



## **Artificial Intelligence and Quantum Computing: the best of both worlds**

19 million euros for “lighthouse project” with leading participation of the University of Stuttgart

**The project "PlanQK: Platform and Ecosystem for Quantum-Enhanced Artificial Intelligence" combines artificial intelligence and quantum computing. The project goal is to create a platform for innovative quantum-enhanced AI applications and to make it available to small- and medium-sized enterprises (SMEs). The PlanQK project has a total volume of more than 19 million euros with 11 million euros directly funded through the Federal Ministry for Economic Affairs and Energy as part of the “KI Innovationswettbewerb”. The University of Stuttgart has a prominent role in the project with Prof. Frank Leymann (Institute for Architecture of Application Systems) and Prof. Stefanie Barz (Institute for Functional Matter and Quantum Technologies) being leading partners in the interdisciplinary consortium of academia and industry.**

Artificial intelligence (AI) has a wide impact on many areas of daily life and enormous influence on current and future technologies. However, classical computer technologies are about to reach the limits of computing power required for advanced AI applications. Here, quantum computing provides a solution to this challenge, as it shows an advantage over classical computing for certain problems.

However, in order to make use of either technology – AI or quantum computing – specialized expertise is required. The implementation of advanced AI applications and realization of quantum computing through each technology poses enormous challenges. The challenges become even larger if both technologies are combined together. This is

### **University Communications**

**Head of University  
Communications and Press  
Spokesperson**  
Dr Hans-Herwig Geyer

Contact  
T +49 711 685-82555

**Consultant**  
Andrea Mayer-Grenu

**Contact details**  
T +49 711 685-82176  
F +49 711 685-82291  
hkom@uni-stuttgart.de  
www.uni-stuttaart.de



particularly relevant to SMEs, which often do not have relevant expertise available within their organizations.

This challenge of making quantum-enhanced AI (QAI) applications accessible for a wide variety of users lies at the heart of the PlanQK project. The project aims to develop an open platform and ecosystem for QAI to connect experts and developers as well as users, customers, service providers and consultants. The PlanQK platform will comprise QAI algorithms, applications and data pools. It will be the technical basis for the creation of a QAI community and facilitate the exchange of QAI knowledge and technology.

In this way, the PlanQK platform will make quantum-enhanced AI available to industry and, in particular, SMEs and enable them to make use of these key technologies.

The PlanQK project is one of 10 projects selected from more than 130 proposals initially submitted to the innovation contest "Artificial intelligence as a driver for economically relevant ecosystems" by the Federal Ministry of Economics and Energy (BMWi). The project relies on interdisciplinary cooperation of computer science and quantum physics and is led by Prof. Frank Leymann as technical director. The PlanQK consortium includes partners from academia and industry, including eleven small, medium-sized and large companies as well as various associated partners.

**More information:**

Prof. Dr. Stefanie Barz, University of Stuttgart, Institute of Functional Matter and Quantum Technologies and Center for Integrated Quantum Science and Technology (IQ<sup>ST</sup>), Phone +49 (0)711 685 61556, E-Mail: barz (at) fmq.uni-stuttgart.de

Prof. Frank Leymann, University of Stuttgart, Institute of Architecture of Application Systems and Center for Integrated Quantum Science and Technology (IQ<sup>ST</sup>), Phone +49 (0)711 685 88470, E-Mail: Leymann (at) iaas.uni-stuttgart.de

Website of the preliminary project: <https://planqk.de/> (german)