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Persona-based Literacy Guide for Sustainable AI

Tailored learning paths to help key enterprise personas build the knowledge needed to develop, govern, and apply AI sustainably

IT Toolkit for Responsible & Sustainable AI: A Field Guide for Implementation at Scale

The integration of Generative AI (GenAI) into enterprise environments marks a profound transformation, unlocking substantial potential for innovation and efficiency. However, with such significant opportunities come equally substantial responsibilities. Organizations must approach AI adoption thoughtfully, ensuring that their workforce comprehends both the capabilities and the limitations of AI. Comprehensive AI literacy, coupled with considerations for sustainability, provide a robust foundation for responsible, ethical, and successful AI implementation across enterprises.

It is essential to equip general professionals with fundamental AI skills, such as prompt engineering and critical evaluation. This will enable them to use AI securely and productively. Simultaneously, technical specialists need in-depth knowledge in areas like fairness, transparency, and Green AI to propagate ethical development practices. For organizational leaders, a strong grasp of AI's strategic potential, along with its environmental, social, and governance (ESG) implications and regulatory considerations, is vital for responsible leadership.

IT leaders and AI experts from SustainableIT.org's 50+ member Responsible AI Working Group developed this introductory guide to AI literacy across three major personas in the enterprise, general users, experts and sponsors/executives. The intent is to impart fundamentals for persona-tailored AI training goals, approaches and topics.

This report is only one element of the **IT Toolkit for Responsible and Sustainable AI** from **SustainableIT.org**. Other resources include:

» A Toolkit overview that makes the case for responsible and sustainable IT and identifies the people who contributed to the resources

» A Sustainability Runbook to operationalize climate- and resource-related governance

» Data Governance Principles and Runbook focused on AI data quality, ethics, and compliance

» A Responsible AI Governance Lifecycle Model mapping critical principles and actions from development to post-deployment

» A comprehensive AI glossary and reference guide to global standards, frameworks and tools

AI Curriculum Fundamentals

AI literacy starts with a clear picture of the basics of AI data processing. This includes understanding how data is collected, processed and used as the basis for training AI models. Building on this foundation, stakeholders need a clear framework for assessing the quality of AI tools. This knowledge is essential in order to avoid having to rely solely on the statements of providers and to be able to make well-founded demands for compliance with quality criteria.

From there, we must drive awareness of fundamental concepts such as the potential for bias in AI systems, ethical and legal considerations in AI applications, data protection, regulatory compliance, and copyright compliance. These social and governance topics are fairly prevalent in training curricula, but that is not the case with environmental impacts associated with training and usage-based AI energy consumption and emissions. Stakeholders will likely be surprised that their interactions with AI tools, even the prompts they write each day, have direct environmental consequences, which can be mitigated with applied knowledge.

More specifically, the following topics should be included in any responsible and sustainable AI literacy curriculum:

Environmental Responsibility – Given AI's significant computational requirements, the environmental sustainability of AI technologies is becoming an urgent priority. Enterprises must adopt Green AI practices that minimize energy usage and reduce carbon footprints, such as using energy-efficient hardware, optimizing computational processes, and embracing renewable energy solutions within data centers. Promoting and embedding these sustainable practices into AI development cycles will help companies mitigate the environmental impacts associated with scaling AI.

Social Equity and Inclusion – Social sustainability demands that AI systems promote fairness, inclusivity, and equity. Companies must actively work towards eliminating bias from AI-driven decisions, ensuring AI outputs do not reinforce existing inequalities or introduce new ones. This involves diverse and inclusive training data sets, transparent and rigorous testing methodologies, and ongoing education for employees to recognize and correct biases proactively. Additionally, organizations should focus on workforce development, ensuring that reskilling initiatives support equitable transitions as AI transforms job roles.

