

# 1NC—TFA

Contention 1 is QUANTUM.

The US government is increasing spending.

**Pan-2/26** [Jian-Wei Pan, 2-26-2025, [physics professor @ USTC, PhD @ University of Vienna, academician of Chinese Academy of Sciences] "Quantum technologies need big investments to deliver on their big promises", Nature. <https://www.nature.com/articles/d41586-025-00564-8#:~:text=Governments%20in%20the%20United%20States,nature.com%2F3cw6qtr>.  
//DS]

Governments in the United States, Europe and China have increased their investments in quantum information research and development over the past few years. For example, the US National Quantum Initiative invested US\$3.75 billion in 2023 — nearly triple its five-year budget of \$1.3 billion (see [go.nature.com/3cw6qtr](https://go.nature.com/3cw6qtr)). The next budget is in the process of being reauthorized, with a plan to allocate \$2.7 billion over five years. But the eventual investment might be higher.

Due to these investments, the US is leading.

**Bolgar-2/19** [Bolgar, Catherine . "Microsoft's Majorana 1 Chip Carves New Path for Quantum Computing - Source." Source, 19 Feb. 2025, [news.microsoft.com/source/features/innovation/microsofts-majorana-1-chip-carves-new-path-for-quantum-computing/](https://news.microsoft.com/source/features/innovation/microsofts-majorana-1-chip-carves-new-path-for-quantum-computing/).]//PC

Microsoft today introduced Majorana 1, the world's first quantum chip powered by a new Topological Core architecture that it expects will realize quantum computers capable of solving meaningful, industrial-scale problems in years, not decades. It leverages the world's first topoconductor, a breakthrough type of material which can observe and control Majorana particles to produce more reliable and scalable qubits, which are the building blocks for quantum computers. In the same way that the invention of semiconductors made today's smartphones, computers and electronics possible, topoconductors and the new type of chip they enable offer a path to developing quantum systems that can scale to a million qubits and are capable of tackling the most complex industrial and societal problems, Microsoft said. "We took a step back and said 'OK, let's invent the transistor for the quantum age. What properties does it need to have?'" said Chetan Nayak, Microsoft technical fellow. "And that's really how we got here — it's the particular combination, the quality and the important details in our new materials stack that have enabled a new kind of qubit and ultimately our entire architecture."

Companies are moving away from Gen AI.

**Babenko-24** [Konstantin Babenko, 9-19-2024, [M.S. Computer Science @ National Technical University of Ukraine, Ph.D. Computer Science @ Institute of Cybernetics], "Why Enterprises Are Turning to Prompt Engineering Instead of Custom LLMs," Babenko. <https://archive.is/b60kw> //DS]

Beyond the technical and computational challenges, enterprises face other obstacles that make developing and deploying custom LLMs even more difficult. Financial and operational limitations are key concerns. According to Deloitte, developing a state-of-the-art LLM can cost anywhere from \$1 million to \$10 million, covering expenses like infrastructure, data acquisition, and ongoing maintenance. These high costs can be a major barrier, especially for mid-sized companies or those in industries with tight budgets. On the operational side, managing large, diverse, and up-to-date datasets is essential for training effective models, but it's not easy. Building and maintaining a strong data pipeline and governance system is challenging, and many companies struggle with data quality issues. In fact, a survey by MIT Sloan Management Review found that 47% of companies face problems with data quality, which can undermine their AI projects and reduce trust in AI systems. Moreover, because business environments change quickly, the data used to train models can become outdated, making continuous monitoring and retraining necessary. This adds further strain on resources. Additionally, companies must comply with data privacy regulations like GDPR and CCPA, adding complexity to custom LLM projects. Given these difficulties, many organizations are moving away from developing custom LLMs and are instead exploring alternatives like prompt engineering and in-context learning.

Generative AI trades off with quantum investment.

**Azhar-25** [Ali Azhar, 1-10-2025, [Senior Engineering Leader @ Meta, CTO @ ZARS Solutions, MBA @ Rutgers] “Quantum Computing Advances But Real-World Impact Remains Elusive: New Forrester Report”, Big Data Wire. <https://www.bigdatawire.com/2025/01/10/quantum-computing-advances-but-real-world-impact-remains-elusive-new-forrester-report/> //DS] Although the number of quantum computing deals hit a record in 2023, Forrester expects the “quantum investment winter” to set in.

**Investor attention has been diverted to the meteoric rise of GenAI. This slowdown will likely lead to a delay in the mainstream adoption of quantum computing.** It also means a **delay of Y2Q: the day when quantum computers break state-of-the-art asymmetric cryptography.** Forrester recommends that companies should proactively prepare to integrate and leverage quantum technology by enhancing their readiness in high-performance computing and security. Brian Hopkins, VP of Emerging Technology at Forrester shared with BigDataWire that **“Quantum computing progress may seem gradual, but breakthroughs can occur unexpectedly, accelerating development. Companies that wait for general quantum advantage might miss out as competitors advance. It’s crucial to identify and empower scientists, engineers, and analysts working in quantum-related areas.”**

## Education’s a large market.

**Jain-25** [Anurag Jain, 01-25-2025, [B.S. CS + Engineering @ Vellore Institute of Technology, Lead Product Manager @ OyeLabs], “The Role of AI in Education - Benefits, Use Cases & Examples,” OyeLabs. <https://oyelabs.com/role-of-ai-in-education-benefits-use-cases/#:::text=At%20Oyelabs%2C%20we're%20passionate,delivery%2C%20and%20efficient%20administrative%20processes.>] AB

What role does AI play in improving education? As technology continues to evolve, AI is becoming a key part of how we teach and learn. **From personalized lessons to virtual tutors, AI is making education smarter, more accessible, and more engaging. It helps teachers adjust lessons to meet each student’s needs, ensuring everyone can learn at their own pace.** AI-powered tools, like chatbots and adaptive learning systems, offer instant feedback, making the learning process more interactive and effective. **The global AI in education market reflects this momentum, with Grand View Research projecting a 36% compound annual growth rate (CAGR) from 2022 to 2030.** This growth highlights the expanding role of AI in addressing challenges like accessibility, scalability, and efficiency.

## Quantum’s early detection is key to solve future pandemics.

**Swayne-20** [Matt Swayne, 03-04-2020, [M.A. Communication & Journalism @ Penn State University, Chief Content Officer @ Resonance], “How Quantum Computers Could Be Used to Thwart a Future Pandemic,” Quantum Insider. <https://thequantuminsider.com/2020/03/04/how-quantum-computers-could/>] AB

**Quantum computers may one day give doctors and scientists an unmatched weapon in the fight against pandemics.** As the coronavirus continues to spread, dangerously teetering on the edge of a pandemic, researchers and doctors are already assessing lessons learned and planning for the next disease outbreak — and there will be a next outbreak. **Quantum computers could be the most powerful tool ever devised against the spread of that next disease.** Here are a few ways that a quantum computer could help scientists and emergency personnel in the event of a future health crisis. Although it may not seem so, epidemics don’t just manifest out of nowhere. **Typically, there are signs of a pending disease outbreak.** However, those signs might be so subtle and the variables that might tip epidemiologists off about the disease are so many, that even classical supercomputers might struggle to predict a potential outbreak. **Quantum scientists, however, believe that quantum computers give researchers the data-crunching power to predict disease spread.** This study, by **University of Alabama researcher, Brian C. Britt, shows that quantum computation can assess viral spread in networks, whether that’s a viral video moving through social media, or the next coronavirus (COVID-19) outbreak beginning its first steps toward becoming an epidemic.**

## That’s key.

**Gates-22** [Bill Gates, 04-30-2022, [B.A. @ Harvard University, Co-Founder @ Microsoft, Founder @ Breakthrough Energy, Co-Chair @ Gates Foundation], “Let’s Make This the Last Pandemic,” GatesNotes. <https://www.gatesnotes.com/Lets-make-this-the-last-pandemic>] AB **The great epidemiologist Larry Brilliant once said that “outbreaks are inevitable, but pandemics are optional.”** I thought about this quote and what it reveals about the COVID-19 pandemic often while I was working on my new book. On the one hand, it’s disheartening to imagine how **much loss and suffering could’ve been avoided if we’d only made better choices.** We are now more than two years into the pandemic. The world

