Innovation, VC, and Federal Budgets

A Webinar Sponsored by
Private Capital Project at Harvard Business School
and **The Private Capital Research Institute**

Panelists:

Pierre Azoulay
International Programs Professor of Management, MIT Sloan School of Management

Kate Bingham
Managing Partner, SV Health Investors

Ramana Nanda
Professor of Entrepreneurial Finance, Imperial College London

Conor Walsh
Paul A. Maeder Professor of Engineering and Applied Sciences, John A. Paulson Harvard School of Engineering and Applied Sciences

Moderator:

Josh Lerner
Jacob H. Schiff Professor, Harvard Business School
and Co-Director of the HBS Private Capital Project

Summary

The recent, sweeping, and unprecedented reductions in the U.S. federal research outlays will have consequences reaching far beyond university laboratories. In this webinar discussion held on June 6th (as the "Big Beautiful Bill" was still pending in Congress), the panelists warned that the federal research pipeline builds both fundamental discovery and the training of talent that ultimately fuels venture-backed start-ups and the broader innovation economy. While creative financing (philanthropy, corporate partnerships, and foreign grants) can support individual labs, none offer the scale, predictability, or risk tolerance of federal grants. The likely result is a "slow-burn shock" that begins first in academic hiring freezes and grant-success rates, then in the flow of licensable intellectual property and start-up opportunities over the next decade.

The conversation traced three channels of impact of academic research cutbacks: (i) immediate stresses on the university research enterprise, (ii) a delayed but material contraction in venture capital deal-flow (especially in biotech and other deep-tech sectors), and (iii) global competitive shifts as Europe and other regions actively recruit U.S. scientists with steadier public funding. The panelists concluded that predictable federal R&D remains "the single most important input to America's innovation engine," and warned that volatility, rather than the sheer amount, of funding may prove most worrisome.

Key Highlights

- The cuts are not marginal—an $18 billion reduction would eliminate about 40% of NIH-backed grants.
- Roughly 70% of transformative drugs and 70-80% of VC-backed biotech deals trace back to IP created by federally funded grants.[1] [2] [3]
- Two-thirds of U.S. Ph.D. graduates move to industry, so the potential implications for venture-backed and larger firms are substantial.
- A similar cut to NIH grants between 1980 and 2007 would have led to absence of patents that helped create 286 of 557 new drug approvals since 2000.[4]
- Alternative capital (from philanthropy to corporate funding) is valuable but too restrictive, and often favors well-networked labs.
- Europe and the U.K. are recruiting U.S. researchers with proactive grant packages and team relocation incentives.
- If U.S. research budgets become subject to a partisan back and forth, long-duration biotech investing will tilt toward later-stage deals or migrate to geographies with steadier public funding.

Research-Budget Landscape

One panelist described academic labs as "aircraft carriers": once built, they require a steady structure to stay productive and focused. Engineering schools where grants fund a quarter of annual budgets now contemplate staff layoffs and cancelled experiments. In addition, the panelists fear that distraction over fundraising will dilute faculty focus, decrease Ph.D. enrollment, and ultimately shrink the pool of high-impact discoveries that seed start-ups.

The real cost, the panelists stressed, is cognitive. Faculty may now be forced to take on a wider variety of administrative tasks and funding-related activities, which divert them from their core research focus. As a result, the deep, creative research process would be compromised. These dynamics are likely to lead to fewer bold experiments being conducted, reducing the likelihood of future breakthroughs (both commercial and academic). The consequence is a smaller pipeline of breakthrough ideas feeding U.S. start-ups just as global competitors ramp their own basic-science budgets.

[1] Congressional Budget Office, "Research and Development in the Pharmaceutical Industry", Report no. 57025, April 2021, file:///C:/Users/ljeng/Downloads/57025-Rx-RnD.pdf
[2] Galkina Cleary, Ekaterina, Jennifer M. Beierlein, Navleen Surjit Khanuja, and Laura M. McNamee, "Contribution of NIH funding to new drug approvals 2010-2016", PNAS, March 6, 2018, vol. 115, no 10., https://www.pnas.org/doi/epdf/10.1073/pnas.1715368115
[3] Galkina Cleary, Ekaterina, Matthew J. Jackson, Edward W. Zhou, and Fred D. Ledley, "Comparison of Research Spending on New Drug Approvals by the National Institutes of Health vs the Pharmaceutical Industry, 2010-2019", JAMA Health Forum, 2023 April 28; 4(4): e230511: doi:10.1001/jamahealthforum.2023.0511
[4] Azoulay, Pierre, Daniel P. Gross, and Bhaven N. Sampat, "Indirect Cost Recovery in U.S. Innovation Policy: History, Evidence, and Avenues for Reform," National Bureau of Economic Research working paper 33627, March 2025.

