EuroTPC
Trillion Parameter Consortium

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Funded by the European Union

EuroHPC Joint Undertaking

This project is supported by the European High-Performance Computing Joint Undertaking (JU) and its members under grant agreement 101260370. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European High-Performance Computing Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

Europe’s historical model

When Europe acts together, it scales science

- Shared scientific infrastructure
- Long-term investment
- Open collaboration across borders
- Common standards and interoperability



Why now?

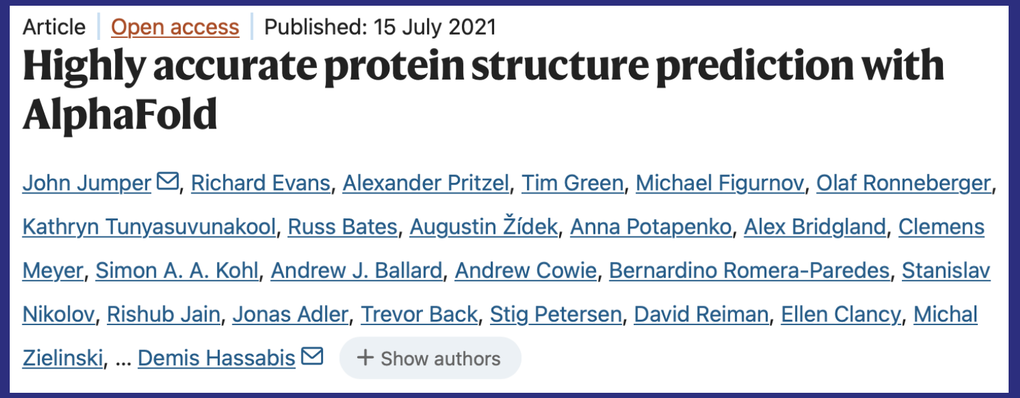
Experiment → Theory → Computation → Data → AI*

- Scientific discovery is accelerating
- AI is increasingly embedded in research workflows
- Compute, data, and models are becoming strategic assets
- Nations and regions are coordinating responses



The Fourth Paradigm: Data-Intensive Scientific Discovery

Tony Hey, Stewart Tansley, Kristin Tolle, Jim Gray
Published by Microsoft Research | October 2009
ISBN: 978-0-9825442-0-4



Article | Open access | Published: 15 July 2021

Highly accurate protein structure prediction with AlphaFold

John Jumper, Richard Evans, Alexander Pritzel, Tim Green, Michael Figurnov, Olaf Ronneberger, Kathryn Tunyasuvunakool, Russ Bates, Augustin Žídek, Anna Potapenko, Alex Bridgland, Clemens Meyer, Simon A. A. Kohl, Andrew J. Ballard, Andrew Cowie, Bernardino Romera-Paredes, Stanislav Nikolov, Rishub Jain, Jonas Adler, Trevor Back, Stig Petersen, David Reiman, Ellen Clancy, Michal Zielinski, ... Demis Hassabis + Show authors

Different models of AI development

- AI development is shaped by institutional structures
- Different regions optimize for different priorities:
  - speed
  - scale
  - coordination
  - governance

ANALYSIS | AI

The U.S. and China Are Pursuing Different AI Futures › It's not an arms race if each country wants different things

BY VANESSA BATES RAMIREZ | 19 FEB 2026 | 5 MIN READ |



Source: IARI

Speed vs durability

- Speed is not the only optimization axis in technology
- European characteristics:
  - Multi-stakeholder coordination
  - Strong regulatory frameworks
  - Emphasis on safety and trust
  - Long investment horizons
  - Interoperability and standards



Galileo High Accuracy Service (HAS) is now operational offering unprecedented levels of accuracy

The entry into service of the Galileo High Accuracy Service (HAS) brings the European Union satellite system to an unprecedented level offering user a sub-meter accuracy over most parts of the globe

By MundoGEO
25/01/23 15h39 - Updated: 25/01/23 15h53

AI as scientific infrastructure

Foundation models = infrastructure, not just products

Established scientific infrastructure	Scientific AI infrastructure
telescopes	foundation models
particle accelerators	multimodal systems
microscopes	scientific copilots
sequencing machines	AI research agents



COMMENT | 19 May 2026

The uncritical adoption of AI in science is alarming — we urgently need guard rails

Artificial intelligence is rapidly accelerating scientific output, but risks narrowing inquiry, weakening judgement and undermining how scientists are trained.