did not prioritize global health until it was too late, and the result has been catastrophic. Countries failed to prepare for pandemics, rich countries reduced funding for R&D, and most governments failed to strengthen their health systems. Although we're finally reaching the light at the end of the tunnel, COVID still kills several thousand people every day. On the other hand, Dr. Brilliant's quote makes me feel hopeful. **No one wants to live through this again—and we don't have to. Outbreaks are inevitable, but pandemics are optional. The world doesn't need to live in fear of the next pandemic. If we make key investments that benefit everyone, COVID-19 could be the last pandemic ever.** This idea is what my book, *How to Prevent the Next Pandemic*, is all about. I've been part of the effort to stop COVID since the early days of the outbreak, working together with experts from inside and out of the Gates Foundation who have been fighting infectious diseases for decades. I'm excited to share what I've learned along the way, because our experience with COVID gives us a clear pathway for how to be ready next time. So, how do we do it? In my book, I explain the steps we need to take to get ready. Together, they add up to a plan for eliminating the pandemic as a threat to humanity. These steps—alongside the remarkable progress we've already made over the last two years in creating new tools and understanding infectious diseases—will reduce the chance that anyone has to live through another COVID. Imagine a scenario like this: A concerning outbreak is rapidly identified by local public health agencies, which function effectively in even the world's poorest countries. Anything out of the ordinary is shared with scientists for study, and the information is uploaded to a global database monitored by a dedicated team. If a threat is detected, governments sound the alarm and initiate public recommendations for travel, social distancing, and emergency planning. They start using the blunt tools that are already on hand, such as quarantines, antivirals that protect against almost any strain, and tests that can be performed anywhere. If this isn't sufficient, then the world's innovators immediately get to work developing new tests, treatments, and vaccines. Diagnostics in particular ramp up extremely fast so that large numbers of people can be tested in a short time. New drugs and vaccines are approved quickly, because we've agreed ahead of time on how to run trials safely and share the results. Once they're ready to go into production, manufacturing gears up right away because factories are already in place and approved. No one gets left behind, because we've already worked out how to rapidly make enough vaccines for everyone. Everything gets where it's supposed to, when it's supposed to, because we've set up systems to get products delivered all the way to the patient. Communications about the situation are clear and avoid panic. And this all happens quickly. **The goal is to contain outbreaks within the first 100 days before they ever have the chance to spread around the world. If we had stopped the COVID pandemic before 100 days, we could've saved over 98 percent of the lives lost.** I hope people who read the book come away with a sense that ending the threat of pandemics forever is a realistic, achievable, and essential goal. I believe this is something that everyone—whether you're an epidemiologist, a policymaker, or just someone who's exhausted from the last two years—should care about.

Otherwise,

**Diamandis-22** [Diamandis, Eleftherios P, 01-29-2022, [Undergraduate and graduate @ medical education at the University of Athens, Greece], "The mother of all battles: Viruses vs humans. Can humans avoid extinction in 50-100 years?." *Open life sciences* vol. 17,1 32-37. doi:10.1515/biol-2022-0005 //vy]

**The recent SARS-CoV-2 pandemic, which is causing COVID-19 disease, has taught us unexpected lessons about the dangers of human suffering through highly contagious and lethal diseases.** As the COVID-19 pandemic is now being partially controlled by various isolation measures, therapeutics, and vaccines, it became clear that our current lifestyle and societal functions may not be sustainable in the long term. We now have to start thinking and planning on how to face the next dangerous pandemic, not just overcoming the one that is upon us now. Is there any evidence that even worse pandemics could strike us in the near future and threaten the existence of the human race? The answer is unequivocally yes. It is not necessary to get infected by viruses found in bats, pangolins, and other exotic animals that live in remote forests to be in danger. **Creditable scientific evidence indicates that the human gut microbiota harbor billions of viruses that are capable of affecting the function of vital human organs such as the immune system, lung, brain, liver, kidney, or heart.** It is remotely possible that the **development of** pathogenic variants in the gut can lead to contagious viruses, which can cause pandemics, leading to the destruction of vital organs, causing death or various debilitating diseases such as blindness, respiratory, liver, heart, and kidney failures. **These diseases could result in the complete shutdown of our civilization and probably the gradual extinction of the human race.** This essay will comment on a few independent pieces of scientific facts, and then combine this information to come up with some (but certainly not all) hypothetical scenarios that could cause human race misery, even extinction, in the hope that these hypothetical scenarios will trigger preventative measures that could reverse or delay the projected adverse outcomes.

It's existential.

**Recna-21** [Research Center for Nuclear Weapons Abolition, 1-20-2021, "Pandemic Futures and Nuclear Weapon Risks: The Nagasaki 75th Anniversary pandemic-nuclear nexus scenarios final report" Nautilus.)  
<https://nautilus.org/napsnet/napsnet-special-reports/pandemic-futures-and-nuclear-weapon-risks//vy>

The most important issue, therefore, is how the coronavirus (and future pandemics) will increase or decrease the risks associated with these twin threats, climate change effects, and the next use of nuclear weapons in war.<sup>5</sup> **Today, the nine nuclear weapons arsenals not only can annihilate hundreds of cities, but also cause nuclear winter and mass starvation of a billion**

or more people, if not the entire human species. Concurrently, climate change is enveloping the planet with more frequent and intense storms, accelerating sea level rise, and advancing rapid ecological change, expressed in unprecedented forest fires across the world. Already stretched to a breaking point in many countries, the current pandemic may overcome resilience to the point of near or actual collapse of social, economic, and political order. In this extraordinary moment, it is timely to reflect on the existence and possible uses of weapons of mass destruction under pandemic conditions – most importantly, nuclear weapons, but also chemical and biological weapons. Moments of extreme crisis and vulnerability can prompt aggressive and counterintuitive actions that in turn may destabilize already precariously balanced threat systems, underpinned by conventional and nuclear weapons, as well as the threat of weaponized chemical and biological technologies. Consequently, the risk of the use of weapons of mass destruction (WMD), especially nuclear weapons, increases at such times, possibly sharply. The COVID-19 pandemic is clearly driving massive, rapid, and unpredictable changes that will redefine every aspect of the human condition, including WMD – just as the world wars of the first half of the 20th century led to a revolution in international affairs and entirely new ways of organizing societies, economies, and international relations, in part based on nuclear weapons and their threatened use. In a world reshaped by pandemics, nuclear weapons—as well as correlated non-nuclear WMD, nuclear alliances, “deterrence” doctrines, operational and declaratory policies, nuclear extended deterrence, organizational practices, and the existential risks posed by retaining these capabilities —are all up for redefinition.

## Contention 2 is REGULATIONS.

### Trump’s making AI great again.

**Booth-24** [Harry Booth, 11-8-2024, (AI Reporter @ Time, B.A. in Global Politics @ University of Auckland), “What Donald Trump’s Win Means For AI,” Time Magazine. <https://time.com/7174210/what-donald-trump-win-means-for-ai/> DOA: 2/27/2025] //vy

Trump’s first major AI policy move will likely be to repeal President Joe Biden’s Executive Order on AI. The sweeping order, signed in October 2023, sought to address threats the technology could pose to civil rights, privacy, and national security, while promoting innovation, competition, and the use of AI for public services. Trump promised to repeal the Executive Order on the campaign trail in December 2023, and this position was reaffirmed in the Republican Party platform in July, which criticized the executive order for hindering innovation and imposing “radical leftwing ideas” on the technology’s development. Read more: Republicans’ Vow to Repeal Biden’s AI Executive Order Has Some Experts Worried Sections of the Executive Order which focus on racial discrimination or inequality are “not as much Trump’s style,” says Dan Hendrycks, executive and research director of the Center for AI Safety. While experts have criticized any rollback of bias protections, Hendrycks says the Trump Administration may preserve other aspects of Biden’s approach. “I think there’s stuff in [the Executive Order] that’s very bipartisan, and then there’s some other stuff that’s more specifically Democrat-flavored,” Hendrycks says. “It would not surprise me if a Trump executive order on AI maintained or even expanded on some of the core national security provisions within the Biden Executive Order, building on what the Department of Homeland Security has done for evaluating cybersecurity, biological, and radiological risks associated with AI,” says Samuel Hammond, a senior economist at the Foundation for American Innovation, a technology-focused think tank. The fate of the U.S. AI Safety Institute (AISi), an institution created last November by the Biden Administration to lead the government’s efforts on AI safety, also remains uncertain. In August, the AISi signed agreements with OpenAI and Anthropic to formally collaborate on AI safety research, and on the testing and evaluation of new models. “Almost certainly, the AI Safety Institute is viewed as an inhibitor to innovation, which doesn’t necessarily align with the rest of what appears to be Trump’s tech and AI agenda,” says Keegan McBride, a lecturer in AI, government, and policy at the Oxford Internet Institute. But Hammond says that while some fringe voices would move to shutter the institute, “most Republicans are supportive of the AISi. They see it as an extension of our leadership in AI.” Read more: What Trump’s Win Means for Crypto Congress is already working on protecting the AISi. In October, a broad coalition of companies, universities, and civil society groups—including OpenAI, Lockheed Martin, Carnegie Mellon University, and the nonprofit Encode Justice—signed a letter calling on key figures in Congress to urgently establish a legislative basis for the AISi. Efforts are underway in both the Senate and the House of Representatives, and both reportedly have “pretty wide bipartisan support,” says Hamza Chaudhry, U.S. policy specialist at the nonprofit Future of Life Institute. America-first AI and the race against China Trump’s previous comments suggest that maintaining the U.S.’s lead in AI development will be a key focus for his Administration. “We have to be at the forefront,” he said on the Impulsive podcast in June. “We have to take the lead over China.” Trump also framed environmental concerns as potential obstacles, arguing they could “hold us back” in what he views as the race against China. Trump’s AI policy could include rolling back regulations to accelerate infrastructure development, says Dean Ball, a research fellow at George Mason University. “There’s the data centers that are going to have to be built. The energy

