

## Overview

In the 1600s, the growing demand for scientific knowledge led to the establishment of scientific journals. Jump to the 1970s, and similar initiatives emerged with the open-source and free software movements, where computer programmers advocated for open access to research and decentralized innovation, enabling anyone to contribute to advancements in science and technology. Recently, breakthroughs in AI have sparked new discussions about the open versus closed technology debate. As policymakers worldwide confront the rise of artificial intelligence, much of their focus has turned to powerful foundation models capable of performing various advanced tasks, including generating text, images, sounds, and video. Companies, governments, and civil society organizations are actively engaging in urgent discussions about regulating these models, their components, supply chains, and the AI systems they ultimately drive. While both approaches have their advantages, the choice between open and closed AI has sparked intense debate, with key business leaders often taking strong positions on one side or the other.

In this Basic, we will explore some of the considerations in the open vs. closed-source generative AI debate from a commercial and enterprise perspective and discuss potential business implications.

## Setting the Scene on Generative AI

Generative AI refers to a subset of artificial intelligence that focuses on creating new content from existing data. This technology uses algorithms, often based on neural networks, to generate text, images, audio, and even video that closely mimic human creativity. By analyzing vast datasets, generative AI can produce original works, enabling applications in various fields such as art, music, literature, and software development as well as a range of uses in business communications and processes across sectors. Its ability to generate content on demand has sparked interest in both creative industries and technological sectors, offering new tools for innovation and expression.

As generative AI continues to evolve, crucial discussions are being raised around the governance of AI technologies, particularly in open versus closed source models. In a brief overview, open-source generative AI allows for collaboration and transparency, enabling diverse contributors to refine and enhance the technology. In contrast, closed-source approaches prioritize proprietary control, which can restrict access and limit collaborative potential. Finding the right balance between these two philosophies is essential for navigating the implications of generative AI, influencing the understanding of creativity, ownership, and ethical considerations in this rapidly evolving field.

## Open vs Closed Source

Broadly speaking, open-source refers to a software development approach in which all or part of an application's source code is publicly accessible. This can be developed collaboratively by decentralized, voluntary communities, formal organizations, or

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In order to meet our challenges we need to put aside the partisan bickering that has gridlocked Washington and come together to find common sense solutions.

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a combination. In contrast, closed-source describes a development model where an application's source code is proprietary and unavailable to the public.

Over the past eighteen months, discussions surrounding these open models have been particularly intense. While the term has been applied in various contexts, models are typically called open when their essential components are publicly available for download. Among these components, the release of model weights—statistical parameters that drive a model's core behavior—has garnered significant attention. Their public availability plays a crucial role in the ongoing advancement and widespread adoption of AI capabilities.

Open foundation models and the release of weights have been praised as promising avenues to accelerate innovation, reduce market concentration, enhance transparency, and address inequality. However, there are also concerns that open models could enable malicious actors, complicate efforts to detect or prevent misuse and heighten the risk of humans losing control over AI systems.

Assessing the risks and benefits of openness in AI is a complex task. One significant debate centers on transparency. Proponents argue that open systems enhance transparency by enabling external researchers, programmers, and the public to scrutinize, monitor, and audit AI systems and their data for potential errors, biases, and security vulnerabilities. This increased transparency could foster broader stakeholder engagement and drive innovation. Conversely, critics warn that malicious actors may exploit open systems to create deepfakes, execute cyberattacks, or engage in other manipulative practices, undermining responsible oversight of AI. Such systems might also expose sensitive information, violate privacy, reveal trade secrets, and raise national security concerns.

Another key area of discussion is innovation. Much innovation occurs during the deployment phase, with many companies leveraging AI models to develop new applications. Some argue that more open models could stimulate participation in the development phase by encouraging collective contributions, resulting in rapid advancements and a wider variety of AI applications. However, major industry players may prefer closed systems to safeguard their intellectual property from competitors.

Additionally, there are concerns about the concentration of power among a few dominant players in the industry. The resource-intensive nature of AI systems creates significant barriers for smaller tech companies, which require substantial computing resources, access to data, and skilled personnel. These high costs could limit diversity in model development and narrow the future trajectory of AI innovation to a handful of entities. While larger organizations may opt for closed models to protect their competitive advantages, other stakeholders advocate for more open models to improve market access for smaller players and incorporate diverse perspectives in AI development.

