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B2NG – an investment in the future of computing, quantum computing, and blockchain

Quantum computing

Quantum computing represents the biggest performance boost in the history of computer technology - the Quantum Leap.

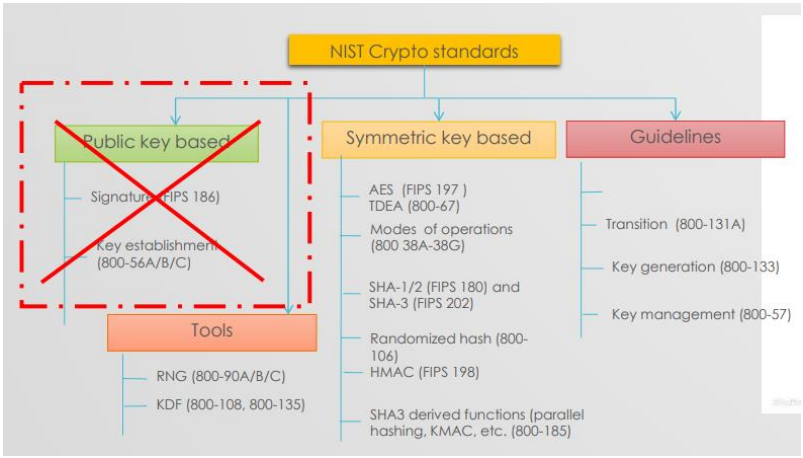
The Qubit Revolution will reshape industries, enable new medical treatments and technologies, and deeply impact several areas of financial services.

- 2nd Generation of Blockchain Tech - Enabling new financial products and services
- Disrupts Cyber Security, Including new infrastructure for financial transactions
- Speeding-up algorithm training, Machine Learning and AI development
- Bring to a new level subjects such as Business Intelligence, Outside Insights and complex problem solving
- Medical treatments and chemistry applications that require high performance simulations (i.e. developing new proteins or materials)

NIST: "The Future of Computing is upon us"

According to an official report published by the *US National Institute of Standards and Technology* ("NIST") "There is a 1 in 7 chance that some fundamental public-key crypto will be broken by quantum by 2026, and a 1 in 2 chance of the same by 2031." – Dr. Michele Mosca, U. of Waterloo.

According to NIST "If a large-scale quantum computer could be built then part of the key based cryptos will disappear" … in other words *when* a large-scale quantum computer is built, key based public cryptos *will* no longer be secure, and will disappear.



Furthermore, the *U.S. National Security Agency's ("NSA's)* position on the question is equally clear: "A sufficiently large quantum computer, if built, would be capable of undermining all widely deployed public key algorithms used for key establishment and digital signatures". (See NSA Central Security Service Q&A)

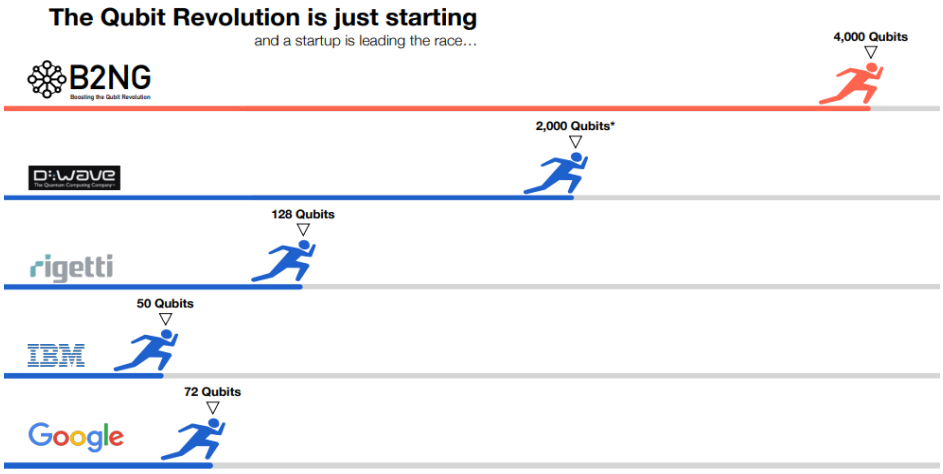
***B2NG** will develop such a large-scale quantum computer*.