to power those data centers is going to be immense. I think even bigger than that: chip production," he says. "We're going to need a lot more chips." While Trump's campaign has at times attacked the CHIPS Act, which provides incentives for chip makers manufacturing in the U.S. leading some analysts to believe that he is unlikely to repeal the act. Read more: What Donald Trump's Win Means for the Economy Chip export restrictions are likely to remain a key lever in U.S. AI policy. Building on measures he initiated during his first term—which were later expanded by Biden—Trump may well strengthen controls that curb China's access to advanced semiconductors. "It's fair to say that the Biden Administration has been pretty tough on China, but I'm sure Trump wants to be seen as tougher," McBride says. It is "quite likely" that Trump's White House will "double down" on export controls in an effort to close gaps that have allowed China to access chips, says Scott Singer, a visiting scholar in the Technology and International Affairs Program at the Carnegie Endowment for International Peace. "The overwhelming majority of people on both sides think that the export controls are important," he says. The rise of open-source AI presents new challenges. China has shown it can leverage U.S. systems, as demonstrated when Chinese researchers reportedly adapted an earlier version of Meta's Llama model for military applications. That's created a policy divide. "You've got people in the GOP that are really in favor of open-source," Ball says. "And then you have people who are 'China hawks' and really want to forbid open-source at the frontier of AI." "My sense is that because a Trump platform has so much conviction in the importance and value of open-source I'd be surprised to see a movement towards restriction," Singer says. Despite his tough talk, Trump's deal-making impulses could shape his policy towards China. "I think people misunderstand Trump as a China hawk. He doesn't hate China," Hammond says, describing Trump's "transactional" view of international relations. In 2018, Trump lifted restrictions on Chinese technology company ZTE in exchange for a \$1.3 billion fine and increased oversight. Singer sees similar possibilities for AI negotiations, particularly if Trump accepts concerns held by many experts about AI's more extreme risks, such as the chance that humanity may lose control over future systems.

Indeed,

**Potas-25** [Dace Potas, 02-02-2025, (B.A. Political Science @ DePaul University, Columnist @ USA Today), "Trump is right to invest in AI development. But is it too late to beat China?", USA Today. <https://www.usatoday.com/story/opinion/columnist/2025/02/02/deepseek-ai-trump-invest-development/78035041007/> DOA: 2/27/2025] AB Prevailing in the AI arms race is essential for America to prevent the Chinese Communist Party from shaping worldwide narratives and ultimately expanding its international influence. Beyond the economic downside of more nations cozying up to China, Americans should worry about an authoritarian, genocidal regime gaining more influence over the international community. Trump has wisely chosen to invest in American artificial intelligence DeepSeek's arrival comes just days after President Donald Trump announced a \$100 billion investment in AI infrastructure under the name Stargate, a collaboration by Oracle, OpenAI and Japanese technology giant SoftBank. Additional investments, bringing the total up to \$500 billion, are anticipated to follow. Trump also has ordered a review of existing policies to determine which regulatory burdens are hindering AI development, allowing developers to make advancements without restraint. Opinion: Tablets, screen time aren't 'parenting hacks.' They're killing kids' attention spans. These efforts are a good start, but the United States needs to do more if it wants to remain at pace with China, where innovation is already in full swing. Facilitating American investments in the AI landscape is pivotal in our race against China in pioneering these new technologies. Trump is taking positive action in promoting investments in these fields, and I would like to see his administration continue to facilitate investment in infrastructure. American companies need help pushing AI innovation Trump should continue to roll back red tape and unnecessary regulations that only stifle innovation. Allowing American companies to innovate without impediment is vital to allowing the free market to take the lead over China. At the same time, closing loopholes and combating the smuggling of intelligence chips into China is vital to maintaining our advantage. This is a fight in which we must play offense and defense. While Trump's initial actions to promote domestic AI innovation are positive, this will be an issue that demands prolonged attention throughout his second administration. Eliminating red tape, encouraging investment in AI infrastructure and combatting China directly are all essential to winning the next frontier of innovation.

Universities drive private sector AI development.

**Schmidt-ND** [Dr. Eric Schmidt, No Date, (Chair @ NSCAI, Fmr. CEO @ Google, Co-Founder @ Schmidt Futures, B.S.E @ Princeton, M.S. + P.h.D @ UC Berkeley), "Chapter 11: Accelerating AI Innovation," National Security Commission on Artificial Intelligence.



<https://reports.nscai.gov/final-report/chapter-11?overlay=Brain-Drain DOA: 2/27/2025>] //vy

**American technology firms are accountable to their shareholders and will logically not invest in areas of national security importance or make uncertain bets on fundamental research that does not hold commercial or economic benefit for the company.<sup>1</sup> While return-focused investments can lead to applications that contribute to the public good or benefit government work, there are gaps. ML and the underlying algorithms were in exactly this position two decades ago—seemingly without commercial promise—only to be sustained by federal research dollars** until computing power and an overabundance of data transformed the discipline.<sup>2</sup> **A recent study found that 82% of the algorithms in use today originated from federally funded non-profits and universities, compared to just 18% that originated from private companies.<sup>3</sup>**

**But, they are incentivized to regulate.**

**Aniston-24** [Amber Aniston, 10-17-2024, (Analyst @ MLS PLLC), "Urgent Need for AI Policies in Education," Masterly Legal Solutions PLLC. <https://www.masterlylegal.com/why-schools-must-act-now-the-urgent-need-for-ai-policies-in-education DOA: 3/3/2025>] //vy + AB  
Schools need to create policies that address these concerns and clearly define acceptable AI use. The challenge is finding a balance between embracing the benefits of AI while maintaining the principles of academic honesty and critical thinking that are the bedrock of education. **In today's rapidly changing digital environment, failing to create these policies opens schools up to legal risk** and undermines the credibility of academic achievements. Why Schools Need AI Policies Now **With AI's growing presence in classrooms**, schools cannot afford to delay the creation of formal AI policies. These policies need to be more than just a set of rules; they should be comprehensive frameworks that guide both students and teachers on the responsible use of AI. Without such policies, schools may struggle to maintain fairness, transparency, and accountability, which are essential in education. The case in Massachusetts is a prime example of how the absence of an AI policy can lead to confusion and disputes. The student and his family argued that AI was used for research purposes, much like using a search engine, and did not constitute cheating. However, because the school had no clear rules about AI use, the student faced serious consequences. The lack of a formal policy put the school in a precarious position, exposing it to **legal action and potential damage to its reputation**. This incident is just one of what **could be many cases if schools do not act swiftly to regulate AI use. As AI continues to develop and become even more embedded in the academic world, schools must take proactive steps to protect** their students and staff **from unnecessary legal risks**. By implementing AI policies now, schools can ensure they are prepared for the future and minimize the chance of facing similar legal challenges. Legal Risks of Inaction **Schools that fail to implement clear AI policies risk facing legal battles** similar to the one in Massachusetts. Without a formal policy, disciplinary actions for AI use are vulnerable to legal scrutiny. Students may argue that they were unaware of the rules regarding AI, leading to lawsuits over unfair punishments. Moreover, **schools that rely on outdated or vague policies may find themselves on the losing side of legal disputes, especially if the courts view AI as an emerging technology that requires explicit guidelines**. Beyond individual lawsuits, schools also risk **long-term reputational damage if they are perceived as unprepared to handle the complexities of AI in education**. Parents, students, and faculty expect educational institutions to provide clear guidance on how to use new technologies responsibly. Schools that fail to do so may lose the trust of their communities **and find it harder to attract top talent in both their student body and teaching staff**. Additionally, **universities and colleges are already beginning to implement their own AI policies**. As more higher education institutions formalize their rules around AI, K-12 schools will likely need to follow suit to ensure that their students are prepared for the expectations of university life. The sooner schools establish AI policies, the better positioned they will be to navigate the inevitable challenges that come with integrating AI into the educational system.

**Indeed,**

**Poinski-24** [Megan Poinski, 4-18-2024, (B.A. Journalism @ George Washington, M.I.M. Information Management @ University of Maryland), "AI Regulation Has Strong Bipartisan Approval", Forbes.

