

MSCA-NET

POLICY BRIEF: ARTIFICIAL INTELLIGENCE (AI)

Deliverable 3.13

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Introduction

Artificial Intelligence (AI) is recognised as one of the most transformative technologies of the 21st century. It is already reshaping industries, driving economic growth, and tackling complex global challenges such as climate change, public health, and security. Horizon Europe is positioned as a vehicle for fostering AI research, supporting innovation, and ensuring Europe remains competitive in the global AI race. This policy brief explores the opportunities and challenges AI presents within Horizon Europe and the Marie Skłodowska-Curie Actions (MSCA), relevant EU political guidelines, and existing publications. It also offers a summary of recommendations to ensure AI research is conducted responsibly, ethically, and in line with the EU's values.

The political background of Artificial Intelligence is grounded in the EU's strategic goal to position Europe as a global leader in AI research while ensuring its development aligns with ethical standards and societal values. This is reflected in initiatives and political guidelines like the "Ethics Guidelines for Trustworthy AI", the "AI Act", and the "Living Guidelines on the Responsible Use of Generative AI in Research"¹, which aim to foster innovation, collaboration, and responsible AI deployment across sectors.

Horizon Europe supports AI research and innovation to address societal needs, advance scientific discovery, and drive economic growth. However, challenges such as ethical concerns, data privacy, inclusivity, and talent shortages must be addressed to ensure AI development is aligned with EU values.

Opportunities for AI in Horizon Europe

Horizon Europe presents numerous opportunities for advancing AI research, both in terms of technological innovation and addressing societal needs. AI can significantly enhance the pace of scientific discovery by enabling faster data analysis, improving predictive models, optimising experimental methodologies and accelerating breakthroughs in precision medicine, climate modelling, and clean energy technologies. It has the potential to revolutionise healthcare, from improving diagnostic tools to developing personalised treatments. Horizon Europe funds projects that leverage AI to address public health challenges such as aging populations, disease prevention, and healthcare accessibility. It can also contribute to achieving the European Green Deal goals by improving energy efficiency, reducing emissions, and optimising resource use. AI-driven innovations in renewable energy and smart grids are central to Horizon Europe's Climate, Energy, and Mobility clusters. AI can also enhance Europe's digital security and resilience by improving cybersecurity, detecting fraud, and combating disinformation. Horizon Europe also supports initiatives that promote the development of digital skills and AI talent and fosters a skilled workforce in AI that will drive Europe's innovation agenda. MSCA fellowships, in particular, support the next generation of AI experts by funding research projects at the cutting edge of science and technology, involving the brightest minds from around the world who are trained on the job and are able to collaborate across leading research organisations.

Challenges and Risks of AI in Horizon Europe

Despite the vast opportunities, the rapid development of AI also presents several challenges and risks, particularly in the context of ethical, regulatory, and societal considerations. Key challenges include:

1. Ethical and legal risks: AI technologies can raise significant ethical and legal concerns, particularly regarding bias, discrimination, copyright issues and plagiarism. It must be ensured that AI research adheres to high ethical standards, including transparency, fairness, accountability, and non-discrimination. The EU AI Act and the European Commission's Ethics Guidelines for Trustworthy AI offer important frameworks for guiding AI research, but their implementation must be closely monitored to prevent misuse of AI technologies.

2. Data privacy and security: As AI systems rely heavily on large datasets, data privacy and security are important. Horizon Europe-funded projects must comply with the General Data Protection Regulation (GDPR), ensuring that AI tools respect individuals' privacy and safeguard sensitive data. There is a risk that AI applications could inadvertently infringe upon privacy rights or misuse personal data, particularly in health, finance, and public services.

¹ The selection of documents is exemplary and in no way exhaustive.

3. Ensuring inclusivity and reducing the digital divide: While AI offers significant potential, there is a risk that its benefits may not be equitably distributed. Horizon Europe must prioritise inclusive AI, ensuring that research projects address the needs of marginalised or underserved communities. Furthermore, the digital divide within Europe itself must be addressed by ensuring that AI innovations are accessible to all EU regions and populations. Through mobility and knowledge transfer and its collaborative structure with international consortia, the MSCA play a vital part in reducing this digital divide.

