



KEY RESULTS OF THE PLENARY TABLE

“HPC AND AI SOLUTIONS: A COLLECTIVE INTERNATIONAL EFFORT”

Panellists: Kohei Itoh (Keio University, JP), John Josephakis (NVIDIA, US), Paul Kearns (Argonne National Laboratory, US), Richard Socher (you. com, US), David Patrician (Moderation)(RTL Nord, DE)

In the spring of 2025, Forschungszentrum Jülich will activate Europe’s first exascale computer, marking a transformative leap for scientific and AI-driven advancements. This exascale computer launch, alongside accelerating AI development, will advance applications in fields such as climate science, energy storage, health research, and beyond.

The panellists highlighted that high-performance computing and AI integration are paving the way for groundbreaking discoveries, but they also addressed pressing challenges. For instance, while AI helps to increase computational power for tasks like scientific modelling, global collaboration between academia, private sectors, and government remains limited. This fragmentation delays progress in developing scalable and efficient AI-HPC systems, despite shared goals in various domains.

THE EXPERT PANEL ARTICULATES THE FOLLOWING CALLS TO ACTION:

Forge collaborative ecosystems across sectors.

1 — Strengthen ties between academia, private companies, and government agencies. Joint research initiatives, shared facilities, and funding mechanisms can speed up scientific discovery by merging resources and expertise.

Prioritise efficiency in AI-HPC development.

2 — Focus on optimising computational efficiency, including energy use, to drive sustainability in high-powered computing systems. By leveraging energy-efficient AI, these advancements can support ambitious scientific goals without prohibitive costs.

Standardise regulations to enable broad AI access.

3 — Address regulatory inconsistencies within Europe and globally to ensure AI tools and HPC advancements are accessible. Unified standards are crucial for enabling breakthroughs in fields that demand computational power.

Invest in diverse computing infrastructures.

4 — Invest in diverse infrastructures, including traditional HPC, quantum, and hybrid machines. This blend of technologies will expand capacity to tackle complex problems like medical research and climate forecasting.

Enhance AI transparency and trust.

5 — Ensure transparency in AI decision-making and accuracy in outputs. As AI models take on a larger role in HPC applications, this will be essential to build user trust and minimise misinformation risks.

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