

18 August 2021

**Quantum Blockchain Technologies Plc**  
(“QBT” or “the Company”)

**Crypto Mining R&D Project Update**

The board of Quantum Blockchain Technologies (AIM: QBT) is pleased to update the market on its Crypto Mining Research and Development (“R&D”) project, which in the first instance will be used for the deployment of a proprietary technology for more efficient cryptocurrency mining.

The primary goal of the project is to develop Bitcoin mining tools and techniques which will significantly outperform existing mining equipment, both in speed and energy consumption. While it is understood that this is extremely ambitious, the radically advanced technologies being utilised; quantum computing, Artificial Intelligence and Deep Learning, amongst others, renders the goal achievable.

For this purpose, QBT has assembled a team of 13 sector experts, which is now fully operational. The members of the team have been selected from across the UK and Italy, and includes highly skilled professionals, Ph.D students and university professors, with expertise in, Quantum Computing, Machine Learning, Cryptography and Algorithms Optimisation Theory. QBT has entered into formal agreements with various university departments to retain the services of the new team. Any intellectual property and patents developed during the R&D project will belong exclusively to QBT.

A number of working groups have been formed to address the key technologies at the core of QBT’s crypto mining strategy. These are:

- Quantum Computing
- Cryptographic Optimisation
- Deep Learning and Artificial Intelligence (“AI”)
- FPGA / ASIC Design
- Algebraic and Boolean Equation Reduction
- Very Large Big Data
- High performance computing architectures

As previously stated in the RNS of 2 June 2021, the Company has secured the services of an expert specialising in cryptocurrency mining blockchain optimisations.

The development of only half of the optimisations previously created by the expert, has proved a 9.56% speed improvement using a commercial Graphic Processing Unit (GPU), compared to the standard Bitcoin mining algorithm on the same GPU. While it was never intended to use a GPU processor for Bitcoin mining, it is providing invaluable quantitative feedback on the optimisation techniques discovered by the in-house expert.

A second and more impactful set of optimisations for the Bitcoin mining algorithm have now been identified by the expert, which will be filed as an international patent within weeks. This is ideally the first of several patents the Company plans to file in the coming months. More details on the efficiency in running the Bitcoin mining algorithm with this new set of optimisations, will be released shortly after filing the patent.

The Field Programmable Gate Arrays (“FPGA”) and Application Specific Integrated Circuit (“ASIC”) expert retained by the Company will start implementing the first set of optimisations on FPGA this month and early completed versions of the FPGA are due by the end of October 2021, while the optimisations covered by the patent being filed are due by December 2021. Based on the performance achieved by the FPGA chip, it may be decided to use it as the Company’s first mining engine. ASIC development work will start in parallel in October 2021.

The design of the new IT infrastructure, which includes a 128 core Machine Learning workstation and an initial one Petabyte memory expandable unit, to host the proprietary enriched Bitcoin mining “Very Large Big Data”, is now complete and its deployment into a data centre in Northern Italy will, due to favourable tax benefits on R&D, happen in September 2021. To date, all R&D has been completed using cloud resources.

At the beginning of August 2021, the first Deep-Learning optimisation of the Bitcoin mining algorithm was autonomously generated by one of QBT’s AI systems. This optimisation is identical to one of the phase-one optimisations created by the expert, but generated independently. This early result strongly supports the strategy adopted by the Company to invest in the heavy use of Deep Learning.

Work on the D-Wave quantum computer has begun by QBT’s quantum team. While an implementation of the core Bitcoin mining algorithm has already been developed, programming of this quantum processor requires a totally different approach to traditional software design. This is due to the specific approach to quantum computing of D-Wave’s quantum processor, namely, quantum annealing. However, the efforts represented by the very steep initial learning curve, will hopefully, be rewarded by the significantly improved performance expected to be delivered by D-Wave’s quantum processor. Updates on progress achieved will be released in due course.

**Francesco Gardin, CEO and Executive Chairman of QBT, commented,** “Assembling a new team and taking this project to operational status within four months has been a difficult challenge and has required a tremendous effort. However, thanks to our exceptional team, we have been able to achieve this.

“Over the past few months we have resisted the temptation to mine for cryptocurrencies using ‘standard’ methods as it is not part of our current strategy. QBT is looking to be a highly disruptive influence in the circa £75 billion\* market of approximately 2.21m Bitcoins yet to be mined and we believe that the past few months of intensive R&D will be crucial to achieving this. Our strategy for Bitcoin mining is knowledge intensive, rather than capital intensive, based on the unique, combined interaction between our human experts and our innovative AI systems.

“I would like to thank our shareholders for their patience and state that our roadmap is clearly defined and we will pursue it with determination.”

\* at the current market price of US\$46,400 per Bitcoin

This announcement contains inside information for the purposes of Article 7 of the Market Abuse Regulation (EU) 596/2014 as it forms part of UK domestic law by virtue of the European Union (Withdrawal) Act 2018 ("MAR"), and is disclosed in accordance with the Company's obligations under Article 17 of MAR.

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**About Quantum Blockchain Technologies Plc**

QBT (AIM: QBT) is an AIM listed investment company which has recently realigned its strategic focus to technology related investments, with special regard to Quantum computing, Blockchain, Cryptocurrencies and AI sectors. The Company has commenced an aggressive R&D and investment programme in the dynamic world of Blockchain Technology, which includes cryptocurrency mining and other advanced blockchain applications.

For further information, please visit, [www.quantumblockchaintechnologies.co.uk](http://www.quantumblockchaintechnologies.co.uk)

Glossary of Terms:

**Deep Learning:** Deep learning is an artificial intelligence (AI) function that imitates the workings of the human brain in processing data and creating patterns for use in decision making. Deep learning is a subset of machine learning in artificial intelligence that has networks capable of learning unsupervised from data that is unstructured or unlabeled. Also known as deep neural learning or deep neural network.

**FPGA:** A field-programmable gate array is an integrated circuit designed to be configured by a customer or a designer after manufacturing – hence the term "field-programmable". The FPGA configuration is generally specified using a hardware description language (HDL), similar to that used for an application-specific integrated circuit (ASIC).

**ASIC:** An application-specific integrated circuit is an integrated circuit chip customized for a particular use, rather than intended for general-purpose use. ASIC chips are typically fabricated using metal-oxide-semiconductor (MOS) technology, as MOS integrated circuit chips.

**GPU:** A graphics processing unit is a specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images in a frame buffer intended for output to a display device. GPUs are used in embedded systems, mobile phones, personal computers, workstations, and game consoles.

**Big Data:** Big data refers to the large, diverse sets of information that grow at ever-increasing rates. It encompasses the volume of information, the velocity or speed at which it is created and collected,

and the variety or scope of the data points being covered (known as the "three v's" of big data). Big data often comes from data mining and arrives in multiple formats.

**Quantum annealing (QA):** is a metaheuristic for finding the global minimum of a given objective function over a given set of candidate solutions, by a process using quantum fluctuations. Quantum annealing is used mainly for problems where the search space is discrete with many local minima; such as finding the ground state of a spin glass or the traveling salesman problem.