4. Talent shortage: Despite Europe's strengths in AI research, there is a global competition for AI talent. Horizon Europe's focus on supporting mobility and training through initiatives like the MSCA is crucial for attracting and retaining AI experts. However, further efforts are needed to ensure Europe's workforce can meet the growing demand for AI skills across industries.

AI Guidelines

Ethics Guidelines for Trustworthy AI

The "Ethics Guidelines for Trustworthy AI"² were published by the European Commission's High-Level Expert Group on Artificial Intelligence in 2019. The guidelines provide a framework for ensuring that AI systems are developed and deployed in a way that respects fundamental rights, promotes trust, and serves the public good. The guidelines are built around **seven key requirements** for trustworthy AI:



AI Act

The EU AI Act (Regulation 2024/1689)³ is the first-ever comprehensive legal framework to regulate artificial intelligence (AI) in Europe, aimed at addressing AI risks while fostering innovation and trust. The regulation does not apply to AI systems or AI models, including their results, that are specifically developed and deployed for the sole purpose of scientific research and development.

The AI Act seeks to:

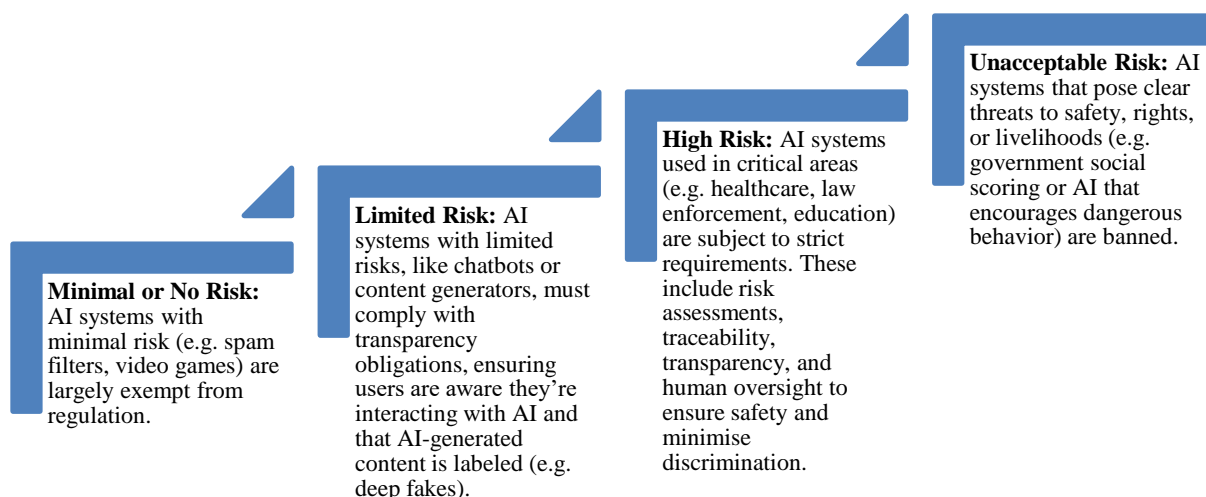
² High-Level Expert Group on Artificial Intelligence. (2019). *ETHICS GUIDELINES FOR TRUSTWORTHY AI*. https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=60419

³ Regulation 2024/1689. *REGULATION (EU) 2024/1689 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act)*. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R1689>

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- ✓ Ensure AI systems are trustworthy, safe, and respect fundamental rights.
- ✓ Support the development of AI across the EU, while promoting innovation, investment, and responsible AI deployment.
- ✓ Address specific risks posed by AI, especially in high-stakes areas like healthcare, employment, law enforcement, and more.
- ✓ Reduce burdens on businesses, particularly SMEs, while ensuring that AI systems are safe and ethical.

The AI Act uses a **risk-based framework**⁴, categorising AI systems into four levels of risk:



Living Guidelines on the Responsible Use of Generative AI in Research

The “Living Guidelines on the Responsible Use of Generative AI in Research” (developed by the European Research Area Forum) are a crucial tool for ensuring that AI technologies, especially generative AI, are used ethically and responsibly in the context of European research initiatives. The guidelines outline best practices for using AI tools in a transparent, accountable, and responsible manner and provide key recommendations for researchers, research organisations and research funding organisations.

