Written Testimony of Dr. Charles Tahan
Partner, Microsoft Quantum, Microsoft Corporation

U.S. House Committee on Science, Space, and Technology
"From Policy to Progress: How the National Quantum Initiative Shapes U.S. Quantum Technology Leadership"

May 7, 2025

Chairman Babin, Ranking Member Lofgren, and Members of the Committee, thank you for the opportunity to appear before you to discuss the importance of quantum technology and the transformative role it will play for this country and for our collective future.

It is an honor to be here again. I first appeared before this Committee nearly two years ago. Then, I was Assistant Director of Quantum Information Science and Director of the National Quantum Coordination Office (NQCO), an office within the White House Office of Science and Technology Policy. The NQCO was created in the first Trump Administration by the National Quantum Initiative Act of 2018. Our job was to coordinate the more than 20 agencies led by the Department of Energy, the National Science Foundation, and the National Institute of Standards and Technology, along with the Department of Defense and the Intelligence Community, to develop and execute a national strategy to strengthen American leadership in quantum information science and technology. I spent almost four years in that job, which capped an almost 17-year career as a practicing physicist and technical leader at the National Security Agency and the Defense Advanced Research Projects Agency (DARPA), where I worked on quantum computing, high-performance computing, and other advanced technologies. I now work at Microsoft where I lead technical teams within Microsoft Quantum that are working both internally and with our close partners to build the world's first useful quantum computers.

Through my testimony I hope to outline the transformative potential of quantum technology and why the United States must lead and win the quantum race. To provide some context, I will begin by highlighting the revolution in quantum sciences and why quantum matters in the age of artificial intelligence. I then expand on Microsoft's leadership in this field—both through our own research and through our strategic collaborations with other leaders in the quantum ecosystem. But, despite our tremendous progress, sustaining American leadership requires government action. I therefore offer three focus areas that I believe this Committee and Congress should prioritize: (1) advancing the quantum sciences; (2) developing, attracting, and retaining a skilled quantum workforce; and (3) building a resilient and secure supply chain. Taken together, these strategic actions will not only bolster our nation's security and competitive edge against competitors and adversaries, but it will also drive innovation and economic growth at home towards a new frontier of American prosperity.

The Quantum Information Revolution

I like to think of quantum science as the operating system of the universe. What we physicists call quantum mechanics are essentially the rules that the universe follows at the microscopic level. Over the last 100 years, we have learned a tremendous amount about how those rules work. They appear strange to us because we do not experience them in our daily lives. As we have learned more about these quantum effects, we have been able to leverage them to build new tools and technologies.

The National Quantum Initiative Act of 2018 recognized that we were on the cusp of a new technological revolution—a quantum information revolution— where we could harness the more advanced and unusual properties of quantum mechanics. This revolution is not just about new research discoveries but also about creating fundamentally new types of information technology like quantum computers, quantum networks, and quantum sensors. The full implications of this shift in quantum information science are unclear, but we do know that maintaining our global technological leadership is critical to sustaining economic prosperity, enhancing our well-being, and safeguarding our national security. We also know this is the first moment in our lifetimes in which we are able to radically reimagine how we build computers. As a country, and as a computing company, we must take that seriously.

Why Quantum Matters in the Age of AI

In the two years since my last appearance before this Committee, the world has shifted dramatically. The remarkable rise of AI systems has surprised all of us and increasingly affordable AI capabilities are likely to transform the world even more profoundly than the internet. Despite its immense potential, artificial intelligence—even coupled with the most powerful classical computers today—has limitations. There are problems that AI and classical computing will never be able to solve, not in our lifetimes or even in a hundred lifetimes, because of the fundamental limitations of how they are designed.

Quantum technology can offer unprecedented capabilities for computing. Consider two quick examples where quantum computers are exponentially faster than anything we could imagine a classical computer could do. The first is code-breaking, which has serious implications to our national security and privacy. A sufficiently large quantum computer could break the public key cryptography systems we now rely on in days or weeks. Even the most powerful classical computer we could ever imagine would take the age of the universe to solve the same problem. That is the power of exponential improvement. And it is why we must move to quantum resistant cryptography as fast as possible.

