EXPLAINER

What is AI ethics?

AI ethics refers to the principles that govern AI's behavior in terms of human values. AI ethics helps ensure that AI is developed and used in ways that are beneficial to society. It encompasses a broad range of considerations, including fairness, transparency, accountability, privacy, security, and the potential societal impacts.

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AI

Authorities on AI ethics

Introduction to AI ethics

Imagine an AI system that predicts the likelihood of future criminal behavior and is used by judges to determine sentencing lengths. What happens if this system disproportionately targets certain demographic groups?

AI ethics is a force for good that helps mitigate unfair biases, removes barriers to accessibility, and augments creativity, among many other benefits. As organizations increasingly rely on AI for decisions that impact human lives, it's critical that they consider the complex ethical implications because misusing AI can cause harm to individuals and society—and to businesses' bottom lines and reputations.

In this article, we'll explore:

- Common AI ethics principles, terms, and definitions
- Creating ethical AI principles for an organization
- Who's responsible for AI ethics
- Implementing AI ethics training, governance, and technical processes
- Ethical AI use cases and implementations
- Some leading authorities on the ethics of AI

Examples of ethical AI principles

The well-being of people is at the center of any discussion about the ethics of AI. While AI systems can be designed to prioritize morality and ethics, humans are ultimately responsible for ensuring ethical design and use—and to intervene when necessary.

There's no single, universally agreed-upon set of ethical AI principles. Many organizations and government agencies consult with experts in ethics, law, and AI to create their guiding principles. These principles commonly address:

- **Human wellbeing and dignity:** AI systems should always prioritize and ensure the wellbeing, safety, and dignity of individuals, neither replacing humans nor compromising human welfare
- **Human oversight:** AI needs human monitoring at every stage of development and use—sometimes called "a human in the loop"—to ensure that ultimate ethical responsibility rests with a human being
- **Addressing bias and discrimination:** Design processes should prioritize fairness, equality, and representation to mitigate bias and discrimination
- **Transparency and explainability:** How AI models make specific decisions and produce specific results should be transparent and explainable in clear language
- **Upholding data privacy and protection:** AI systems must meet the most stringent data privacy and protection standards, using robust cybersecurity methods to avoid data breaches and unauthorized access
- **Promoting inclusivity and diversity:** AI technologies need to reflect and respect the vast range of human identities and experiences

- **Society and economies:** AI should help drive societal advancement and economic prosperity for all people, without fostering inequality or unfair practices
- **Enhancing digital skills and literacy:** AI technologies should strive to be accessible and understandable to everyone, regardless of a person's digital skills
- **The health of businesses:** AI business technologies should accelerate processes, maximize efficiency, and promote growth

AI ethics terms and definitions

As an intersection of ethics and high technology, conversations about ethical AI often use vocabulary from both fields. Understanding this vocabulary is important for being able to discuss the ethics of AI:

- **AI**: The ability of a machine to perform cognitive functions we associate with human minds, such as perceiving, reasoning, learning, and problem solving. There are two main types of AI systems, and some systems are a combination of both:
    - **Rule-based AI**, also called **expert AI**, behaves according to a set of fully defined rules created by human experts—as an example, many e-commerce platforms use rule-based AI to provide product recommendations
    - **Learning-based AI** solves problems and adapts its functionality on its own, based on its initial human-designed configuration and training dataset—generative AI tools are examples of learning-based AI

AI ethics: A set of values, principles, and techniques that employ widely accepted standards of right and wrong to guide moral conduct in the development, deployment, use, and sale of AI technologies.

AI model: A mathematical framework created by people and trained on data that enables AI systems to perform certain tasks by identifying patterns, making decisions, and predicting outcomes. Common uses include image recognition and language translation, among many others.

AI system: A complex structure of algorithms and models designed to mimic human reasoning and perform tasks autonomously.

Agency: The capacity of individuals to act independently and to make free choices.

Bias: An inclination or prejudice for or against a person or group, especially in a way considered to be unfair. Biases in training data—such as the under- or over-representation of data pertaining to a certain group—can cause AI to act in biased ways.

Explainability: The ability to answer the question, "What did the machine do to reach its output?" Explainability refers to the technological context of the AI system, such as its mechanics, rules and algorithms, and training data.

Fairness: Impartial and just treatment or behavior without unjust favoritism or discrimination.

Human-in-the-loop: The ability of human beings to intervene in every decision cycle of an AI system.

