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Sustainability in the age of Artificial Intelligence

Why AI is a defining challenge for modern portfolios

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Madison Hardy, Senior SRII Research Analyst, examines how artificial intelligence is becoming a foundational, system-wide force across markets and portfolios—delivering both sustainability opportunities and material risks—while underscoring that its ultimate impact will depend on strong governance and responsible deployment.

How to think about this topic

Treat AI as infrastructure: Ubiquitous across industries—assess exposure across entire portfolios, not just tech.

Evaluate upside + externalities together: Benefits and risks (energy, bias, disruption) are inseparable and must be weighed jointly.

Prioritize governance over hype: Outcomes depend on oversight, transparency, and accountability—not just innovation.

Sustainable and responsible investors have long embraced the challenge of balancing social and environmental values with the financial characteristics of the broad market. Artificial Intelligence (AI) presents a unique challenge in this regard because it has such far-reaching implications for not only the market but for society at large. AI is evolving in real time and being deployed with astonishing speed, far ahead of the government's ability to regulate it.

While it is possible to recognize how the use of artificial intelligence by a single company can conflict with an investor's social and environmental values, or alternatively how a single company is using AI to solve social or environmental problems, it is becoming increasingly apparent that AI tools will be ubiquitous in the economy and embedded in the capital markets and within every portfolio company. AI will be like electricity was to industrialization, becoming unavoidable in daily life. It is a feedstock technology that is moving very fast through society. The harm or benefit of AI is becoming increasingly difficult to predict, but there is no question it is already massively influential in the markets.

As AI establishes itself within the global economy, its role in sustainable and responsible investment portfolios will be complicated. Will it be a potential engine for achieving sustainability goals? Or a significant source of new environmental and social risks to humanity? The long-term impact of AI in sustainable and responsible investing depends not on the technology itself, but on the strength of the ethical guidelines governing its deployment and responsible investing's ability to adapt to social mores and structural changes in the economy.

AI as a catalyst for sustainable investment outcomes

Artificial Intelligence is uniquely positioned to accelerate sustainable and responsible investment objectives by processing complex datasets that were previously unmanageable. In the realm of climate resilience, as wildfire season is becoming a year-round concern, researchers at the University of British Columbia Okanagan are proactively using AI technology to predict where and when wildfires may occur, rather than solely responding to them.[1] This predictive power extends into life sciences, where AI integration is revolutionizing drug discovery by replacing labor-intensive drug trial experimentation with more efficient and accurate analysis of vast

1 University of British Columbia. 28 July 2025. Using technology to get ahead of wildfires.

datasets.[2] In Peru's Tahuamanu region, AI is proving its role in biodiversity conservation. World Wildlife Fund for Nature and its partners utilize 136 camera traps and the SpeciesNet AI model to process images, identifying individual jaguars and various other species to assess conservation status and evaluate the effectiveness of community-led interventions.[3]

Many organizations today are even using AI to counter political misinformation, an increasingly prevalent issue perpetuating division in the United States. Organizations have turned to such tools to assist with open source investigations, including efforts to map and verify images related to the war in Gaza.[4] Others are developing techniques like watermarking and fingerprinting synthetic media, helping people recognize when content may be artificially generated or misleading. Although challenges such as algorithmic bias and the difficulty of interpreting nuance still exist, democratically aligned and trustworthy AI holds meaningful potential to strengthen information integrity and make public engagement more inclusive.

The risks of artifical intelligence in sustainable investing

Artificial intelligence may promise solutions to some of society's most complex problems, but its physical and algorithmic footprint introduces equally complex challenges.

What we're reviewing

- *AI exposure across holdings (direct + indirect)*
- *Environmental footprint (energy, water, siting)*
- *Social risks (bias, labor impacts, misinformation)*
- *Governance frameworks & transparency*

» Environmental impact of AI infrastructure

The rapid expansion of AI depends on massive energy-hungry and resource-intensive data centers that impose disproportionate burdens on the communities where they are built and the environment around them.

