Website address:
https://www.gesundheitsindustrie-bw.de/en/article/press-release/quantum-computing-consulting-and-testing-center-industry

Quantum Computing Consulting and Testing Center for Industry

The Fraunhofer Industrial Quantum Computing Consulting and Testing Center INQUBATOR is implementing innovative, easy access offerings to help industrial users get started with quantum computing. The aim is to identify and evaluate new application-related use cases where the use of quantum computers promises a foreseeable advantage. Close cooperation with industry will enable the development of innovative solutions that will secure the competitiveness of the German economy. The institutes Fraunhofer IAF, IAO, ITWM, and IPA are jointly conducting the four-year project.

The main goal of the recently launched INQUBATOR (Fraunhofer Industrial Quantum Computing Test and Consulting Center) project is to prepare the German economy for the upcoming quantum revolution in an application-oriented manner, thereby ensuring its international competitiveness. The participating institutes Fraunhofer IAF, IAO, ITWM, and IPA contribute their extensive expertise in dealing with quantum hardware and application-oriented quantum software.

The project specifically addresses and motivates companies that are not yet anchored in the quantum ecosystem. In particular, it aims to enable SMEs to overcome the hurdles of using quantum computing. The companies are to proactively address the topic through joint research and development activities and thus engage with this important future technology. INQUBATOR is scheduled to run for four years under the coordination of the Fraunhofer Institute for Applied Solid State Physics IAF and is funded by the Federal Ministry of Research, Technology, and Space BMFTR.

Easy access to quantum computers

A central element of the INQUBATOR project is easy and cost-effective access to quantum computers from various manufacturers. Companies of all sizes are given the opportunity to develop tailor-made solutions for their individual processes and test the potential of quantum algorithms without having to invest in expensive hardware infrastructures themselves.

Through workshops, training courses, and (if desired) involvement in the programming and operation of the quantum computers, industry partners are actively involved in the development of their individual use cases, enabling them to gain a sound understanding of this technology and recognize its benefits for their specific requirements.

The quantum computers are tested in a flexible framework that makes it possible to respond to the needs of companies and quickly put research results into practice. Access to the powerful HPC and quantum computing infrastructure at the Fraunhofer Institutes is available, and there are no additional costs for project partners to use it.

Basic use cases as a blueprint for industry

The project will start by working on four initial use cases that have already been defined in consultation with selected industry partners. These first use cases from the fields of medicine, cyber security, insurance, and the automotive industry cover important economic sectors and are intended to serve as a basis for attracting the interest of other companies.

Based on the initial use cases, an open call for proposals will be conducted in the first year to integrate at least eight additional use cases from various industries. “The results from these projects will not only help to promote understanding of quantum computing but also strengthen the transfer of knowledge between science and industry”, emphasized Dr. Walter Hahn, scientist at Fraunhofer IAF.

Specific exploitation plans will be developed for each use case. This opens up new opportunities for industry (especially for partners who have not yet used quantum computing) to contribute their own problems and work together to solve complex problems efficiently in the long term. The focus is on investigating innovative quantum computing approaches in an economic context, with a focus on particularly promising algorithms that are being tested and validated on current quantum computers in the project.

Companies benefit from the removal of hurdles

As an independent research organization, the Fraunhofer Institutes focus on technology assessment and supporting the German economy. Companies benefit from INQUBATOR because it removes the considerable hurdle that quantum computing presents due to its radically different approach (compared to classical algorithms) and the high costs of computing time. This enables companies to make targeted use of quantum computing in the future.

The INQUBATOR project not only promotes the use of quantum computing in industry but also expands the knowledge and IP base in Germany. This is crucial for securing the country's technological leadership and opening up new markets. The Fraunhofer Institutes are committed to ensuring that companies of all sizes can benefit from the advantages of quantum computing and thus increase their competitiveness in the long term.

Press release

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Further information

- The Fraunhofer Institute for Industrial Engineering IAO