Interpretability: The ability for people to understand the real-life context and impact of an AI system's output, such as when AI is used to help make a decision about approving or rejecting a loan application.

Large language model (LLM): A type of machine learning often used in text recognition and generation tasks.

Machine learning: A subset of AI that provides systems the ability to automatically learn, improve from experience, and adapt to new data without being explicitly programmed to do so.

Normative: A key context of practical ethics concerned with what people and institutions "should" or "ought" to do in particular situations.

Transparency: Related to explainability, transparency is the ability to justify how and why an AI system is developed, implemented, and used, and to make that information visible and understandable to people.

How to implement principles for AI ethics

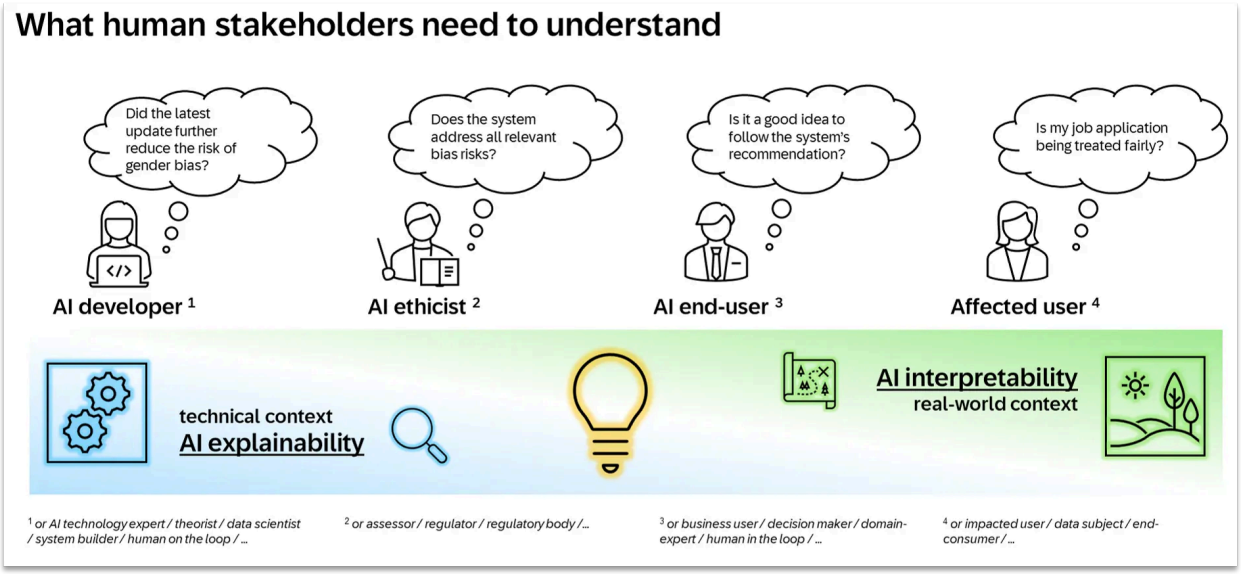
For organizations, there's more to using AI ethically than just adopting ethical principles; these principles must be integrated into all technical and operational AI processes. While integrating ethics might seem cumbersome for organizations rapidly adopting AI, real-world cases of harm caused by issues in AI model designs and usage show that neglecting proper ethics can be risky and costly.

Who's responsible for AI ethics?

The short answer: everyone who's involved in AI, including businesses, governments, consumers, and citizens.

The different roles of different people in AI ethics

- **Developers and researchers** play a crucial role in creating AI systems which prioritize human agency and oversight, address bias and discrimination, and are transparent and explainable.
- **Policymakers and regulators** establish laws and regulations to govern the ethical use of AI and protect individuals' rights.
- **Business and industry leaders** ensure their organizations adopt ethical AI principles so that they're using AI in ways that contribute positively to society.
- **Civil society organizations** advocate for the ethical use of AI, play a role in oversight, and provide support for affected communities.
- **Academic institutions** contribute through education, research, and the development of ethical guidelines.
- **End users and affected users**, like consumers and citizens, have a stake in ensuring that AI systems are explainable, interpretable, fair, transparent, and beneficial to society.



