The golden opportunity for American AI

Jan 3, 2025 | Brad Smith - Vice Chair & President

A vision for technology success during the next four years

As we usher in a New Year, we will welcome a new president into the White House as well as a golden opportunity for American technology and economic competitiveness. Not since the invention of electricity has the United States had the opportunity it has today to harness new technology to invigorate the nation's economy. In many ways, artificial intelligence is the electricity of our age, and the next four years can build a foundation for America's economic success for the next quarter century.

At Microsoft, we see a three-part vision for America's technology success. This starts with advances and investments in world-leading American AI technology and infrastructure. Second, the country needs to champion skilling programs that will enable widespread AI adoption and enhanced career opportunities across the economy. Finally, the United States must focus on exporting American AI to our allies and friends, bolstering our domestic economy and ensuring that other countries benefit from AI advancements.

The country has a unique opportunity to pursue this vision and build on the foundational ideas set for AI policy during President Trump's first term. Achieving this vision will require a partnership that unites leaders from government, the private sector, and the country's educational and non-profit institutions. At Microsoft, we are excited to take part in this journey.

Technology as a foundation for economic growth

Since the mid-1700s, the world has witnessed great leaps forward through major industrial revolutions, each driven by groundbreaking technology. The steam engine ignited the world's first industrial revolution in the United Kingdom, intensifying economic growth through subsequent and rapid advances in ironworking.

The second industrial revolution, starting in the late 1800s, catapulted the United States to global economic leadership. Americans uniquely harnessed the power of electricity

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across the economy, including by transforming machine tooling to build the world's largest manufacturing-based economy.

The third industrial revolution emerged in the latter half of the 1900s, fueled by computer chips and software. Once again, the United States led the world in this new technological era, giving rise to new companies that included Microsoft itself, which will celebrate its 50th anniversary this April.

Each of these eras was marked by what economists call a General-Purpose Technology, or GPT. In contrast to single-purpose products, GPTs boost innovation and productivity across the economy. Ironworking, electricity, machine tooling, computer chips, and software all rank among history's most impactful GPTs.

World-leading AI technology and infrastructure

As we look into the future, it's clear that artificial intelligence is poised to become a world-changing GPT. AI promises to drive innovation and boost productivity in every sector of the economy. The United States is poised to stand at the forefront of this new technology wave, especially if it doubles down on its strengths and effectively partners internationally.

America's technological strength has always been rooted in the private sector. Today, the United States leads the global AI race thanks to the investment of private capital and innovations by American companies of all sizes, from dynamic start-ups to well-established enterprises. At Microsoft, we've seen this firsthand through our partnership with OpenAI, from rising firms such as Anthropic and xAI, and our own AI-enabled software platforms and applications. Across the nation, a new generation of AI firms is emerging, each capitalizing on rapid advances in AI models and chips, moving to Graphics Processing Units (GPUs) and AI Accelerator Chips. And across the economy, software programs are being redesigned to operate as AI-enabled applications.

None of this progress would be possible without new partnerships founded on large-scale infrastructure investments that serve as the essential foundation of AI innovation and use. In FY 2025, Microsoft is on track to invest approximately $80 billion to build out AI-enabled datacenters to train AI models and deploy AI and cloud-based applications around the world. More than half of this total investment will be in the United States, reflecting our commitment to this country and our confidence in the American economy.

Our success, however, depends on a broad and competitive technology ecosystem, much of which is based on open-source development. This includes our longstanding competitors, chip suppliers, applications companies, systems integrators, service providers, and the millions of software developers who use our products to create customized solutions working for our customers. The massive datacenters that make all this possible are being built by construction firms, steel and other manufacturers, and innovative advances in electricity and liquid cooling, all reliant on large numbers of skilled electricians and pipefitters, including members of organized labor unions. Together, all these groups have enabled the technology sector to become an economic backbone for the United States and the world.

Since the Second World War, America's technological innovation has been driven by research and development (R&D) based on two critical ingredients. The first is sustained support for basic research. While a few tech companies invest substantial sums in basic research, as we do through Microsoft Research (MSR), most world-leading basic research is pursued by academics at American universities, often based on funding from the National Science Foundation and other federal agencies. Driven by curiosity rather than a profit motive, this research often leads to unexpected but profound discoveries that are published publicly.

The second ingredient is a sustained commitment to investments in product development by companies of all sizes. The United States, more than any other country, has mastered the process of moving new ideas quickly from universities to the private

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sector. This success rests on healthy investments in both R and D, recognizing that basic research is often publicly funded and typically in universities, while product development is robustly and privately funded through companies. It's the combination of the two that makes American R&D so successful.

The incoming Administration can strengthen these foundational elements, building on the work from President Trump's first term. In 2019, the President approved an executive order designed to strengthen America's lead in artificial intelligence. It rightly focused on federal investments in AI research and making federal data and computing resources more accessible. Five years later, President Trump and Congress should expand on these efforts to support advancing America's AI leadership. More funding for basic research at the National Science Foundation and through our universities is one good place to start.

