# Big tech’s dominance in AI sparks concerns over competition and innovation



Advances in artificial intelligence (AI) are set to radically reshape both the economy and social structures, with applications spanning from chatbots to remarkable image generators that promise to change how we interact with technology. A starkly accelerated adoption curve has been observed for generative AI (GenAI), suggesting that this technology is being embraced faster than previous transformative innovations. Research indicates extensive implications of AI on diverse sectors, including labour markets, productivity, and even public finances, signalling a potential overhaul in how economic systems function.

Central to this wave of innovation is the growing reliance on major technology companies, often referred to as 'big tech'. These firms have invested heavily in AI, capturing a significant share of capital within the sector—33% of total AI investments in 2023, alongside a staggering 67% of capital raised specifically for generative AI. However, this dominance raises critical concerns surrounding competition, innovation, and the overall resilience of operational frameworks within the AI landscape.

The AI supply chain is complex, comprising five key layers: hardware, cloud computing, training data, foundation models, and user-facing AI applications. Each layer plays a vital role in powering modern AI systems, and big tech firms have established a strong presence across all of them. For instance, in cloud computing—which serves as the backbone for AI models—three major players dominate the market: Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform. Together, they control nearly 75% of the infrastructure-as-a-service market, significantly limiting opportunities for smaller competitors due to high operational costs and market entry barriers.

This concentration extends into the realm of training data, where big tech firms like Meta, with its suite of platforms including Instagram and Facebook, boast access to vast quantities of user-generated content. In response to diminishing high-quality public data, these companies are modifying terms and actively acquiring data-rich entities. Such strategies serve to deepen their entrenchment in the AI supply chain and amplify their influence, as the value of each additional data unit increases.

The foundation model layer—which includes expensive pre-trained models like OpenAI’s GPT-4—illustrates another area of big tech’s extensive reach and investment. The costs associated with developing these models often exceed $100 million, leading to considerable barriers to entry that favour only the most resource-rich firms. By not only developing but also integrating these models into consumer-facing products, big techs like Microsoft and Google further solidify their market positions, creating a self-reinforcing cycle that enhances their capabilities and market value.

The implications of such concentrated power in the AI supply chain are profound, impacting both economic and social outcomes. Limited competition threatens to inflate prices, reduce consumer choice, and suppress wages, while simultaneously stifling innovation. Furthermore, the monopolistic control held by a few companies poses systemic risks, making essential infrastructures vulnerable to potential failures, cyberattacks, and other destabilising factors. The economic costs of such concentrations could eventually ripple through various industries, threatening financial stability.

Efforts to regulate this rapid expansion and concentration in the AI sector are fraught with challenges. The regulatory landscape is complicated by the diverse markets involved and the varying goals of regulatory authorities. International cooperation remains elusive amid differing legal frameworks and geopolitical interests. Technological advancements frequently outpace regulatory processes, complicating efforts to implement effective oversight. Nevertheless, emerging strategies aimed at addressing these concerns include fostering data-sharing agreements among firms and ensuring fair access to critical AI resources.

In the U.S., the regulatory environment further complicates the oversight landscape. Following a period of minimal federal regulation under the previous administration, numerous states have introduced legislation targeting AI applications, particularly to address ethical concerns such as discrimination and consumer protection. This has created a fragmented regulatory approach, with over 550 AI-related bills introduced across 45 states in 2024 alone, raising fears of compliance confusion among businesses. With technology leaders like OpenAI’s CEO Sam Altman cautioning against stringent regulations—similar to those proposed in Europe—there remains a delicate balance being struck between fostering innovation and ensuring consumer protections.

The current AI landscape reflects both immense potential and considerable risks. While it holds the promise of driving economic growth and improving societal outcomes, the monopolistic grip of a few tech giants threatens to stifle innovation and create systemic vulnerabilities. Ensuring a competitive environment within the AI ecosystem is crucial if we are to harness its benefits while safeguarding against negative societal impacts.

As businesses and governments navigate these challenges, the path forward will increasingly require a collaborative approach that aligns technology advancements with comprehensive and coherent regulatory strategies. Without such measures, the benefits of AI may remain unequally distributed, exacerbating existing inequalities and further entrenching the dominance of a few powerful players.