B2NG – Highlights and "USPs"

- The Company will develop & manufacture a new quantum processor based on Dynamic Neural Networks.
- A strong IP base: A European Patent has already been Registered (application nr. EP18382638.7) – Aug 31st 2018.
- The CEO has an outstanding track record in the scientific research and international commerce fields
- Relationships with big global industrial and academic partners: Fongit, Platinn, AltPic (Switzerland), JBI (Jiangsu Huaxin Blockchain Research Institute of China), Rostec (Russia).
- An investment in the B2NG technology is also an investment in the creation of a new BLOCKCHAIN concept (New Generation) based on Dynamic Neural Networks via Quantum Measurement (QM).
- ***Competition***:
    - The combination of the Company's advanced Dynamic Neural Networks know-how with the advancing state of the science/art of Quantum Computing will allow the Company to develop a Computer with a processing capacity of 4,000 Qubits.
    - The closest competitor only targets 2,000 Qubits.
    - IBM, Google, Cambridge Quantum (CQC) and Rigetti are further behind.

- Furthermore, *importantly*, the Qubits generated by the B2NG process are ***Logical Qubits***, not the mere **Physical Qubits** (where a Quantum Error correction mechanism needs to be applied, in turn reducing the real output of the system) generated, for instance, by the D:Wave process.

- *<u>The race for a Quantum Computer is on, and a startup is leading the race (4,000 Qubits)!</u>*

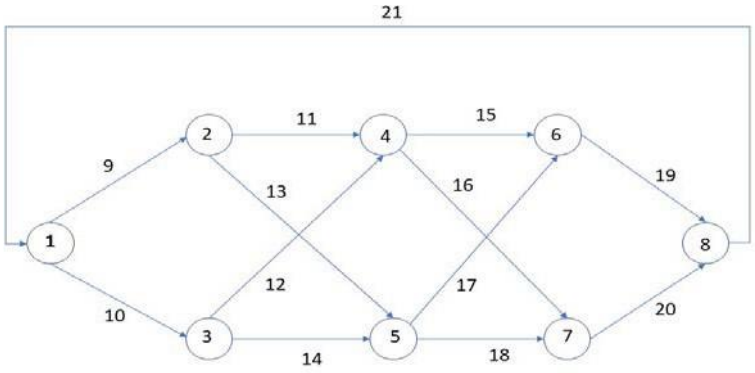


Intellectual Property – Patent Pending

A Quantum Information Processor based on Dynamic Neural Networks

B2NG's Founder, Ignacio Ozcariz, has filed and been granted a **EU patent pending,** number: EP18382638.7 The **Patent Abstract** states: **"**A Quantum Information Processor (Fig. 1) comprises a series of Nodes (1,2,3,4,5,6,7,8) and another series of edges (9,10,11,12,13,14,15,16,17,18,19,20) which form with the link 21 an Artificial Neural Network (ANN) which supports dynamical transitions at the Nodes and Edges and so is named Dynamic Neural Network (DNN). The quantum states used to represent a qubit may be defined as the signal present at the Nodes 1 and 8 linked by the edge 21.

The Nodes process the signals that arrived via the Edges with a "Sum" operation. The Edges process the signals that goes thru them with a "Multiplication" operation realized via some devices controlled from the exterior of the DNN. Several Unitary Transformations U_H will be defined with the aid of the multiplicative devices applied to the Edges to obtain the States' changeset. Intrinsically the DNN could be considered decoupled from the environment as a Quantum Information Processor."



Highlights of the Business Plan

It is important for investors to understand that the "business plan" here is basically to develop and prove the technology, then sell. Specifically, the Company does NOT intend, long term, to compete against industry giants such as IBM Google and others. The objective is simple: 1) develop the technology 2) sell to the highest bidder, for £1bn or more.