Learn more about Artificial Intelligence and Machine Learning

The role of business leaders in AI ethics

Many businesses establish committees led by their senior leaders to shape their AI governance policies. For instance, at SAP, we formed an advisory panel and an AI ethics steering committee, consisting of ethics and technology experts, to integrate our ethical AI principles throughout our products and operations. These principles prioritize:

- Proportionality and doing no harm
- Safety and security
- Fairness and non-discrimination

- Sustainability
- Right to privacy and data protection
- Human oversight and determination
- Transparency and explainability
- Responsibility and accountability
- Awareness and technical literacy
- Multistakeholder and adaptive governance and collaboration

Forming an AI ethics steering committee

Establishing a steering committee is vital for managing an organization's approach to the ethics of AI and provides top-level accountability and oversight. This committee ensures ethical considerations are woven into AI development and deployment.

Best practices for forming an AI ethics steering committee

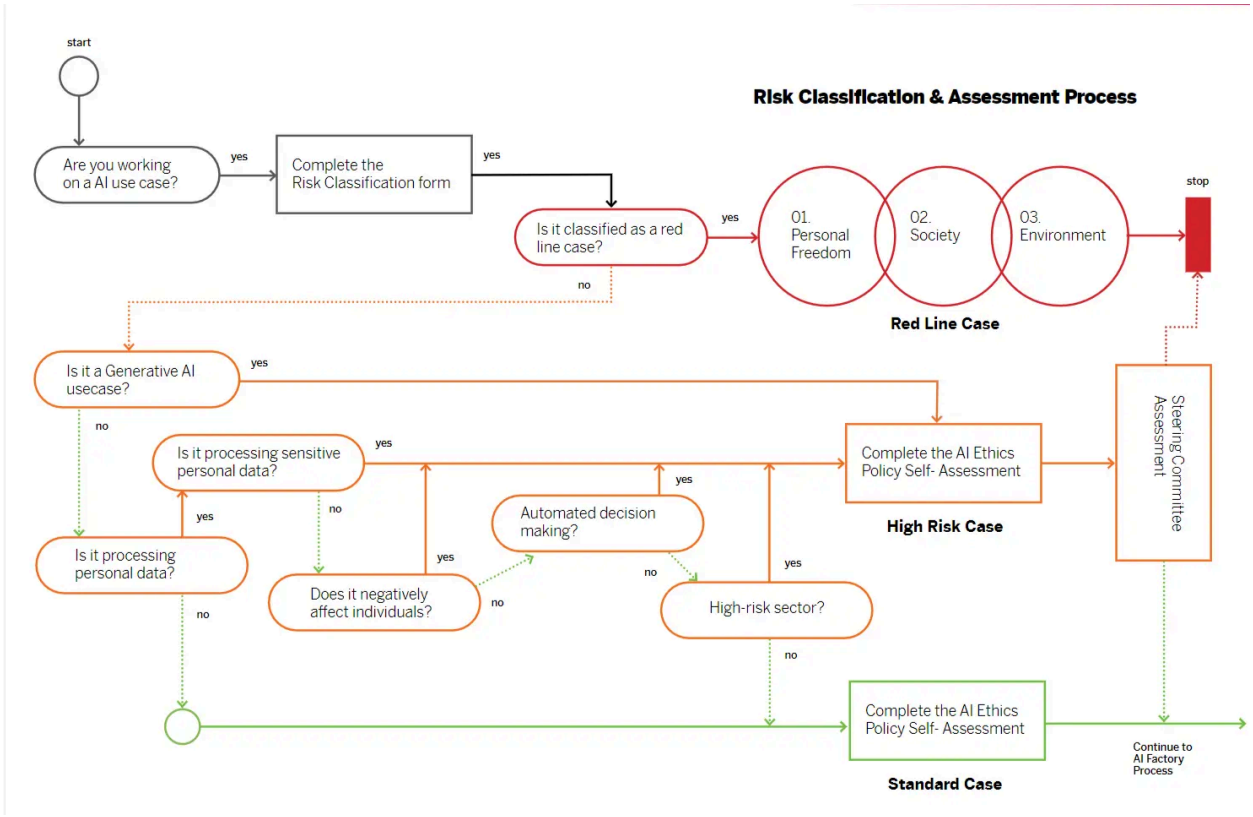
- **Composition and expertise**: Include a diverse mix of stakeholders with expertise in AI, law, and ethics. External advisors can offer unbiased perspectives.
- **Defining the purpose and scope**: Clearly define the committee's mission and objectives, focusing on ethical AI design, implementation, and operation. This should align with the company values, fairness, transparency, and privacy.
- **Defining roles and responsibilities**: Outline specific roles for the members, such as developing AI ethics policies, advising on ethics concerns in AI projects, and ensuring compliance with regulations.
- **Setting objectives**: Set clear, measurable goals like conducting an annual ethics audit of AI projects and offering quarterly ethical AI training.
- **Creating procedures**: Establish operational procedures, including meeting schedules, documentation standards, and communication protocols to maintain transparency.
- **Ongoing education and adaptation**: Keep abreast of new developments in AI technology, ethical standards, and regulations through regular training and conferences.