Governance and Ethical Integrity – Strong governance structures and ethical considerations are paramount in sustaining trust and compliance in AI adoption. Enterprises must ensure AI applications are transparent, explainable, and accountable. Governance models should include clear policies, regular audits, and robust oversight mechanisms to address ethical challenges proactively. These efforts will enable organizations to navigate the evolving regulatory landscape effectively, preserving reputational integrity and stakeholder trust.

What role should IT play in fomenting AI literacy? IT departments possess a comprehensive understanding of how AI systems are developed, deployed, and maintained—knowledge essential for educating internal stakeholders about AI's capabilities, risks, and sustainability impacts. In fact, given their central position at the intersection of data governance, system design, and operational implementation, IT executives are uniquely positioned to guide cross-functional literacy programs that align with enterprise AI frameworks. IT can make certain that training reflects both technical realities and responsible governance practices—helping business units, legal teams, and executive sponsors make informed, ethical, and sustainable decisions. Embedding IT in the design and delivery of literacy programs also facilitates consistency with corporate ESG goals, fosters a culture of accountability, and supports the secure, efficient, and environmentally responsible use of AI technologies across all enterprise functions.

AI Training for Generalists*

Elements of AI (University of Helsinki)

Key Topics: AI basics, applications, limitations, ethics, implications for society.

https://www.elementsofai.com/

AI for Everyone (Coursera – Andrew Ng)

Key Topics: AI concepts for non-technical roles, responsible AI adoption, real-world examples.

https://www.coursera.org/learn/ai-for-everyone

Introduction to Responsible AI (Microsoft AI Business School)

Key Topics: Ethics, transparency, fairness, bias mitigation, and sustainability.

https://www.microsoft.com/en-us/ai/ai-business-school

*Citations are for general reference and do not constitute an endorsement by members or partners of SustainableIT.org.

Enterprise AI Literacy—Mapping to Three Personas

Empowering the Everyday User

The widespread use of AI in various business functions means that employees who are not technical experts will interact with these systems on a regular basis. These AI users need basic knowledge to help them use AI tools safely and effectively. They need a basic understanding of what AI systems can do and what their limitations are. An essential part of this basic knowledge is the skill of prompt engineering—the art and science of formulating effective queries (prompts) to get the desired results from AI systems. Equally important is developing their ability to critically scrutinize AI-driven results and relate them to their own professional knowledge and expertise.

Companies can facilitate this by providing accessible and engaging resources, such as introductory courses that break down complex AI concepts into understandable content and emphasize the fundamentals of prompt engineering and the importance of critically engaging with AI results using clear quality criteria. Workshops tailored specifically to non-technical staff can illustrate practical scenarios that highlight both the benefits and potential pitfalls of using AI and encourage participants to understand AI as a supporting tool whose results depend largely on the quality of their queries and must always be evaluated in the light of their own expertise—taking into account defined quality characteristics such as transparency, traceability and robustness.

In addition, it is crucial to develop key performance indicators (KPIs) that define legitimate requirements for the results of AI processing in terms of accuracy, fairness, and relevance. These KPIs will enable AI users to measurably assess the performance of the systems and make informed decisions about their use in their daily work. They thus become aware of their role as sovereign users who do not blindly accept AI results but actively check and interpret them based on quality criteria and measurable requirements as well as the quality of their own prompts.

Guiding Technical Experts Technical experts and specialists such as data scientists and AI developers hold a pivotal role in shaping how AI technologies are developed and implemented. Their literacy needs are significantly deeper and more specialized. These professionals must comprehend advanced methodologies, including how to create efficient, environmentally friendly algorithms—often referred to as Green AI. Detailed technical training programs, participation in specialized industry forums, and hands-on workshops that provide opportunities to engage with advanced AI tools for bias detection and transparency (such as IBM's AI Fairness 360 and Google's What-If Tool) are essential resources to support this advanced level of literacy.