Key principles⁵ from the Living Guidelines are:

- ✓ **Reliability:** Ensuring the accuracy, reproducibility, and verification of research outputs generated by AI tools.
- ✓ **Honesty:** Researchers must disclose when generative AI has been used in the research process, ensuring full transparency.
- ✓ **Respect:** AI tools should respect privacy, intellectual property rights, and societal values. This includes managing personal data with care and avoiding discriminatory practices.
- ✓ **Accountability:** Researchers, research organisations and funding organisations must remain accountable for the outputs generated by AI, ensuring proper oversight and responsibility for all research processes.

⁴ European Commission, Directorate-General for Communications Networks, Content and Technology. (2024). <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>

⁵ ERA Forum Stakeholders' document. (2024). *Living guidelines on the responsible use of generative AI in research*. https://research-and-innovation.ec.europa.eu/document/download/2b6cf7e5-36ac-41cb-aab5-0d32050143dc_en?filename=ec_rtd_ai-guidelines.pdf

The “Living Guidelines” are intended to evolve as AI technologies and their applications in research continue to advance.⁶ This flexibility is imperative for ensuring that research remains aligned with ethical standards and legal frameworks as AI develops. The overarching objective of all of the guidelines is to ensure that AI technologies are in accordance with European values and legal standards, thereby promoting innovation while mitigating risks to individuals, society, and the environment.

AI in the context of the MSCA

The Marie Skłodowska-Curie Actions can significantly contribute to the development of ethical AI principles through several key mechanisms:

- ✓ **Research Funding and Training:** As a bottom-up funding scheme, the MSCA provide substantial means for AI-focused research projects.
- ✓ **Interdisciplinary Collaboration:** MSCA encourage cross-disciplinary approaches to AI and bring together expertise from social sciences, humanities, and technical disciplines to address critical issues in AI development. The MSCA facilitate collaboration between researchers, policymakers, industry experts, and public stakeholders.
- ✓ **International Cooperation:** The MSCA foster global perspectives and fund international research consortia. This international collaboration helps in developing globally relevant ethical AI principles.
- ✓ **Capacity Building:** The MSCA contribute to building Europe's AI ethics expertise: By funding doctoral and postdoctoral researchers, in all MSC Actions, as well as administrative, managerial, or technical staff supporting the R&I activities under a project in the MSCA Staff Exchanges, the MSCA help to create a pool of experts in AI research as well as AI ethics and governance.
- ✓ **Knowledge Dissemination and Communication:** Researchers are encouraged to develop interdisciplinary educational materials and workshops on responsible AI. This helps in promoting awareness and best practices in ethical AI development among academia, industry, and public audiences.

Although AI is not explicitly mentioned as a standalone theme in the context of the MSCA, it is integrated into MSCA documents, such as the Guidelines for Applicants and the proposal templates, in two different ways. Firstly, AI is important to consider in the context of the research project itself and secondly, it has to be viewed in the context of proposal writing. The MSCA Postdoctoral Fellowship proposal template⁷ includes the following definition on AI⁸:

DEFINITIONS	
Artificial Intelligence	<p>Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals.</p> <p>AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications)</p> <p>If you plan to make use of Artificial Intelligence in your project, the evaluators will evaluate the technical robustness of the proposed system under the appropriate criterion</p>

⁶ The “Living Guidelines” are updated through iterative consultations of the research community. The first consultation took place in autumn 2024, the resulting update is scheduled to be published in Q1 2025.

⁷ The rules defined in the PF and DN proposal templates apply across all MSC Actions.

⁸ Horizon Europe Programme. (2024). *Standard Application Form Marie Skłodowska-Curie Actions – Postdoctoral Fellowships (HE MSCA PF)*. https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-msca-pf_en.pdf

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In part A, the administrative forms, the applicants must declare the development, deployment and/or use of Artificial Intelligence-based systems of the activity in the Ethics Issue Table and indicate the respective page number of proposal part B, chapter 1 “Excellence”.