The Company's first "Real world" applications / target(s)

- CREATION OF A NEW BLOCKCHAIN BASED ON QUANTUM MEASUREMENT (QM) AND DYNAMIC NEUTAL NETWORKS.
- Block -> Engram/Chain -> Memory
- QM -> Irreversible Mechanism vs Reversible Operation of information quantum processes

- No need of any Trusted Party. The information processing mechanism in the DNN is in the edges of the net not in the nodes.

Technological targets:

A. Functional Scope:

- Creation of a DNN (Dynamic Neural Network) architecture
- Creation of a Blockchain (New Generation) via Quantum Measure (QM)
- Creation of a Quantum Information Processor (method and an apparatus) based on Dynamic Neural Networks

B. Scope of the Technology's Applications:

- Information services (i.e. Google) and Intelligence services (i.e. NSA)
- Financial institutions that require a high degree of security in their transactions
- Health Care and Food Industries
- Utility companies
- Players in the cybersecurity market
- Those who need a high-performance quantum simulation (i.e. development of new proteins and materials)

Management Team

A. IGNACIO OZCARIZ, Founder and CEO

Mr. OZCARIZ is a Spanish national, and a Swiss resident. He is an experienced Company Director having worked in the scientific, technological and financial fields for over 30 years. Mr. OZCARIZ is an Aeronautical Engineer by training (Universidad Politécnica de Madrid, E.T.S.I.A. 1978) with an MBA (Instituto de Empresa, Madrid 1980).

Mr. OZCARIZ undertook doctoral course work at the Universidad Politécnica de Madrid (ETSIA) between 1993-1995, where most notably he developed a paper on "*Neural networks for financial applications".* It is his original and unique work in the field neural networks, and subsequently dynamic neural networks that lead him to design the *Quantum Information Processor based on Dynamic Neural Networks*, for which he has already been granted an EU Patent Pending, and which forms the basis of the B2NG business. See the IP section of the document.

B. Other Key Executives:

The Company is privileged to have already received commitments of support from the Polytechnic University of Madrid, and the University of Geneva, Switzerland. Polytechnic Madrid has already signed an agreement for the development of the emulation of the DNN circuit within 12 months, committing a team led by Dr. Ignacio Gomez (PhD in Aerospace Engineering), supported by 2 other PhD's in the fields of Computer Science and Electrical Engineering and one post-doctoral candidate, under the supervision of B2NG.

Transaction description and outline:

B2NG is looking to raise up to £3 million for circa. 15% of the equity of the company, i.e. an implied Pre-Money Valuation of £20 million. The Company is seeking a reasonable spread of investors, and will consider investment ticket sizes as low as 300k per investor.

The Use of Proceeds is planned as follows:

- OPEX (1 year): £1M
- Patents & IP rights: £2 M

A detailed financial model is being developed, and will be available in 2 weeks' time.

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Appendix 1

Article from Fortune Magazine

October 3rd, 2018

http://fortune.com/2018/10/03/quantum-computing-d-wave/?utm_source=emailshare&utm_medium=email&utm_campaign=email-share-article&utm_content=20181006

You'll Be Using Quantum Computers Sooner Than You Think

By VERN BROWNELL

Quantum computing is the single most important technology in development today. As grand as that sounds, it's hard to dispute that the industry is experiencing an inflection point. In the past year alone, tech giants like Google, Microsoft, Intel, and IBM have made bold investments and promises for their own quantum development.

Today, more than 70 real-world prototype applications run on D-Wave quantum computers. In September, the U.S. House passed the National Quantum Initiative Act, a bipartisan bill to accelerate education, research, and development; the Senate is now considering the bill.

It's an incredible time to be working in quantum computing. The explosion of growth and progress has brought increased attention, investment, and adoption. However, it also brings increased confusion and seemingly conflicting opinions.

This manifests most obviously in the questions I'm asked. It's no longer, "What is quantum computing?" and "Is it real?" Today, it's, "When will this be real?", "What will it look like?", and perhaps most often, "Who's going to win the quantum race?"