The sites of these facilities are not random; they are overwhelmingly concentrated in marginally or economically vulnerable areas that have historically borne the brunt of environmental harm.[5] Despite having some of the most progressive environmental protection policies, California's data centers are overwhelmingly placed in marginalized communities with 82% of centers located in areas already struggling with high pollution levels.[6] This modern landscape of environmental inequity traces back to the post–World War II industrial boom, when companies routinely disposed of toxic waste near low income neighborhoods as well as in Black, Indigenous, and other communities of color, establishing patterns of environmental racism that persist in today's AI infrastructure build out.

These data centers expose nearby residents to light pollution from 24/7 industrial grade illumination, chronic noise pollution as well as air pollutants including nitrogen oxides, methane, volatile organic compounds, and fine particulate matter. This dangerous combination is linked to sleep disruption, cardiovascular stress, respiratory irritation and asthma, elevated cancer risks and overall declines in quality of life.[7]

These localized harms unfold alongside broader environmental pressures. Global use of AI is projected to account for more water withdrawal annually than the entire country of Denmark, only increasing the already present threat

2 University of Santiago de Compostela. 18 June 2023. The Role of AI in Drug Discovery: Challenges, Opportunities, and Strategies.
3 World Wildlife Fund. 3 March 2025. Using the power of AI to identify and track species.
4 Harvard Law Review. Vol. 138:1657. Principles for AI Governance.
5 Forbes. 20 October 2025. The Rush To Build AI Data Centers Leaves Black Workers With New Risks.
6 USC Annenberg Center for Health Journalism. 20 Jan 2026. The Health Divide: The AI data center boom will harm the health of communities that can least afford it.
7 Environmental Health Project. 27 Feb 2026. The Dangers of Data Centers.

of water insecurity. By 2030, electricity demand for AI data centers is expected to double, with model training alone projected to draw between 4 and 16 gigawatts of power—an amount that can fuel millions of American homes.[8]

Recent cuts to existing environmental and health protections by the federal government leave vulnerable constituents with less local political leverage to resist projects in the name of technological advancement. Meanwhile, the enormous energy demands of AI infrastructure frequently lead utilities to raise rates, passing costs disproportionally onto consumers versus the ultra-users of the infrastructure.[9]

Concerns about rising electricity costs, grid instability, and potential health impacts linked to data center operations have prompted lawmakers nationwide to propose statewide moratoriums.[10] Maine was poised to be the first state to pass such legislation before the proposal was ultimately vetoed by Governor Janet Mills.[11]

Together, these dynamics reveal how the environmental harms of AI are often externalized onto the very communities least equipped to absorb them. As AI systems become more embedded in everyday life, their social costs are also coming into sharper focus.

» Social and ethical risks of Artificial Intelligence

Mental health researchers warn that AI driven platforms can intensify anxiety, distort reality, and blur the line between authentic and engineered interaction. Overuse can result in disrupted emotional development, decision-making, and behavior; at times leading users to become an increased risk to others and even themselves.[12]

Families across North America are suing AI behemoth, OpenAI, claiming loved ones have been harmed by interacting with their product, including four cases in which users died by suicide following conversations with the popular chatbot, ChatGPT.[13] OpenAI is also facing a criminal investigation brought by Florida's Attorney General James Uthmeier over whether its ChatGPT technology played a role in the mass shooting at Florida State University last year, which resulted in the murder of two victims. According to Uthmeier, the chat bot provided "significant advice to this shooter before he committed such heinous crimes". OpenAI representatives argue that ChatGPT only provided "factual responses to questions with information that could be found broadly across public sources on the internet". However, Uthmeiers' prosecution team has said that if it was a human on the other end of the screen, they would be charged with murder.[14]

In an Open Letter to the AI and Technology Industry, the JED Foundation, a nonprofit protecting emotional health in teens and young adults, demands that instead of designing systems for optimized for engagement, retention, and profit, safety needs to be at the forefront of development. They argue that in order to innovate responsibly, companies must embody the themes of transparency and accountability, cross industry infrastructure, and regulatory action.[15]