### Reference Map

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## Bibliography

1. <https://cepr.org/voxeu/columns/big-techs-ai-empire> - Please view link - unable to able to access data
2. <https://www.ft.com/content/674a2f24-05d3-4845-92a9-4c65996bdfa1> - China has emerged as a formidable rival to Silicon Valley, with many American tech leaders acknowledging its rapid advancements in artificial intelligence, consumer electronics, and manufacturing. Once considered a tech copycat, China is now seen as potentially surpassing the U.S. in key technology sectors. Companies like DeepSeek have launched AI models that rival U.S. technologies at lower costs and higher efficiency, while others, such as Huawei and Chinese electric vehicle makers, are leading in innovation. Influential voices like Google’s Eric Schmidt and Nvidia’s Jensen Huang assert that China is on par or advancing ahead in several technologies. This shift has exposed vulnerabilities in the U.S. tech landscape, particularly due to political missteps and reductions in scientific investment under Donald Trump's administration. While China unifies efforts to dominate the tech world, the U.S. remains fragmented, with tech innovators feeling disconnected from broader national ambitions. Silicon Valley, once the indisputable hub of global innovation, faces growing pressure and potential obsolescence if current trends continue. As American investors begin investing in Chinese tech ventures, the global center of technological gravity may be shifting eastward.
3. <https://www.ft.com/content/aed82f47-b441-4bb3-930e-eca10585fc6d> - As the U.S. grapples with the challenge of regulating artificial intelligence (AI), political leaders and tech executives face growing tensions between deregulation at the federal level and increasing legislative activity among states. Following President Trump's revocation of broad federal AI regulations and a push for AI investment, Senate sentiment favors minimal oversight to maintain a competitive edge over China. Tech CEOs, like OpenAI’s Sam Altman, warn against adopting Europe's stringent AI laws. Yet, state-level initiatives—over 550 AI-related bills were introduced in 45 states in 2024 alone—seek to address issues such as deepfakes, discrimination, and consumer protections. Critics warn that this patchwork of state laws could hinder innovation and create compliance confusion. A proposed federal moratorium on new state AI laws has sparked backlash, highlighting the broader struggle between national and local governance. Experts suggest states are stepping in where federal leadership is absent, addressing AI’s most harmful applications. Despite initial resistance, bipartisan cooperation on AI-related legislation, such as criminalizing AI-generated sexual abuse material, signals that national regulation may become inevitable. Policymakers remain divided, but with increasing public and political scrutiny, comprehensive AI oversight in the U.S. seems likely on the horizon.
4. <https://www.ft.com/content/cd6fa1e8-585a-41e1-a521-3efc158b6f94> - The tech industry is currently experiencing a significant bubble around generative artificial intelligence (AI). Investment in AI technologies and infrastructure has been extensive, but it will take time for these investments to be fully utilized by end customers. Despite the hype around AI, there has been no major transformative impact on consumers' digital lives, such as the introduction of previous technologies like the iPhone or Google search. The boom is primarily driven by major tech companies like Nvidia, Apple, Microsoft, Alphabet, Amazon, and Meta, which have significant financial resources to invest. The upcoming product cycles and lower costs associated with new AI technologies are expected to drive further demand. However, if these investments do not yield returns, the enthusiasm could wane, potentially causing a reassessment of AI's true impact.
5. <https://www.ft.com/content/f8e4dac5-5869-4db9-b4ba-1398408e3962> - US tech giants are heavily investing in data centres to support the expansion of artificial intelligence services, prompting large capital expenditures. Companies such as Meta, Alphabet, and Microsoft have announced multi-billion dollar projects to construct and expand data centres across the US, in places like Indiana, Virginia, and Wisconsin. This trend is mirrored internationally with Amazon’s investments in Germany and Singapore. These data centres are intended to provide a competitive edge in cloud computing and AI. From 2019 to 2023, gross plant, property, and equipment (PPE) at Meta and Microsoft more than doubled, while Amazon and Alphabet saw similar near-doubling increases. However, Apple has increased its PPE by less than one-third, lagging behind due to its unresolved generative AI strategy. Data centres are cost-intensive to build and maintain, and their power consumption in the US is expected to more than double from 2022 to 2030. Despite substantial capital expenditure, projected to significantly increase further, companies have managed to maintain profit margins through other cost-cutting measures and by extending the lifespan of their equipment. However, sustained growth will require revenues generated from AI services rather than continued cost-saving tactics.
6. <https://www.ft.com/content/0597a834-c101-4d01-893d-87c2eca122c9> - The UK's Competition and Markets Authority (CMA) is examining several deals between major tech companies and AI startups due to concerns over competition in the burgeoning AI sector. Specifically, comments are being invited regarding Microsoft's hiring and investments in Inflection AI and Mistral, as well as Amazon's $4 billion investment in US-based Anthropic. This step is necessary prior to a formal investigation. The CMA is investigating whether these deals fall within UK merger rules and if they raise competition issues. The agency fears Big Tech firms might exploit AI startups' need for computing power, thus gaining undue influence by offering cloud services in exchange for stakes. Microsoft and Amazon have defended their actions, stating that these moves foster AI competition and not monopolies. Both companies expressed readiness to cooperate with the CMA's inquiries.
7. <https://www.ft.com/content/f4208699-a3ea-4704-a621-0bbfee73f5f1> - Apple has announced the closure of its Apple Pay Later service after less than a year, instead opting to partner with credit card companies for instalment loans. U.S. markets will be closed for Juneteenth. Unhedged examines the influence of federal liquidity on markets, noting that despite a decline in the Fed's balance sheet, the stock market has continued to rise, debunking the notion that market movements are solely determined by government money printing. John Huber highlights that major tech companies like Meta, Google, and Microsoft are increasing capital expenditures, largely due to AI investments, which may impact future growth and profitability. Huber questions whether these substantial investments in AI will create a competitive advantage or lead to a highly competitive market.