<https://www.forbes.com/sites/cio/2024/04/18/ai-regulation-has-strong-bipartisan-approval/>] AB

**Even in these polarized times, there is one thing most Americans actually do agree on: The U.S. government needs to regulate AI.** That's the topline finding from a recent survey published by the Program for Public Consultation at the University of Maryland's School of Public Policy. Researchers briefed 3,610 registered voters about some of the major issues about AI regulation, giving them arguments in favor of regulations as well as against them, then asked their opinion. **The results were very clear: Both Republicans and Democrats are strongly in favor.** The specific policies asked about on the survey include **creating a new federal agency to oversee AI (supported by 74% total, including 68% of Republicans and 81% of Democrats)**. In the area of deepfakes, respondents agreed they should be prohibited in political campaign

ads (84% total), and all of them should be clearly labeled (83% total). There was also consensus that AI systems used to make decisions that impact people—including healthcare, banking, hiring, criminal justice and welfare—should be regulated. **More than eight in 10 of all respondents said AI systems should pass tests to determine compliance with regulations, biases and security vulnerabilities before launch.** A total of 77% said the government should be able to audit programs that are currently in use, and 72% want to require companies to disclose information about how their AI system was trained to the government. **“Americans are wary of government regulation, but they are clearly more wary of the unconstrained development and use of AI.”** PPC Director Steven Kull said in a written statement.

## Even uncertainty triggers it.

**Urcan-24** [Oktay Urcan, 12-16-2024, (Professor of Accounting @ UIUC), “Do AI Laws Inhibit Innovation?” SSRN.

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=5046045](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5046045) DOA: 2/27/2025] AB

**AI regulation could depress AI innovation given the uncertainty of how new laws and regulations will impact payoffs from investment (Callander and McCarty 2024). AI regulation can induce regulatory uncertainty causing firms to restrict their use of AI.** The uncertainty is the result of ambiguity regarding the future direction of AI regulation and how policy interventions will be enforced (Beazer 2012; Fowler 2006). Prior literature documents that regulations in other settings have induced more uncertainty, rather than resolving it, including with respect to option exchanges (Battalio and Schultz 2011) and FinTech (Campello, Cong, and Dietrich 2024). **During periods of heightened regulatory uncertainty, firms are unlikely to undertake risky activities (Park, Wu, and Funk 2024). With respect to AI, this could cause firms to restrict data used in training AI models to develop and customize products and services. Regulatory uncertainty can also prevent firms from experimenting and learning from various alternatives (Babina et al. 2024). By causing firms to forego such investments, regulatory uncertainty can reduce AI’s potential to generate new ideas, evaluate alternative ideas, improve decision making, accelerate prototyping, and speed up risk assessment thereby slowing the pace of innovation** (Kulakauskaitė 2024). We state our main hypothesis as follows:

## And within universities,

**Barnes-23** [Julian E. Barnes, 10-18-2023, [B.A. Social Studies @ Harvard University, National Security Reporter @ NYT], “Allied Spy Chiefs Warn of Chinese Espionage Targeting Tech Firms,” The New York Times.

<https://www.nytimes.com/2023/10/18/us/politics/china-spying-technology.html> DOA: 2/27/2025] //vy

“That unprecedented meeting is because **we are dealing with another unprecedented threat,**” said Christopher A. Wray, the F.B.I. director. **“There is no greater threat to innovation than** the Chinese government.” The warnings come as the United States and China engage in an intense, and expanding, spy-versus-spy contest, and as U.S. officials say that **China’s espionage efforts have reached across every facet of national security, diplomacy and advanced commercial technology in the United States** and partner nations. The intelligence chiefs said they were making the case to private industry that the security interests of the West were aligned with their business interests. No one profits if China steals intellectual property, they argued. The spy chiefs said **China is intensely interested in Western artificial intelligence**, a technology that will allow countries to improve their intelligence collection and analysis and is set to be a driver of economic gains for years. Just before the spy chiefs met on Tuesday, the Biden administration announced that it was limiting the sale of advanced semiconductors to China, a restriction that could curb China’s development of artificial intelligence. At a news conference on Tuesday evening, Mr. Wray said **China was stealing American technological know-how and then turning around and using the stolen knowledge to steal more.** “They are using A.I. to improve their already massive hacking operations, in effect using our own technology against us,” Mr. Wray said. Ken McCallum, the director general of MI5, said that the number of investigations into Chinese espionage had risen substantially in Britain since 2018, and that China had increased the number of approaches it has made to potential informants there. The technologies China is trying to steal have potential to transform both economics and security, and **China is undertaking an ambitious effort of large scale,** he said. **“If you are anywhere near the cutting edge of tech, you may not be interested in geopolitics, but geopolitics is interested in you,”** Mr. McCallum said. The **intelligence chiefs said China was using hacking, pressure on Chinese students,** informants in Western companies and joint ventures with Western firms to try **to steal critical technology.** David Vigneault, the director of the Canadian Security Intelligence Service, said Western companies needed to understand that China had **“changed the rules of the game.”** He said **laws in China compelled its nationals anywhere in the world to provide information to Beijing’s intelligence services.** “It means **they have a way to coerce people**

here in our countries to essentially tell them, to give them the secrets,” Mr. Vigneault said. U.S. national security officials have said that preventing Beijing from imposing its rules on people overseas is a top priority. The United States is working to shut down illegal overseas police stations that the Justice Department says are used to monitor and intimidate dissidents. Mike Burgess, the director general of the Australian Security Intelligence Organization, said China was exploiting the openness of the West, and the desire of Western universities to collaborate.

**All this is putting us at the brink.**

**Buchaniec-22** [Catherine Buchaniec, 9-13-2022, (B.S. Journalism & Political Science @ Northwestern, M.S. Journalism @ Northwestern), “US approaching ‘critical time’ in tech race with China,” C4 Isrnet.  
<https://www.c4isrnet.com/artificial-intelligence/2022/09/13/us-approaching-critical-time-in-tech-race-with-china-report-says/> DOA: 2/27/2025] //vy

The nearly 200-page assessment, called the “Mid-Decade Challenges to National Competitiveness,” is the first published by the Special Competitive Studies Project, a private group led by Eric Schmidt, former Google CEO and co-chairman of the U.S. government’s National Security Commission on Artificial Intelligence, and Work, who serves on the group’s board of advisors. The organization seeks to build on the work completed by the congressionally mandated AI commission, which identified technology as the central element of the rivalry between the U.S. and China. The commission wrapped up its work last October. According to the report, the years 2025 to 2030 will prove critical in deciding whether the U.S. keeps pace or falls behind in the technology battle. Losing the competition could comprise Americans’ daily lives, the report said. Not only could China use its techno-economic advantage for political leverage, but Chinese domination could threaten free access to the internet and create a dependence on the country for most core digital technologies, making nations vulnerable to cyber attacks. “Up to this point, because of the 20 years we spent in the Middle East, it kind of took our eyes off the ball.” Work said. “As this technological rivalry and competition was really growing in strength, we didn’t really respond as we normally have done in the past.” Three technology battlegrounds — microelectronics, fifth-generation wireless technology (5G), and AI — tell the story of the U.S. and its allies coming perilously close to ceding the strategic technology landscape, the report said. Those technologies represent the critical hardware, network infrastructure and software underpinning everyday life in the U.S. as well as the country’s national security apparatus.

**Crucially,**

**Kroenig-19** [Matthew Kroenig, 11-12-2019, (Published author, Associate Professor of Government and Foreign Service at Georgetown University and Deputy Director for Strategy in the Scowcroft Center for Strategy and Security at the Atlantic Council.), “Will disruptive technology cause nuclear war?” The Bulletin.  
<https://thebulletin.org/2018/11/will-disruptive-technology-cause-nuclear-war/> DOA: 1/14/2024] //recut vy

Rather, we should think more broadly about how new technology might affect global politics, and, for this, it is helpful to turn to scholarly international relations theory. The dominant theory of the causes of war in the academy is the “bargaining model of war.” This theory identifies rapid shifts in the balance of power as a primary cause of conflict. International politics often presents states with conflicts that they can settle through peaceful bargaining, but when bargaining breaks down, war results. Shifts in the balance of power are problematic because they undermine effective bargaining. After all, why agree to a deal today if your bargaining position will be stronger tomorrow? And, a clear understanding of the military balance of power can contribute to peace. (Why start a war you are likely to lose?) But shifts in the balance of power muddy understanding of which states have the advantage. You may see where this is going. New technologies threaten to create potentially destabilizing shifts in the balance of power. For decades, stability in Europe and Asia has been supported by US military power. In recent years, however, the balance of power in Asia has begun to shift, as China has increased its military capabilities. Already, Beijing has become more assertive in the region, claiming contested territory in the South China Sea. And the results of Russia’s military modernization have been on full display in its ongoing intervention in Ukraine. Moreover, China may have the lead over the United States in emerging technologies that could be decisive for the future of military acquisitions and warfare, including 3D printing, hypersonic missiles, quantum computing, 5G wireless connectivity, and artificial intelligence (AI). And Russian President Vladimir Putin is building new unmanned vehicles while ominously declaring, “Whoever leads in AI will rule the world.” If China or Russia are able to incorporate new technologies into their militaries before the United States, then this could lead to the kind of rapid shift in the balance of power that often causes war. If Beijing believes emerging technologies provide it with a newfound, local military advantage over the United States, for example, it may be more willing than



previously **to initiate conflict over Taiwan. And** if Putin thinks new tech has strengthened his hand, he may be more tempted to launch a Ukraine-style invasion of a NATO member. Either **scenario could bring these nuclear powers into direct conflict with the United States, and once nuclear armed states are at war, there is an inherent risk of nuclear conflict through limited nuclear war strategies, nuclear brinkmanship, or simple accident or inadvertent escalation.** This framing of the problem leads to a different set of policy implications. The concern is not simply technologies that threaten to **undermine** nuclear second-strike capabilities directly, but, rather, any technologies that **can result in a meaningful shift in the broader balance of power.** And the solution is not to preserve second-strike capabilities, but **to preserve prevailing power balances more broadly. When it comes to new technology, this means that the United States should seek to maintain an innovation edge.** Washington should also work with other states, including its nuclear-armed rivals, to develop a new set of arms control and nonproliferation agreements and export controls to deny these newer and potentially destabilizing technologies to potentially hostile states. These are no easy tasks, but **the consequences of Washington losing the race for technological superiority to its autocratic challengers just might mean nuclear Armageddon.**