The other more commercially relevant application is, quite simply, making things—designing new materials, new chemicals, and new medicines. If you think about what the future holds, what will differentiate nations in an era of intelligence is their ability to create new things using tools that enable them to do so better, faster, and at lower cost. And this is why quantum is so important, not only because it helps us understand the universe as scientists but because it gives us unprecedented capabilities to dramatically improve our lives.

Microsoft's Leadership in Quantum

It is important to appreciate that bringing quantum technology to practical application is hard. It requires focused and sustained investments, sophisticated infrastructure, and the best talent in the world. It also requires new types of hardware—quantum hardware—and a new quantum technology stack, from chips to the control and readout layers to the user interface. This requires science and innovation at every level. That is what makes developing quantum technology expensive.

The quantum team at Microsoft has been pursuing quantum computing for over 20 years. Our research program has spanned all three CEOs. We are singularly focused on building quantum computers that are able to solve meaningful problems, like problems in chemistry and material science. To do this, we need quantum computers that can scale to potentially millions of qubits—or quantum transistors—as compared to the small number currently available in prototype systems today. Microsoft has been pursuing this on two fronts: through our decades-long internal research and through strategic collaborations in the quantum ecosystem.

1. *Microsoft's First-Party Research: The Topological Approach*

Microsoft's internal hardware effort is based on a unique scientific approach aimed at developing qubits that rely on very novel physics. These are called topological qubits. We think they are promising for quantum computing because they have the potential to make it much easier to scale, meaning to control and enable readout of the millions of qubits needed to develop a useful quantum computer. However, to build even one topological qubit, the team had to take a scientific theory that was first proposed in the 1930s and make it a reality—a feat that included creating a new state of matter and engineering a device in which to exhibit it.

Earlier this year, Microsoft unveiled new technical results that begin to validate our roadmap toward a topological quantum computer.[1] In addition, Microsoft presented the Majorana 1 chip, which brought together for the first time all the key components, validated individually, that will be needed to build quantum systems that scale: cryogenic electronics, interconnect wiring, and a qubit microchip layout that is compatible with both the physics of topological operation and the limits of control electronics. It is the embodiment of Microsoft's topological roadmap[2] and the team is proud of it.

Our approach has been evaluated by the Defense Advanced Research Projects Agency (DARPA), which spent nearly two years vetting Microsoft's architecture and engineering plan and the unique

---

[1] [2502.12252] Roadmap to fault tolerant quantum computation using topological qubit arrays.

[2] Interferometric single-shot parity measurement in InAs–Al hybrid devices | Nature and Realizing Topological States on Quantum Hardware | APS Global Physics Summit.

properties that enable topological qubits to scale.[3] As a result, DARPA selected Microsoft for the final phase of its Underexplored Systems for Utility-Scale Quantum Computing (US2QC) program—one of the programs that makes up DARPA's larger Quantum Benchmarking Initiative (QBI). To date, the US2QC program has brought together over fifty experts from leading government and academic institutions, including Air Force Research Laboratory, Johns Hopkins University Applied Physics Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and NASA Ames Research Center, to verify our approach to quantum hardware, software, and applications. DARPA referred to this evaluation as "an incredibly rigorous and deeply technical analysis from what is almost certainly the world's best quantum computing test and evaluation team." The final phase of US2QC now envisions the development of a fault-tolerant prototype based on topological qubits—a crucial acceleration step toward making a utility-scale quantum computer a reality.

Majorana 1 represents the pursuit of hundreds of scientists and engineers over the course of 20 years. Along the way there have been and will continue to be tremendous advances and contributions to the greater field of quantum information science and technology because of this pursuit. And this is why I came to Microsoft—to work on the hardest problems that promise to have an outsized impact for technology and for our society. Technical terms you may not have heard of, such as Topological and Floquet codes, pristine superconductor-semiconductor materials, measurement-based approaches to quantum computing, are all new technologies spun out of this pursuit with implications for many other types of qubits and other types of technologies, even other domains like astronomy. They came about because the Microsoft team found solutions to the hard problems—to the benefit of not only our company, but the entire quantum ecosystem.

2. Strategic Collaborations

At its core, Microsoft is a platform company. We want to empower our customers with the best computers in the world, whether they are quantum computers or classical computers, for the applications they care about. While we are excited about the continued advancement and promise of our own topological approach, we have no preference for which qubits ultimately provide our customers with quantum capabilities. We want the system to be the best technology for their use case. This means we develop software for multiple different technologies and layers of the quantum computer stack, everything from AI copilot to quantum languages to the real-time operating system needed to run a quantum computer with millions of moving parts.

