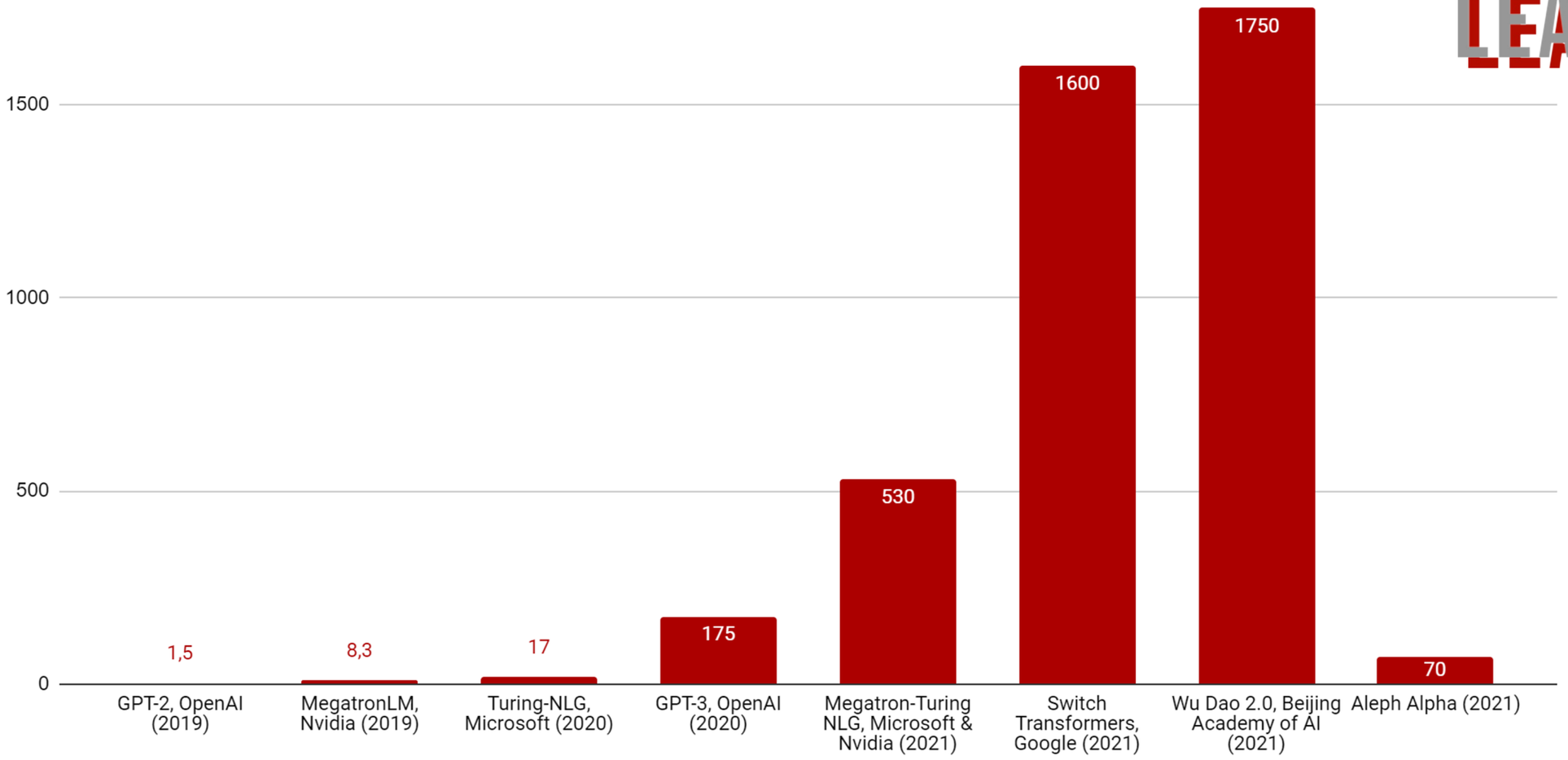


Wu Dao 2.0's creators say it's 10 times more powerful than its closest rival GPT-3, developed by the U.S. firm OpenAI | Sean Gallup/Getty Images