### Contention 3 is FINANCES.

#### University finances are perilous

**Wadhwani-25** [Emily Wadhwani, 1-15-2025, (Senior Director @ Fitch, MBA @ Iowa, B.A. @ Creighton), "U.S. Higher Education Navigating Numerous Changes in 2025," Fitch Ratings.

<https://www.fitchratings.com/research/us-public-finance/us-higher-education-navigating-numerous-changes-in-2025-15-01-2025> DOA: 2/25/2025] //vy

Fitch Ratings-Chicago/New York-15 January 2025: While the universe of Fitch-rated U.S. colleges remain fundamentally stable in performance, cracks will continue to surface this year, as discussed in a webinar hosted by Fitch Ratings yesterday.

Fitch maintains a **deteriorating sector outlook for higher education in 2025, driven** in part **by a softer operating environment, reduced financial flexibility, a fragile international enrollment pipeline, and an expectation for increased consolidation and college closures.** Though much of the sector's unrest comes from unrated colleges, even rated **institutions** at both ends of the rating spectrum **are now also facing reduced an increasingly challenging fundraising environment, shrinking class sizes and more intense cost control pressures.**

The perceived value of higher education versus its cost is a long-term behavioral shift that colleges will have to navigate, with the incoming administration being an important barometer for how the sector may fare, according to Fitch Senior Director Emily Wadhwani.

**"With tuition growth still moderating, flattening enrollment prospects, and a great deal of policy uncertainty** at both state and federal levels, **margins will likely remain very modest at best in fiscal 2025,"** said Wadhwani. **"Further, endowments have benefitted from recent market gains, but access to ready liquidity will continue to be critical as colleges navigate operating and environmental uncertainty."**

**State funding should help keep financial risk at bay in the near term,** a bright spot of sorts tempered by more intangible risks the sector faces. Key person risk is a particular area of concern, with Wadhwani pointing to more 'turnover at the top' as average tenure of university presidents continues to decline. "There is also an elevated percentage of university staff that are very likely looking for new employment over the next 12 months," said Wadhwani.

#### Specifically,

**Dickler-24** [Jessica Dickler, 12-22-2024, (Financial Journalist @ CNBC, B.A. in Political Science @ Johns Hopkins, M.A. @ Columbia SIPA), "College closures expected to spike amid 'unprecedented fiscal challenges,' Fed research finds," CNBC.

<https://www.cnbc.com/2024/12/11/college-closures-could-jump-amid-financial-challenges-fed-research.html> DOA: 2/25/2025] //vy

But now, **the number of colleges set to close in the next five years is expected to spike,** a new study found.

**Higher education, as a whole, is "facing serious financial headwinds** both due to long-term trends and to the post-pandemic recovery," according to a working paper by the Federal Reserve Bank of Philadelphia.

**"Colleges and universities are facing unprecedented fiscal challenges in today's economic climate," the Fed researchers wrote.**

More from Personal Finance:

The 2025-26 FAFSA is open ahead of schedule

These are the top 10 highest-paying college majors

More of the nation's top colleges roll out no-loan policies

At least 20 colleges closed in 2024, and another nine schools announced they will close in 2025, according to the latest tally by Implan, an economic software and analysis company. In the worst-case scenario, as many as 80 additional colleges would shut from 2025 to 2029, the Fed analysis found.

## AI expenditures are the cause

**Burke-25** [Lilah Burke, 1-2-2025, (Fmr. Reporter @ Inside Higher Ed, News Intern @ Bloomberg Law, B.S. in Foreign Service @ Georgetown, M.A. in Journalism @ CUNY), "Why more colleges are embracing AI offerings," Higher Ed Drive. <https://www.highereddiver.com/news/colleges-artificial-intelligence-programs-investments/736196/> DOA: 2/25/2025] //vy

Despite the growing interest in the emerging technology, investing in AI-related programming is often difficult. For one, depending on the level and focus, it can be expensive. AI curricula can require colleges to hire qualified faculty and staff and pay for significant computing power.

That's why many of the institutions that are investing in AI, such as Carnegie Mellon University and Massachusetts Institute of Technology, are well-resourced with large endowments, Koslosky said.

Other institutions are pursuing partnerships with industry to make their goals possible. University of Florida, for instance, has a partnership with chipmaker Nvidia, which includes a \$50 million gift from the company and one of its cofounders. Arizona State University is partnering with OpenAI, to provide enterprise subscriptions to ChatGPT for approved faculty and staff.

Stony Brook University, part of the State University of New York system, recently expanded an AI institute into a universitywide initiative, which will focus on research and applications in healthcare, infrastructure, education and finance. The university is investing about \$15 million, which includes support from Empire AI, a college research consortium focused on AI and heavily funded by the state.

Stony Brook Provost Carl Lejuez said that "\$15 million is nothing and a lot of money all at the same time."

"We're seeing companies struggle with this immensely because they're having to make decisions about — are they going to fall behind so far that they're not going to be able to compete?" Lejuez added. "But in the meantime they're spending millions and in some cases billions in cases where they're not generating real revenue yet."

Whether an investment in AI programming is right for an institution will likely depend on its circumstances, including its resources, faculty, mission and connections to industry.

"If you're a major research university, you're going to be really far behind if you are not investing in this," Lejuez said. "For research universities, it's an absolute necessity."

For other institutions though, a big AI investment might be riskier.

"If your school doesn't have a huge computer science department and doesn't have a lot of industry connections to companies using AI or building AI, then you shouldn't drop everything to stand up a brand new AI program right now," Koslosky said.

Additionally, investments in AI are so far untested. Although many business leaders believe AI is going to change the American workforce, that transformation hasn't fully come to pass. Although current research predicts the number of AI jobs trending upwards, what those jobs look like might change. That means that trying to integrate AI into other disciplines is the financially safer approach, Koslosky said.

"Schools are struggling with lots of things and balancing competing priorities," he said. "AI is important and will continue to be, but it's not the only important thing."

## Indeed,

**Tobenkin-24** [David Tobenkin, May/June 2024, (Senior Industry Analyst @ Federal Energy Regulatory Commission, B.A. @ Berkeley), "Artificial Intelligence and the Future of Higher Education, Part 2," AGB

<https://agb.org/trusteeship-article/artificial-intelligence-and-the-future-of-higher-education-part-2/> DOA: 3/3/2025] //vy \*brackets are og

Institutions that intend to drive AI change through major initiatives will have to be aware of the need to provide adequate resources to support ambitious AI and other data analytics efforts, Hilbelink says. "As an example, at one well-known institution, a [chief information officer] said he was told that they were going to hire 100 new faculty next year, which is a lot of new faculty, yet were not going to give a penny to increasing technology services, showing that they're not necessarily taking into consideration the IT needs that would grow with that number of new faculty. So that's a perfect example of a school not thinking towards the future."

But many institutions are not, and will never be, on the leading edge of AI change by design, says Andrew Louder, associate vice president of programs at AGB and a board member of Wheaton College in Massachusetts. Major initiatives to drive and steer AI on campus can represent enormous financial and reputational gambles that many universities and colleges

simply **cannot afford**, he notes. For such institutions, it may be a perfectly legitimate approach to allow better-funded peers to be pioneers and to learn from their experiences. “Tech revolutions don’t always happen in sweeping fashion, the way that futurists predict,” Louder says.

## Universities are key for The Great Filter

**Murphy-16** [Ryan J. A. Murphy, December 2016, (PhD in Management + M.A. in Strategic Innovation @ OCAD University, B.S. @ Memorial university), “Innovation Education,” Fulcrum Design.  
[https://fulcrum.design/files/\\_innovation-education-murphy-2016.pdf](https://fulcrum.design/files/_innovation-education-murphy-2016.pdf) DOA: 3/4/2025] //vy

The **apparent loneliness of humanity** is an **important** prompt for another reason: **total existential terror**.

