Thales, Pasqal, Paris Region and GENCI, launch a new partnership to explore the use of Pasqal's quantum technology applied to critical systems' optimization

Palaiseau, December 14th, 2021 – Thales, Pasqal, Paris Region and GENCI today announce a new two-year partnership to develop new methods to address planning and scheduling challenges related to critical systems' optimization through Pasqal's quantum processor.

The process of planning (selecting the appropriate policies and procedures to fulfil a mission or a project) and scheduling (converting the project action plans into an operating timetable) are key steps for many critical applications such as logistics, air traffic control, industrial automation, resource allocation, disaster recovery assistance, etc. Computational complexity and processing time explode when the problem's dimension increases (number of events, resources or constraints); in other terms, the scalability is the blocking part. Quantum computing can change that. The project aims to demonstrate the scalability potential of a quantum approach to solve this type of problems, which applies to Thales' various areas of expertise.

Relying on a 100+ qubit platform which provides high connectivity and performance, Pasqal's quantum processors can efficiently address large size problems that are completely out of reach of classical computing systems.

The project is supported by the PAck Quantique programme (PAQ), an initiative launched in 2020 by Paris Region, GENCI and Le Lab Quantique. The initiative aims to accelerate the development of the quantum technologies industry in Paris region and create synergies between industrial groups and start-ups.

The three-year programme should strengthen Paris's and France's leadership in the field of quantum at European level and improve France's key local players' competitiveness at international level. The programme also aims at highlighting Paris hub's dynamism and attractiveness to foster implementation of new companies.

"Thales is fully committed in developing quantum technologies in particular for quantum sensors and quantum communications that will provide a real breakthrough for many Thales' applications domains. The partnership with Pasqal, GENCI and Paris Region give us the opportunity to explore one other important facet of quantum: the quantum computing. What is of particular importance of us, is that we will be able, together with Pasqal, to design and solve optimization problems related to real use cases of high importance for our customers, such as air traffic optimization or space mission scheduling to name a few." **Bernhard Quendt, SVP Group Chief Technical Officer, Thales**

"We are thrilled to work on concrete applications with a major technological player such as Thales. The techniques we will develop through this collaboration will be useful for various fields relevant to Thales' activities. Creating value to end-users is a main focus for Pasqal: we continue to push our technology, both on the hardware and software levels, to best answer our partners' needs and solve their bottleneck problems. We are working hand in hand with our partners: Thales, GENCI and Paris Region, to build a leading Quantum industry in the area." **Georges-Olivier Reymond, CEO of Pasqal**

"Together with Le Lab Quantique, GENCI and Paris Region launched the Pack Quantique (PAQ) to enable industries and startups in their journey to quantum computing. AQUAPS represents the joint

effort between Thales and Pasqal experts to "quantumize" Thales scheduling use cases and is the 4th project since the launch of the initiative. Through Paris Region's funding and GENCI's free access to the future Pan-European Hybrid HPC/Quantum Infrastructure, this very challenging project will enable both Thales and Pasqal to assess the scalability of the designed algorithm". **Philippe Lavocat, CEO of GENCI** *and* **Alexandra Dublanche, Vice-President of the Paris Region in charge of Economic Recovery and Development, Attractiveness, and Innovation.**

About GENCI
Created by the French government in 2007, GENCI is a large-scale Research Infrastructure, public operator organization that aims to democratize the use of digital simulation through high-performance computing combined with artificial intelligence, to support French scientific and industrial competitiveness. GENCI has three missions:
- To implement the national strategy aiming at equipping French scientific open research with high-performance computing, storage and massive data processing resources associated with AI technologies, in conjunction with the three national computing centers;
- To support the creation of an integrated HPC ecosystem on a national and European scale;
- To promote digital simulation and HPC to academic research and industry.
GENCI is a civil company owned 49% by the French government, represented by the Ministry of Higher Education and Research, 20% by the CEA, 20% by the CNRS, 10% by the universities represented by the Conference of University Presidents and 1% by Inria.

About Pasqal
Pasqal is building quantum processors out of neutral atoms ordered in large 2D and 3D arrays with the purpose of bringing practical quantum advantage to its customers, especially in quantum simulation and optimization. Pasqal was founded in 2019 by Georges-Olivier Reymond, Christophe Jurczak, Prof. Dr. Alain Aspect, Dr. Antoine Browaeys and Dr. Thierry Lahaye. It is based in Palaiseau and Massy in the South of Paris, France. Pasqal completed a series A round in April 2021 co-led by Quantonation and the Defense Innovation Fund, managed by Bpifrance on behalf of the Defense Innovation Agency (AID).

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About Thales
Thales (Euronext Paris: HO) is a global leader in advanced technologies, investing in digital and "deep tech" innovations – connectivity, big data, artificial intelligence, cybersecurity and quantum computing – to build a confident future crucial for the development of our societies. The Group provides its customers – businesses, organisations and governments – in the defense, aeronautics, space, transport, and digital identity and security domains with solutions, services and products that help them fulfil their critical role, consideration for the individual being the driving force behind all decisions.
Thales has 81,000 employees in 68 countries. In 2020 the Group generated sales of €17 billion.

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