2 Min speech – STI

In the OECD government allocations for R&D increase by 0.6% in 2023 but lagging behind global inflation of 6%. This stagnation dampens our ability to invest in the research essential for SDG breakthroughs.

As the academic landscape has shifted the lack of funding means few positions for students and mentors - with full-time tenured declines in the US dropping 21% from 1987 to 2021. Erosion of academic position discourages talented individuals from pursuing research careers, particularly those economically disadvantaged backgrounds and will lead to a generational loss of scientific expertise.

Shrinking public resources, institutions are turning to stop-gap measures. Universities are leaning into industry through accelerator programs - fast-tracking commercialization. Private funding plays an important role, but inevitably favors profit-driven projects and more academically established over the foundational science that is the basis for the scientific advances. Most transformative discoveries are from sustained, long-term investment in basic science. For example, the mRNA vaccine for covid stemmed from decades of fundamental research into characterization of lipids – and like countless others, it would not have been impossible without sustained public funding.

Many youths are fearful of what our future holds with the current funding trend – as such we want:

Investment in Equitable Research Futures: increase public R&D budgets matching inflation, guided by transparent, data-driven funding decision that prioritizing community-led research and metrics that capture the social, environmental, and ethical dimensions of research impact.

Empowerment of Youth-Led Research Capacity: support capacity-building programs that are community-led and support policies that create meaningful career pathways for young researchers, particularly those from economically disadvantaged backgrounds.

Equitable Leveraging of Private Funds: Channel private investment through matching grants, challenge funds, and accountability frameworks that ensure long-term support for basic research and align commercial incentives with public good.

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Global R&D spending is rising in dollar amounts. In the OECD, government allocations for R&D grew by 0.6 percent [1]. However, it is lagging behind global inflation, which was 5.9% in 2023 [2]. Inflation is almost ten times the amount of R&D growth, meaning the real value of R&D investment has decreased substantially. Researchers feel the impact immediately. In wet labs, reagent hoarding by researchers is common. With inflation out-matching the purchasing amount, this stagnation dampens our ability to invest in the long-term, high-risk research essential for SDG breakthroughs.

As the academic landscape shifts, the lack of funding translates to fewer opportunities for students and mentors. This is shrinking the field of academia today and for the future. Full-time tenured positions declined in the US dropping 21% from 1987 to 2021, and contingent appointments are 68% in 2021 [3]. This means fewer resources are available to inspire students

and for principal investigators to run research labs, which in turn leads to less capacity for both students and mentors.

The erosion of academic positions discourages talented individuals from pursuing research careers. In addition to being a researcher, you also have to work as an entrepreneur, bootstrapping for research and student funds. These roadblocks also disproportionately affect those from economically disadvantaged backgrounds: the graduate-level STEM field, especially academia jobs, often comes with financial and structural wealth barriers to entry.

We are looking at a future where academic and industry research faces a cyclical struggle, where fewer academic trained researchers lead to fewer experts that can drive innovation tomorrow. During economic downturns, these challenges will only intensify, furthering the barriers to entry. If we don't act to halt and reverse this trend, we will face a generational loss of scientific expertise.

Faced with shrinking public resources, institutions are turning to stop-gap measures for now. Many universities are leaning into industry through accelerator programs that fast-track commercialization and partnerships. While private investment has its value, it can also lead to prioritizing profit-driven research and widen the funding disparity: more established labs are able to better position themselves to achieve private and government funding compared to early-stage investors.

The challenge of profit-driven research is the lack of foundational science funding, which is the basis for scientific advances. Science is built on years of discovery. It builds upon years of collaboration to reach marketable applications. This is why most transformative discoveries are from sustained, long-term investment in basic science. For example, targeted gene editing, like CRISPR-Cas9, stemmed from decades of fundamental research into repeat sequences in bacteria. The story of the mRNA vaccine started with characterization of lipids over 40 years before trials of using lipids as a carrier.

Let us be clear. These breakthroughs, like countless others, would have been impossible without sustained public funding.

Many youths are fearful of what our future holds with the funding trends. But we are also at the forefront of advocating for solutions. I will name some measures that youth have proposed to tackle the problem through innovative ways, not just by increasing funding:

Equitable Leveraging of Private Funds: pooling private investment could allow for more equitably and allocation of the grant funding. Not only can this ensure long-term support for basic research and align commercial incentives with public good, but we can also arrange it so that it is more equitable for early-stage investors.

Empowerment of Youth-Led Research Capacity: urging support for capacity-building programs that are community-led and support policies that create meaningful career pathways for young researchers, particularly those from economically disadvantaged backgrounds. This includes mentorship opportunities, funding for research initiatives, and platforms for disseminating research findings to relevant stakeholders.

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Investment in Equitable Research Futures: increasing sustained public funding for academia, guided by data-driven reports and a commitment to equitability. This investment must prioritize community-led research, ensuring voices and needs of marginalized groups are part of the research agenda. We further advocate for transparency and development of new metrics that capture the social, environmental, and ethical dimensions of research impact for funding.

Reference:

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