One solution to the Fermi Paradox is called the Great Filter. **The Great Filter theory suggests that the absence of advanced interstellar life in the universe is due to the fact that every civilization** that reaches a certain stage of achievement **is “filtered” by some unknown force(s)**. While many questions exist about the Great Filter theory, the most important question is arguably the most pragmatic (Hason, 1998): Does the Great Filter lie in our past, or have we yet to meet it? Many have speculated about the what the filter may actually be. Some cosmic demon? Simple bolide collisions? In my mind, only one possible threat is clearly on the horizon of the present day: ourselves. Indeed, it takes little more than a skim of Christakis’ (2006) continuous critical problems to identify several handy levers by which to assure our own self-destruction. In fact, it was announced on the day of this passage’s first writing that atmospheric carbon dioxide has reached 400ppm—making anthropogenic climate change a particularly salient option. But again, what does all of this have to do with education? I take it as intuitively true that **many** of Christakis’ **continuous critical problems** have only **grown more untamed** since he authored his list in 2006. This means **the world’s problems have become even harder to solve, and it is becoming ever more paramount that we solve them. To do so requires that humanity work at its best. We need solutions to carbon sequestration, efficient sustainable energies, safe parameters on artificial intelligence, overpopulation, epidemic superbacteria, and hundreds of other challenges that could threaten the prosperity and survival of humanity. The brightest minds must find their way into roles that will allow them to develop true, implementable solutions to remediate and resolve these challenges.** But—at the same time—other challenges such as the gap between rich and poor, discrimination, and many more create insurmountable barriers, preventing many from becoming those brightest minds. I believe that **the only solution to** both of **these** categories of problems—**existential threats** and disabling barriers—**is found in an** accessible, **effective education system**. This system would simultaneously help people find their niche while enabling them to achieve their maximum potential in that niche. No, not everyone will invent the technology that will allow us to efficiently capture and store carbon from the atmosphere, but we all have a role to play in enabling those that do to succeed. In sum: **the Great Filter lies ahead of us, and only through excellent education systems will we have the capacity to get through it.**

## And sustainability.

**Whyte-23** [Dennis G. Whyte, 9-29-2023, (Hitachi America Professor of Engineering @ MIT, 300+ publications, Fellow @ American Physical Society, PhD @ University of Quebec, B.Eng @ University of Saskatchewan), “The academic research ecosystem required to support the development of fusion energy,” Physics of Plasmas, AIP Publishing.

[\*\*The root of fusion energy is the physics of plasma confinement and stability. This arises from the Lawson criterion\*\* \(see Wurzel et al.8 for a recent exposition\), \*\*which sets minimum temperatures\*\* above 4 keV for the fusion fuel, \*\*thus assuring that the fuel is in the plasma state. However\*\*, the Lawson criterion only specifies the required prod- uct of density and confinement to meet a specific plasma energy gain factor or ignition. The consequence is that \*\*the plasma state can vary over enormous ranges\*\*, spanning from 1020 m<sup>3</sup> in magnetic con- finement to >1030 m<sup>3</sup> in inertial confinement, with the correspond- ing confinement times varying from 1 s down to <1 ns. This fact alone \*\*means that fusion can be tackled by an extraordinary range of innovative plasma confinement methodologies. Moreover, plasma physics and applications are so broad that the field of fusion plasmas is effectively a sub-discipline. The difficulty of\*\*](https://watermark.silverchair.com/090604_1_5_0167369.pdf?token=AQECALH208BE49Ooan9khw_Ercy7Dm3ZL_9CF3qfKAc485ysgAAB3wwggd4BgkqhkiG9w0BBwagggdpmIIHQIBADCCB14GCSqGSIb3DQEHAeBgIghkqBZQMEAS4wEQQM20SVKHamfWBPke5AgEQHLLDDbVhGfBHaTSHCFUEG1iy8wOkmXehVfjMvDszLENLYFOQSpSiorXQkIt-G_u5iYCWLDxtSNDQqjCsYXitAZfmbYb1B2n896O_01eEUplk-VGRQsofMwvA8QztcCQnZyXogbtJ9neycU9njXi0pmOxK1RUqULsM42-yenMol4HP93b25BIDaXsCDP6gIC_zHL4PIe6SV8fuibLYOXymx7nVlSqOPWibGh9gKAJ3nMATE_d3cmY3xYSeJXuNuujikJkXTJ21alK9HZS25Aru2Vklmsa5WcE87RVUQJfdjm3aPLV5NuNoik050IWoVwEntp92Ncx1gqvTTA8BXdq3QCTOCpV0ko5HeK7Xc9z70VreP02sdqEVfHTG44rHfvyGvcB9lu1mbsB8Yw54q6vqB8X95kxUBE_glfY621n4YiM47UrtV9Aue7Yabwaf7XP8BoqNc4QPkhzWklqm4JR-1D1WfXR-x3j6j5JA0IIRD72sdYnnNIPFO-29eRPjcmjimu_U-BY-IKJlgnwV5jSwd2TysAxWjVgsarVLda8RezzCA41lW58Tua9V9V2F-yoyYy2cpPe3yGPPXGWcwsOvX-5oBm-9M_0dagEOxxBaDyiNpDdXcjTYa-z3bYyx-Qhx47NXoZIBWORI1Jkw5b57VZ_5w5ek6nd5k5BEKKOANDfwaYB29qrPdUe1XOnNLRXOoHISjF_iuPzrbQkN8w8X4R1dKUIUKf2dyd8WgQPeADydwYhCZpTrRgesWGZ5K2g5Y2NXtHGkoimnTCN7xGyavXmImToEIDNzifbRW8wB55DYoWEQJlAlqCheQBx9bBlpyBh8PtlcKWYc6m0x3yBSC2B8fHwP7UDYtXLEMrvPrHC84L26148pUfEOC1Q_9nJGh352VlpaO6u6hi7eIDC8CBjGUw5iwmqXGUoQQYiOmfm1iad1mfH7k2aWc1okWEgD2XxMYSgpublIAA0o5xP2m2FnW7iwDRrOQS-Y5rOqZc-3k9alzHCE9j34u8C_uXPAOTpPfsLcKlX_NXpp5BYZ5rsPvQ_4THD8tAq5GjOP70AbC_9WCxvA6c5caCvclne-eaEtWlcQ7vbl_L_SU5p1kH80ovz6H4pvGdn3NOUA8B8Qgnrxw_Y7vhjO7fEzmJtBS-xstznGzSILXJG9sPave1BdoVx9Lqsw1DpEyDghGwJhwn9aTLgTPCdnj85ze4Cnb0heepASi0oUvNsi4963qhbFrLKUCGIPQ6_LWgttXm49d4p5LYB5rFvFWfM5bglY5ahCvGqHw2vaAfZSR0HfJ2TD0_2ay3yG-DI9TE0V4JkmLD6qEIRqezlZLmKcPfbgcmNPNak2Qtef7WB89GwVAPUfD8f1FABChQPV2IzBjUSlPfv9And3uyO2kRkcMCFZr20NccjMup04H7uUIXIP_FIFDP2fJN8QpiG4d69FOF4LX_xXay8gacAajwka1EgMmD2UOG8ftvm3qEg6Zv8ZPgyUvSvIAGxHsHmfK-sIPLSWM46u3_NoOgb3kLdg_bmul6DteknfbOxcAYG2qXNHW0e28wVYBELpFu7NpoxPgckwM76ccxmOCCerQe4q3zxUMPgCiz6jJkOTFUeHdawl95Xh-SizjQ8K2Hca-Dl4duhhfs11qCovR5ZW_A3rl_udv65K2ASzOlx7pGvli0P5KkUotnhsG5sOYPKeJqDlC4q3nIUHee23k4GalkQbKOR8EkLtp9jGY-hdS6ISBvuuJugut-NuV1H9Ossi8tfcZdvNk43J25FUIXjEAEfDKUAzWByCXfroPVA6evz452-fbkniJ-JxLbZGjnt6n0PB_9rdRVQUQxKNLnLqjVWHzP2asWjd8metmi0BnLhntoQAVtApqZGTCajJFPbQwDtlw1m32GwvEVGmam1olsi4l8iWOWmHizSZjWYAiDvR5vFEL54aZsuoJ2k4scLHw6b9rCmn_Zzobvs1T-VPIJMaBDe-3s7qt-7vW8lUd9WqhqlbZB8ZMLtp6tMIR0xkdREV8DVMzavwK9IXBVe_7ee5-nzclivSRcNDuCR0BV-Cw49X95vOn08bOqWtsAJZxpqXQUmSijJowTooAXY1vVgkoMLVU1Y4alUlmvdO_9YFYM5BsU2AFLQbUvaAOXkUo2-qSNbf53_P8p3KaEBqUHQcPpIEGHf4-5479oeO_VrtOhNtMy9SITM_z_6iBVM-LC6H0_DwiXu1VcedOkNwyBjTd9tswNPIuSBw-oBaASD3o_znPrt4Rq0B8UvPrLdmVslITWmgDHGDv5qI8cexL6dQu-otLS3RtPEYBwehBfpuWCR84tiwvY2PTqMSWqJlQbK3KQX1MOKIzEysKClJysUEH0hb2i0ewGzQLQVWfTEA DOA: 3/4/2025] //vy</p></div><div data-bbox=)

achieving the Lawson criterion simultaneously, thus, requires deep roots in the discipline of plasma physics, while simultaneously considering the associated technology requirements. In the examples above for example this required understanding of magnets in magnetic fusion energy (MFE), and lasers and optics in inertial fusion energy (IFE).

