

Google

AI Principles

Our approach to building beneficial AI

Our approach to developing and harnessing the potential of AI is grounded in our founding mission — to organize the world’s information and make it universally accessible and useful. We believe [our approach](#) to AI must be both bold and responsible. Bold in rapidly innovating and deploying AI in groundbreaking products used by and benefiting people everywhere, contributing to scientific advances that deepen our understanding of the world, and helping humanity address its most pressing challenges and opportunities. And responsible in developing and deploying AI that addresses both user needs and broader responsibilities, while safeguarding user safety, security, and privacy.

We approach this work together, by collaborating with a broad range of partners to make breakthroughs and maximize the broad benefits of AI, while empowering others to build their own solutions.

Our approach to AI is grounded in these three principles:

1 **Bold innovation**

We develop AI that assists, empowers, and inspires people in almost every field of human endeavor; drives economic progress; and improves lives, enables scientific breakthroughs, and helps address humanity’s biggest challenges. This means:

- Developing and deploying models and applications where the likely overall benefits substantially outweigh the foreseeable risks.
- Advancing the frontier of AI research and innovation through rigorous application of the scientific method, rapid iteration, and open inquiry.
- Using AI to accelerate scientific discovery and breakthroughs in areas like biology, medicine, chemistry, physics, and mathematics.
- Focusing on solving real world problems, measuring the tangible outcomes of our work, and making breakthroughs broadly available, enabling humanity to achieve its most ambitious and beneficial goals.

2 Responsible development and deployment

Because we understand that AI, as a still-emerging transformative technology, poses evolving complexities and risks, we pursue AI responsibly throughout the AI development and deployment lifecycle, from design to testing to deployment to iteration, learning as AI advances and uses evolve. This means:

- Implementing appropriate human oversight, due diligence, and feedback mechanisms to align with user goals, social responsibility, and widely accepted principles of international law and human rights.
- Investing in industry-leading approaches to advance safety and security research and benchmarks, pioneering technical solutions to address risks, and sharing our learnings with the ecosystem.
- Employing rigorous design, testing, monitoring, and safeguards to mitigate unintended or harmful outcomes and avoid unfair bias.
- Promoting privacy and security, and respecting intellectual property rights.

3 Collaborative progress, together

We make tools that empower others to harness AI for individual and collective benefit. This means:

- Developing AI as a foundational technology capable of driving creativity, productivity, and innovation across a wide array of fields, and also as a tool that enables others to innovate boldly.
- Collaborating with researchers across industry and academia to make breakthroughs in AI, while engaging with governments and civil society to address challenges that can't be solved by any single stakeholder.
- Fostering and enabling a vibrant ecosystem that empowers others to build innovative tools and solutions and contribute to progress in the field.

Responsible AI

AI is transforming industries
and solving important,
real-world challenges at scale.
This vast opportunity carries
with it a deep responsibility to
build AI that works for everyone.



Staying ahead of the curve:
The business case for
responsible AI

[Read the report](#)

How values-based AI is good for your business

Safer and more accountable products

Advanced technologies are most successful when everyone can benefit from them. Evaluating your AI systems, both when they perform as intended and when they don't, is crucial to building accountable products.

Earn and keep your customers' trust

Lack of trust in AI systems is a growing barrier to adoption in enterprise with more organizations selecting enterprise products based on AI commitments and practices. A responsible AI approach earns trust.

A culture of responsible innovation

Empowering AI decision-makers and developers to take ethical considerations into account enables them to find new, innovative ways to drive your mission forward.

Learn more about our [perspectives on issues and AI governance](#) at Google and how we work to [build responsible AI for everyone](#).

Key features

Google Cloud's approach to responsible AI

AI Principles

Since 2018, Google's [AI Principles](#) have served as a living constitution, keeping us motivated by a common purpose. Our center of excellence, the Responsible Innovation team,

guides how we put these principles to work company-wide, and informs Google Cloud's approach to building advanced technologies, conducting research, and drafting our policies.

Putting principles into practice

Rigorous evaluations are a critical component of building successful AI. To drive alignment with our AI Principles at Google Cloud, two diverse review bodies undertake deep ethical analyses and risk and opportunity assessments for any technology product we build and early-stage deals involving custom work. [Learn more](#).

Tools and education

Responsible AI tools are an increasingly effective way to inspect and understand AI models. We're building resources like [Explainable AI](#), [Model Cards](#), and the [TensorFlow open-source toolkit](#) to provide model transparency in a structured, accessible way. We share what we're learning through [Responsible AI practices](#), [fairness best practices](#), [technical references](#) and [tech ethics](#) materials.

Ready to get started? Contact
responsible-ai@google.com

Ethics by design



Increasing
transparency with
Google Cloud
Explainable AI

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Google Cloud's
responsible approach
to facial recognition
with Celebrity
Recognition

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Ethics in action:
removing gender labels
from Google Cloud's
Vision API

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Responsible AI

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[Blog post](#)

Collaborating on a new COVID-19 forecasting model

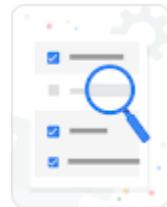
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Blog post

Taking care of business with Responsible AI

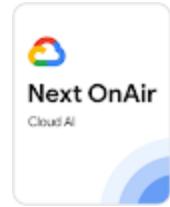
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Report

Staying ahead of the curve: The business case for responsible AI

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Video

Moving from theory to practice
with Responsible AI

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Blog post

An update on our work on AI
and responsible innovation

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Our approach to facial
recognition at Google

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Take the next step

Tell us what you're solving for. A Google Cloud expert will help you find the best solution.

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