Creating an AI ethics policy

Developing an AI ethics policy is essential for guiding AI initiatives within an organization. The steering committee is critical in this process, using its diverse expertise to ensure the policy adheres to laws, standards, and broader ethical principles.

Example approach for creating an AI ethics policy

- **Drafting the initial policy:** Begin by drafting a policy that mirrors the organization's core values, legal requirements, and best practices. This initial draft will serve as the basis for further refinement.
- **Consultation and input:** Engage with internal and external stakeholders, including AI developers, business leaders, and ethicists, to make the policy comprehensive and representative of multiple perspectives.
- **Integration of interdisciplinary insights:** Utilize the varied backgrounds of committee members to incorporate insights from technology, ethics, law, and business to address the complex aspects of AI ethics.
- **Defining high-risk and red-line use cases:** To ensure clarity, the committee should outline which AI applications pose significant risks or are considered unethical and, therefore, prohibited. The SAP Steering Committee, for example, categorizes these as:
    - **High-risk:** This category includes applications that can be harmful in any way, and includes applications related to law enforcement, migration, and democratic processes—as well as those involving personal data, automated decision-making, or impacting social well-being. These must undergo thorough assessment by the committee before development, deployment, or sale.
    - **Red line:** Applications enabling human surveillance, discrimination, deanonymization of data leading to individual or group identification, or those manipulating public opinion or undermining democratic debates are banned. SAP deems these uses highly unethical and prohibits their development, deployment, and sale.
- **Review and revisions:** Continuously review and revise the policy based on feedback, ensuring it remains relevant and practical for the real world.
- **Finalization and approval:** Submit the completed policy for final approval by decision-makers, such as the board of directors, backed by a strong recommendation from the committee.
- **Implementation and ongoing oversight:** The committee should monitor the policy's implementation and periodically update it to reflect new technological and ethical developments.



See the SAP AI Ethics Handbook

Establishing a compliance review process

Developing effective compliance review processes is essential to ensure AI deployments adhere to the organization's AI ethics policies and regulations. These processes help build trust with users and regulators and serve to mitigate risks and uphold ethical practices across AI projects.

Typical compliance review processes

- **Develop a standardized review framework**: Formulate a comprehensive framework that defines procedures for assessing AI projects against ethical guidelines, legal standards, and operational requirements.
- **Risk classification**: Classify AI projects by their ethical and regulatory risks. High-risk projects, such as those handling sensitive personal data or with significant decision-making impacts, require a high degree of scrutiny.
- **Regular audits and assessments**: Perform regular audits to verify ongoing compliance, involving both automated checks and manual reviews by interdisciplinary teams.
- **Stakeholder involvement**: Engage a diverse group of stakeholders in the review process, including ethicists, legal experts, data scientists, and end-users, to spot potential risks and ethical dilemmas.

- **Documentation and transparency**: Keep detailed records of all compliance activities, ensuring they are accessible and clear for both internal and external audits
- **Feedback and escalation mechanisms**: Implement clear procedures for reporting and addressing ethical concerns and compliance issues

Technical implementation of AI ethics practices

Integrating ethical considerations into AI development involves adapting current technology practices to ensure systems are built and deployed responsibly. In addition to establishing ethical AI principles, organizations sometimes also create responsible AI principles, which can be more focused on their specific industry and technical use cases.

Key technical requirements for ethical AI systems

Bias detection and mitigation: Use diverse data sets and statistical methods to detect and correct biases in AI models. Conduct regular audits to monitor bias.

Transparency and explainability: Develop systems that users can easily understand and verify, employing methods like feature importance scores, decision trees, and model-agnostic explanations to improve transparency.

Data privacy and security: Ensure data in AI systems is securely managed and complies with privacy laws. Systems must use encryption, anonymization, and secure protocols to safeguard data integrity.

Robust and reliable design: AI systems must be durable and reliable under various conditions, incorporating extensive testing and validation to handle unexpected scenarios effectively.