The MSCA Doctoral Networks proposal template⁹ e.g. reads:

- Artificial Intelligence (if applicable to the proposal): If the activities proposed involve the use and/or development of AI-based systems and/or techniques, applicants must provide explanations on the technical robustness of the proposed system(s).
- ⚠ *If you plan to use, develop and/or deploy artificial intelligence (AI) based systems and/or techniques you must demonstrate their technical robustness. AI-based systems or techniques should be, or be developed to become:*
- *technically robust, accurate and reproducible, and able to deal with and inform about possible failures, inaccuracies and errors, proportionate to the assessed risk they pose*
 - *socially robust, in that they duly consider the context and environment in which they operate*
 - *reliable and function as intended, minimizing unintentional and unexpected harm, preventing unacceptable harm and safeguarding the physical and mental integrity of humans*
 - *able to provide a suitable explanation of their decision-making processes, whenever they can have a significant impact on people’s lives.*

The proposal templates also include a specific guidance on the use of generative AI for the preparation of the proposal that applicants are strongly advised to follow:

“When considering the use of generative artificial intelligence (AI) tools for the preparation of the proposal, it is imperative to exercise caution and careful consideration. The AI-generated content should be thoroughly reviewed and validated by the applicants to ensure its appropriateness and accuracy, as well as its compliance with intellectual property regulations. Applicants are fully responsible for the content of the proposal (even those parts produced by the AI tool) and must be transparent in disclosing which AI tools were used and how they were utilised. Specifically, applicants are required to:

- Verify the accuracy, validity, and appropriateness of the content and any citations generated by the AI tool and correct any errors or inconsistencies.
- Provide a list of sources used to generate content and citations, including those generated by the AI tool. Double-check citations to ensure they are accurate and properly referenced.
- Be conscious of the potential for plagiarism where the AI tool may have reproduced substantial text from other sources. Check the original sources to be sure you are not plagiarizing someone else’s work.
- Acknowledge the limitations of the AI tool in the proposal preparation, including the potential for bias, errors, and gaps in knowledge.”¹⁰

This guidance builds on the seven key requirements of the “Ethics Guidelines for Trustworthy AI” and the key principles from the “Living Guidelines” and clarifies the applicants’ responsibilities. An explanation on the use of generative AI in the preparation of the proposal should be included in part B2. While the evaluators are briefed to assess the robustness of AI systems, they are instructed not to penalise projects declaring the use of generative AI in the preparation of the proposal. They will be evaluated in the same way as all other proposals with the applicant being responsible for the proposal contents.

⁹ Horizon Europe Programme. (2024). *Standard Application Form Marie Skłodowska-Curie Actions - Doctoral Networks (HE MSCA DN)*. https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-msca-dn_en.pdf

¹⁰ Horizon Europe Programme. (2024). *Standard Application Form Marie Skłodowska-Curie Actions - Doctoral Networks (HE MSCA DN)*. https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-msca-dn_en.pdf

Conclusion

AI is central to the EU's ambition to lead in innovation, sustainability, and digital transformation. Horizon Europe, and in particular the MSCA, provide a unique opportunity to harness the power of AI to address pressing global challenges and enhance European competitiveness. However, to achieve these goals, Horizon Europe must ensure that AI research is ethical, inclusive, and aligned with European values. By prioritising responsible AI development, fostering interdisciplinary collaboration, and promoting data privacy and security, Horizon Europe and with it the MSCA can ensure that AI benefits society as a whole.

References and Resources

Horizon Europe and MSCA

- [Regulation establishing Horizon Europe](#)
- [Specific programme implementing Horizon Europe](#)
- [Horizon Europe strategic plan 2025-2027](#)
- [Horizon Europe Programme Guide](#)
- [MSCA Work Programme 2023-2025](#)
- [MSCA Postdoctoral Fellowships proposal template](#)
- [MSCA Doctoral Networks proposal template](#)

Artificial Intelligence

- [Ethics Guidelines for Trustworthy Artificial Intelligence](#)
- [EU AI Act \(Regulation \(EU\) 2024/1689\)](#)
- [Living Guidelines on the Responsible Use of Generative AI in Research](#)
- [Living Guidelines on the Responsible Use of Generative AI in Research \(Factsheet\)](#)
- [Artificial Intelligence – Questions and Answers](#)
- [Artificial Intelligence \(AI\) in Science](#)
- [Successful and timely uptake of artificial intelligence in science in the EU: Evidence review report](#)
- [Use and impact of artificial intelligence in the scientific process](#)