

University of Melbourne joins as founding member of IBM Q Network Hub to Accelerate Quantum Computing

Melbourne - 14 Dec 2017: IBM (NYSE: IBM) announced today the first clients to tap into its IBM Q early-access commercial quantum computing systems, including: University of Melbourne, JPMorgan Chase, Daimler AG, Samsung, JSR Corporation, Barclays, Hitachi Metals, Honda, Nagase, Keio University, Oak Ridge National Lab and Oxford University. These twelve organizations will serve as founding members of the newly formed IBM Q Network, a collaboration of the world's leading Fortune 500 companies, academic institutions and national research labs working directly with IBM to explore potential practical quantum applications.

The IBM Q Network provides organizations with quantum expertise and resources, and cloud-based access to the most advanced and scalable universal quantum computing systems and technology stack available, starting with a 20 qubit IBM Q system in 2017. IBM recently built and measured the first working [50 qubit](#) prototype processor. IBM anticipates that access to this prototype will be offered to participants in the IBM Q Network as part of the next generation IBM Q system. The network will foster a growing quantum computing ecosystem based on IBM's open source quantum software and developer tools.

"IBM sees the next few years as the dawn of the commercial quantum era – a formative period when quantum computing technology and its early use cases develop rapidly," said Dario Gil, vice president of AI and IBM Q, IBM Research. "The IBM Q Network will serve as a vehicle to make quantum computing more accessible to businesses and organizations through access to the most advanced IBM Q systems and quantum ecosystem. The IBM Q Network will focus on discovering areas of quantum advantage by investigating practical applications of quantum computers with commercial, intellectual and societal benefit."

IBM Q Network Explores Practical Quantum Applications for Industry

Organizations will work directly with IBM scientists and engineers to pioneer quantum computing for specific industries and have direct cloud-based access to IBM Q systems. Each of the IBM Q Network Partners will explore a broad set of potential applications of quantum computing in each industry that could provide a quantum advantage – demonstrations of real-world problems that can be solved faster or more efficiently with a quantum computer than with a classical computer.

- **JPMorgan Chase** will be the premier global financial services partner with IBM, focusing on use cases for quantum computing applicable to the financial industry including trading strategies, portfolio optimisation, asset pricing, and risk analysis.
- **Daimler AG** will work with IBM to advance the potential use cases of quantum computing for the automotive and transportation industry. Some areas of research include finding and developing new materials for automotive application through quantum chemistry, complex optimisation problems such as for manufacturing processes or vehicle routing for fleet logistics or autonomous/self-driving cars, and the intersection of quantum and machine learning to enhance the capabilities of artificial intelligence.
- **Samsung**, working closely with IBM, will explore a variety of use cases where quantum computing may impact the future of the semiconductor and electronics industry.

- **JSR Corporation**, a leading chemical and materials company, will explore how quantum computing can improve materials for electronics, environmental and energy applications.

IBM Q Network Members **Barclays**, **Hitachi Metals**, **Honda** and **Nagase** will build their knowledge of general approaches to quantum computing and begin to investigate potential use cases for their industries of finance, materials, automotive and chemistry respectively.

For organizations who are looking to kick-start awareness of quantum computing, IBM Services is now offering IBM Q Consulting workshops to understand the state and future directions of the field and develop a strategy for how to get their organization “quantum ready”.

IBM Q Network Establishes Global Hubs for Quantum Research, Education and Broader Industrial Collaboration

Access to quantum systems and open research are critical for accelerated learning, skills development and implementation of quantum computing. IBM Q Network Hubs will broadly enable industry and research collaborators to have online use of IBM Q Systems and engage in joint development work to explore quantum computing. These regional hubs will be located at **University of Melbourne** in Australia, **IBM Research** in the United States, **Keio University** in Japan, **Oak Ridge National Lab** in the United States, **Oxford University** in the United Kingdom.

“We are excited to work with IBM to explore how quantum computing could benefit Australian industry and education and address new computational challenges,” said Professor James McCluskey, Deputy Vice-Chancellor (Research) at University of Melbourne. “By becoming an IBM Q Network hub and having access to advanced quantum systems, it will allow our scientists to develop knowledge for quantum solutions applicable to industry problems in Mining, Energy and Finance.”

IBM Fosters Growing Quantum Ecosystem

Through the publically available [IBM Q experience](#), over 60,000 users have run over 1.7M quantum experiments and generated over 35 third-party research publications using the world’s first series of quantum computers available openly on the web. Users have registered from over 1500 universities, 300 high schools, and 300 private institutions worldwide, many of whom are accessing the IBM Q experience as part of their formal education. The IBM Q experience enables anyone to connect to IBM’s quantum processor via the IBM Cloud, to run algorithms and experiments, work with the individual quantum bits, and explore tutorials and simulations around what might be possible with quantum computing.

IBM will soon be announcing a series of prizes for professors, lecturers and students who use the [IBM Q experience](#) in the classroom and for their research. Awards will be made available for developing open source course materials for a lecture series; building a self-paced, open source tutorial; contributing specific code modules to the open source [QISKit SDK](#) and to students who publish a high impact scientific paper or software application. For details visit <https://qe-awards.mybluemix.net>.

About IBM Q

IBM Q is an industry-first initiative to build commercial universal quantum computing systems for business and science applications. For more information about IBM’s quantum computing efforts, please

visit www.ibm.com/ibmq.