AI skilling

Skilling was a centerpiece of President Trump's 2019 AI Executive Order. It prioritized AI within existing federal educational grants and fellowship programs to help build a bigger pipeline of skilled AI researchers and practitioners. It also highlighted the importance of integrating AI technologies into educational curricula and called for the development of apprenticeship and skills programs, particularly in STEM fields, to ensure that American workers are well-prepared for the future.

This focus was prescient, as five years later, AI skilling has become a necessity for the nation. AI is reshaping the nature of work and the future of jobs. This mirrors the lessons from prior industrial revolutions. Ironworking in the 1700s spread rapidly in the United Kingdom because technical associations and apprenticeships enabled workers to master new skills. Machine tooling in the late 1800s spread quickly in the United States because land grant colleges expanded the number of mechanical engineers. And digital technology spread swiftly in the U.S. in the second half of the twentieth century because new computer science departments in American colleges and universities produced the software developers the nation needed. In sum, one of the most important elements in spreading a GPT across an economy is the skilling infrastructure that equips both current and future workers with the capabilities needed to put new technology to work.

AI, like all new technologies, will disrupt the economy and displace some jobs. But as we've worked on skilling initiatives during the past few years, our confidence has grown that AI will create new opportunities that will outweigh many of the challenges ahead. If used well, AI will help lower the barriers to entry for many professions, replace rote tasks, and create a foundation for human creativity that builds on AI tools. AI will create new economic opportunities, allowing entrepreneurs to start new businesses and create new jobs. Along the way, AI can boost productivity in every sector of the economy, adding to the country's opportunity for economic growth.

AI is already becoming a tool to enable small business owners with fewer staff to compete in new ways with larger companies. And it offers the best opportunity so far this century to help high school grads and others with less post-secondary education to reverse the growing economic inequality that has gripped the nation since the early 1990s.

The key will be to develop a national AI talent strategy that equips Americans of all ages and backgrounds with the opportunity to acquire the AI skills needed for economic advancement. A key opportunity for most people will be to develop an AI fluency that will enable them to use AI in their jobs, much as they use laptops, smartphones, software applications, and the internet today.

There is a lesson here from the recent past. A big part of Microsoft's 50-year history has been tied to the creation of knowledge workers that drive the modern services economy of the United States and many other countries. The PC/Mobile era has created a global economy with more than a billion such workers. During the next quarter century, we believe AI can help create the next billion AI-enabled jobs, reaching not just services but manufacturing, transportation, agriculture, government, and every other part of the economy.

In this new AI era, some individuals will want and need deeper training. Some of this will happen on the job, through online platforms such as LinkedIn Learning, or at a community college or four-year institution. For some people, this training will build upon existing disciplines like computer and data science, potentially evolving into a new generation of AI engineering. Other individuals will take business classes that will equip them to help design or manage the integration of AI systems into the business processes that support organizations across the private, public, and non-profit sectors.

Companies across the tech sector are already playing an important part. For instance, in 2025 alone, Microsoft is on a path to train 2.5 million American students, workers, and community members with the AI skills to land new jobs, pursue new careers, and build new businesses.

Our work is providing us with a broad perspective and a firm belief that now is the time for the country to pursue a new national goal to make AI skilling accessible and useful for every American. By definition, this will require a very broad range of partnerships, spanning across geographic, organizational, economic, and political divides.

This is why our work focuses in part on community colleges. In every part of the United States, they are integral to American workforce development, offering accessible, affordable, and flexible education. We're already partnering with the National AI Consortium for Community Colleges to provide industry-aligned AI curriculum. And we're developing faculty training through AI Bootcamps that will help prepare students with in-demand skills that meet regional workforce needs.

We've also developed new AI training programs for teachers. And we're partnering with workforce agencies to enhance AI skills and career guidance through a Microsoft Copilot for Career Navigators initiative, which provides tools to effectively support communities in the AI-driven economy.

Our goal is to reach every corner of the country, including rural communities. The National 4-H AI Skills Partnership will use Minecraft Education to introduce AI concepts and increase AI fluency for 1.4 million youth. And with the Future Farmers of America's FarmBeats for Students program, we are helping young people use AI to advance precision agriculture.

One conclusion jumps out from our work more than anything else: AI offers not only new tools for people's work but also new ways to help people learn almost anything. We have the opportunity as a country to equip all Americans with the skills needed to use AI to pursue higher-paying jobs and more successful careers. This should be our national north star.

AI exports

A third critical priority for 2025 is the promotion of American AI exports. President Trump's 2019 executive order rightly emphasized the need to promote an international environment that "opens markets for American AI industries while protecting our technological advantage in AI and protecting our critical AI technologies from acquisition by strategic competitors and adversarial nations." Since then, the advent of generative AI has increased the importance of this priority. Even more critically, the rapid development of China's AI sector has heightened competition between American and Chinese AI, with much of this likely to play out during the next four years in international markets around the world.

