EXECUTIVE SUMMARY

THE COMPUTING IMPERATIVE:

BUILDING AMERICA'S TALENT ENGINE IN THE AGE OF AI

NOVEMBER 2025

As AI rapidly transforms every sector of the economy, computing is clearly no longer optional. Every industry, from health care to manufacturing to finance, relies on technology and digital talent. Global competition is accelerating. America's ability to compete, innovate, and expand opportunity now hinges on treating computing as a new basic literacy—just as essential as reading, writing, and arithmetic.

We must rewire our education system around this reality. From preschool to lifelong learning, the US must reimagine how we prepare learners for a world where every job, every community, and every sector requires computing and AI skills. Integrating rigorous and evolving computing skills into every stage of learning will sustain US leadership through rapid global shifts, expand economic mobility, and equip all Americans to shape the future.

America's K–12 schools often treat computer science education as an elective. Instead, computer science must be a rigorous foundation for every student. Every school must have future-ready curricula, digitally fluent teachers, and resources to deliver computing education at scale. When we fail to provide that access, we exclude the "lost Einsteins"—the innovators, entrepreneurs, and problem-solvers who could drive the next era of American prosperity but might never get the chance.[1]

Higher education must also transform urgently. The current model—rigid degree structures, outdated incentives, and narrow credentialing—no longer meets the needs of students or employers. To counter diminishing public trust and growing doubts about the value of a college degree, universities must build stronger partnerships, weave computational thinking across disciplines, and provide lifelong learning opportunities. Liberal arts must also be tech-infused and cultivate the critical thinking, creativity, and human-machine fluency required to strengthen the US workforce.

America has not made progress at the speed or scale required to compete globally. In November 2024, the Milken Institute partnered with CodePath to examine how computer science education and careers can advance economic mobility and strengthen the nation. The Institute conducted a literature review, interviewed over 40 experts, and participated in several convenings with experts in education, workforce, AI, entrepreneurship, and global competitiveness.

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[1] Alex Bell et al., *Who Becomes an Inventor in America? The Importance of Exposure to Innovation* (Opportunity Insights, November 2018), https://opportunityinsights.org/wp-content/uploads/2019/01/patents_paper.pdf.

We found that US systems remain fragmented, unequal, and too slow to adapt as AI reshapes education and work. This challenge calls for a new national imperative: a complete and holistic rewiring of education and workforce systems from preschool through lifelong learning. This will strengthen the nation's ongoing resilience and provide economic opportunities for all Americans.

Strategic deployment of philanthropic and impact capital can scale what works, test bold new models, and align education with a dynamic future economy. Investments can catalyze solutions by focusing on the following four recommendations:

RECOMMENDATION 1 Make computing and AI the new basic literacy.

Computer science education is critical to opportunity—especially in the face of emerging AI. Funders can help scale rigorous K–12 computing education through modernized curricula, innovative teaching models, and digital fluency for every student. Education systems must teach dynamic computing skills alongside ethical reasoning and human-centered problem-solving.

RECOMMENDATION 2 Reinvent higher education for the AI+ era.

Today's degree system is too rigid for tomorrow's economy. Targeted funding could help universities embed computational fluency across all disciplines while strengthening the role of the humanities and other liberal arts in preparing graduates to navigate human-machine interactions responsibly with technical expertise and creative capacity.

RECOMMENDATION 3 Hardwire lifelong learning into the future of work.

The half-life of skills is shortening. Lifelong learning must become the norm. Funders can catalyze an upskilling and reskilling market by investing in portable credentials, open-access and low-cost opportunities, scalable platforms, and models that serve mid-career workers and communities most at risk of disruption.

RECOMMENDATION 4 Build America's talent engine for global competitiveness.

Global competitiveness starts with a strong workforce. To bolster workforce resilience, philanthropy and impact capital can incentivize employers, universities, policymakers, and communities to form powerful regional talent hubs and cultivate tech innovation to position the US to outpace global competitors and expand economic mobility.

Together, these steps can unlock economic mobility for millions of Americans and secure US leadership in a tech-driven world. The future of the American Dream is at stake. Funders, educators, and employers must rewire the nation's talent engine, ensuring that computing talent is matched by human creativity, ethical grounding, and entrepreneurial drive. By pairing technical fluency with adaptability, critical thinking, and imaginative problem-solving, we can equip every learner to lead in the future economy. Our choices now will determine whether America simply adapts to the future—or shapes it.

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