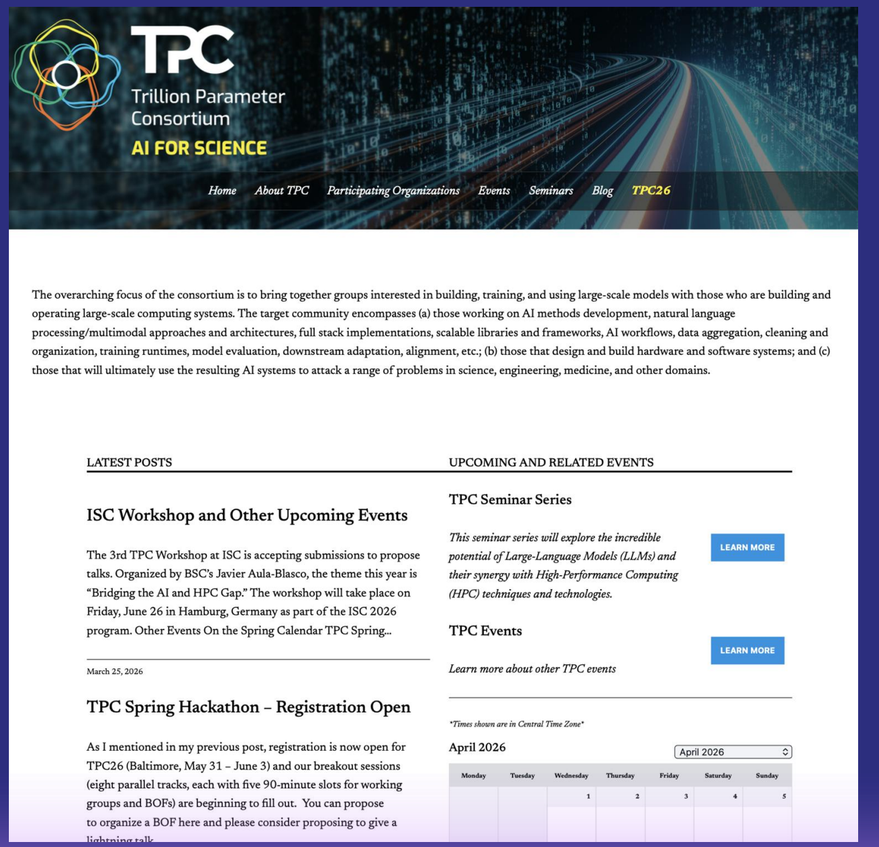
By Lisa Messeri & M. J. Crockett

Background

In 2023, **BSC** in Europe, RIKEN-CCS in Japan, and Argonne National Laboratory in the US began to explore the feasibility of collaboration to build trillion-parameter frontier models for science.

The goal is to build the world's most powerful AI capabilities for science, while being exemplars of responsible AI.

TPC was created as a grass roots, virtual consortium to help achieve this goal.



Trillion Parameter Consortium (TPC)

A global scientific coordination effort for frontier-scale AI

- TPC is a global, collaborative initiative
- Focused on large-scale foundation models
- Built around science and scientific applications
- Designed for open collaboration across institutions

Trillion Parameter Consortium
AI FOR SCIENCE



A growing open community

In the first two years, TPC grew from 100-150 to more than 1500 participants from nearly 100 organizations in two dozen countries.



- TPC Slack steady growth at nearly 1600 accounts
- Average 230 users/week (30/week post)
- 15 of 43 public channels are very active
- Dozens of private channels are active
- Average 5 account requests per week.