While the U.S. government rightly has focused on protecting sensitive AI components in secure datacenters through export controls, an even more important element of this competition will involve a race between the United States and China to spread their respective technologies to other countries. Given the nature of technology markets and their potential network effects, this race between the U.S. and China for international influence likely will be won by the fastest first mover. Hence, the United States needs a smart international strategy to rapidly support American AI around the world.

This fundamental lesson emerges from the past 20 years of telecommunications equipment exports. Initially, American and European companies such as Lucent, Alcatel, Ericsson, and Nokia built innovative products that defined international standards. But as Huawei invested in innovation and China's government subsidized sales of its products, especially across the developing world, adoption of these Chinese products outpaced the competition and became the backbone of numerous countries' telecommunications networks. This created the technology foundation for what later became an important issue for the Trump Administration in 2020, as it grappled with the presence of Huawei's 5G products and their implications for national and cybersecurity.

As we enter the second half of the decade, early signs suggest the Government of China is interested in replicating its successful telecommunications strategy. China is starting to offer developing countries subsidized access to scarce chips, and it's promising to build local AI datacenters. The Chinese wisely recognize that if a country standardizes on China's AI platform, it likely will continue to rely on that platform in the future.

The best response for the United States is not to complain about the competition but to ensure we win the race ahead. This will require that we move quickly and effectively to promote American AI as a superior alternative. And it will need the involvement and support of American allies and friends.

The United States currently has multiple advantages. American companies currently have better technology, from chips to AI models to software applications. In addition, many U.S. companies, including Microsoft, have invested heavily in building AI that is more trustworthy than most products from China. We are designing AI technology that protects cybersecurity, privacy, digital safety, and other responsible uses of AI. And we are making this technology available around the world through datacenters that meet the U.S. Government's highest cyber and physical security standards.

Increasingly, this is also backed by strong international regulatory cooperation among the North American, European, and Asian and Pacific democracies. If the Trump Administration can build upon the best AI steps that have emerged in the past four years through international AI diplomacy, including the G7, the United States will offer the world a compelling value proposition.

Equally important, American tech companies and private capital markets are investing heavily to spread American AI platforms around the world. And building on the historic Abraham Accords of President Trump's first term, the United States is forging stronger technology and economic ties with key nations and sovereign investors in the Middle East. All this is creating a powerful approach that far exceeds what the United States and Europe had available to counter Chinese government subsidies in the telecommunications space.

Microsoft itself represents this effort more than any other single entity. Last year, we announced with national leaders that we intend to invest more than $35 billion in 14 countries within three years to build trusted and secure AI and cloud datacenter infrastructure. This is part of a global infrastructure that now reaches 40 countries, including in the Global South, where China has frequently focused so many of its Belt and Road investments. To enhance our capabilities, we are partnering with the UAE's sovereign AI company, G42, to bring AI infrastructure to Kenya. And we're working with Blackrock and MGX to create an international investment fund to add up to $100 billion of additional funding for AI infrastructure and the AI supply chain.

Other companies are accelerating their investments as well. Firms like Google, Amazon, and others are investing heavily. And more private capital is joining in.

We should expect China's government to spend public funds on international subsidies to support the adoption of its technology, especially in places like Africa, Asia, and Latin America. But it will be difficult for China to match America's private sector investments and these international capital funds.

Put in this context, the most important priority for the U.S. Government won't be to match Chinese subsidies with American public spending, although there may be some parts of the developing world where development banks and foreign aid may have a role to play. Instead, the most important U.S. public policy priority should be to ensure that the U.S. private sector can continue to advance with the wind at its back. The United States cannot afford to slow its own private sector with heavy-handed regulations. The country instead needs a pragmatic export control policy that balances strong security protection for AI components in trusted datacenters with an ability for U.S. companies to expand rapidly and provide a reliable source of supply to the many countries that are American allies and friends.

Causes for American Optimism

In sum, as we look to the four years ahead, there are many reasons to be optimistic about the role of American AI.

As a nation, we have a solid AI technology foundation fueled by the world's most robust and innovative private sector. With a thoughtful approach to government policy, we can sustain our leadership through well-funded basic research at the nation's universities and broad support for private sector innovation.

Our strong educational system can spread new AI skills to work that will energize our economy. Technology platforms and non-profits can help people use AI to enhance their careers. We have the world's most dynamic business sector that excels in adopting new technology. If the Trump Administration can develop a strong national AI talent strategy and use AI to make the government itself more effective and efficient, it will put the country on a promising path.

Finally, the United States is in a strong position to win the essential race with China by advancing international adoption of American AI. American products are more trusted than their Chinese counterparts, and our private sector is unmatched in its ability to invest in infrastructure around the world. With a balanced and common-sense approach to export control policy, the United States can solidify the diplomatic relations that will be critical to global AI adoption.

The key to the future is to bring together the best of what we can offer across American society, from across our private sector, educational and non-profit institutions, and government. Teamwork based on technology collaboration will build the foundation for a golden AI opportunity—and for the next generation of American prosperity.

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