

## 21<sup>st</sup> Symposium: “Quantum Computing”

August 28, 2021

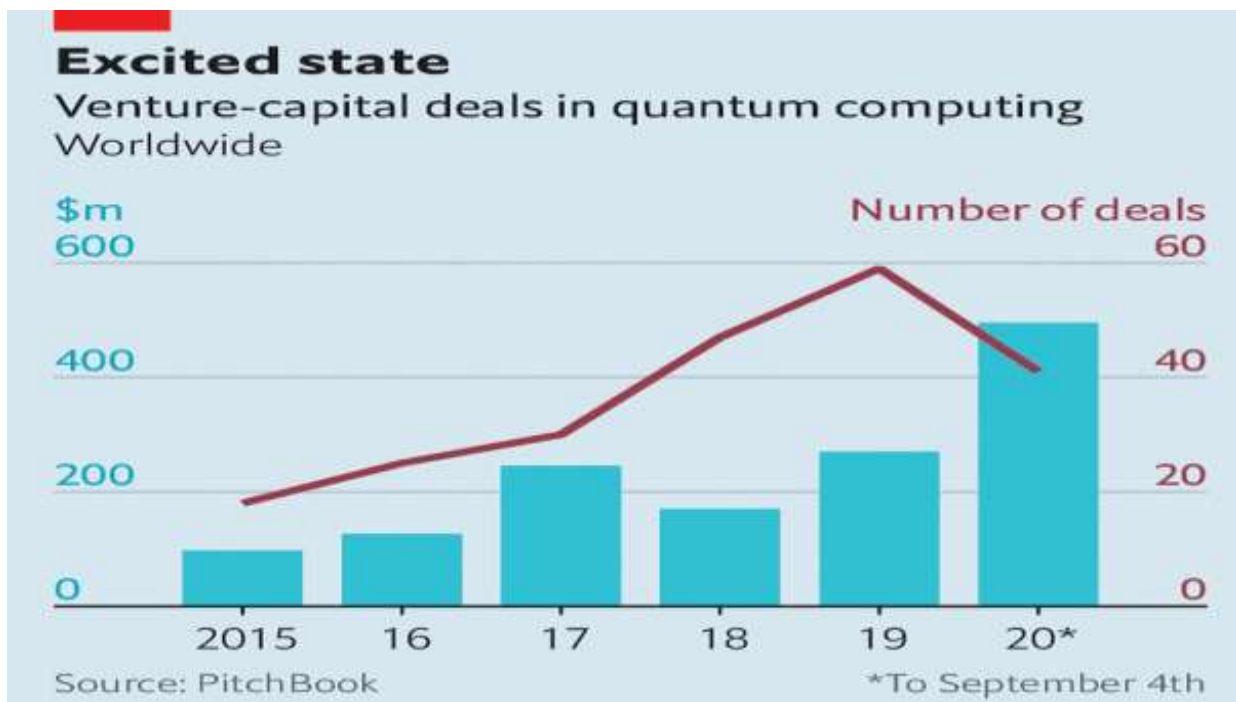
My dear fellow Engineers,  
Respected Speakers,  
Ladies and Gentlemen

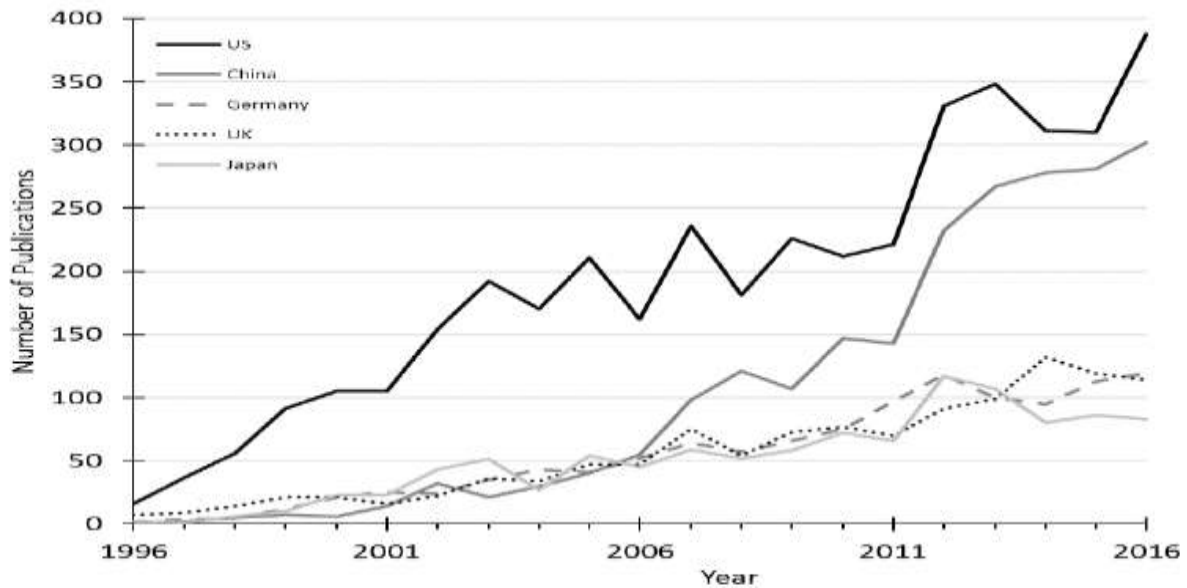
**SALAMUN ALA MANIT-TABAUH-HUDA**

I am extremely pleased to see you online.

You would appreciate that we shall be deliberating on a very difficult subject, not commonly understood. However, this is our tradition that we bring forth themes that are destined to determine our future. Classical computing had settled on silicon transistors by the 1970s. Quantum mechanics was born more than 100 years ago. Quantum Computing will be 40 next year. According to a report of the National Academy of Sciences, USA, “Quantum information science and engineering is a rapidly developing interdisciplinary field of sciences and technology, drawing from various subfields of physical sciences, computer science, mathematics and engineering, which addresses how the fundamental laws of quantum physics can be expedited to achieve dramatic improvements in how information is acquired, transmitted, and processed”. Progress in quantum Computing depends upon progress in a number of fields, from lasers to cryogenics.

Governments of USA, Britain, China, Germany and Japan have invested billions of dollars at funding quantum research.





Number of papers published by nation of origin for top five global producers in quantum computing and algorithms. Includes only research publications that are accessible to the public. Data are the result of a bibliometric analysis conducted by a team at the Naval Surface Warfare Center Dahlgren Division.  
SOURCE: Data courtesy of Jacob Farinholt.

## Slide 2

Ultimately quantum computing is emerging as a commercial proposition. It could open up entirely new vistas. It may revolutionise its chemistry, material science, drug making, batteries and more. It provides facility for optimisation problems, which would be a boon for logistics, finances and artificial intelligence.

According to a USA report: “Based on evaluation of publicly available information regarding progress to late in the field of quantum computing, the committee saw no fundamental reason why a large fault-tolerant quantum computer would not be built in principle”. IBM’s “q Network” established in 2017 is a closed-computing service that lets clients use the firm’s own quantum computers.

There are many possible systems and platforms for the contribution of quantum machines. The technology development is still at a very early stage, but the state of art is evolving rapidly.

I hope you will enjoy listening to our respected speakers. Let us see what may be on the horizon.

I have to express my sincere gratitude to the learned speakers who readily accepted our invitation to present substantial material for our benefit. We are particularly thankful to our sister academy, Chinese Academy of Engineering, who promptly offered their cooperation for enlisting a highly competent speaker for our Symposium.

Thank you.