Equipping Strategic Leaders

For executives and strategic leaders, the literacy required is strategic and visionary in nature. Leaders must grasp not only how AI technologies can reshape their business models but also how to manage associated ESG risks effectively. Understanding emerging regulations and governance frameworks is critical, ensuring that the enterprise remains compliant and ethical in its AI adoption. Educational resources for this group might include executive seminars or certifications in AI governance from prestigious institutions like MIT Sloan or Harvard Business School. Leaders benefit immensely from strategic insights provided by respected entities such as the World Economic Forum and Gartner. Scenario planning and workshops designed specifically for executives can help them visualize long-term implications and align AI strategy closely with corporate sustainability goals.

Training for AI Experts & Specialists

AI Ethics: Global Perspectives (Coursera – IBM)

Key Topics: Fairness, transparency, explainability, bias detection and mitigation.

https://aiethicscourse.org/

Machine Learning Engineering for Production (MLOps) Specialization (Coursera – DeepLearning.AI)

Key Topics: Model lifecycle management, sustainable resource use, governance, responsible deployment.

https://www.coursera.org/specializations/machine-learning-engineering-for-production-mlops

Building Fair AI Systems (IBM SkillsBuild)

Key Topics: Technical frameworks and tools (e.g., IBM AI Fairness 360), fairness and bias mitigation, responsible AI development practices.

https://skillsbuild.org/

Green Software Practitioner Course (Green Software Foundation)

Key Topics: Sustainable computing principles, Green AI practices, reducing energy use and emissions from AI workloads.

https://greensoftware.foundation/training

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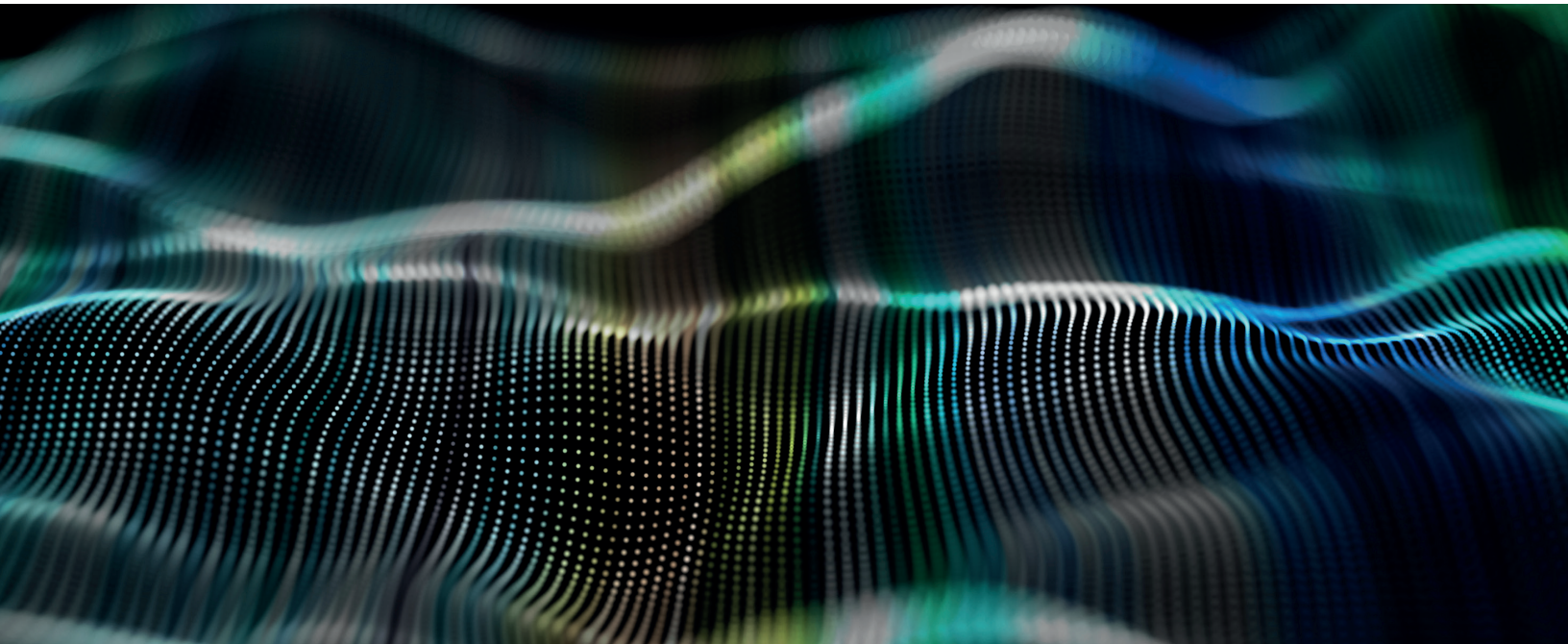
Training for AI Sponsors & Executives*

