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European Commission

CALL FOR EVIDENCE
FOR AN INITIATIVE (without an impact assessment)

TITLE OF THE INITIATIVE	A European strategy for AI in science - paving the way for a European AI research council
LEAD DG – RESPONSIBLE UNIT	DG RTD, Unit E4, Industry 5.0 and AI in Science
LIKELY TYPE OF INITIATIVE	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions
INDICATIVE TIMING	Q3-2025
ADDITIONAL INFORMATION	https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/artificial-intelligence-ai-science_en

A. Political context, problem definition and subsidiarity check

Political context

Artificial intelligence (AI) is revolutionising a number of sectors, with science being particularly affected. These advancements are expected to quicken the pace of scientific discoveries, leading to important and positive economic and societal outcomes.

AI in science presents a competitiveness opportunity for Europe, in line with the political guidelines of the Commission (2024-29). It supports 'a new plan for Europe's sustainable prosperity and competitiveness', with 'research and innovation at the heart of our economy'. The Draghi report flagged the need to focus on advanced technologies (such as AI) to regain competitiveness. The Letta report recognised the opportunity to position the EU as a global AI hub and win the race for AI applications.

Acknowledging AI's strategic significance in science, the Commission is committed to developing a comprehensive strategy to enable scientists across the EU to adopt this technology.

This strategy is mentioned in Commissioner Zaharieva's mission letter as a policy priority, together with an AI initiative to pool resources. The European strategy for AI in science will be adopted together with the Apply AI strategy. Both strategies will follow a blueprint that will be defined in the overarching AI continent strategy, linking the different AI-related policy initiatives. The Apply AI strategy will support the development and deployment of AI in various sectors, including science as a special sector. The European strategy for AI in science will develop targeted policies to serve the needs of the European scientific ecosystem, ensuring that the scientific community can effectively harness AI to advance science and taking into account other related ongoing and planned EU initiatives.

Problem the initiative aims to tackle

This strategy will tackle the limited adoption of AI in European scientific activities compared with the global leaders. This affects the speed and quality of scientific output, reducing the impact of EU science globally. A declining share of scientific impact and breakthroughs diminishes the EU's opportunities for economic growth, competitiveness and a knowledge economy. It also increases the technological dependency on external players and reduces the EU's overall strategic autonomy.

Several countries and private institutions are already moving rapidly in this direction, and the EU needs to be at the forefront. The USA, through the Department of Energy or the National Science Foundation, is putting in motion ambitious initiatives around AI in science like NAIRR and FASST. China is supporting the integration of AI in science through programmes and infrastructure, while in the UK the Royal Society and the UKRI have analysed the impact of AI in science and proposed policy actions. At the same time, big tech companies are investing massively in science with AI.

The adoption of AI in science in the EU is impacted by elements that affect the overall uptake of AI in all sectors (e.g. computation, data, talent), but the scientific context has significant specificities.

Basis for EU action (legal basis and subsidiarity check)

Legal basis

The initiative falls under the policy area 'research and technological development', where the EU and its Member States share powers in line with Article 4(3) of the Treaty on the Functioning of the European Union (TFEU).

Article 181 TFEU states that the EU and its Member States 'shall coordinate their research and technological development activities so as to ensure that national policies and Union policy are mutually consistent'. The Commission may undertake any useful initiative to promote this coordination.

Practical need for EU action

A European intervention could activate, mobilise and coordinate efforts across different policies with Member States and other relevant stakeholders (like universities, research organisations, research funders, etc.), sharing best practices or pooling resources.

The Commission could lead the efforts in this area by providing guidance, policy analysis and monitoring developments. It can use EU funding (e.g. Horizon Europe, Digital Europe) as a policy lever, and could defend European interests in international fora, taking into account AI-relevant EU initiatives.

B. What does the initiative aim to achieve and how

This initiative aims to make it easier for EU scientists to unlock the full potential of AI in their activities by using and developing new AI tools for science, and contributing to the overall AI ecosystem in the EU. This strategy will explore the challenges and opportunities around AI in science and sketch the policy interventions most effective to accelerate this transition. The strategy will address different policy aspects such as coordination with Member States; adaptation of funding instruments; facilitating access to infrastructure; modernising the scientific data ecosystem; and developing communities on the use and development of AI in the different scientific domains, skills and training policies, etc.

Likely impacts

The strategy will support scientists and research organisations so that:

- policies for AI in science, at EU and national level, are coordinated to maximise impact;
- funding instruments and investments in science better serve the needs of AI-enabled science and facilitate collaboration with the private sector;
- specific AI tools for science, like scientific foundation models, are developed and accessible;
- scientists acquire AI skills and increase interdisciplinarity (e.g. collaboration between AI and domain scientists to build new AI tools and models for science);
- scientists are better informed and equipped to tackle AI limitations and potential ethical, privacy and security risks.

The strategy will therefore capitalise on AI to facilitate more and better science, increasing the research and innovation (R&I) capabilities of the EU. In this way, the strategy will boost the capacity of R&I to achieve economic impact and tackle societal challenges. It will also help to deliver directly on some of the targets of the UN Sustainable Development Goals, such as improving scientific research and upgrading technological capabilities. In addition, the strategy will pave the way for further actions to pool resources and accelerate the uptake of AI in science.

Future monitoring

Due to the fast-paced developments on AI, its impact in science will have to be followed closely to ensure that policies and guidelines keep up with this trend. Qualitative and quantitative analysis (where possible) will be used to regularly monitor the impact and goals of the different policies proposed.

C. Better regulation

Impact assessment

N/A.

The AI in science strategy will be presented in a Commission Communication. This type of document does not require an impact assessment.

Consultation strategy

The primary objective of this consultation is to gather relevant and diverse inputs to support the development and implementation of a robust and forward-looking AI in science strategy for the EU.

The main stakeholders identified are in research and academia: researchers, research and academic organisations, funders, research infrastructure, etc. The private sector is also relevant, in particular European R&I intensive companies, including start-ups.

The consultation will be implemented through targeted consultation activities, including online questionnaires, workshops, interviews, focus groups, etc. The activities will take place mostly in Q1-2025 and in parts of Q2-2025.

These consultation activities will use the different networks of R&I stakeholders as multipliers, for example through the European Research Area (ERA) Forum. It will build on the extensive consultations done in recent years with the Member States and stakeholders to prepare for this strategy: policy brief on harnessing the power of AI to accelerate discovery and foster innovation, guidelines on the use of generative AI in research, a Mutual Learning Exercise with ERA countries, and the opinion from the Scientific Advice Mechanism on AI in science. Consultations conducted as part of the Apply AI strategy, especially those involving R&I intensive start-ups, can also provide valuable input and contributions to this consultation.

In line with the Commission's better regulation policy to develop initiatives informed by the best available knowledge, we also invite scientific researchers as well as academic organisations, learned societies and scientific associations with expertise in the use of AI in science to submit relevant published and pre-print scientific research, analyses and data. Given the importance of evidence-based policymaking at both EU and national level, we particularly encourage submissions that synthesise the current state of knowledge in relevant fields.

The inputs from the different consultation activities with stakeholders will be summarised in a short report.