The short answer to the last question is it's still too early to know. But more than that, the notion of a single "winner" is flawed.

Diversity of thought and approach is critical in quantum development, as in any technology, and the more smart people we have exploring different paths, the sooner we'll see the benefits of quantum computing in our everyday lives.

The future of quantum computing is hybrid. A diverse set of quantum technologies—combined with classical computing hardware—will work in tandem to serve our future needs. No one company is going to reach a discrete end point. Rather, we must test, collaborate, and share knowledge to reach a collective future. Just as many diverse members of the classical ecosystem figured out how to make computers the most important technology of the 20th century, a new diverse ecosystem will make quantum computing the most important technology of the 21st.

Hybridization, not wholesale replacement

Often, people learning about quantum computing will point to their smartphone and ask, "So when will this run on quantum?" The answer is: "Possibly sooner than you think." But the quantum computer will not be in your handset. Instead of a replacement of our classical devices, the quantum future will be hybrid. QPUs (quantum processors) and classical processors will work together to tackle day-to-day computing as well as complex, enterprise-level problems across industries. So even if smartphones won't contain a quantum computer, they are likely to access quantum computers for certain applications via the cloud within the next few years.

A good comparison for the progression is that of Nvidia's graphics processor. Over time, its perception evolved from that of a hyper-specialized unit for niche, complex applications to that of a powerful technology with real-world applications in everything from scalable AI for autonomous vehicles to consumer drones. Nvidia's founding theory was similar to quantum computing's: processors capable of solving complex problems for

graphics could also solve other problems faster than existing computing systems can. It's proved that its graphics processing units (GPU) can accelerate many computations, but is everyone using an Nvidia-powered laptop or phone? No—because such a unit is not needed for every type of daily computation. Plus, Nvidia's GPUs operate in hybrid systems alongside traditional central processing units (CPU).

Quantum processors will follow a similar path. Right now, it's a specialized field, requiring knowledge of quantum physics and quantum programming as well as hands-on support. For several years, practical applications will likely be limited to the areas most ripe for quantum advantage, like material science, machine learning, and complex optimization problems. But as we collectively identify and pursue more practical applications and quantum becomes increasingly accessible, QPUs will assist more and more in everyday problems.

What does "winning" mean, anyway?

The second most common question I get from those learning about the space is, "Who is going to win?"

The truth is that we all win. Quantum computing promises to expand computing power in a nearly limitless way, opening up new pathways to cure cancer, explore the universe, develop unimagined materials, and solve for known and unanticipated complexities of our human systems. There's likely to be more than one quantum computing technology that helps to solve these important problems over the long term.

Short-term goals look different to different players in the industry because we're on different paths. At D-Wave, the founding team decided to focus on the fastest path to practical, real-world applications. That guiding priority not only dictated the technological decisions we've made, but it's also influenced the partners we've chosen to work with, the business decisions we've made, and the type of people we've hired.

We believe our job is to demonstrate clear economic benefit to using a quantum computer in a practical application versus a classical computer. This differs from the much-talked-about goal of "quantum supremacy," which requires proving a quantum computer can solve a synthetic (not practical) problem faster or better than any classical system that's ever existed. Quantum supremacy is a worthy theoretical goal, but we've chosen to instead focus on practical advantages in real-world problems.

That said, no single marker of success represents an endpoint. Reaching the quantum-powered future will be a moving target, with milestones and setbacks along the way, great benefits to mankind, and roles for several different approaches to quantum computing.

Some systems will prove better suited for certain problems, and not so well-suited for others. Regardless, diversity of thought propels innovation, and the recent explosion in testing, learning, and developing quantum applications is positive for everyone involved.

The final frequently asked question I get is: "What's next?" My colleagues and I often answer this in a similar way: We need more smart people identifying applications, improving programming, and pushing quantum computing forward.

The key word is applications. The next major era on the timeline of quantum computing is the age of quantum application development. It's time we focus on building connections to our practical, everyday lives. The good news is that there's no shortage of smart people. The builders are out there and our quantum future is around the corner.