Artificial Intelligence: Implications for Business Strategy (MIT Sloan Executive Education)

Key Topics: AI-driven business strategy, sustainability alignment, governance, and risk management.

https://info.mit-online.getsmarter.com/

AI Leadership for Business Executives (Udacity Executive Program)

Key Topics: Strategic AI deployment, sustainability and ethical considerations, governance structures.

https://www.udacity.com/course/ai-for-business-leaders--nd054

Oxford Artificial Intelligence Programme (Saïd Business School, University of Oxford)

Key Topics: Strategic management of AI, ESG implications, governance, regulatory landscape.

https://www.sbs.ox.ac.uk/programmes/executive-education/online-programmes/oxford-artificial-intelligence-programme

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While AI literacy should be organized by curricula topics (ESG) and personas, it is also important to tie training into the organization's prevailing AI framework which defines the enterprise's approach and principles for responsible AI governance. That way, the literacy program, and even individual training modules will have context for why they are being taught and to what end. SustainableIT.org's **AI Leadership Framework and Principles** are simple and tailored for ESG sustainability and circular lifecycle governance. It is available in the Toolkit. The matrix below maps personas and relevant topics to the "Three-R" Framework—Reflect, Reframe, and Reimagine.

"**Reflect**" asks for consideration of the intended uses and desired outcomes of AI applications, assessing potential positive and negative impacts to business stakeholders, strategies, goals, and commitments. AI training topics should emphasize awareness, the better to reflect on potential impacts.

"**Reframe**" suggests a restructuring of governance rules, processes, roles, and skill sets—as well as enterprise operations and architecture—to maximize AI benefits and minimize potential risks. AI training topics should emphasize thoughtful integration of AI tools into business processes and tasks, leveraging awareness to develop, deploy, and apply AI tools in the most responsible and sustainable ways.

"**Reimagine**" invites the organization to create value by leveraging AI's unique capabilities to design new processes, products, experiences, and relationships—expanding human potential and unlocking transformative opportunities, leveraging AI sustainability awareness and responsible integration to ensure that resulting innovations align with environmental, social, ethical, and governance standards.