Continuous monitoring and updating: Maintain ongoing monitoring to assess AI performance and ethical compliance, updating systems as needed based on new data or changes in conditions.

Stakeholder engagement and feedback: Involve stakeholders, such as end-users, ethicists, and domain experts, in the design and development processes to collect feedback and ensure the system aligns with ethical and operational requirements.

Training the organization in the ethics of AI

Comprehensive training is crucial to ensuring that employees understand AI ethics and can responsibly work with AI technologies. Training also serves to enhance the integrity and effectiveness of the organizations' AI tools and solutions.

Key components of an effective AI training curriculum

- **Comprehensive curriculum development**: Use a training curriculum that addresses AI basics, ethical considerations, compliance issues, and practical applications, tailored to different organizational roles from technical staff to executive management.
- **Role-specific training modules**: Provide training modules customized to the unique needs and responsibilities of various departments. For instance, developers might focus on ethical coding practices, while sales and marketing teams learn about AI's implications in customer interactions.
- **Continuous learning and updates**: AI is evolving rapidly, so it's important to keep training programs up to date with the latest developments and best practices.
- **Interactive and practical learning experiences**: Use case studies, simulations, and workshops to illustrate real-world applications and ethical challenges to support theoretical knowledge with practical experience.
- **Assessment and certification**: Conduct assessments to gauge employees' understanding and proficiency in the ethics of AI and consider offering certification to recognize and motivate continuous improvement.
- **Feedback mechanisms**: Set up feedback channels for employees to contribute to the ongoing refinement of training programs, ensuring they meet the evolving needs of the organization.

AI ethics use cases for different roles in the organization

Everyone in an organization that works with AI-powered applications, or with AI answer engines, should be cautious for the risk of ai bias and work responsibly. Examples of AI ethics use cases for different roles or departments in corporate businesses are:

- **Data scientists or machine learning engineers**: In these roles, it is recommended to incorporate methods for bias detection and mitigation, ensuring model explainability, and enhancing model. This involves techniques like fairness metrics and counterfactual analysis.
- **Product managers or business analysts**: AI ethic-related responsibilities can vary from ethical risk assessments, prioritizing user-centered design, and developing clear communication strategies to explain AI systems to users and stakeholders. This involves considering potential societal impacts, user needs, and building trust through transparency.
- **Legal & compliance department**: Critical use cases are compliance with relevant regulations (e.g., data privacy laws), managing legal and reputational risks associated with AI, and developing strategies to mitigate liabilities arising from algorithmic bias or unintended consequences
- **HR professionals**: The HR department should work with AI-powered recruitment tools that are free from bias and comply with anti-discrimination laws. Tasks involve

auditing algorithms, implementing human-in-the-loop systems, and providing training on ethical AI recruitment practices.

Authorities on AI ethics

AI ethics is complex, shaped by evolving regulations, legal standards, industry practices, and technological advancements. Organizations must stay up to date on policy changes that may impact them—and they should work with relevant stakeholders to determine which policies apply to them. The list below is not exhaustive but provides a sense of the range of policy resources organizations should seek out based on their industry and region.

Examples of AI ethics authorities and resources

ACET Artificial Intelligence for Economic Policymaking report: This research study by the African Center for Economic Transformation assesses the economic and ethical considerations of AI for the purpose of informing inclusive and sustainable economic, financial, and industrial policies across Africa.

AlgorithmWatch: A human rights organization that advocates and develops tools for the creation and use of algorithmic systems which protect democracy, the rule of law, freedom, autonomy, justice, and equality.

ASEAN Guide on AI Governance and Ethics: A practical guide for member states in the Association of Southeast Asian Nations to design, develop, and deploy AI technologies ethically and productively.

European Commission AI Watch: The European Commission's Joint Research Centre provides guidance for creating trustworthy AI systems, including country-specific reports and dashboards to help monitor the development, uptake, and impact of AI for Europe

NTIA AI Accountability Report: This National Telecommunications and Information Administration report proposes voluntary, regulatory, and other measures to help ensure legal and trustworthy AI systems in the United States.

OECD AI Principles: This forum of countries and stakeholder groups works to shape trustworthy AI. In 2019, it facilitated the OECD AI Principles, the first intergovernmental standard on AI. These principles also served as the basis for the G20 AI Principles.

UNESCO Recommendation on the Ethics of Artificial Intelligence: This United Nations agency's recommendation framework was adopted by 193 member states after a two-year global consultation process with experts and stakeholders.