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## Shaping a human-centred European strategy for AI in science

Input from the Coimbra Group on the 'European Strategy for AI in science – paving the way for a European AI research council'

### **Preamble:**

The Coimbra Group (CG) welcomes the opportunity to contribute to the development of the European Strategy for AI in science. As key actors in scientific research and education, universities play a central role in shaping responsible, innovative, and inclusive AI development and application across disciplines.

Their voice is essential in ensuring AI policies reflect academic values and societal needs. We must foster bridges for dialogue and cooperation, as universities are uniquely positioned not only to advance AI technologies but also to implement them meaningfully in scientific research and training.

To gather insights and experiences and elaborate our network's position, the 39 CG universities, all long-established research-intensive leading European higher education institutions, located in 22 countries, were consulted.

The first section presents a set of considerations and recommendations, followed by concrete feedback on the main challenges, needs, and priorities identified by our member universities to support the uptake of AI in science.

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### **I. Considerations and Recommendations:**

- Prioritise long-term, stable public investment in foundational AI research and infrastructures, while ensuring alignment with core European values such as openness, inclusivity, transparency, and human dignity.
- Promote the development and adoption of open-source AI tools and models, to reduce dependence on proprietary systems and strengthen European digital sovereignty.
- Support FAIR-aligned, secure, and inclusive research data ecosystems, including federated infrastructures that allow for cross-border collaboration without compromising data protection or national autonomy.
- A European AI in science strategy should place greater emphasis on hybrid intelligence rather than relying solely on data-driven or fully automated approaches.
- Ensure robust funding for interdisciplinary AI education and training, with specific emphasis on cross-disciplinary collaboration between STEM, social sciences, humanities, law, and the arts.
- Recognise the critical role of SSH (social sciences and humanities) in evaluating societal impacts and shaping ethical, legal, and democratic frameworks for AI in science.



- Embed ethics, transparency, and explainability into AI governance, with clear mechanisms to ensure accountability and public trust across all scientific domains.
- Foster distributed, collaborative governance models that respect institutional autonomy and national diversity while pooling expertise and resources.
- Ensure policy and regulatory clarity, including on the further implementation of the AI Act in research contexts, to support compliance without suppressing innovation.
- Continue and expand initiatives like the '[Living Guidelines on the Use of Generative AI in Research](#)', keeping them adaptive, community-driven, and broadly disseminated across disciplines.

## **II. The road to a European strategy for AI in science**

### **A. Data governance and open science**

A central challenge for AI in science lies in the careful management of research data. Data is the essential fuel for AI systems, and the quality, accessibility, and governance of data directly influence the trustworthiness and relevance of AI-driven research. European universities stress the importance of FAIR data that is well-curated, ethically sourced, and responsibly shared.

The commitment to open science must be adapted to the realities of AI. While open access to research data, publications, and tools enhances transparency and reproducibility, it must be balanced with responsibilities in data privacy, security, and intellectual property. Ethical frameworks should ensure that AI datasets are anonymised when needed, stored securely, and shared under clear governance and consent mechanisms. Researchers must be supported in navigating this complexity without undue administrative burdens.

CG universities highlight the importance of investing in infrastructures that enable federated data access and analysis. Federated learning, for example, allows AI models to be trained across decentralised data sources, preserving data sovereignty while enabling collaborative progress. A distributed, interoperable ecosystem of data platforms is essential for ensuring Europe can scale AI without undermining its core values.

### **B. European sovereignty**

To fully unlock the transformative potential of AI, Europe must commit to sustained and strategic investments in research, infrastructure, and people. While the infrastructures proposed under the '[AI continent action plan](#)' are welcome, the next step must ensure the long-term sustainability of these efforts – including its alignment with the EU green agenda. Investments must be balanced: large-scale European initiatives should be complemented by targeted support that enables universities to develop AI capabilities suited to their specific research contexts and missions.

Public funding must lead but also effectively mobilise private-sector contributions, without compromising academic freedom or the public interest. AI for science must remain open, trustworthy, and anchored in European values such as transparency, fairness, inclusiveness, and human rights. These values must guide all investment decisions, ensuring that technological progress does not undermine ethical, democratic, or social foundations.



Digital and technological sovereignty is essential, not as an act of isolationism, but as a commitment to accountability and self-determination. Open-source AI models, accessible computing resources, and independent data infrastructures are key to reducing Europe's reliance on external, proprietary systems.

As indicated by the '[AI in Successful and timely uptake of artificial intelligence in science in the EU](#)' evidence review of the European Commission's Scientific Advice Mechanism, European AI in science strategy should also place greater emphasis on hybrid intelligence (collaborative systems where human expertise and AI capabilities are integrated) rather than relying solely on data-driven or fully automated approaches. Unlike purely algorithmic models, hybrid intelligence leverages Europe's unique human capital and institutional diversity to address complex, uncertain problems while fostering competitiveness, sustainability, and sovereignty. This approach reduces dependence on large proprietary models, lowers computational demands, and aligns more closely with European values and long-term societal preferences.

Human capital is equally vital. Europe must educate the next generation of AI specialists while promoting AI literacy across all research roles. Interdisciplinary training programs, spanning computer science, life sciences, humanities, social sciences, and law, for example, will ensure that researchers can both develop and critically assess AI tools. Disciplines such as the humanities and social sciences are crucial for understanding how AI systems influence language, perception, ethics, and social norms. Their perspectives are essential for shaping guidelines on where, when, and how AI should be used (or not used).

### **C. Governance and collaboration**

Given the complexity of Europe's scientific landscape, the governance of AI in research must be collaborative, adaptive, and embedded in shared ethical commitments. Rather than relying on centralised institutions, Europe should foster a distributed network of AI hubs and knowledge centres, interconnected, but locally grounded. Again, we welcome the views presented in the 'AI continent action plan'. These centres should be able to pool expertise, coordinate research priorities, and scale innovative solutions, while preserving national and institutional diversity.

Effective governance requires that ethical, legal, and societal dimensions are built into every stage of AI development and deployment. This includes ensuring that AI systems are explainable, fair, and accountable, with robust mechanisms to prevent discrimination and bias. In high-impact areas such as healthcare, justice, and social sciences, particular caution is needed to ensure that AI tools do not cause harm or reinforce inequalities.

Harmonising compliance across member states, especially regarding the implementation of the AI Act, is crucial. Researchers need clear and consistent guidance to navigate legal requirements without compromising innovation. Universities welcome the development of dynamic tools like the 'Living Guidelines on the Use of Generative AI in Research' and advocate for their continuous update and broad dissemination.

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