Universities are certainly not the sole location of expertise in these topics, but the very nature of a university tends to collect and push together the multidisciplinary fields required for fusion energy, while maintaining an anchor in the plasma physics required for fusion science. Another feature of universities is unique in fostering innovation, namely, their graduate education mission. For graduate students, advanced degrees require not only classroom instruction but also original research in the form of theses. The constant refresh of talent and topics triggered by graduate education is a natural environment for encouraging discovery.

The critical role of universities in innovation and venture creation is supported by an assessment of the private sector fusion companies. The Fusion Industry Association<sup>9</sup> lists 37 companies as primary members. By examining publicly available documents for 36 of these companies (one company had no public information), we have ascertained the origin of the companies and assigned them as being from university, national/government labs (US or international) and/or "other." This last category typically is a company origin solely from the private sector or nonpublic. A university origin is assigned if some of the founders or intellectual property came directly out of a university. Universities account for the majority of the fusion companies, with a total of 21 (or 58%). Twelve (or 33%) had private/other origins, and national labs accounted for 6 (or 17%). It is noted that in the latter case all the companies associated with national labs also shared origins with a university and so were counted in both categories. The first company established is TAE with its origins at UC-Irvine. The largest existing company in terms of capital raised is Commonwealth Fusion Systems with its origins at MIT. The companies from universities cover a wide range of plasma confinement approaches spanning "established" magnetic confinement (e.g., tokamaks, stellarators), "innovative" magnetic confinement (e.g., mirrors), magneto-inertial confinement (e.g., pinches), and inertial confinement. There is also diversity in the type of universities launching fusion companies: 2/3 of the universities are public and 1/3 are private. This analysis supports the assertion that universities are uniquely powerful incubators for fusion venture creation.

The assessment of the FIA primary members also reveals that universities will need to play a critical role in evolving and developing a more complete venture/commercial fusion ecosystem. 34 of the 36 companies are best described as "vertical integrators" for fusion energy systems, meaning that their role in the fusion industry is to hold and understand the holistic concept of the entire fusion power plant. This is a natural consequence of the highly diverse nature of the confinement approaches being taken. To use an analogy to a mature industry such as aeronautics, these companies seek to be a Boeing or Airbus that develop and hold the overall design of the commercial product, i.e., the jet airplane. Yet, these vertical integration companies rely on a range of other companies that produce the required components for the plane. Looking at the fission energy industry is no different: fission power plant commercial designs rely on a supply chain of specialized components. This is likely to be the case for fusion. However, only two of the 36 companies listed by FIA (Kyoto Fusioneering and Shine) are focused on supplying technologies. It seems evident that there will be substantial need and opportunity to supplement the existing supply chain for required components (vacuum vessels, balance of plant), supplemented by further venture creation in fusion that delivers first-of-kind component technologies that do not exist in the present supply chain. This could include specialized materials for the harsh fusion environment, testing capabilities for materials and components, neutronics calculations, blankets, fuel cycle technology, RF sources/transmission, cryogenics, optics, lasers, and power-switching. The inherent multi-disciplinary nature of these areas favor university innovation, incubation, and venture creation. While some of these capabilities may be supplied by existing companies, national labs, or the fusion companies themselves, the inherent "newness" of the fusion requirements, and the major role these will play in meeting economic viability make it likely that the university venture creation is, in fact, just starting.

### III. SHARED CAPABILITIES/USER FACILITIES

Many technical and development challenges face the delivery of fully capable and reliable fusion energy systems. The technical and scientific challenges are well documented in numerous reports over the last decade (Greenwald report,<sup>10</sup> FESAC,<sup>7</sup> NASEM<sup>2</sup>), and these challenges largely remain. New capabilities/facilities are required to tackle these challenges spanning from plasma experiments, to materials development, up to integrated component testing.

The onset of the **private-sector fusion effort** has placed further stress on these challenges in three ways. First the diversity of approaches has increased; this naturally adds to the diversity of requirements in the new capabilities. Second, the **timelines for obtaining critical information and solutions are shortened due to the aggressive private-sector timelines**, and the accompanying government-based support programs. Third, the **private sector component produces a tension between competitive advantages in accessing technology solutions across companies** and the desire, particularly from publicly funded sources, that provide capabilities that are generic and open in nature.

We assert that **universities will play a critical role in addressing these challenges**. The diversity and **accelerated timeline** call for a wider range of small to mid-scale capabilities that **have a natural landing place at universities**. Universities provide cost-effectiveness and sharing **due to institutional and philanthropic support**. Universities also have **intrinsic breadth in disciplines and, therefore, best practices from adjacent disciplines associated with thriving high-tech industries can be adapted**. Universities require **openness in their research, which avoids complexities around shared capabilities at national labs that may have dual-uses for research and national security uses**. Universities as non-profits also intrinsically **avoid competitive conflicts that occur when a commercial company is operating a shared user facility**. Furthermore, **the university host is an opportunity to improve access to these new capabilities to young scientists and students who in turn are being trained in critical science and technology capabilities that serve the fusion industry**. Cross-institutional access has a relatively low barrier since **academic exchanges of students and postdocs are commonplace at all universities**. A further benefit of this model is that the congregation of young talent and access to new capabilities will be a further impetus for venture creation for fusion out of the universities.

## It's on the brink

**Luciano-22** [Lilia Luciano, 12-13-2022, "U.S. announces nuclear fusion energy breakthrough: "One of the most impressive scientific feats of the 21st century," CBS News.

<https://www.cbsnews.com/news/nuclear-fusion-energy-breakthrough-announcement/> DOA: 3/4/2025] //vy

The U.S. Department of Energy **announced** Tuesday a **monumental milestone in nuclear fusion research: a "net energy gain" was achieved for the first time in history** by scientists from the Lawrence Livermore National Laboratory in California.

"Simply put, this is **one of the most impressive scientific feats of the 21st century**," Jennifer Granholm, U.S. energy secretary, said at a press conference, adding that researchers have been working on this for decades.

"It **strengthens our national security, and ignition allows us to replicate certain conditions only found in the stars and in the sun**," she said. "This milestone **moves us one significant step closer to the possibility of zero carbon abundance fusion energy powering our society**."

The impact of the scientists' work **will assist U.S. industries nationwide**, Granholm said.

"Today, we tell the world that America has achieved a significant scientific breakthrough," said Granholm.

The hope is that it **could be used to develop a clean source of power that would discontinue reliance on fossil fuels**.

"The day you get more energy out than you put in, the sky's the limit," American astrophysicist Neil deGrasse Tyson told CBS News.

**Nuclear fusion has been considered the holy grail of energy creation that some say could save humans from extinction**. It combines two hydrogen atoms, which then makes helium and a whole lot of energy.

It's how stars, like our sun, generate power.

"We've known how to fuse atoms and generate energy. We just haven't been able to control it," said deGrasse Tyson, author of "Starry Messenger: Cosmic Perspectives on Civilization."

Nuclear fusion technology has been around since the creation of the hydrogen bomb, but using that technology to harness energy has required decades of research.

"They took 200 laser beams, some of the most powerful on the planet Earth, converged that energy down to a pellet, a pellet the size of a BB," said Dr. Michio Kaku, a professor of theoretical physics at the City College of New York. "And just remember, **fusion power has no nuclear waste to speak of, no meltdowns to worry about**."

Scientists believe fusion plants would be **much safer than today's nuclear fission plants** — if the **process can be mastered**.

That's the goal of a multinational, multibillion-dollar project called the International Thermonuclear Experimental Reactor, or ITER, which is under construction in southern France.



Currently, nuclear power plants use fission, which breaks atoms apart to make energy. Even though it's not burning fossil fuel, meltdowns like Chernobyl and Fukushima are evidence that our nuclear fission can still harm humans — and our environment.

But now, **fusion's moment appears to finally be here**. "We're long overdue to have converted something so destructive that finally it could be used for a peaceful purpose in the service of civilization," deGrasse Tyson said.