## The Debate Breakdown

Some of the key benefits of closed AI to businesses and users include:

- **Faster Development Cycles:**
  - Closed AI systems often have rapid cycles that enhance security and performance.
- **Ease of Use:**
  - Vendors provide infrastructure and support services to facilitate quicker adoption by enterprise applications.
- **Potential for License Flexibility:**
  - Avoids legal complexities and restrictions associated with open-source systems.
- **Commercial Benefits:**
  - Enables enterprises to maintain a competitive edge in commercializing innovations.
- **Increased Control:**
  - Sharing internal libraries can slow innovation.
  - Controlling users and dependent systems makes it easier to advance technologies and detect and

- mitigate misuse.

Some of the key benefits of open AI to businesses and users include:

- **Increased Scrutiny:**
  - A larger community can identify and mitigate problems inherent in the technology.
  - External knowledge often surpasses internal insights, helping to advance missions and influence the tech ecosystem.
- **Better Recruitment:**
  - Openly sharing AI innovations enables businesses to attract talented developers eager to innovate.
  - Clear demonstrations of capabilities make organizations more appealing to potential recruits.
- **Greater Understanding:**
  - Open models provide complete information about architecture and accessible weights.
  - This transparency allows organizations to adapt, optimize, or apply models in innovative ways.
- **Identification of Bias:**
  - Transparency in training sources helps researchers understand bias origins.
  - Enables participation in improving training data.
- **Faster Scalability Improvements:**
  - Collective innovation accelerates scalability enhancements.
  - Open-source communities often provide rapid optimizations, especially when backed by large organizations.

The discussions surrounding closed and open AI approaches reveal a complex landscape of benefits and challenges. Closed AI systems offer advantages such as faster development cycles, ease of use, license flexibility, and increased control, making them appealing for enterprises focused on maintaining competitive advantages. Conversely, open AI fosters increased scrutiny, better recruitment, and a greater understanding of models while facilitating bias identification and accelerating scalability improvements through collective innovation. Balancing these approaches is crucial for shaping the future of AI, as opinions weigh the importance of innovation, control, and transparency in this rapidly evolving field.

## What Does This Mean?

It remains to be seen whether open- or closed-source generative AI will prevail or if both will continue to coexist, as seen in various other tech sectors. Organizations looking to adopt generative AI currently have access to both closed- and open-source models. Closed-source solutions often deliver higher performance and more user-friendly interfaces, albeit at a higher cost. In contrast, open-source models are typically offer more affordability and accountability. They can be deployed on local infrastructure, making them appealing to organizations prioritizing privacy and security, though they generally offer lower performance.

As organizations navigate the complexities of generative AI, they must weigh the benefits of open models—such as increased transparency, community engagement, and collaborative innovation—against the advantages of closed systems, which often provide enhanced performance, ease of use, and commercial protection. This dynamic interplay reflects broader trends in the tech industry, where flexibility and adaptability will be critical in leveraging AI's potential and continue to shape the landscape of technology and innovation.

Developments, including initiatives from the prior administrations, underscore the importance of establishing a robust framework for AI governance. The administration has emphasized the need for responsible AI development, advocating for policies that promote transparency and accountability while addressing potential risks. Efforts to involve stakeholders from various sectors—including academia, industry, and civil society—aim to create a balanced approach that fosters innovation while mitigating concerns about bias, security, and ethical implications. As the governments—federal, state, and local—take a more active role in shaping AI policy, organizations need to align their strategies with these evolving guidelines, ensuring they remain agile and well-positioned to adapt to future regulatory landscapes.

Ultimately, the future of AI will likely be characterized by a blend of open and closed approaches, each serving distinct purposes within the ecosystem. AI governance is critical because fostering open or closed AI hinges on diverse factors that can impact the industry's future. By cultivating expertise in both domains and remaining responsive to regulatory developments, organizations can harness the full spectrum of generative AI capabilities, driving progress while navigating the challenges inherent in this rapidly advancing field.

## Links to Other Resources

- Carnegie Endowment - [Beyond Open vs. Closed: Emerging Consensus](#)
- Deloitte - [Open vs. closed-source generative AI](#)
- Forbes - [Navigating The Generative AI Divide: Open-Source Vs. Closed-Source Solutions](#)