EuroTPC Project Overview

Duration: May 2026 – April 2029

EuroTPC (European Trillion Parameter Consortium initiative) strengthens Europe's leadership in large-scale AI by coordinating participation in the global Trillion Parameter Consortium (TPC):

- Enables coordinated European contributions to open, large-scale AI models
- **Facilitate deep collaboration among HPC centres, AI Factories, research institutions, SMEs, and industry** to ensure broad stakeholder engagement
- Supports development of **open, trustworthy, state-of-the-art AI models for science, f**ocusing on key domains like **climate modelling, drug discovery, and industrial innovation**
- Enhances **synergies between High-Performance Computing (HPC) and AI**
- Reinforces **Europe's digital autonomy and global competitiveness**

EuroTPC Consortium



euro TPC
AI FOR SCIENCE



Barcelona Supercomputing Center
Centro Nacional de Supercomputación

NEOVIA INNOVATION

CINECA



CSC



Leibniz-Rechenzentrum
der Bayerischen Akademie der Wissenschaften

Main objectives of EuroTPC

Establish a European TPC Office
→ Central hub coordinating all TPC activities in Europe

2

Strengthen European collaboration
→ Align with existing EU HPC-AI initiatives and diversify advisory boards

3

Enable active participation
→ Engage researchers, including early- and mid-career talent

4

Mobilise the ecosystem
→ Involve startups, SMEs, large companies, and EU Member States

5

Develop a strategic roadmap
→ Identify strengths and maximise Europe's impact in TPC

6

Promote global collaboration & visibility
→ Position Europe as a key player in international AI efforts

7

Disseminate and measure impact
→ Communicate results and assess European contributions

What success looks like

Better visibility

- Clear map of European capabilities
- Easier identification of key actors
- Reduced duplication of knowledge

Stronger coordination

- More structured dialogue
- Better cross-institution awareness
- Reduced fragmentation of efforts

A clearer voice

- More coherent European input in TPC
- Shared European perspectives
- Better aligned priorities

Future opportunities

- Clearer AI for science directions
- Clearer collaboration pathways
- Better identification of gaps and synergies

Europe’s opportunity is not to compete on scale alone, but to coordinate its scientific excellence into capability.

EuroTPC is a step toward that coordination within TPC

EuroTPC: Europe’s coordinated voice

- Europe participates in TPC through many strong institutions
- But participation has been distributed and fragmented
- EuroTPC provides a coordination layer to align Europe’s scientific, technical, and infrastructural contributions



ISC Workshop: Accelerating AI for Science

Hamburg, Germany
May 16, 2024



Spring 2025 TPC Hackathon

Hosted by CSC-IT Center for Science

Helsinki, Finland
May 6-8, 2025



TPC Workshop at ISC-HPC 2025

Hamburg, Germany
June 13, 2025



Spring 2026 TPC Hackathon

Hosted by CINECA in collaboration with Open Hackathons.

Bologna, Italy
April 14-16, 2026



3rd TPC Workshop @ ISC: Bridging the AI and HPC Gap

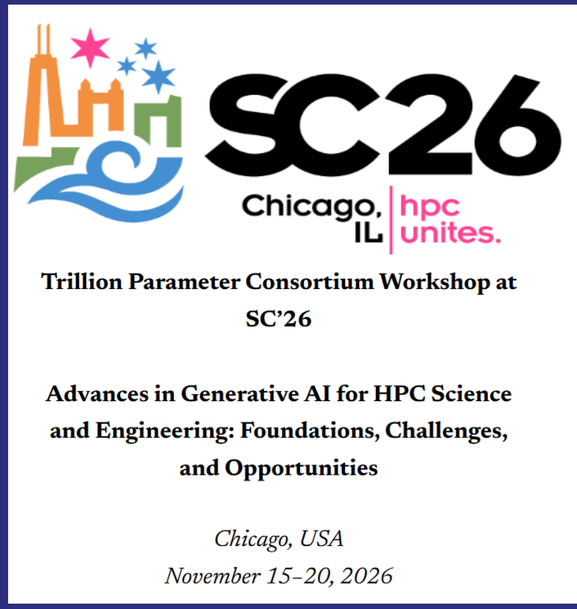
Hamburg, Germany
***Workshop**: Friday, 26 June*
14:00 – 18:00
Conference: June 22-26



Fall 2026 TPC Hackathon

Hosted by the Leibniz Supercomputing Centre (LRZ)

Munich, Germany
September 8-10, 2026



Trillion Parameter Consortium Workshop at SC’26

Advances in Generative AI for HPC Science and Engineering: Foundations, Challenges, and Opportunities

Chicago, USA
November 15–20, 2026

Building the future of AI for science together

Open · Responsible · Collaborative · Global

eurotpc.eu

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Neovia Innovation

CINECA

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