Drug Discovery & the VC Pipeline

Pierre Azoulay mapped a hypothetical 40% cut onto three decades of National Institutes of Health awards. When the "at-risk" grants were cross-referenced with patents cited in subsequent FDA drug approvals, roughly 59% of the entire 2000-2023 approval cohort depended (directly or indirectly) on research that would never have been funded.[5] This analysis underscores a key point: scientific breakthroughs rarely result from a single blockbuster grant. Rather, they emerge from a broader ecosystem.

Another panelist shared this sentiment and underscored the life-cycle lag: venture funds will not feel the shock overnight. But in five to ten years, the funnel of potential IP, clinical candidates, and spinouts will narrow, reducing both investment opportunity and eventual economic output.

One may wonder if (as the results discussed above suggest) the bottom 40% of NIH-funded proposals still appear to produce impactful research. Perhaps the agency is ineffective at distinguishing between high- and low-potential ideas. The panelists pushed back firmly on this argument, asserting that such conclusions misunderstand the nature of early-stage science. Research is inherently uncertain, and the only way to uncover transformative breakthroughs is to cast a wide net and fund a diverse array of research itself. Many ideas that initially appear unpromising eventually yield critical insights and vice versa. Therefore, the variation in outcomes among NIH-funded projects is not a sign of inefficiency. It reflects the reality that meaningful evaluation often requires funding ideas to maturity before their true potential can be assessed. Without that early, risk-tolerant capital, the innovation pipeline would narrow prematurely. Therefore, the panelists agreed that federal funding remains the best, most efficient source of capital for research.

Alternative Financing Mechanisms

One panelist contrasted the software sector, where market learning is rapid and cheap, with the biotech sector, where initial learning can cost $30 million or more before a start-up sees its first VC term sheet. Government grants fill that gap precisely because private investors cannot. Philanthropy and mission-driven corporates offer helpful bridges, yet they tend to be more one-off, and their preference for certain fields makes them an unstable long-term substitute.

The panelists also discussed whether university endowments might be repositioned to play a more active role in bridging federal shortfalls. One perspective suggested that shifts in philanthropic behavior (such as unrestricted gifts) could empower institutions to continue to support research activities more flexibly in the wake of federal cuts. Rather than relying solely on targeted donations or donor-specified institutes, universities might explore more generalized funding pools that function as grantmaking foundations but remain housed within the institution.

Another view emphasized structural differences between countries. For example, the business model for U.K. universities, where domestic students pay a lower tuition, contrasts sharply with the revenue structures of U.S. institutions. These differences shape how endowments are managed and deployed.

Some universities are already experimenting with creative structural alternatives. The panelists noted that donors can channel support into standalone institutes that partner with universities but retain independence. One speaker cited examples in both the U.S. and the U.K., including a case where equity in a university department's spin-outs (originally held at the departmental level) was leveraged to create a formal venture entity known as Oxford Science Enterprises. While such structures aim to maintain

[5] Azoulay, Pierre, work in progress, 2025.

academic independence, they also allow philanthropic and institutional stakeholders to better benefit from commercialization efforts, particularly equity participation in start-ups emerging from university labs.

These developments suggest that while alternative funding models cannot fully replace federal dollars, they do offer promising pathways for institutions to adapt.

Global Talent & Capital Flow

Other governments have sensed opportunity in the current changes in U.S. innovation policy. One panelist noted that the U.K. is covering the cost of entire team relocations to attract early to mid-stage researchers. Another panelist confirmed that European universities are creating more slots for opportunistic hires.

As a result, we may see a regional shift for competitive research outputs. This may influence the future trajectory of breakthrough ideas and commercialization efforts, shifting the stage to become more global, whereas historically, the U.S. has dominated in both arenas.

Final Thoughts

All speakers agreed that predictable federal research funding is the single most important driver of America's innovation engine. Philanthropic donations and international programs can help fill short-term gaps, but they simply do not match the scale, consistency, or long-term impact of NIH-style grants. Those alternatives are often one-off, hard to access, or tied to narrow interests. Thus, they cannot sustain the broad, high-risk research that fuels real breakthroughs. Without swift policy action, or at the very least, a bipartisan commitment to stable baseline funding, the U.S. risks more than just a slowdown. It faces a deeper, longer-term slide in both scientific leadership and the venture activity that depends on it. The panelists did not see this as just a budget fight, but rather they saw it as a strategic decision about whether the U.S. will continue to lead in innovation or slowly give up that competitive edge.