POTENTIAL

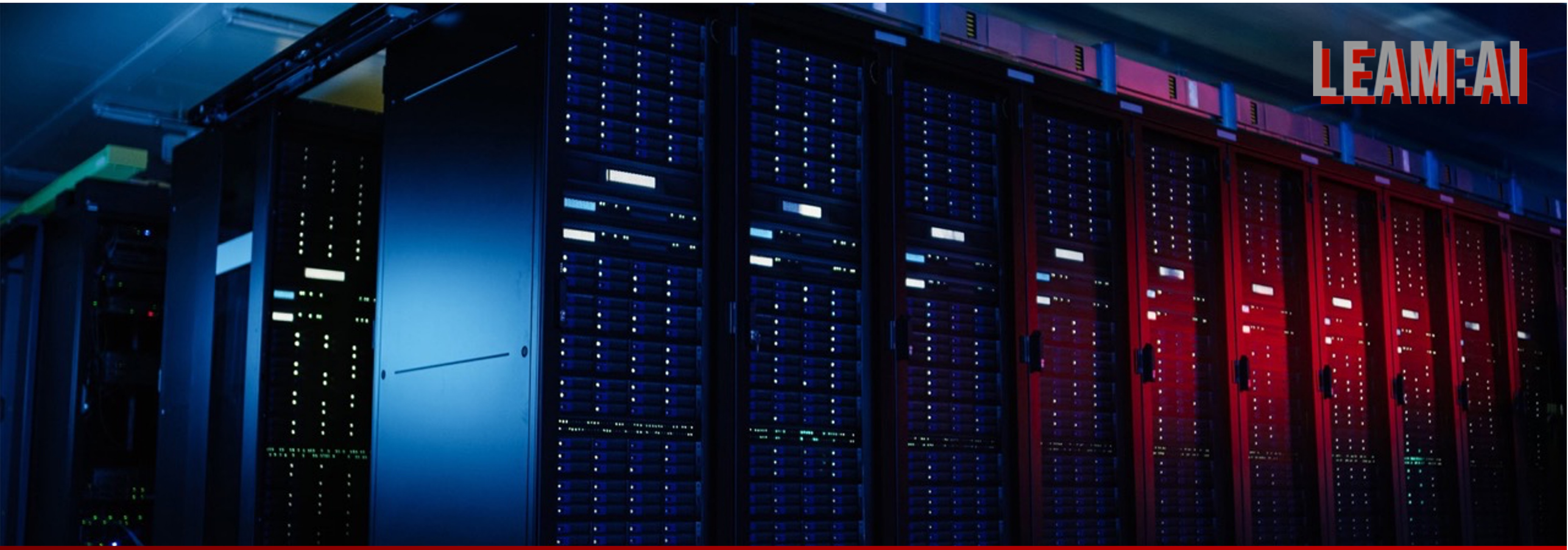
China enters the competition

Number of Parameters



CONSEQUENCE

USA & China are leading the race



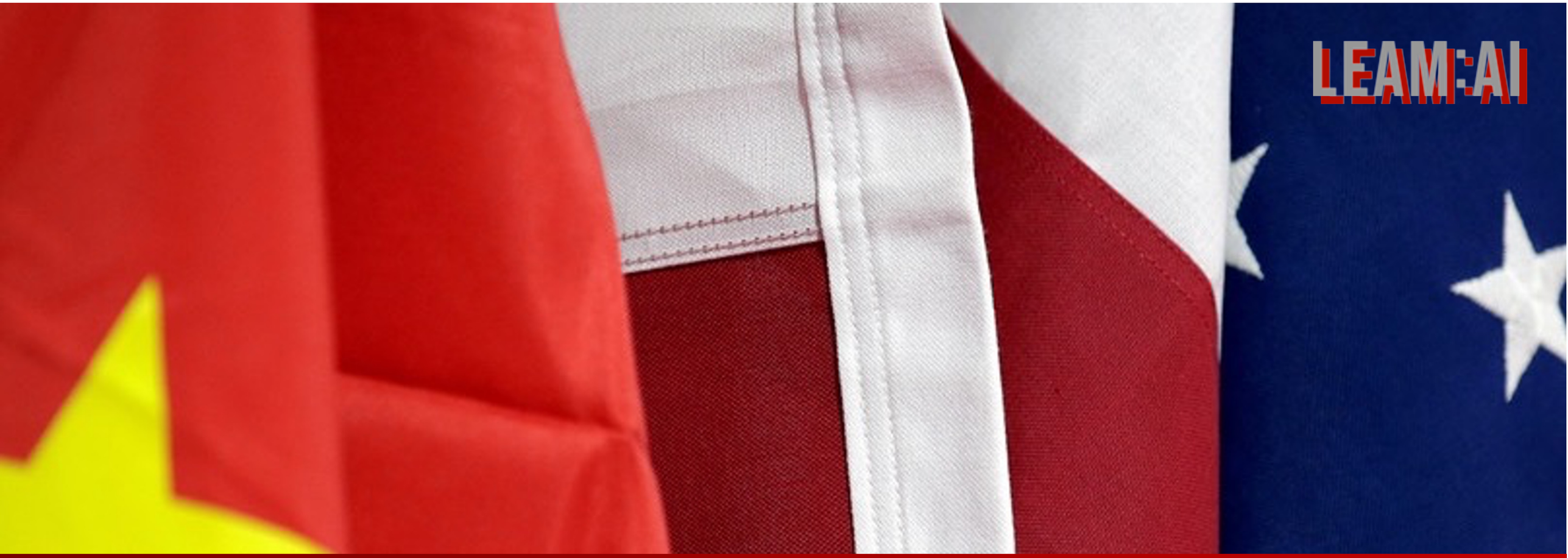
CONSEQUENCE

Large AI models will outperform and gradually replace other AI solutions

Generation of text	**Document processing**	**Drug design**	**Language in- and output systems**
Generation of program code	**Chatbots**	**Protein folding**	**Detection of disinformation in videos**
Generation of pictures	**Translation**	**Business processes**	**Audio and video contextualization**

CONSEQUENCE

Example applications for large AI models



LEAM:AI

PROBLEM

Europe is lagging behind

PROBLEM

Digital sovereignty is at risk in the AI sector

ACCESS ONLY VIA API

CRITICAL DATA PROTECTION

INSUFFICIENT SUPPORT OF LANGUAGES

LACK OF TRANSPARENCY

2002

„Does Google have the scale to capture a viable share of the search advertising market? In other words, **can Google create a business model** even remotely as good as its technology?“

https://www.nytimes.com/2002/04/08/business/google-s-toughest-search-is-for-a-business-model.html

The New York Times

LEAM:AI

Google's Toughest Search Is for a Business Model

By Saul Hansell

April 8, 2002

As Eric Schmidt prepared the agenda for last September's board meeting of Google, the Internet search company, he added an item "Financing Plans -- prepare for initial public offering."

"I assumed I was brought in to take the company public," recalled Mr. Schmidt, who became chairman of Google in March 2001 after a long career at Sun Microsystems and four years as chief executive of Novell.

By last September Google, which began as a research project at Stanford before raising venture capital in 1999, had earned a reputation as the best way to find things on the Internet. It had the prestige of being the search engine on Yahoo. Traffic to its own Google.com Web site was surging. The company's advertising sales, after a slow start, were starting to catch on. It had just turned a profit.

RATIONALE I:

Need for large European AI models & corresponding computing resources

- Innovative strength and competitiveness
- Leading position for Europe in AI development
- Digital sovereignty
- Large AI models according to European values:

OPEN SOURCE

MULTILINGUAL

HIGH DATA PROTECTION

TRANSPARENT ALGORITHMS & REDUCTION OF BIAS

CO2-NEUTRAL

RATIONALE II:

