Quantum Software Venture Taking Off

Masahiro Wakasugi
团队: 科技
BI资深行业分析师

Amazon Cloud May Be Quantum Leap for CQC After IBM, Honeywell

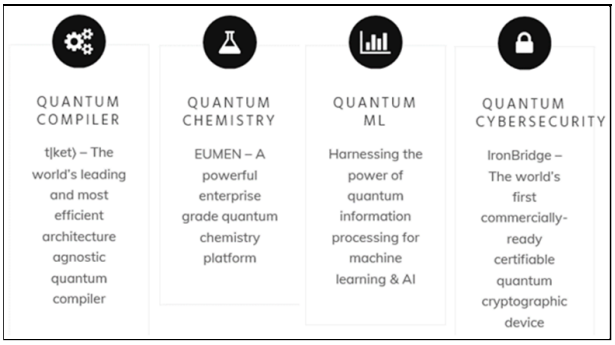
(彭博行业研究) -- More companies may follow global giants such as IBM, Honeywell and Nippon Steel to start joint developments with quantum-computer venture Cambridge Quantum Computing (CQC). Further collaboration may be spurred by Amazon Web Service's launch of a new low-cost cloud service for quantum computing. (09/07/20)

1. CQC in Spotlight on Quantum Computer Cloud

AWS has begun offering quantum computer cloud services, allowing many users to access with Rigetti, IonQ and D-Wave's quantum computers at lower prices. Demand for quantum software may rapidly increase as a result, such as a compiler provided by U.K.-headquartered CQC that can be used on different types of hardware. CQC is a software venture company funded by IBM and Honeywell, both giants of quantum computer hardware. JSR, the world's leading semiconductor material company based in Tokyo, is also one of the investors.

CQC is also engaged in research and development in collaboration with Nippon Steel and French energy company Total. (09/07/20)

CQC's Quantum Computing Solutions



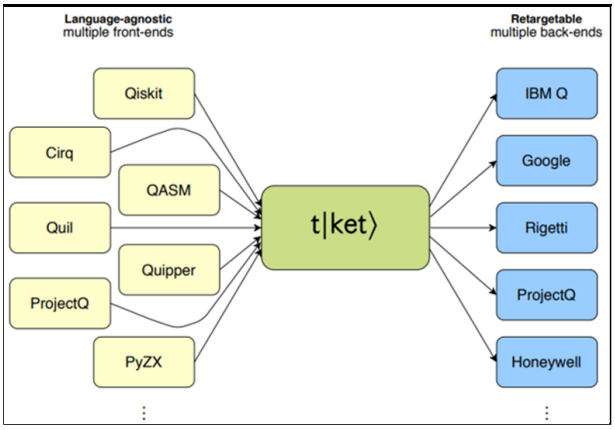
Source: CQC, Bloomberg Intelligence

2. CQC's Hardware Agnostic Software May Get Traction

CQC's quantum computer compiler and operating system, called t|ket>, may play a key role over the next five years. The software supports various quantum computer systems such as superconducting hardware provided by IBM, Google and Intel, and trapped-ion hardware developed by IonQ and Honeywell. t|ket> is platform agnostic not only in terms of hardware but also programming languages and development framework, such as IBM's Qiskit and Google's Cirq. t|ket> could help users decrease risks of too much dependence on a certain quantum computing method.

CQC's t|ket> is gradually becoming popular, with global major financial institutions signing licenses. (09/07/20)

CQC's Key Product: "t|ket⟩™ "

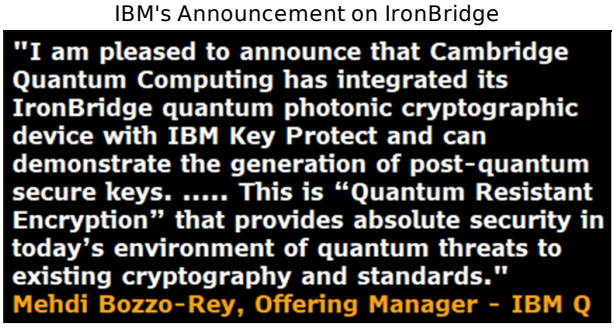


Source: CQC

3. CQC May Strengthen Cybersecurity on Quantum

The next-generation cybersecurity system IronBridge developed by CQC has the potential to supplement the weaknesses of current cryptographic systems. Cryptography is used in internet shopping, where demand is increasing due to the pandemic. The current cipher is unbreakable due to the random numbers that form the basis of the cryptography. Yet a huge number of random numbers are needed, without regularity, to support internet shopping around the world for just 24 hours. CQC's IronBridge aims to generate true random numbers using quantum computing. The company is making further improvements through co-development with IBM. (09/07/20)

IBM's Announcement on IronBridge



Source: IBM, Bloomberg Intelligence

4. Quantum Computing May Achieve ESG Innovation

CQC could potentially provide a powerful solution for companies promoting ESG. Total in France is co-developing with CQC to realize advanced carbon-dioxide capture, utilization and storage (CCUS) technology, using quantum computers. Total may need to develop CCUS technology, even over five-10 years. Quantum computers could undergo major technological advances in the next 10 years, and the joint development of CQC and Total could be key.

Nippon Steel has started joint development in material science and optimization, using quantum computers with CQC. Japanese companies need new technology to survive, such as quantum computing. Joint development between CQC, which entered the Japan market in December 2019, and Japanese companies may increase further. (09/07/20)

CQC's Collaboration Examples

Organization	CQC Product	Collaboration Field
CERN*	t|ket⟩ Ironbridge	Particle Physics
Total	Eumen	Carbon Capture, Utilization and Storage (CCUS)
Nippon Steel		Material Science, Optimization
Pasqal	t|ket⟩	Neutral Atom Quantum Computer
IBM		CQC becomes a hub member of IBM Q Network

* European Organization for Nuclear Research

Source: CQC, Bloomberg Intelligence

如需与此研究报告的分析师联系：
Masahiro Wakasugi 电邮： mwakasugi4@bloomberg.net