To do this, we work with, invest in, and partner with many different quantum computing technology companies, big and small, to help them make useful quantum computers a reality. We have entered into strategic collaborations with leading quantum hardware startups like Atom Computing, Quantinuum, and Photonic, and others. By applying our industry-leading error-correction and control software to their hardware platforms, we are accelerating the industry's transition from rudimentary "Level 1" machines that use noisy physical qubits to the world's first

[3] DARPA selects two discrete utility-scale quantum computing approaches for evaluation | DARPA.

"Level 2" machines that rely on reliable, error-corrected logical qubits, composed of many physical qubits—which make quantum computing more useful for practical applications.

Our breakthroughs in this area are coming fast. In April 2024, Microsoft and Quantinuum demonstrated the first logical qubits on record that outperform the underlying physical qubits.[4] Five months later, in September 2024, Microsoft and Quantinuum demonstrated 12 logical qubits on Quantinuum's ion-trap machine, the most reliable logical qubits then on record.[5] Two months later, in November 2024, Microsoft and Atom Computing doubled this feat, creating and entangling 24 logical qubits made from neutral atoms.[6] These breakthroughs led by Microsoft, Atom Computing, and Quantinuum have for the first time moved the quantum industry firmly out of the "Level 1" noisy intermediate-scale quantum (NISQ) era to Level 2 resilient quantum computing. With Atom Computing, we are now offering the world's first commercially available Level 2 quantum machines. These collaborations enable us to deliver best-in-class logical qubits for our customers today, further cementing Microsoft's leadership in the quantum ecosystem. But even these "Level 2" systems that aim to provide 1000s of physical qubits will pale to the scale of a true, utility-scale quantum computer powered by a million qubits or more. Getting to this point will require more sustained, large-scale investments in many areas—from talent development to new domestic capabilities to supply chain resilience.

Winning the Race in Quantum

While Microsoft has made significant investments in quantum technology, the efforts of individual companies alone are insufficient for the United States to secure the leadership position. Winning the quantum race will not happen without clear-eyed, intentional, and decisive government action. Indeed, these actions will decide whether American global leadership will continue for the rest of this century.

In his first term, President Trump and Congress laid the foundation for American leadership in the quantum sciences. The passage of the National Quantum Initiative Act (NQIA) was a strong first step in moving from dispersed quantum science initiatives to a more active, coordinated effort to not only lead in the foundational research, but also take scientific breakthroughs through to practical technological innovation.

As this Committee considers reauthorization of the NQIA and other specific actions that the United States must take to secure our technological leadership in quantum, we offer more detailed recommendations across three policy priorities: (1) robust funding for quantum research, (2) developing top-tier quantum talent, and (3) securing the quantum supply chain. These three categories—described more fully below—require U.S. government leadership to maintain a

---

[4] How Microsoft and Quantinuum achieved reliable quantum computing - Microsoft Azure Quantum Blog.

[5] Microsoft and Quantinuum create 12 logical qubits and demonstrate a hybrid, end-to-end chemistry simulation - Microsoft Azure Quantum Blog.

[6] Microsoft and Atom Computing offer a commercial quantum machine with the largest number of entangled logical qubits on record - Microsoft Azure Quantum Blog.

competitive edge, drive innovation, and safeguard national security in the face of growing global competition.

a. Advancing Quantum Research

First, we must continue our long American tradition of leading the world in groundbreaking scientific research. Our curiosity, our ability to innovate, and our desire to build has been responsible for a century of American prosperity. Indeed, the past century of our global leadership is rooted in our ability to not only innovate but innovate first. For quantum, the first-mover advantage is likely to define the geopolitical landscape for the rest of this century – and likely well beyond.

Last week, Microsoft President and Vice Chair Brad Smith wrote specifically about the critical role of the American research triad—the Department of Defense, the Department of Energy, and the National Science Foundation—in driving American scientific and technological innovation.[7] I will add to that the unique role that the National Institute of Standards and Technology has contributed to quantum information science since the field's inception. In addition, there have been vital investments by the Intelligence Community's research funding organizations, who have core missions that demand expertise to monitor progress in quantum information technologies. We must make it a continuing national imperative to energize these institutions—for our economic future, for our national security, and for sustaining our global leadership. The American scientific enterprise is unmatched in the world and there is no private sector substitute. We benefit from multiple institutions that have very different models for how to fund science. This allows the U.S. to fund everything from basic ideas to large, very focused development programs to purchasing novel supercomputers. There is nothing else quite like it in the world.