Need for large European AI models & corresponding computing resources

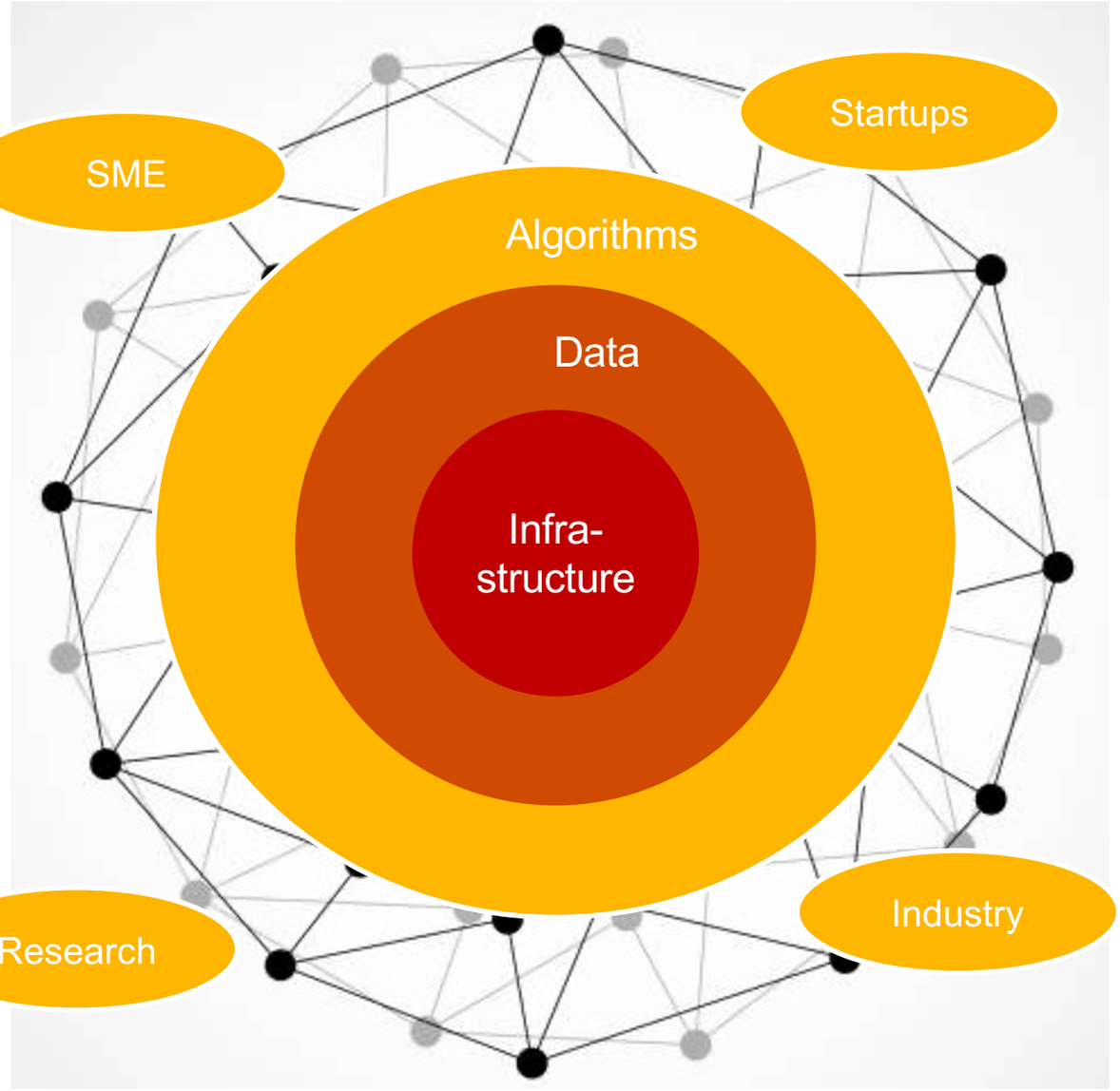
- European AI developers lack available infrastructure specifically tuned for AI development
- Rapid developments in HPC due to constant investment in order not to fall behind
- Competition for coveted HPC computing time in Germany

LEAM:AI

SOLUTION

LEAM aims to build large AI models that enable Europe to take on a leading position in AI development

