Statement of Ranking Member Frank Pallone, Jr.
House Committee on Energy and Commerce
Subcommittee on Digital Commerce and Consumer Protection
Hearing on "Disrupter Series: Quantum Computing"

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I do not pretend to understand some of the concepts at the core of quantum computing. It is reassuring to me that even Einstein struggled with these ideas.

Fortunately, I do not need to be an expert to understand that quantum computers may someday be able to perform calculations far beyond the capacity of even the fastest supercomputers. I also appreciate that these computers have great potential to solve many now-unsolvable real world problems.

The development of life-saving drugs is just one example. Today, new drug development takes years, produces many false leads, and costs billions of dollars. A quantum computer could be used to predict how molecules, proteins, and chemicals interact with each other and with human cells. The result: safer more effective drugs, for treating Alzheimer's, cancer, or opioid addiction, get to market sooner and at more affordable prices.

The technology has many other promising applications for agriculture, climate study, financial analysis, supply chain management, traffic control, and more.

At the same time, quantum computing could open a Pandora's Box for security, rendering all modern encryption obsolete. In theory, a quantum computer could someday crack codes in mere seconds that would take a traditional computer thousands of years to decipher. That milestone would completely change the global balance of power.

I am looking forward to learning more from our panelists about just how theoretical these applications are, and how long it will take for them to become a reality. Despite dramatic progress in the past two or three years, there are still major hurdles to overcome before fully functional quantum computers are solving real-world problems.

We may not know with certainty when quantum computing will be a reality. We may not be able to predict all of its potential uses. We can, however, identify and address current obstacles to progress. Two clear obstacles are funding and workforce training.

The federal government must support quantum computing research as well as basic scientific research. And those dollars must be continuous and predictable.

We also must be mindful that other countries are investing heavily in quantum computing and we must stay globally competitive. China, for instance, is building a 10 billion-dollar national lab by 2020, and the European Union plans to invest two billion euros over the next 10 years.

People are just as essential as dollars, but right now there is a profound gap in education and training. The field needs more computer scientists, mathematicians, and engineers with a solid grasp of quantum mechanics. Undergraduate and graduate programs that combine these disciplines, however, are rare. And students of all ages must be exposed to the principles of quantum computing from an early age all the way through graduate programs. We are fortunate to have Professor Diana Franklin here today to speak to the education and training gaps.

Mr. Chairman, I look forward to hearing from her and all of our witnesses.