Federal funding is the key to leveraging these institutions to sustain our leadership in quantum research and development. Following passage of the NQIA, U.S. funding for the quantum sciences more than doubled from $456 million in 2019 to $1.041 billion in 2022.[8] But recent years have seen a decline, as reflected in President Biden's $998 million budget request for FY2025. This has come as our global competitors are doing the opposite. Governments around the world are accelerating spending on quantum R&D – and China's estimated $15 billion commitment dwarfs publicly reported U.S. funding levels.[9]

To stay competitive, Congress should not only reauthorize the National Quantum Initiative Act but be purposeful in expanding initiatives through a coordinated national strategy. Key recommendations include:

---

[7] Investing in American leadership in quantum technology: the next frontier in innovation - Microsoft On the Issues.

[8] National Science and Technology Council: Subcommittee on Quantum Information Science, National Supplement to the President's FY 2025 Budget.

[9] Hodan Omaar and Martin Makaryan, "How Innovative is China," Information Technology & Innovation Foundation, September 2024.

- **Fully Fund and Expand Quantum Initiatives across the Federal Government:** Reauthorize and fully fund the National Quantum Initiative Act and its programs. Congress should ensure agencies like the Department of Energy (DOE) and its National Labs, the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST), and the National Aeronautics and Space Administration (NASA), along with the Department of Defense and the Intelligence Community receive sustained appropriations to expand fundamental quantum science research and development. This includes supporting the NSF's Quantum Leap Challenge Institutes and the DOE's National Quantum Information Science Research Centers, which have a proven record of leveraging each federal dollar to attract additional private investment. Expanding these programs will spur innovation nationwide and solidify U.S. leadership in critical quantum technologies.
- **Increase Directed Quantum R&D Funding:** Move beyond fragmented funding by adopting a more directed, strategic investment approach. A recent ITIF survey suggests that China's centralized funding strategy gives it advantages over the diffuse U.S. approach.[10] Congress can consider targeted increases in quantum R&D budgets across key agencies, aiming to exceed past funding peaks and keep pace with competitor nations. Restoring growth in federal quantum R&D funding—particularly after the dip in recent years—is the first and most urgent step to ensure the U.S. does not fall behind.
- **Expand Translational Research Programs:** Boost funding for government evaluation and prototype development programs to build a bridge between lab discoveries, engineering initiatives, and real-world applications. For example, DARPA's Quantum Benchmarking Initiative (QBI) —the flagship program for assessing quantum breakthroughs—should be expanded and fully funded. Congress can direct agencies (DOD, DOE, NSF) to coordinate on identifying high-value quantum research projects and push them toward validation programs (like DARPA's QBI program) and then to practical realization with additional grants, prizes, or public-private partnerships.
- **Encourage Public-Private Collaboration:** Federal investment should be paired with incentives for private sector co-investment in quantum R&D. Each dollar of federal funding often leverages additional private sector investment, so policies like matching grants, or innovation challenges can multiply the impact of public funds. Congress should also support joint research centers and consortia that bring together government, academia, and industry to solve quantum engineering hurdles. In addition, maintaining a stable, long-term funding outlook will give industry the confidence to invest alongside the government in quantum technology development.
- **Provide access to the latest quantum capabilities:** Congress should streamline pathways for government agencies to provide the latest quantum computing technology to

[10] Id.

the researcher community, which would allow them to better identify impactful quantum applications and use cases.

By significantly increasing federal funding and focusing it strategically, Congress can reinvigorate America's quantum R&D enterprise. Continued U.S. scientific leadership depends on this commitment and history shows that breakthroughs from federally funded basic research (from the internet to GPS) drive decades of innovation and economic growth. Investing ambitiously in quantum now will pay dividends for American security and prosperity in the years to come.

b. *Developing & Attracting Quantum Talent*

Throughout its history, the United States has developed and attracted the brightest and most innovative minds– and it is what powers Microsoft, the broader American technology sector, and our great academic and research institutions. But this country now faces a severe shortage of STEM talent and, even more critically, a shortage of specialized quantum expertise.