LEAM:AI



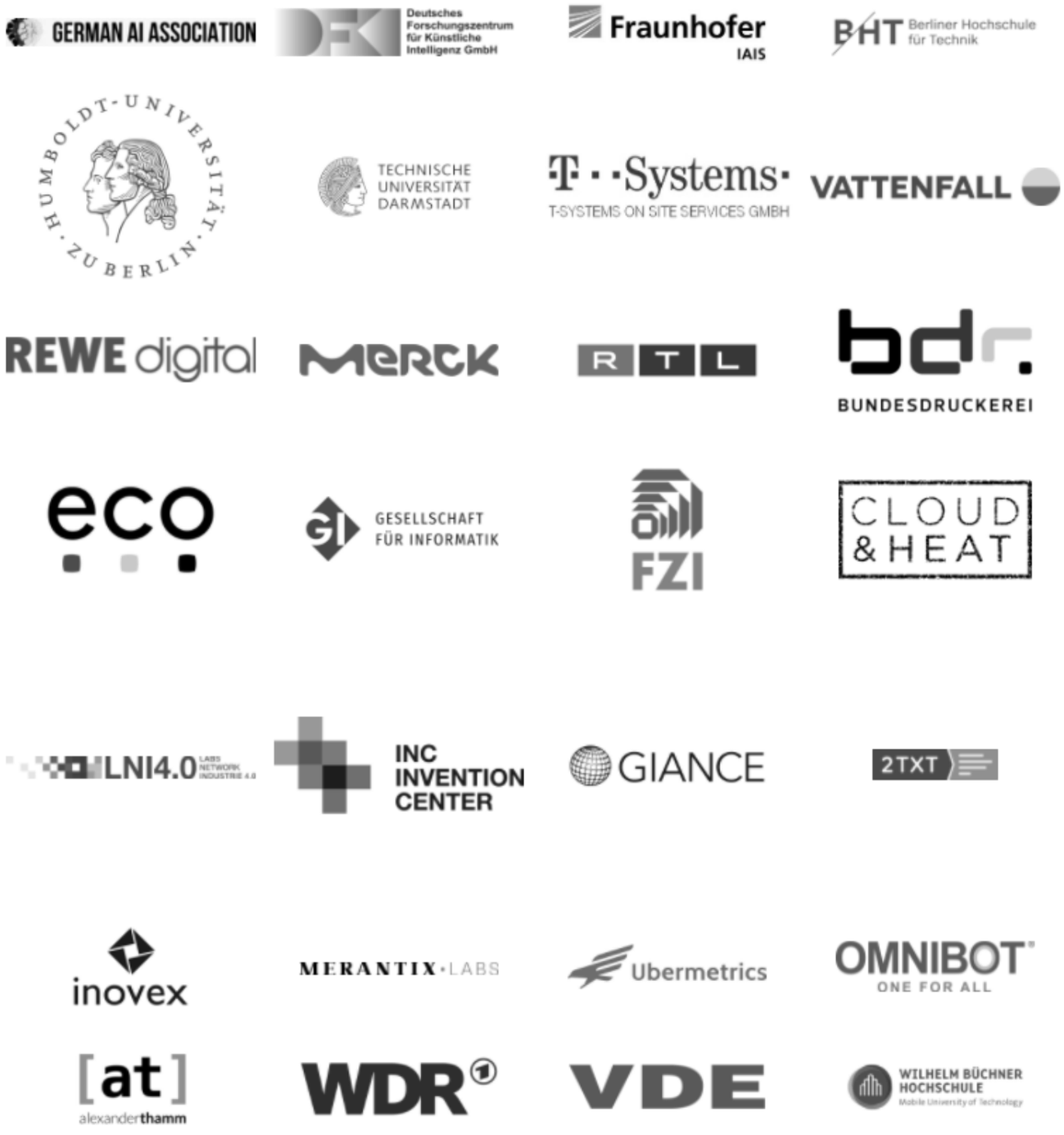
Building the capability to train large AI models in 5 steps

