



Quantum Computing's willingness to push the boundaries reveals a potential for aerospace companies to shape a new industry and shelter them from decline.



“Quantum computing has a great purpose for performance and serves companies with grand strategies”

Amid a competitive landscape, maximizing your productivity and performance prevails over profitability in most cases. Notwithstanding the fact that keeping distance with competitive firms is a difficult task that suggests the help of data analytics to develop segments that need to be enhanced and promote research to keep up with high technology. Struggling to predict future market movements to define a trend, aerospace companies will have to harness the power of data with a new technology: “quantum computing.”

First and foremost, Quantum’s theory was revealed in 1900 by Max Planck when he discovered the nature of blackbody radiation and helps to quantify the spectral dependence of the glow from a warm object. It’s quite interesting to grasp the idea that quantum mechanics could ultimately permit to explore opportunities to develop advanced computing or cryptography for aerospace companies. Famed theoretical physicist Richard Feynman described quantum mechanics as “the behaviour of matter and light in all its details and, in particular, of the happenings on an atomic scale”. Thus, quantum computing has the potential to accelerate our industries and we suggest that this type of computing could provide a higher level of calculation to broaden our performance in the future. Involved in a process using atoms rather than transistors, quantum computing introduces itself as a powerful ally to create value in a near future and solve climate change issues, utterly overwhelmed by its efficiency in terms of computation many governments are investing a large fund to support the development. Furthermore, some analysts are being impressed by the impact on lowering the energy usage in computing which helps to reduce energy consumption and reduce variable cost for some companies.

D-Wave Systems, a Canadian company founded by Geordie Rose, he was a pioneer of the quantum computing and dedicated all of his works to build a machine that literally evolved through time. Advocating quantum mechanics to revolutionize our industries, they are casting doubt on our way to resolve complex operations and thus their company are reaching a level where artificial intelligence or big data could be improved in a large scale. People are deliberately raising questions about the main role of quantum computing on the development of artificial intelligence, their objective is to build a mind for robots in order to replicate a human mind so that in the future, robots will work in our industries and produce every task that we order them to do.

D wave 2000Q Systems and components of the quantum computers , a beautiful piece of engineering that may form a symbol of a new technology leading to a complete transformation of our manufacturing and aerospace industries.



“Every task needs to be meticulous to design a quantum computer representing a state-of-the-art technology.”

Pondering on a system designed to optimize artificial intelligence, aerospace companies need to adopt this technology to increase their aircrafts and it poses a certain risk to be outpaced by their competitors if they do not invest properly in this field. Therefore, investment in quantum computing should remain a priority for business leaders and Airbus already explored their opportunities with the creation of Quantum Computing Challenge which tends to lure researchers and developers from all the world to participate or find solution to revolutionize aircraft design using Quantum Computing. Five areas were designed to be explored :

- Aircraft Climb Optimisation
- Computation Fluid Dynamics
- Quantum Neural Networks for solving Partial differential equations
- Wingbox Design Optimisation
- Aircraft loading optimisation

Using qubits or quantum bits to handle complex calculations could permit to reinvent aircraft design and replace other high-performance computational tools. According to Airbus, every aircraft’s life is affected by many computational problems and it’s necessary to transform our industries capabilities to push the boundaries of innovation. Unveiling their new quantum computer, IBM’s Q system one is a computer designed for commercial use and it’s a first step to create competitiveness in the aerospace industries.

A wide range of services could benefit from quantum computing , especially Maintenance, Repair and Overhaul or “MRO”, in a time where big data is being used to harness data in order to accelerate maintenance, it’s difficult to treat all the information that we are gathering and using a quantum computer could permit to enhance these mechanisms.

Dealing with unplanned maintenance or unexpected issues could be detected by quantum computers with the use of complex algorithms designed to target critical information and airlines could increase their profitability in the long term. Involved in this process, Airport Kinesis Consulting “AKC” is actually trying to build a MRO based on this type of technology in order to bring profitability to a wide range of airlines which are struggling to survive in a competitive market influenced by a volatility in the commodity market.

About Airport Kinesis Consulting

Determined to improve our solutions for the aerospace industry, airports need to be reinvented to increase their profitability and reduce taxation for households. It's the time to change our way to design airports and adopt a complex scheme combining financial mechanisms and cutting-edge technologies to realize big cities also called "aerotropolis". In a period of high uncertainty where investment is a critical part to accelerate the economy and shape our industries, it's necessary to improve and modify our technical solutions for our clients. Engaged to transform our design and studies to permit a better relationship between airports and passengers, we are seeking to change our way to travel and propose alternatives to enhance their return on investment. With our current economic situation, institutional investors need to be cautiously optimistic and allocate a certain amount to secure their investment. Our role is to provide them all the necessary requirements to ensure that their choice will be an opportunity to participate to shape our society.



Shad Serroune

CVO Infrastructure Investment division.



Wilhem Marceny

Head of division, Airport Kinesis Canada



Abdellatif Serroune

Consultant Aerospace & Infrastructure.