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8 SHARE. 12 Feb 2026. Investor Advocacy on Artificial Intelligence.
9 Forbes. 20 October 2025. The Rush To Build AI Data Centers Leaves Black Workers With New Risks.
10 Maine Public Radio. 13 April 2026. Maine Legislature passes first in the nation ban on data centers.
11 Bloomberg. 24 April 2026. Maine Governor Mills Vetoes Statewide Data Center Moratorium. https://
12 The Jed Foundation. 17 Sept 2025. Open Letter to the AI and Technology Industry.
13 The Wall Street Journal. 6 Nov 2025. Seven Lawsuits Allege OpenAI Encouraged Suicide and Harmful Delusions.
14 BBC. 21 April 2026. OpenAI faces criminal probe over role of ChatGPT in shooting.
15 The Jed Foundation. 17 Sept 2025. Open Letter to the AI and Technology Industry.

As automation reshapes industries faster than workers can adapt, fears of job displacement are escalating as well. This goes deeper than AI agents taking over customer service chat capabilities. Some companies have chosen to reroute roles typically held for entry-level employees to AI, leaving this first rung on the corporate ladder out of reach for the next generation of the workforce. Tech giant, Meta, announced in late April that it will cut its workforce by about 10% and eliminate the 6,000 open roles it was previously looking to fill. In May, Microsoft is looking to offer voluntary buyouts to about 8,750 people, 7% of its US workforce.[16] Both sets of cuts likely tied the industry-wide ramp up in artificial intelligence infrastructure-related spending.

There is another huge risk hidden not behind what AI can do, but what it is. As these large language models, or LLMs, are trained on historical data, they can reflect existing prejudice and bias. For instance, algorithms for AI-powered resume scanners may inadvertently filter out candidates based on gender or zip code. In lending, algorithms can perpetuate digital redlining by denying credit to marginalized groups. Rapid integration of AI in cognitive and manual tasks threatens to displace a significant portion of the workforce, thus widening the already gaping wealth imbalance we face today.

Beneath the surface of AI's efficiency also lies a "dual-use" risk: the same tools that drive progress and innovation can be inverted to undermine human rights. AI powered cameras help us detect wildfires and track vulnerable species, but what if the same cameras are used to track people? While AI can expedite the discovery of life-saving medications, what prevents the same technology from aggregating private health data to increase insurance premiums?

Together, these pressures create public unease, blending emotional strain with economic uncertainty and existential questions about how society will absorb the wave of technological change.

What these risks mean

> *AI risk is no longer isolated to a handful of companies—it is embedded across entire portfolios, where even indirect exposure carries meaningful sustainable and responsible investing implications.*
>
> *As adoption accelerates, outcomes can shift quickly, making oversight quality and governance strength critical differentiators in determining whether AI creates long-term value or unintended harm.*

The path forward

AI is no longer a niche technology—it is a system-wide force shaping risk, return, and responsibility across investment portfolios.

Its role can shift from a "sustainability hero" to a "liability nightmare" overnight. The outcomes of this crossover will ultimately be determined by the robustness of the guidelines put in place to monitor development and deployment.

» AI regulation: A fragmented global landscape

Governments at the national, state, and regional levels are taking vastly different approaches to establishing guardrails for AI. While some countries have moved forward with formal regulations, others have opted for a far more hands off, deregulatory stance. This divergence is shaped by a mix of pressures, including global competition to lead the AI race, fear of losing economic competitiveness, and sustained lobbying from technology companies seeking to reduce regulatory oversight.

