



Opening Statement of Chairman Frank Lucas

Full Committee Hearing
Advancing American Leadership in Quantum Technology

June 7, 2023

Good morning, and welcome to the Science, Space, and Technology Committee's first hearing on quantum science and technology this Congress.

This hearing could not have come at a more critical time. Quantum technologies, much like artificial intelligence and high-powered computing, are changing our nation's economic, strategic, and scientific landscape.

Congress is navigating difficult policy questions on emerging technologies, and continued American leadership is essential if we want to capture their many benefits.

I cannot overstate the importance of maintaining the U.S. competitive advantage in quantum capabilities. The global leader in commercial and military quantum applications will have an economic and strategic advantage not seen since the United States ushered in the nuclear era in the 1940s.

Quantum sensors developed right here at home already enable many of the functions we take for granted – like keeping time and enabling global navigation and positioning.

Further development, miniaturization, and hardening of these quantum systems will give Americans the advantage on the battlefield of tomorrow.

Quantum computers have vast, untapped potential for both good and evil, which is why it's so important that we stay ahead of our adversaries on these technologies.

On the one hand, quantum computers could help us solve fundamental problems in biology, chemistry, and physics.

Quantum computers could model the effects of new drugs at the molecular level, saving time and money in delivering new healthcare treatments.

They could help us understand and develop advanced materials that will revolutionize American manufacturing.

They can help us develop cleaner energy technologies, ensuring affordable prices with lower emissions.

They might even advance the development of Artificial Intelligence.

Imagine the widespread benefits this could have for agriculture. Using the services enabled by quantum technology, we could increase global food security, lower the price of groceries for Americans, and increase production and profits for American farmers.

In the wrong hands, though, quantum computers could crack modern encryptions that are the bedrock of global financial systems, communications, and intelligence gathering.

We cannot afford to have adversaries like the Chinese Communist Party use quantum technologies against us. Using a quantum computer, the CCP could, in moments, crack current encryption codes, breaking down our digital defenses and exposing businesses and American citizens to gross violations of privacy.

Recognizing the importance of staying ahead of the competition, this Committee passed the National Quantum Initiative Act in 2018. Thanks to this legislation, the United States has maintained its position as the global leader in quantum research, development, and technology.

But our adversaries are catching up. China and Russia are investing heavily in the development of operational quantum systems. China, in particular, is investing more than \$15 billion in quantum research and development.

If we want to maintain our leadership role in the quantum field, Congress needs to make smart, strategic investments. But government cannot do it alone.

A central tenant of the National Quantum Initiative Act is empowering U.S. researchers and businesses to innovate while the Federal Government plays a supporting role, where appropriate. The model has worked well, and U.S.-based businesses are leading the pack in quantum applications.

As this Committee works to reauthorize the National Quantum Initiative for the next five years, we must build on this working model while also developing new, international partnerships with our allies.

That is not to say there is not an active role for the government to play. The quantum industry, like other emerging technology industries, is in dire need of additional talent to fill out the workforce.

The National Science Foundation and Department of Energy quantum centers established under the National Quantum Initiative Act have been hard at work to build out educational curriculum, training programs, and industry partnerships over the last five years.

These activities would not take place without government support, and I look forward to hearing our witnesses speak about the progress that has been made.

The government can also empower the quantum industry through complimentary research and technology development. The National Institute of Standards and Technology is already recognized internationally for its quantum innovations.

Congress should enable NIST to further develop its expertise and leadership in solving the many complex science and engineering challenges that enable the quantum ecosystem to succeed.

My staff and Ranking Member Lofgren's staff are hard at work crafting bipartisan legislation to ensure we maintain our leadership position in quantum science and technology, meet the workforce needs of the quantum industry, and accelerate the commercialization of quantum systems.

The dialogue we have in this hearing today will inform the development of that legislation, and I look forward to hearing the recommendations of our witnesses for how this Committee can improve quantum programs to carry the National Quantum Initiative into the next five years.