

Application of quantum sensors and data support new solutions

In the work Aimava has been doing with leading startups, researchers and investors we are seeing quantum commercialisation stepping from point solutions and processes to system integrations of quantum along Innovative new value chains.

Quantum sensing is providing novel and new data which is based on magnetic sensors that can be used on ground exploration, for example in construction, mineral exploration, and medical sensing.

New sensors, new data, new business opportunities

These new sensing solutions provide the data and measurements that can be applied in new processes and systems. Earlier examples of technology that then change the fundamental services include GPS and accelerometers which are now embedded in mobile phones that allow the creation of new services like fitness and health apps which can fundamentally change the way we can keep people healthy. Quantum Sensing with Big Data, AI and Quantum Computing can fundamentally change industries as we 'can see the unseen' in new ways. We need the engagement with start ups and corporates to have the 'system of system' thinking so we can create the solutions and Innovative New Value Chains. It's by engaging across the eco system and up and down the development channels that we can learn and develop. This can be done with some applied research but it also benefits from visionary entrepreneurs and corporates that can then understand how they can solve difficult and new problems.

We have to take care that we do not face the 'innovator's dilemma' i.e. when you ask a customer what they want they think of just improving current systems. So if Henry Ford asked people what they wanted, they may have said they want a faster horse, not a new solutions. Quantum is not just a faster computer. We can think from perspectives from other industries and technologies to see how we look at the fundamentally different solution. We now need the development of the hardware and software to meet the new

potential.

Classical and Quantum Computing

Christopher Savoie of Zapata Computing highlighted in the Aimava *Quantum Future Breakout* that the hardware is being developed and the future is not certain yet.

It is important to have a combination of classical computer for preparation of data and post analysis reporting will be needed for quantum computing. This will be an important part of the heuristic solutions. It will be important to have a view of the architecture and the computing stack.

We could see these major changes in the technology and business models in industries, Pharma and Chemical developments having computing augmenting wet chemistry, Logistics optimised more accurately in bigger systems, Financial services being more dynamic and optimised. In these sectors we will see new entrants come in to disrupt a sector like Tesla changed automotive and showed the way for other customers and industry.

Quantum value and commercialisation will be gained most effectively when we see the new technology, start ups and business models being used in what we term *Innovative New Value Chains*. Quantum ventures need to develop their commercialisation strategies to understand where they are positioned in the value chain and how they capture their value.

Andrew Gaule is CEO of *Aimava* and has been working for 20 years with leading corporates and investors who are supporting strategic innovation with tech ventures that change business models. Andrew terms this the development of Innovative New Value Chains. He has worked in previous waves of tech and business models such as dot comm, IoT, Electric Vehicles, AI etc. From work Aimava has done in Quantum it is now reaching the stage of strategic venture investing.