AI Literacy Topics by Persona and Three-R Leadership Framework

Persona	Reflect: AI & Sustainability Awareness	Reframe: Responsible AI Integration	Reimagine: Future-Focused AI Innovation
AI Generalists	Basic AI concepts and limitations AI's ESG impacts (energy use, carbon emissions, biases) jpt.spe.org How GenAI may affect jobs and equity in society—Company's AI ethics policies and sustainability goals Understanding the risks emerging at the intersection of AI and Copyright and how to manage them.	How AI can improve or streamline their tasks ethically Following guidelines for responsible AI use (data privacy, avoiding bias) Adapting workflows to include human oversight of AI Communicating issues (e.g. flagging biased outputs)	How their roles might evolve with AI co-working New opportunities to apply AI for positive impact (e.g., automating tedious tasks to focus on creative work) Continuous learning mindset to keep up with AI tools Being an "AI advocate" for sustainable practices in their team
AI Experts/Specialists	Deeper understanding of AI's environmental footprint (e.g., carbon cost of model training) news.mit.edu AI ethics & fairness issues (bias in data/models) nvlpubs.nist.gov Regulatory and compliance basics (AI regulations, data laws, copyright and other IP laws) Company's responsible AI standards and ESG commitments	Design and development practices for responsible AI (fairness, transparency, privacy by design) nvlpubs.nist.gov Efficient ML techniques (model optimization, Green AI) to cut energy use news.mit.edu AI governance processes (model documentation, review, audit trails) Cross-functional collaboration (work with domain experts, ethicists) in AI projects Copyright compliance and risk management	Emerging tech and methods (privacy-preserving ML, federated learning, etc.) for sustainable AI Innovative applications of AI for ESG (e.g. AI for climate analytics, inclusive services) Foresight on AI trends (next-gen models, regulations) to future-proof systems Mentoring others and shaping company R&D directions toward "AI for Good"
AI Sponsors/Executives	Strategic overview of AI capabilities and limitations ESG risks and opportunities of AI (carbon footprint, social impact on workforce and customers) nvlpubs.nist.govnvlpubs.nist.gov Case studies of AI failures (ethical or reputational) and successes in industry Landscape of AI governance standards (e.g. OECD or NIST principles) and relevant regulations	Integrating AI into business strategy and processes safely (governance frameworks, risk controls) nvlpubs.nist.gov Change management for AI adoption (reskilling workforce, updating policies) Ensuring responsible AI governance: oversight committees, audit mechanisms, alignment with corporate values Balancing innovation with compliance (e.g. approving AI projects that meet ethics criteria)	Vision for AI-driven business models that align with sustainability (e.g. AI-enabled products that reduce waste) Long-term workforce planning (new roles, retraining programs for AI age) Ecosystem building: partnerships in AI ethics and sustainability, influencing industry standards Continuous learning via executive courses or futurist briefings to steer the company in the AI era

The North Star for AI Literacy Programs—
The UN Sustainable Development Goals

Responsible AI, IT sustainability, ESG—all trace their routes and foundations in the same source, the Sustainable Development Goals of the United Nations. Many people are not familiar with the 17 SDGs. Even those that have heard of the Goals likely don't appreciate how their engagement with AI and IT in general bear upon them.

The United Nations Sustainable Development Goals are a universal set of 17 interlinked goals adopted in 2015 by all UN Member States as part of the 2030 Agenda for Sustainable Development. They are designed to address the world's most urgent economic, social, and environmental challenges, aiming to end poverty, protect the planet, and ensure peace and prosperity for all. Each goal is supported by specific targets and indicators to monitor progress toward a more sustainable and equitable world by the year 2030.

AI literacy programs would do well to step back and map responsible AI goals and characteristics to the relevant 17 SDGs. This will give people in all organization personas a sense of their impact on the bigger picture and an understanding that responsible AI governance transcends employee, department, or company.

The 17 SDGs:

1. **No Poverty** – End poverty in all its forms everywhere.

2. **Zero Hunger** – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.

3. **Good Health and Well-being** – Ensure healthy lives and promote well-being for all at all ages.

4. **Quality Education** – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

5. **Gender Equality** – Achieve gender equality and empower all women and girls.

6. **Clean Water and Sanitation** – Ensure availability and sustainable management of water and sanitation for all.

7. **Affordable and Clean Energy** – Ensure access to affordable, reliable, sustainable, and modern energy for all.

8. **Decent Work and Economic Growth** – Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.

9. **Industry, Innovation and Infrastructure** – Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.

10. **Reduced Inequalities** – Reduce inequality within and among countries.

11. **Sustainable Cities and Communities** – Make cities and human settlements inclusive, safe, resilient, and sustainable.

12. **Responsible Consumption and Production** – Ensure sustainable consumption and production patterns.

13. **Climate Action** – Take urgent action to combat climate change and its impacts.

14. **Life Below Water** – Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.

15. **Life on Land** – Protect, restore, and promote sustainable use of terrestrial ecosystems, manage forests, combat desertification, and halt biodiversity loss.

