Entrepreneurship in AI: Mission Impossible?

A virtual roundtable presented by The New York Academy of Sciences and the Private Capital Research Institute; sponsored by Ropes & Gray.

Panelists

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Executive Summary

Artificial intelligence (AI) is often described as "the new microprocessor," driving a transformative wave across industries. However, unlike previous tech revolutions, AI's growth depends on massive capital investment in data infrastructure rather than traditional entrepreneurial disruption.

Early adoption is occurring through smaller firms and individuals experimenting with novel applications, while large companies continue to seek profitability amid high infrastructure costs. Panelists emphasized that near-term success may come from applying AI to concrete challenges —such as drug discovery, materials science, and management efficiency— rather than building new foundational models. The discussion also underscored the importance of trust, transparency, and public-private collaboration to ensure AI's development benefits society responsibly.

Key Highlights

- AI capabilities are advancing on a six-month innovation cycle—significantly faster than previous computing waves.
- Massive capital is flowing into data centers, yet profitability for AI infrastructure remains elusive.
- Smaller companies are driving innovation by using AI as a tool, not an end product.
- The next few years may bring fragmentation, followed by consolidation as the most effective AI applications emerge.
- AI can amplify human productivity by automating routine tasks and freeing experts for higher-level problem solving.
- Greater transparency ("openness") in AI systems fosters trust and accelerates innovation but can compromise proprietary advantage.
- Despite its promise, AI carries risks —algorithmic bias, overreliance, and unintended outcomes— that require human oversight.
- Public-private partnerships will be essential to direct AI toward socially beneficial goals such as disease prediction and climate modeling.

Panel Summary

On September 25, 2025, The New York Academy of Sciences and the Private Capital Research Institute hosted the first session of a series of roundtable discussions on Private Capital and Discovery: Strategic Investing in Scientific Innovation. At the inaugural event, "Entrepreneurship in AI: Mission Impossible?", the panelists discussed trends, investment, and entrepreneurship in artificial intelligence (AI). The overriding questions were a) whether AI is truly revolutionary or all hype, and b) how to strike the right balance between the promise of AI and prudent capital efficiency.

The panel started with the idea that AI is "the new microprocessor," a development poised to drive a major wave of innovation across many sectors. The structure of the AI revolution will be different, though. While earlier computing entrepreneurs tended to disrupt industries, AI depends heavily on computationally-intensive data centers that will require an estimated $6.7 trillion of capital expenditure by 2030, according to McKinsey & Co. Investing strategically in AI, however, cannot simply be a race to scale data infrastructure.

Early adopters of AI tend to be small businesses and consumers, often applying the technology in ways its developers hadn't anticipated. One panelist predicted that this decentralized, fragmented application of AI would continue for the next 4-5 years, followed by a period of consolidation as the technology finds its best uses.

Currently, AI innovation cycles are much shorter than prior technology advances. For example, AI capacity and capabilities are scaling up on about a six-month cycle, compared to a two-year cycle for the previous wave of cloud computing. That acceleration is driving the staggering investment across the "computing power value chain." Among the key actors are the real estate developers that build data centers, the utilities that power them, the semiconductor firms that produce chips, and the cloud service hyper scalers that host trillions of terabytes of data, not to mention the fund managers and asset owners who are providing much of the needed capital. Leaders across this value chain know that they must invest in computing power to accelerate AI growth. These projects are money losers so far, though.

If meaningful value from AI cannot be demonstrated, demand for computing power could fall short of expectations. Conversely, transformative AI applications could fuel even greater demand than current projections suggest. So, how do investors pick winners in such a volatile environment? Panelists agreed that one effective strategy is to focus not on companies trying to build better AI systems, but on those working to apply AI to solve challenging problems. In other words, where AI is the infrastructure, not the main story. Specific examples included drug discovery and development, materials science, improving management efficiency, and writing computer code. In those fields, human effort is often a major constraint. AI could act as a force multiplier, freeing skilled people from tedious aspects of the work and enabling them to focus on higher-level problem-solving.

AI could also help quantify risk and predict outcomes. One panelist proposed using AI tools in drug development to predict which new drug leads would succeed, and to identify clinical milestones and strategies for reducing the risk of failure.

The group also discussed the delicate balance of trust, openness, and competition in AI, identifying five types of openness:

- Open Source makes all the technology publicly available, including algorithms, training data, weighting, and users' access;
- Open Weight keeps the models private, but reveals how they weigh data;
- Open Benchmarks means developers publish the benchmarks used in developing the model;
- Open Access allows anyone to use the system, but keeps all its operation private;
- Open Development provides open access to users as the system is being developed, such as opening it for beta testing.

Greater openness increases trust in an AI system and also helps feed innovation that could lead to faster development cycles. Less openness decreases trust but preserves an AI company's proprietary advantage.

Eschewing AI alarmism, the panel nonetheless agreed that companies and investors must pay close attention to safety, security, and social implications of AI. Because algorithmic outputs are probabilistic, they will always require safeguards and human oversight to constrain their decision-making. Much of a company's fundamental business logic will also have to remain deterministic, no matter how advanced AI becomes. And while the technology may eliminate some jobs, it's also likely to produce many others, such as workers to craft prompts and verify outputs.

Despite a general mood of optimism, the group acknowledged that AI has serious limitations and can have unanticipated consequences. For example, one recent study found that AI-assisted radiologists were worse at identifying tumors than either humans or AI alone.

Lastly, the panel also considered the problem of rewarding technology companies for tackling major scientific and social challenges that might not be profitable. AI could provide improved modeling of climate change, better predictions of disease outbreaks, and other social benefits, but there's currently little incentive for companies to undertake those problems. The panelists argued that the field would need more government-private partnerships to address these challenges.

With AI investments, it's not a question of the technology but of the economics. The shorter innovation cycles and low barriers to entry make it challenging to identify a good investment. To be successful, AI entrepreneurs need to create something defensible, for example, using high-quality, proprietary data. Even if a company gets a great approach to solving a problem, there is always the challenge of how to get adoption and diffusion.

About The New York Academy of Sciences and the Private Capital Research Institute

The New York Academy of Sciences stands as a pivotal platform for advancing scientific knowledge and fostering innovation. Established in 1817, the Academy has long been at the forefront of bridging scientific research with practical application.

Based at Harvard Business School, the Private Capital Research Institute's mission is to encourage research about private capital's potential to be a constructive force to power economic development, innovation, and business transformation.

While the Academy excels in fostering scientific discovery and interdisciplinary collaboration, PCRI focuses on enhancing the understanding and impact of private capital investments. This collaboration allows for a unique intersection where cutting-edge scientific research meets strategic investment insights.

Both non-profit organizations seek to present substantive, fact-based research in a form that maximizes broad accessibility of these ideas and their applicability to the concerns of investors, business leaders, and policymakers, investors, as well as influential intermediaries.