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NSF Funding is Critical to Our Students and the Skilled Technical Workforce

Budget cuts to the U.S. National Science Foundation undermine the skilled workforce needed to sustain America's economic success. Our students and graduates are proof.

BLOG POST

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*This article was produced as part of New America's **Future of Work and the Innovation Economy Initiative**'s ongoing research on science & tech, workforce, and economic development policy and practice innovation. Share this article and your thoughts with us on **X**, **Bluesky**, **Facebook**, and **LinkedIn**, and subscribe to our **Future of Work Bulletin newsletter** to stay current on our latest research, events, and writing.*

As the **U.S. aims to lead in strategic technologies** like artificial intelligence, manufacturing, microelectronics, and biotechnology, it faces a key challenge: Rhetoric around these goals is growing, but a crucial resource for fostering the talent needed for these emerging industries is in jeopardy. The U.S. National Science Foundation is critical to fostering the skilled technical workforce for the new economy.

Our colleges have long leveraged NSF funding to support education of technicians in labs, cleanrooms, and manufacturing facilities across the nation. Our graduates keep these industries running by supporting the translation of innovation into production, performing tasks like installing equipment, conducting tests, and maintaining production lines. As these sectors grow, demand for talent is outpacing supply, straining the workforce pipeline. In the semiconductor industry alone, an **estimated** 27,000 new technician jobs are expected to remain unfilled by 2030.

Community colleges sit on the **front lines** of addressing these workforce gaps whether its for the **bioeconomy**, **AI revolution**, or reshoring of manufacturing jobs. Our institutions are uniquely positioned to train the next generation of technicians, offering associate degrees, apprenticeships, and short-term training tailored to roles that don't require bachelor's degrees from four-year institutions. But without sustained federal support, many community colleges lack the resources to meet growing demand.

Community Colleges and NSF's Advanced Technological Education Program Help to Meet Workforce Demands

Thirty years ago, the National Science Foundation responded to this need by launching the **Advanced Technological Education** (ATE) program to support community colleges in training a skilled technical workforce. Through ATE, academic institutions are offered grants to develop technical education programs in partnership with industry and economic development agencies.

ATE centers carry the capacity and freedom to build **unique programs** in sectors from robotics to biotechnologies. In 2024 alone, ATE enabled students to learn through hands-on lab exercises around aligning **laser systems**, participated in virtual reality (VR) **bootcamps** for technician education, and gained experience working with employers in nanofabrication **clean rooms**. These efforts come to life through ATE centers across the country—including the **National Applied AI Consortium** (NAAIC), **InnovATEBIO**, and **Micro Nano Technology Education Center** (MNT-EC)—which offer powerful examples of how technician education is being designed to meet national needs.

NAAIC, newly **launched in October 2025**, bridges the gap between AI industry innovation and AI education by preparing **community colleges to deliver world-class AI training**. Through strong collaborations with top tech companies like Google, Microsoft, AWS, Intel, and OpenAI, NAAIC has provided 10,000+ hours of AI training and mentorship to over 1,000 community college faculty and administrators from 180 institutions in 40 states.

Another ATE-funded program, InnovATEBIO, is committed to preparing a highly skilled biotechnology workforce. InnovATEBIO fosters collaboration between educators, industry leaders, and state teams by connecting biotechnology technician education with industry demands. The program funds outreach communication to broaden public awareness about careers in biotechnology and offers support to the community of biotechnology educators. The program's goal is to equip the next generation of skilled professionals to drive innovation and maintain America's global competitiveness in biotechnology.

In the semiconductor sector, MNT-EC leads the charge in preparing the next generation of skilled technicians and engineers. Since its inception in 2020, MNT-EC has directly supported over 500 community college students through hands-on internships, research experiences, and industry-aligned training, paving pathways into high-demand careers across the microelectronics sector. In partnership with industry leaders such as Texas Instruments, Intel, Synopsys, and Micron, MNT-EC creates a national ecosystem that equips students with the skills and networks for future technician careers.

Budget Cuts Will Undermine America's Talent Pipeline

For decades, NSF supported these ATE initiatives, backed by a bipartisan recognition that a strong, geographically diverse workforce is essential for U.S. competitiveness. In recent years, ATE centers have even forged new alliances across the national talent ecosystem, partnering with consortia including **Natcast** and the **National Network for Microelectronics Education** (NNME), to bolster U.S. workforce efforts. But just as these efforts gain momentum, NSF faces steep and unprecedented budget cuts, creating a cloud of uncertainty over programs like ATE that threaten to ripple across the nation's entire competitiveness strategy.

Over the past several years, New America's **Future of Work and Innovation Economy initiative** has closely studied the role of the NSF for workforce development for emerging technology fields, comprehensively inclusive of **ATE** and **other programs** created under the **CHIPS and Science Act**. In the last year alone, it joined forces with the **American Association of Community Colleges** and the **Association of Community College Trustees** to host two separate bipartisan Capitol Hill briefings to highlight the threats of proposed budget cuts to the NSF. We have been heartened by these developments. We express our gratitude to the co-chairs of the Congressional Community College Caucus, Reps. Gus Bilirakis (R-FL) and Joe Courtney (D-CT), and the Congressional R&D Caucus, Reps. Jim Baird (R-IN) and Bill Foster (D-IL) for creating the space for these urgent dialogues.

NSF funding offers critical early-stage support for talent pipeline programs that will be **difficult to replace**, especially for historically underfunded community colleges.

Undermining this federal funding risks stalling progress at a time when the demand for technicians in critical areas is only accelerating.

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