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Capgemini launches a dedicated Quantum Lab and announces a new agreement with IBM to advance industry applications of quantum computing

Capgemini signed an agreement with IBM to become an IBM Quantum Hub providing its clients access to IBM's quantum computing systems as well as professional services

Paris, January 12, 2022 – [Capgemini](#) announced today it has set up a dedicated Lab and team of quantum technology experts from across the globe, to develop capabilities and coordinate research facilities aimed at the advancement of quantum technologies and exploration of their potential. In addition to Capgemini's work to explore Quantum Communications and Quantum Sensing, the initiative also includes a collaboration with IBM to help clients build and maximize their engagements in the areas of Quantum Computing.

Capgemini's Quantum Lab (Q-Lab) comprises quantum technology experts and highly-specialist facilities in the United Kingdom, Portugal and India, to harness the potential of quantum technologies. Capgemini's Q-Lab will coordinate research programs to develop business-driven client propositions for sectors most likely to benefit from quantum technologies in the medium future – life sciences, financial services, automotive and aerospace. It will also drive early experiments with clients in their quantum journeys and accelerate the building of in-house skills and capabilities.

This initiative leverages the experience of specialist technical teams within the Capgemini stable who have already built scientific and technology capabilities in quantum, through early experimentation and incubation with clients.

In addition, Capgemini has signed an agreement with IBM to become an IBM Quantum Hub providing its clients access to IBM's quantum computing systems, including IBM's recently announced 127 qubit processor, 'Eagle', as well as to IBM's quantum expertise and Qiskit, IBM's open-source quantum information software development kit. By working with IBM, Capgemini joins more than 170 IBM Quantum Network members, including Fortune 500 companies, start-ups, academic institutions and research labs, all working to advance quantum computing and explore practical applications. Together, IBM Quantum team and clients are researching and exploring how quantum computing will help a variety of industries and disciplines, including finance, energy, chemistry, materials science, optimization and machine learning, among many others. Through this agreement, Capgemini will make it easier for clients to access IBM's licensed technology and provide them with professional services for end-to-end implementation. It is intended to ultimately demonstrate, with prototypes and proofs of concepts, the potential value of leveraging quantum technologies to tackle previously intractable business problems for clients, working towards the implementation of quantum computing use cases.

"Quantum technology will disrupt the way we compute, sense, and communicate, and will create new industries and business models along the way. The launch of our Q-lab tangibly demonstrates our ambition to bring to our clients the most innovative, breakthrough solutions, and to invest in capabilities early on so we can become the leading quantum systems integrator," said Pascal Brier, Chief Innovation Officer at Capgemini and member of the Group Executive Committee. *"Our collaboration with IBM will enable us to*



explore the vast potential of quantum computing, bringing to our clients the top capabilities and skills available in the market today and tomorrow."

"Establishing a quantum industry will require a deep focus on expanding the quantum computing ecosystem across public and private sectors – something IBM cannot do alone," said Jay Gambetta, IBM Fellow and VP, Quantum Computing at IBM. *"By working with Capgemini, clients have even more options for hands-on expertise to develop proofs of concepts to explore the potential of quantum computing across a variety of industries and disciplines."*

The Q-lab will focus on three areas of value creation for clients:

- **Quantum Computing** refers to the use of quantum properties to perform computations¹. Leading application areas are problems requiring complex optimization, simulation, or machine learning. Companies that typically rely on heavy compute facilities, such as molecular design within life science, fluid dynamics in aerospace, or stochastic financial models, will be amongst the first to benefit.
- **Quantum Communications** involves transmitting and controlling information using the laws of quantum mechanics. Quantum-secure communications could have an immense impact on areas critical to science, industry, and data security. In addition, it is intended to allow clients to access the new realm of possibilities brought by quantum technologies, in particular on confidential computing, data storage and sharing.
- **Quantum Sensing** refers to the measurement of quantum states, which are extremely sensitive to disturbance². Quantum sensing underpin advances in everything from medical diagnosis, autonomous transport and intelligent industries. It can help in measuring electric and magnetic fields accurately, measuring physical quantities against atomic properties, and using quantum entanglement to improve sensitivity or precision.

Capgemini has been accelerating the quantum readiness of its clients through consulting, strategic, engineering and algorithmic development solutions, leveraging its [Applied Innovation Exchange](#) network and its engineering teams, as well as ecosystem alliance partners and network of peers. The Group was also recently [commissioned by the German Federal Office for Information Security, together with Fraunhofer IAIS, to lead a study in Quantum Machine Learning for IT security](#).

About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of over 300,000 team members in nearly 50 countries. With its strong 50-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fuelled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.

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Capgemini is part of IBM's partner ecosystem, which enables partners of all types – whether they build on, service or resell IBM hybrid cloud and AI technologies – to help clients manage and modernize workloads.

¹ A quantum computer has the potential to be exponentially faster than the supercomputers used currently, meaning that for complex problems, potentially thousands, or even millions of times faster, and thus permit solving problems which seem intractable with even the fastest classical supercomputers.

² Quantum sensors have the potential to provide new data about the world that classical sensors cannot provide. Examples of quantum sensors include atomic clocks, magnetic resonance imaging, electrometers, and magnetometers