» AI regulation: US vs EU

Spearheaded by the Trump administration, the US has taken a deregulatory approach to AI governance. On January 23, 2025, Executive Order 14179 was signed with the goal to eliminate existing AI policies and directives perceived to hinder American AI innovation. Additionally, The White House released an AI

16 AP. 23 April 2026. Meta slashes 8,000 jobs, or 10% of its workforce, as Microsoft offers buyouts.

Action Plan proposing a deregulatory approach to AI development and deployment, aimed at increasing AI capabilities to advance economic and military objectives. Despite individual states' attempts to erect their own guard rails, President Trump issued yet another executive order in December of 2025 to reduce the ability of states to regulate AI until a national standard is established. The order also instructs the Attorney General to establish an AI Litigation Taskforce empowered to challenge state level AI regulations that the administration views as obstructing innovation or conflicting with its broader deregulatory strategy.[17]

The European Union has opted to take a more regulated approach by enacting the Artificial Intelligence Act, which establishes a risk based framework that categorizes AI systems as minimal, limited, high, or unacceptable risk. Under this structure, high risk applications, such as biometric identification or algorithmic decision making in areas like employment and finance, are subject to stringent requirements designed to ensure safety, transparency, and accountability.[18] Unacceptable risk, such as compiling facial recognition databases by untargeted scraping of facial images from the internet or CCTV footage, is prohibited by the Act.[19]

The role of governance and ethical frameworks in AI

Responsible AI investing increasingly depends on whether companies and institutions have credible, transparent governance frameworks. Across major organizations providing these frameworks, several common principles emerge: human rights, transparency, accountability, and safety.

The OECD (Organization for Economic Co-operation and Development) and its integrated Global Partnership on AI (GPAI) promote human centric, safe and secure AI, grounded in the OECD AI Principles.[20] The principles set a values-based intergovernmental standard for trustworthy AI, promoting innovation that respects sustainable development, human rights, democratic values, transparency, robustness, and accountability. They were first adopted in 2019 and updated in May 2024 to reflect technological and policy developments. Today, 47 countries adhere to these principles. In addition to these principles, the OECD offers policy recommendations for governments, including strengthening human capacity and labor transitions as well as fostering international cooperation. These tools are intended to help countries create risk frameworks and align national policies to enable global interoperability.[21]

UNESCO's comprehensive international framework, "Recommendation on the Ethics of AI", similarly centers human rights, inclusivity, societal harmony, and environmental protection, offering tools to guide responsible deployment. Adopted by 193 member States at UNESCO's General Conference in November 2021, the recommendation outlines eleven policy action areas that help governments translate its core ethical principles into concrete measures covering domains such as data governance, environmental and ecosystem impacts, gender equality, education and research, as well as health and social well-being.[22] The recommendation urges governments to build the legal and institutional frameworks needed to ensure AI serves the public good. Working alongside these governments, academic institutions and the private sector, UNESCO is helping translate these principles into policies across

In a nutshell

As AI adoption accelerates, the presence of clear ethical frameworks—centered on transparency, accountability, and human rights—has become the clearest signal of long-term sustainability. Without independent oversight, commercial incentives can outpace responsible use.

17 SHARE. 12 Feb 2026. Investor Advocacy on Artificial Intelligence.
18 SHARE. 12 Feb 2026. Investor Advocacy on Artificial Intelligence.
19 EU Artificial Intelligence Act. 27 Feb 2024. High-level summary of the AI Act.
20 OECD. Global Partnership on Artificial Intelligence.
21 OECD. AI Principles Overview.
22 UNESCO. Key facts on UNESCO's Recommendation on the Ethics of Artificial Intelligence.

the entire AI lifecycle and establishing a global blueprint for accountable and ethical AI governance.

Recent developments have underscored how crucial third party guidelines and oversight will be, as competing interests can lead companies to push their own self regulatory limits.

Leading AI labs, OpenAI and Anthropic, have each developed internal frameworks for responsible development, although they diverge in their relationships with government and defense.

Anthropic was the first frontier AI company to deploy their models in the US government's classified networks used for mission-critical applications including intelligence analysis, modeling, simulation, and more. The relationship soon soured after Anthropic determined that specific requests made by the Department of Defense were "simply outside the bounds of what today's technology can safely and reliably do."[23] The requests made were those relating to mass domestic surveillance and fully autonomous weapons.