## 2NC—TFA

### On the IVI

- 1- the tweet doesn't say he's Zionist just that he thinks that supporting Israel would stop a war
- 2 - by their logic a lot of their authors who say anything about supporting Israel are Zionist
- 3 - reject the tweet/screenshot, NSDA rules say all evidence must be in cut card form - you don't know if it's photoshopped
- 4 - their model of IVI creates a race to the bottom where you have to check every single tweet or statement an author has ever said before reading a card from them, increases burnout and thus hurts safety on a larger scale than their one off situation where someone might look at an author's twitter page
- 5 - drop the author not the debaters, intent is key if we didn't know we shouldn't be dropped for it

### A2) 5G

#### On first link

[T] On Gen AI requiring large amts of data, that's bad

**McNulty 24'** [McNulty, Niall. "AI and Data Privacy in Schools: Safeguarding Student Information." Medium, Medium, 30 June 2024, [medium.com/@niall.mculty/ai-and-data-privacy-in-schools-safeguarding-student-information-a0e8436a5f5e](https://medium.com/@niall.mculty/ai-and-data-privacy-in-schools-safeguarding-student-information-a0e8436a5f5e).]//PC Data privacy in schools is crucial, especially when using AI. Schools collect various types of student data, including personal and academic information. **Using AI to handle this data raises concerns about data breaches and misuse**. It is important to comply with data protection laws to safeguard student information. Schools must ensure that personal data is stored securely and used appropriately. This includes having clear policies on data usage and ensuring that AI tools are compliant with these regulations. For example, personal and special category data should be handled with strict confidentiality and used only for educational purposes. In addition, educating students and staff about data privacy is vital. They should understand how their data is being used and what measures are in place to protect it. This transparency helps build trust and ensures that everyone is aware of their rights concerning data privacy.

## **We have already seen some impacts**

**Thomas B Fordham Institute 23'** ["AI Is a Serious Threat to Student Privacy." The Thomas B. Fordham Institute, 2023, [fordhaminstitute.org/national/commentary/ai-serious-threat-student-privacy/](https://fordhaminstitute.org/national/commentary/ai-serious-threat-student-privacy/)]//PC

At the fringes of this conversation, we approach what once seemed like science fiction. Some schools in China already require students to wear biofeedback headbands that send information to teachers about who is paying attention, who is angry, who is daydreaming, or who is drooling on their desk. Pair that with the recent advances in brain imaging that have produced relatively accurate text from brainwaves alone, and soon our own private thoughts will not be so private. There are obvious concerns about data breaches, as when **hackers accessed an online test-proctoring platform and subsequently leaked private information about 444,000 students**. Similarly, **glitches** in a popular program that lets teachers view and control student screens would **allow hackers to gain access to students' webcams and microphones**. But I'm more concerned about a more abstract threat: How does constant surveillance affect the way we think, speak, and behave? French philosopher Michel Foucault popularized the concept of the Panopticon, a theoretical, circular prison with a watch tower in the middle that shines bright lights into exposed cells. Prisoners feel a constant sense of surveillance and so act as if they're always being watched—fostering a compelled self-regulation into "proper" behavior.

**On the second link, AI usage has already spread to other sectors, such as healthcare, research, etc, AI ed is not key.**

**Their link card is terrible. It only says that gen AI make a baseline for network traffic, allowing it to detect disruptions. Its bad because they do not say there are disruptions happening right now. Also, they do not say that when AI is integrated in AI, there is an increase of 5G networks.**

**On their impact, there are many alts to solve for climate change. 5G is not key. The Paris Climate agreement and other forums already solving.**

**Their own card contradicts, saying that because of the already existing 5g networks, we are seeing a 20% contribution toward emission reduction by 2025.**

## **A2 Creativity**

**Their uq is terrible abt current ed being mindless. Since 2011, we will argue that this is outdated.**

### **[DL] AI is proven to decreases critical thinking, empirical studies prove**

**Knapp 25** [Knapp, Alex. "The Prototype: Study Suggests AI Tools Decrease Critical Thinking Skills." Forbes, 10 Jan. 2025, [www.forbes.com/sites/alexknapp/2025/01/10/the-prototype-study-suggests-ai-tools-decrease-critical-thinking-skills/](https://www.forbes.com/sites/alexknapp/2025/01/10/the-prototype-study-suggests-ai-tools-decrease-critical-thinking-skills/).]//PC To figure this out, a team of **researchers conducted a study involving 666 individuals** ages 17 and up, representing a diverse population. It first evaluated the extent to which each of them made use of AI tools, then tested their critical thinking skills. The results of the study, which were published in the journal Societies, found that **those who used AI tools a lot showed worse critical thinking abilities than those who didn't** use them often or at all. Whether someone used AI tools was a bigger predictor of a person's thinking skills than any other factor, including educational attainment. **The reason** for this **is** a phenomenon called **"cognitive offloading" – where people's thinking and problem-solving are essentially delegated**. Frequent cognitive offloading reduces a person's ability to independently think and solve problems. "This relationship underscores the dual-edged nature of AI technology," the study authors wrote. "While it enhances efficiency and convenience, it inadvertently **fosters dependence, which can compromise critical thinking** skills over time." **These findings are consistent with other studies** that have shown a similar negative impact from AI tools on critical thinking skills. The authors note,

however, that other studies show AI tools can be beneficial when they complement critical thinking, rather than offloading it. “Future research should explore strategies to integrate AI tools in ways that enhance rather than hinder cognitive engagement,” they wrote. “Ensuring that the next generation is equipped with the skills necessary to navigate an increasingly complex digital landscape.”

## A2 Access

Their own card says that rural schools are underfunded. If they are underfunded, and our own c3 finance says that AI integration costs a lot through a, computational powers, and b, faculty training, rural schools will not even be able to integrate it.

### [DL] Rural/Low-income students require personalized support

**Reyes 23** [Reyes, Melody. [Arts and Culture Intern @ South Asia Institute, Illustrator @ Indiana Daily Student, Recent Graduate @ Indiana University Bloomington, Passionate About Arts, Culture, and Creative Expression.] “Effective Interventions for Students Struggling Academically: A Comprehensive Guide.” Blog.teamsatchel.com, 3 Nov. 2023,

blog.teamsatchel.com/pulse/effective-interventions-for-students-struggling-academically-a-comprehensive-guide.]/PC **If you're looking for academic success interventions to support struggling learners, individualized instruction and personalized learning plans are excellent strategies.** These educational intervention strategies can cater to the unique needs of each student, providing targeted support that maximizes their potential for success. When designing personalized learning plans, educators can tailor the curriculum, teaching methods, and learning goals to each student, ensuring that they receive the support they need to thrive academically. This approach can foster a more positive and engaging learning experience, which can improve performance and motivation. Additionally, educators can use a range of educational intervention strategies to offer individualized instruction. For example, they may use assessments to identify areas where students need help and use that information to create customized lesson plans. This approach can help students overcome learning obstacles and build the necessary skills and knowledge to succeed in their academic pursuits. **Another approach is to provide differentiated learning opportunities that cater to different learning styles and preferences. This strategy can ensure that struggling learners receive the support and resources they need to succeed.** Ultimately, individualized instruction and personalized learning plans are powerful interventions for struggling learners. By providing targeted support that caters to each student's unique needs, educators can empower students to achieve academic success.

### However, AI integration decreases the amount of teachers, thus, decreasing the amount of individualized support

**Emergen 24** [Emergen Research, <https://www.emergenresearch.com>. “Challenges and Opportunities of Implementing Automation in Education.” Emergenresearch.com, 2024, [www.emergenresearch.com/blog/implementing-automation-in-education](https://www.emergenresearch.com/blog/implementing-automation-in-education). Accessed 22 Feb. 2025.]/PC

**Automation holds immense potential to enhance education. However, it brings challenges. Schools face the need to balance costs, job cuts, and privacy risks. Beyond this, the human element in learning remains vital. Technology can't replace the bond between teachers and students.** Thoughtful adoption of automation can ease workloads, but it must support, not dominate. With the right approach, educators can create a system where both technology and human interaction thrive together for the students' benefit.

### [DL] AI integration is expensive and unfeasible for rural schools

**Office of Online Programs 24** [Office of Online Programs. [M.Ed. in Education, Expert in AI Integration in Schools, Advocate for Educational Technology, Contributor @ University of Illinois, Focused on AI's Impact in Education.] “AI in Schools: Pros and Cons.” College of Education, College of Education at Illinois, 24 Oct. 2024, [education.illinois.edu/about/news-events/news/article/2024/10/24/ai-in-schools--pros-and-cons](https://education.illinois.edu/about/news-events/news/article/2024/10/24/ai-in-schools--pros-and-cons).]/PC

**The cost of AI in education can vary greatly,** depending on how schools want to use it. Simple generative AI systems that teachers can use in lesson planning can cost as little as \$25 a month, **but larger adaptive learning systems can run in the tens of thousands of dollars. Implementing these larger systems is likewise very expensive and is beyond the budgets of many schools,** including those in underserved communities. And then there's the ongoing costs of maintaining and updating the systems and training staff to effectively use them.

On the impact, we have never seen an economic downturn lead to extinction. Look to 2008, etc, they give no reason why now is key.