The global quantum talent pool remains small even as demand increases. It is no exaggeration to say that a handful of gifted physicists, engineers, and mathematicians could sway the balance of power and shift the dynamics in the race to develop quantum technology. Globally, there are as many as three job postings for every one qualified quantum worker.[11] In the U.S., we are struggling to develop our own talent and labor pool. Today the U.S. STEM workforce consists of approximately 36.8 million people, but 43% of doctorate-level scientists and engineers are foreign-born.[12] In 2021, more than half of doctorate-level computer scientists, mathematicians, and engineers working in the United States—occupations directly connected to critical and emerging technologies—were born outside the country.[13] Meanwhile, other countries are sprinting ahead in producing STEM graduates. In 2020, the U.S. awarded roughly 900,000 undergraduate STEM degrees annually, compared to 2 million in China and 2.5 million in India.[14] That gap may have widened in the past five years and today, the European Union leads in quantum talent concentration, with India and China also surpassing the U.S. in the number of quantum-trained specialists. Without a bigger domestic pipeline of quantum talent, even the most well-funded programs will struggle to succeed.

Congress should enact policies to train, attract, and retain top quantum talent. Important steps include:

- **Strengthen STEM Education at All Levels:** Congress must be laser focused on expanding the STEM pipeline from K-12 through to graduate school programs. This includes initiatives through the NSF, as well as state and local partners to enrich science and math curricula and increase awareness and interest in emerging technology. By introducing comprehensive STEM education early (in elementary and secondary schools), we can

---

[11] McKinsey & Company, "Quantum Technology Monitor," April 2023.

[12] National Science Board, "The State of U.S. Science and Engineering 2024," March 2024.

[13] Id.

[14] Id.

inspire more students to pursue careers in emerging technology and quantum-related fields.

- **Invest in Higher Education and Training:** Congress should also continue and expand initiatives to train the next generation of scientists and engineers. We must continue to fund scholarships, fellowships, and research assistantships, particularly those focused in STEM and specifically in the quantum sciences. This must include developing high-caliber talent at our nation's premier research institutions through grants and quantum research programs. It must also include prioritizing community colleges and technical institutes that often launch students into STEM careers. Programs like the NSF's Research Experiences for Undergraduates (REU) and Research Experiences for Teachers (RET) are critical to engaging more students and providing educators with hands-on quantum projects. Congress should also increase federal support for STEM graduate students in quantum-related disciplines—currently, only 15% of U.S. full-time STEM grad students are supported by the U.S. government, down from 21% in 2004.[15] Bolstering fellowships and traineeships will produce more Ph.D.-level researchers ready to push the boundaries of quantum science.
- **Retrain and Upskill the Existing Workforce:** To meet immediate needs, Congress should also consider activating NSF and the Department of Labor for workforce retraining programs that would help add talent to the quantum ecosystem. Adult education, professional development, and certificate programs in STEM and basic quantum fundamentals can rapidly expand the pool of "quantum-aware" professionals. These efforts will help fill roles in quantum research and product development that do not necessarily require Ph.D.-level expertise but do need specialized training.
- **Attract and Retain Global Talent:** Many of the world's best minds—in quantum science and across disciplines—come to the U.S. for education and we must continue to find ways to support their continued contributions to our country after graduation. For example, from 2018–2021, temporary visa holders made up 37% of U.S. science and engineering Ph.D. graduates and over 70% of those students intended to stay in the U.S. after graduating.[16] Congress should create expedited pathways for highly skilled quantum experts and expand the number of visas for Ph.D. graduates in quantum-related fields. Easing green card backlogs for advanced STEM degree holders could help the U.S. retain and attract international talent that would otherwise find opportunities outside the United States.
- **Promote International Collaboration:** Congress should encourage collaborative research and exchange programs with allied nations to broaden the talent base within a trusted network. Joint initiatives with allies can pool expertise and resources to collectively train more quantum scientists. By deepening ties with like-minded countries the U.S. can both learn from our allies and ensure that we lead the quantum future together.

---

[15] Id.

[16] Id.