OpenAI has since entered agreements with the Department of Defense, confident that they can fulfill the contract without crossing the lines of their technology being used for "mass domestic surveillance of US persons", "high-stakes automated decisions" nor to "direct autonomous weapons systems."[24] Whether they actually can remains to be seen.

This contrast highlights a broader tension in the field. When the same companies that profit most from AI are left to govern their own development and deployment practices, potential ethical gaps become almost inevitable. In an industry defined by rapid competition and high financial stakes, it is increasingly naïve to assume that a company will never cross its own line in the sand simply because it says it won't. Independent standards and external accountability are essential to protect public interests alongside technological progress. As governments and investors seek clearer guardrails, organizations such as the OECD and UNESCO have emerged as central and neutral standards, offering consistent, robust guidance to private firms and governments drafting playbooks for responsible AI.

Implications for portfolio construction and risk management

For sustainable and responsible investing, this emerging technology can create a direct contradiction: an investment intended to positively impact society may lead to unintended consequences. At Bailard, we have introduced our own framework for AI adoption into our Sustainable, Responsible and Impact Investing (SRII) client portfolios. We have designed a tiered approach reflecting the following:

» A practical framework for AI in sustainable investment portfolios

We designate tier one companies as AI infrastructure companies creating the general-purpose AI tools and models deployed in the capital markets. Think general purpose Large Language Model (LLM) developers or companies in the supply chains for chips, memory, and data centers. We include tier one companies in the investable universe unless otherwise directed by a client or the SRII Research team after a Suitability Assessment indicates misalignment with the theme of the portfolio.

Tier two is characterized as companies utilizing AI to solve social or environmental problems such as a company enhancing cyber security, curing disease

Bailard's framework for AI adoption

> *AI exposure is unavoidable and must be actively managed. Investors need structured frameworks to differentiate between infrastructure providers, beneficial use cases, and misaligned applications—ensuring portfolios remain consistent with long-term sustainable and responsible investing objectives.*

23 Anthropic. 26 Feb 2026. Statement from Dario Amodei on our discussions with the Department of War.
24 OpenAI. 2 Mar 2026. Our Agreement With the Department of War.

or improving predictive models for climate. We include these companies in the investable universe.

Companies that fall into tier three are those that use AI tools to engage principally in an activity that runs counter to the expressed goals for the strategy, or in a manner that breaches the basic social contract between business and American society. For example, a software company primarily adapting AI tools to make weapons, or surveillance tools that ignore basic rights to privacy would be categorized in tier three. We exclude these companies from the investable universe.

Conclusion

In the end, artificial intelligence represents neither a clear breakthrough in sustainability nor an unavoidable societal threat, but rather a powerful force whose impact will depend on how responsibly it is governed, deployed, and integrated into the global economy. As AI becomes increasingly embedded across industries and capital markets, investors can no longer view its risks and opportunities as isolated issues; they are now fundamental environmental, social, governance, and fiduciary considerations. The same technology capable of accelerating climate research, advancing medicine, and strengthening public systems also carries the potential to deepen inequality, strain natural resources, erode privacy, and amplify social harm if left unchecked. For sustainable and responsible investors, the challenge moving forward will be balancing participation in one of the most transformative technological shifts in modern history while remaining disciplined about accountability, transparency, and alignment with long-term societal and environmental well-being. Ultimately, the future of AI in sustainable investing will not be determined solely by innovation itself, but by whether governments, corporations, investors, and civil society are willing to establish and uphold the ethical frameworks necessary to ensure that technological progress serves humanity rather than undermines it.

Key takeaways

- AI is a core driver of sustainable and responsible investing risk and opportunity
- Environmental + social externalities are already emerging
- Regulation remains fragmented globally
- Frameworks to evaluate AI exposure can be helpful for sustainable and responsible investors

Disclosures

The information in this publication is based primarily on data available as of June 2026 and has been obtained from sources believed to be reliable, but its accuracy, completeness, and interpretation are not guaranteed. We do not think it should necessarily be relied on as a sole source of information and opinion.

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