16. **Peace, Justice and Strong Institutions** – Promote peaceful and inclusive societies, provide access to justice for all, and build effective, accountable institutions at all levels.

17. **Partnerships for the Goals** – Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Anticipated impacts of responsible AI goals and actions map directly to many of the SDGs. The most fundamental connection is AI security and user safety, which aligns to SDG 5, 9, 11, and 16. Characteristics and actions driving AI security and user safety include:

- **Robustness of AI Frameworks** – The degree to which the AI solution is designed to withstand and adapt to potential threats and vulnerabilities.

- **User Safety Assurance** – Clear evidence of measures taken to protect the physical, digital, and psychological safety of users.

- **Reliability and Consistency** – The AI solution's ability to perform consistently under different conditions and over time without failure.

- **Compliance with Standards** – Adherence to industry standards, regulations, and best practices in AI safety and security.

The Equity and Inclusion characteristics of responsible AI focus on the integration of ethical principles into the development and application of AI technologies. Associated actions especially affect "social sustainability" SDGs such as 1,2,4,5,10, and 17. Relevant actions include:

1. **Bias and Discrimination Identification** – Promoting AI systems that actively work to identify and mitigate biases that may lead to discriminatory outcomes based on race, gender, socioeconomic status, or other characteristics. It recognizes efforts to create AI models that are unbiased and free from harmful stereotypes.

2. **Access and Representation** – Supporting AI initiatives that ensure diverse communities, especially marginalized or underserved groups, have equal access to AI technologies and benefits. This may include providing tools and resources for these groups or involving them in AI development processes to ensure their needs and perspectives are incorporated.

3. **Diverse Participation in AI** – Encouraging diversity in the teams developing AI, from researchers to engineers and decision-makers. This involves fostering inclusive environments where people of different backgrounds, identities, and experiences can contribute to the field of AI, helping create more holistic and representative systems.

4. **Trust and Accountability** – Establishing transparent and accountable practices to ensure that AI systems are used ethically and in a manner that supports equity. This could involve clear communication of how AI models make decisions and how they can be challenged or adjusted to correct inequities.

5. **Community Empowerment and Social Good** – Focusing on the broader social impact of AI by creating technologies that empower disadvantaged communities. This may include the development of AI solutions for education, healthcare, or public services that aim to reduce disparities and promote social and economic equity.

AI equity and inclusion ultimately emphasizes the responsibility of AI creators to build systems that not only advance technological progress but also contribute to a more just and inclusive society, ensuring that the benefits of AI are shared by all.

"Environmental Stewardship" in the context of AI refers to the intentional and ethical application of AI technologies to promote and enhance environmental sustainability. Stakeholder actions that mitigate AI's non-renewable energy consumption and emissions, water consumption, and e-waste, align to SDG #'s 6,7,11,12,13,14,15, and 17.

Besides mitigation practices, stakeholders should also learn how AI can address critical environmental challenges such as climate change, resource conservation, pollution control, and the preservation of biodiversity. Responsible AI governance can make certain that systems are designed, developed, and deployed with a focus on long-term ecological balance. Examples of AI-based environmental stewardship include the following:

1. **AI for Climate Change Mitigation** – AI-driven predictive models are used to forecast climate patterns, assess risks related to extreme weather events, and optimize carbon capture and storage systems. For example, AI algorithms can help identify the most efficient locations for renewable energy installations, such as wind and solar farms, to reduce reliance on fossil fuels.

2. **Smart Grid Management** – AI-powered smart grids enable the optimization of energy distribution, balancing supply and demand in real-time while reducing energy waste. This contributes to energy efficiency and the integration of renewable energy sources, such as solar and wind, into the grid, promoting a sustainable energy future.

3. **Precision Agriculture** – AI-powered technologies are used to optimize farming practices by analyzing soil health, weather data, and crop performance. This leads to more efficient water usage, reduced pesticide and fertilizer application, and higher crop yields, all contributing to sustainable food production and reduced environmental impact.

