

ASX Announcement ([ASX: AXE](#))

9 December 2020

Quantum collaboration with leading AI firm Max Kelsen

Highlights

- Archer and Max Kelsen will develop quantum algorithms relevant to the operation of the 12CQ quantum computing processor (“chip”).
 - The Australian companies are members of the IBM Q Network[†], and will use IBM’s Qiskit and quantum computers for testing and validation.
 - The collaboration is a key step in the commercialisation of the 12CQ chip, and aims to validate chip end-uses and high-value practical applications.
 - Quantum computing outcomes from the collaboration will target multiple sectors, including ICT and financial services[‡].
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Archer Materials Limited (“Archer”, the “Company”, [“ASX: AXE”](#)) is pleased to announce that it has entered into a collaboration with a leading Artificial Intelligence and Machine Learning company, [Max Kelsen](#) (“the Collaboration”). Archer and Max Kelsen are members of the global IBM Q Network[†].

The collaboration is a critical step in the commercialisation of the 12CQ chip because the principal purpose of building quantum computing processors is to apply and run quantum algorithms to generate value from outperforming modern computing.

Commenting on the collaboration, Archer CEO Dr Mohammad Choucair said: “As part of Archer’s forward looking strategy, the partnership with Max Kelsen – a leading AI and Quantum Computing firm – is a key step forward in the commercialisation of our 12CQ chip technology.

“It’s a great example of how two Australian IBM Q Network Members are working together to realise the commercial potential of quantum computing.

“We will use IBM’s Qiskit and quantum machines to validate our work, and once validated, Archer intends to apply the end-user cases, algorithms and Qiskit to 12CQ chip hardware, which demonstrates the increasing value our partnerships bring as we progress in our development.”

As IBM Q Network members, Archer and Max Kelsen will use IBM’s Qiskit open source programming framework and cloud-based quantum computers to implement novel quantum algorithms developed that validate practical quantum computing applications relevant to Archer’s 12CQ chip technology, *i.e. real* uses that would benefit from quantum processors onboard technology at room temperature.

[†] <https://www.nature.com/articles/s42254-020-00247-5>; also <https://www.ibm.com/quantum-computing/network/members/>

[‡] <https://www.bcg.com/en-au/publications/2020/how-financial-institutions-can-utilize-quantum-computing>

As part of the Collaboration, Archer staff will work directly with the quantum computing team at Max Kelsen to develop industrially relevant business use-cases of the 12CQ technology for a number of sectors with the potential for high-value add, including finance[‡] and telecommunications[§]. This will involve the use of quantum processors to run quantum algorithms that have *real* applications such as Quantum Artificial Neural Networks.

About 12CQ

12CQ is a world-first quantum processor technology that Archer aims to build for quantum computing operation at room-temperature and integration onboard modern electronic devices. For more information, please view Archer's a [recent webinar](#) held with IBM.

About Max Kelsen

Founded in Brisbane in 2015, Max Kelsen is a globally leading Artificial Intelligence (AI) and Machine Learning (ML) software business. Max Kelsen enables innovation directly linked to the generation of business value and competitive advantage, including for Fortune 500 companies and some of Australia's most iconic brands. Max Kelsen's solutions are at the heart of workflow automation and value extraction from data, providing extremely accurate predictive modelling in critical systems like clinical decision making. Max Kelsen is also dedicated to reinvesting its expertise and profits to solve the challenges of humankind, focusing on Cancer Genomics, AI Safety, and Quantum Computing. Max Kelsen was the Amazon Web Services (AWS) Partner of the Year in 2020 for Data and AI.

About Archer

A materials technology company developing innovative deep tech in quantum computing, biotechnology, and reliable energy. The Company has strong intellectual property, world-class in-house expertise, a unique materials inventory, and access to Tier 1 technology development infrastructure.

The Board of Archer authorised this announcement to be given to ASX.

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<https://archerx.com.au/>

Twitter:

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[§] <https://www.bcg.com/publications/2019/quantum-computers-create-value-when.aspx>