

The emerging role of open source in advancing AI adoption

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Open-source AI has become a driving force in the advancement and adoption of artificial intelligence, offering transparency, accessibility and collaborative innovation. Models like Llama, Gemma and Phi-2 are enabling startups, researchers and enterprises to leverage leading-edge AI technology, fueling innovation across industries.

This update explores the characteristics of open-source AI and the role they play in driving innovation, shaping regulatory requirements and influencing AI governance.

Defining open-source AI: OSI's open-source AI definition 1.0

In late 2024, the Open Source Initiative (OSI) released its official "open-source" artificial intelligence definition (OSAID), marking a significant milestone in the open-source community. OSI, a globally recognized and influential open-source organization responsible for the "[Open Source Definition](#)" (OSD), developed the OSAID to answer the question of what should be considered open source in the context of AI.

Version 1.0 of OSAID represents the culmination of multiple years of research and collaboration, and a yearlong, global multi-stakeholder co-design process, in an effort to create a definition that will bring together different organizations, experts and community stakeholders. The OSAID is intended to offer a standard by which community-led, open and public evaluations will be conducted to evaluate open-source AI systems going forward.

At its core, the OSAID reflects the four fundamental freedoms of open source, which are the freedom to:

- use the system for any purpose and without having to ask for permission
- study how the system works and inspect its components
- modify the system for any purpose, including to change its output; and
- share the system for others to use with or without modifications, for any purpose

While the OSAID remains a work in progress, it has already received endorsements from several influential open-source organizations, including Mozilla, SUSE, and the Eclipse Foundation.

The role of open source on innovation

Open-source AI models are playing a transformative role across many economic sectors, including within emerging and high growth and large enterprises. By lowering barriers to entry, these models provide researchers and businesses access to leading-edge AI capabilities.

Through our experience working with AI startups and scaleups, we have observed the following advantages of open-source AI firsthand:

- The open nature of these AI models allows business and researchers greater flexibility to fine-tune and adapt for specific use cases, leading to advancement in domain-specific solutions;
- With reduced up-front costs, open-source AI lowers the initial financial burden, which can make entry into AI development more affordable and scalable;
- Open-source AI fosters a culture of collaboration, enabling knowledge sharing and iterative improvement.

By expanding access to AI tools and fostering innovation, open-source AI is making AI development more inclusive by enabling more industries and individuals to contribute to its advancement and adoption.

The role of open-source AI in regulatory compliance

Foundational features of many emerging laws and guidelines reflect the principles of transparency, explainability and risk mitigation — principles which are aligned with the “open” nature of open-source AI. A case in point is the [ISED Voluntary Code of Conduct on Responsible Development and Management of Advanced Generative Systems](#), which emphasizes monitoring, risk mitigation transparency and other accountability elements that are more easily addressed by leveraging AI models available as open source. The E.U.’s Artificial Intelligence Act goes even further by expressly recognizing open source as a driver of innovation. The preamble of the AI Act states:

...models, released under a free and open-source licence...can contribute to research and innovation in the market and can provide significant growth opportunities for the Union economy. General-purpose AI Models released under free and open-source licences should be considered to ensure high levels of transparency and openness... (Preamble, para. 102).

Moreover, open-source AI models that publicly disclose weights and model architecture may even meet some regulatory requirements, leading to reduced compliance burdens.

Also noteworthy is that OSI has been selected as a stakeholder for the drafting of the Code of Practice on General-Purpose AI — a set of guidelines to help comply with the E.U.’s AI Act. The OSI’s selection highlights the increasing significance of open-source AI in shaping emerging global regulatory frameworks.

The role of open source in responsible AI governance

Responsible AI governance is built upon core tenants of accountability, risk management, ethical data use, transparency and fairness. As the following examples highlight, open-source AI models can provide tangible benefits to organizations that are committed to responsible AI:

- **Transparency and auditability:** Open-source AI models that make available code, architecture and training methodologies allow stakeholders to inspect algorithms and decision-making processes, enabling oversight and fostering trust.
- **Accountability:** By making the source code publicly available, developers can be held accountable for the outputs of their systems. Users and regulators can trace decisions back to specific components in the code, facilitating audits.
- **Bias and fairness risk mitigation:** Open-source projects benefit from community reviews, where a community of researchers and external experts can help identify biases or errors, improving the system's fairness and reliability that may otherwise go unnoticed.
- **Safety and reliability:** Open source follows the "many eyeballs make all bugs shallow" principle from software development, where wider visibility increases the likelihood of identifying and addressing errors or vulnerabilities, leading to a more reliable AI system.

Risk factors

Open-source AI is not risk free and does not provide a complete framework for addressing responsible AI principles. Key risks factors include:

- **Privacy and intellectual property,** in part because open-source AI models are rarely made available with full details about training data origins or with contractual assurances that all necessary rights have been obtained to allow for the lawful use of the model or related output.
- **The transparency aspect of open-source AI can be a double-edged sword.** While exposing inner workings can promote trust, it can also expose potential vulnerabilities that malicious actors can exploit, increasing security risks.
- **Many open-source AI projects rely on voluntary community contributions,** which can result in limited support, inconsistent updates, delayed security patches, or incomplete documentation. Organizations may need to address these gaps, which can be challenging, especially if they were not involved in the model's development.
- **Open-source AI models are typically available on an as-is basis,** without representations, warranties, indemnities. If they generate inaccurate, biased or harmful outputs, organizations have limited recourse and bear both legal and related reputational risk.

These risks, and related risk mitigation strategies, need to be carefully considered and factored into decisions to develop, distribute or use open-source AI.

Conclusion

Open source is playing a pivotal role in shaping the future of AI by enabling cost-effective innovation, regulatory compliance and enhanced governance that advances the principles of openness, transparency, collaboration and community oversight. As development and use of open-source AI continues to grow, it will be essential for all stakeholders — developers, researchers, policymakers, and users — to understand both the benefits and risks of open-source AI and ensure that they are reflected in emerging governance models and related regulatory requirements.