4. **Wildlife Conservation** – AI tools are increasingly being used to track wildlife populations, analyze ecosystems, and detect illegal activities such as poaching or deforestation. For example, AI-driven camera traps can automatically identify animal species and monitor their movements, helping conservationists protect endangered species and their habitats.

5. **Waste Management and Recycling** – AI is applied to improve recycling processes by using machine learning to identify and sort recyclable materials more efficiently. AI-driven robots can scan and separate different types of waste, improving recycling rates and reducing landfill waste.

6. **Sustainable Supply Chains** – AI can help businesses optimize their supply chains by predicting demand, reducing transportation emissions, and selecting more sustainable materials. AI can also assess environmental risks within supply chains, enabling businesses to make data-driven decisions to minimize environmental impacts.

7. **Marine and Waterway Health** – AI systems can track ocean plastic, monitor water quality, and support ocean cleanup activities such as AI-powersed systems to collect marine debris.

Achieving Strategic Advantage through AI Literacy

Organizations investing in comprehensive AI literacy are strategically positioning themselves to gain multiple competitive advantages. Enhanced literacy leads to more innovative, responsible, and ethical uses of AI technology, strengthening organizational resilience, compliance, and stakeholder trust. Moreover, such literacy aligns AI initiatives closely with corporate sustainability commitments, amplifying long-term benefits and ensuring sustained growth.

Also, there is substantial benefit from avoidance of regulatory violations or noncompliance. For example, within the persona levels, there are roles that require specific considerations for AI literacy training. Copyright and legal professionals may require specialized training specific to their responsibilities and use of AI across the enterprise. These individuals can then repay this investment by training others in their personal group on how to manage risks associated with the use and creation of AI tools, complying with regulatory requirements and potentially shrinking company risk exposure.

Without question, risk awareness and acknowledgement of AI vulnerabilities must be embedded in AI training for all personnel. Resources such as the **EU AI Act**, **NIST AI** and **ISO AI** offer regulations and standards that can offer beneficial information for training. Whether built into enterprise-wide IT security training or integrated into AI specific training programs, the potential impacts of negative AI initiatives and defensive strategy training should pay dividends.

The core principles of sustainability, equity, and governance are foundational to the responsible implementation of AI, and literacy is the key to integrating these values into organizational practices. By making education a priority at all levels, businesses can ensure that their use of AI aligns with goals of innovation, regulatory compliance, and long-term societal benefits, positioning them as leaders with both advanced capabilities and ethical integrity.

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About SustainableIT.org

Vision

Advancing global sustainability through technology leadership.

Mission

Our mission is to unite the world's largest community of technology and sustainability leaders to define sustainability transformation programs, author best practices and frameworks, set standards and certifications for governance, provide education and training, and raise awareness for IT-centric ESG programs that make their organizations and the world sustainable for generations to come.

Mandates

Best Practices, Research and Standards

Identify sustainable digital transformation programs by industry. Research and define best practices, frameworks, and standards for all three pillars of sustainability (environmental, societal, and governance) for IT departments and organizations.

Global Awareness and Recognition

Promote sustainable digital transformation programs and advances in sustainability. Raise awareness through local, regional, and global awards, as well as through social media, publications, and public relations.

Community, Education and Training

Build local and regional communities for technology leaders to advance sustainability. Develop education and training programs for IT leadership and professionals for all three pillars of sustainability.

Transparency and Accountability

Set standards for metrics and reporting to enable transparency and accountability. Create certification programs for individuals and organizations with rights to use our sustainability emblem.

About SustainableIT.org

SustainableIT.org is a Delaware 501(c)(6) nonprofit, non-stock legal entity led by technology executives who will advance global sustainability through technology leadership. Our mission is to define sustainable transformation programs, author best practices and frameworks, set standards and certifications, provide education and training, and raise awareness for environmental and societal programs that make our organizations and the world sustainable for generations to come.
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