By implementing these measures, the United States can build a robust pipeline of quantum talent. A comprehensive strategy spanning education, training, and international collaboration will equip the U.S. with the skilled workforce needed to drive quantum innovation and outpace global competitors.

c. Securing the Quantum Supply Chain

Building a secure and reliable quantum supply chain is essential. Quantum technologies across the board—computing, communication, and sensing—depend on specialized materials and components. This includes hardware like cryogenic refrigerators to advanced lasers and quantum chips. There are currently few suppliers or fabrication facilities for these items and most are globally distributed. This creates a real risk of supply bottlenecks or dependencies on foreign sources, which could stall our R&D progress or even compromise the technology stack. It currently takes 12 to 18 months to get certain components and equipment we need, many of which come from overseas. The U.S. must be able to either build quantum components and devices domestically or have reliable, secure sources through trusted allies. We also need prototyping facilities that are rapid, focused, and work at the pace of industry. However, establishing a resilient supply chain will not happen without focused government action. It is a complex challenge requiring coordination between agencies and partnership with industry. And the need to act is now.

Congress and the Administration should pursue a national strategy to strengthen the quantum supply chain through the following actions:

- **Develop a National Quantum Supply Chain Strategy:** We recommend that the Administration—perhaps via the National Quantum Initiative Advisory Committee or another interagency task force—develop a comprehensive strategy to develop the quantum supply chain. This strategy should identify key supply vulnerabilities, set goals for domestic capacity in quantum-related manufacturing, and provide the Administration with an action plan on how to spur public and private investment for key technology components. Congress may also consider regular reporting on quantum supply chain risks and a roadmap to de-risk dependencies.
- **Diversify Sources of Critical Components:** The government should consider using federal purchasing power and funding to ensure multiple reliable sources for essential quantum hardware components. Congress can empower the Department of Commerce and Department of Energy to organize long-term purchase agreements or commit to buying key items (e.g. dilution refrigerators, superconducting amplifiers, high-purity qubit materials, photonic components) in bulk. Strategic investment (such as grants) could also target any chokepoints where the U.S. is overly reliant on foreign suppliers. By deploying capital toward widely needed quantum components, the government can incentivize companies within the United States (or, abroad in partnership with trusted allies) to build expertise and capacity.
- **Establish Quantum Manufacturing Facilities:** Congress should also focus on building specialized infrastructure facilities for quantum device fabrication and testing. Building

quantum computers and sensors often requires custom fabrication processes (for novel types of qubits, cryogenic electronics, etc.) and advanced packaging techniques. Congress should support the creation of one or more quantum foundries or test beds—perhaps through our National Labs or public-private partnerships—equipped to prototype and produce quantum components at scale. This includes facilities dedicated to fabrication, packaging, and assembly of quantum chips and systems, as well as laboratories for testing cryogenic and photonic components under quantum operating conditions. By investing in such infrastructure, the U.S. will reduce the need to rely on foreign fabrication facilities or suppliers for cutting-edge parts. These centers can also serve as innovation hubs where academia and industry collaborate on next-generation manufacturing techniques for quantum technology.

- **Prioritize Domestic Production of Advanced Components:** Congress should create incentives (tax credits, grants, or loan guarantees) for companies to build production lines in the U.S. for critical quantum hardware. This includes the design and fabrication of advanced lasers, precision optics, microwave components, and quantum-grade semiconductors, as well as cryogenic electronics and ultralow-temperature refrigeration systems required for quantum labs. Capabilities like high-precision metrology (chip characterization) and advanced 3D packaging for quantum devices should also be developed domestically. Some of these areas overlap with semiconductor and photonics industries—where recent government efforts were aimed at boosting U.S. manufacturing—but specialized focus on quantum needs is essential. By onshoring production of these components, the U.S. will mitigate risks of foreign supply cut-offs and foster a local ecosystem of quantum suppliers and startups. In tandem, federal R&D programs can partner with U.S. manufacturers to improve yields and performance in quantum-specific production, driving the costs down over time.

By implementing these measures, the U.S. can build a resilient quantum supply chain that supports our nation's long-term leadership. A combination of strategic planning, direct investment, public-private partnerships, and incentives will reduce dependence on foreign suppliers and ensure that our scientists and quantum innovators have access to the tools and components they need to succeed.

Conclusion

In closing, the government plays a critical role in coordinating our quantum ecosystem, funding the base of scientific discoveries and talent that the industry relies on, and being the first customer for next generation computers.

Quantum technology promises to redefine the next era of human progress. The United States must act with urgency to ensure our continued leadership over the next hundred years.