Considering European values

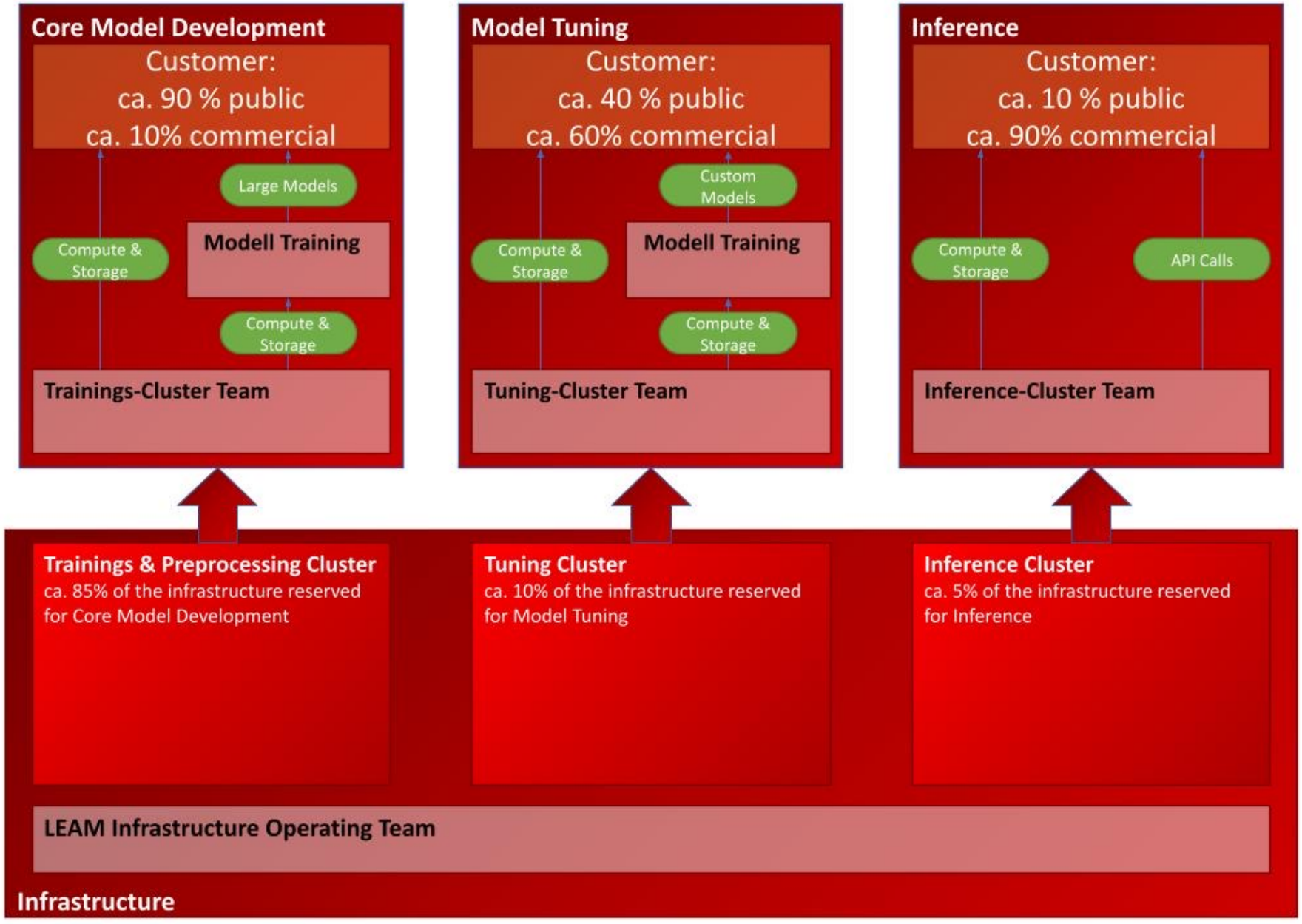
1. Establish infrastructure
2. Collect data
3. Develop algorithms
4. Integrate into European AI ecosystem

LEAM:AI

Selection of supporters



LEAM operations



THE PILOT

We are already building a first pilot

THE PILOT

OPEN GPT-X

Building a GAIA-X node for AI speech models and innovative speech application services.

GAIA-X

Gefördert durch:

Bundesministerium für Wirtschaft und Klimaschutz

aufgrund eines Beschlusses des Deutschen Bundestages

LEAM:AI

Leam.ai

LEAM:AI

LEAM:AI

Initiators Press Contact Stay informed

LEAM – Large European AI Models

A European CERN for AI

Stay informed about our initiative

What is LEAM?

LEAM is an initiative of the German AI Association (KI Bundesverband), and leading representatives from industry and research that fosters the development of large AI models.

To realize large AI models Made in Europe the initiative proposes **six key steps**:

- Collection and creation of comprehensive training datasets
- Support of excellent research in the field of AI
- Provision of hyperscale infrastructure
- Development of organizational structures and processes to establish a continuous workflow of model development and enhancement
- Integration of the models into the European innovation ecosystem
- Development of methods, benchmark datasets and criteria to ensure ethical requirements and European values

We want the models developed under this initiative to be open source and free to access for all market players. All European languages should be fully integrated into the models.

GERMAN AI ASSOCIATION

Join the LEAM initiative

Joerg Bienert
Chairman KI-Verband

Joerg.Bienert@ki-verband.de