Quantum Readiness: The Skills Your Company Really Needs to Enter the World of Quantum Computing

By Yeama Bangali

Quantum computing—a technology poised to transform industries—is approaching its first practical applications. The science behind it is highly advanced, yet many potential users in industry still lack clear entry scenarios that offer real business value. Vague notions of effort and required expertise often hold organizations back from taking those first practical steps toward their quantum future — even though getting started can be surprisingly simple.

Technical resources are valuable, but internal understanding is essential

Quantum computing has the potential to disrupt entire sectors. Across the globe, researchers are chasing what's known as *quantum advantage*: identifying problems where quantum computers can truly outperform classical ones. Their goal is to make this revolutionary mode of computation capable of solving industry-relevant challenges—and ultimately become a genuine game changer. While hardware and software continue to evolve rapidly, the human factor must not be neglected. For this technology to take root across industry, we need people who can use and evaluate these resources, and some of them may already be part of your organization.

Knowledge builds the foundation: the first step toward quantum readiness

Entering the field of quantum computing doesn't start with owning a quantum computer—it starts with building a solid understanding across your enterprise. Global studies show that technological progress in the quantum domain is currently outpacing the growth of relevant skills in industry and government. Analyses by the OECD, RAND Europe, and reports such as *State of Quantum 2025* consistently highlight a lack of application knowledge and skills as the key bottlenecks for adoption—not the number of qubits available. When the breakthrough arrives, it will be too late to catch up on the basics. Investing in skill development today enables organizations to evaluate technologies, formulate meaningful questions, and define effective next steps.

To foster these essential competencies, we have designed several training formats tailored to different knowledge levels. Our **Compact Training** offers a structured overview of the core concepts of quantum computing, key algorithms, and first use cases—the ideal way to build a sound understanding of this key technology for industrial contexts. Developers interested in the impact on their domain can gain deeper insights through our **three-day Industry Training**, which explores concrete applications and foundational principles. For an immersive experience of the quantum world, including hands-on programming sessions and specialized topics, our **one-week Autumn School** provides the perfect deep dive.

Quantum skills: opportunities across roles

Outstanding physics expertise remain vital—yet it's not sufficient on its own. Current research shows that the expanding quantum ecosystem gives rise to diverse roles, each requiring distinct skill profiles: from engineers and software developers to data and project managers, and experts across industries such as finance, logistics, and life sciences.

Building quantum readiness therefore requires parallel tracks of development. Alongside advancing algorithmic and hardware research, organizations need professionals who can identify applications, implement projects, address regulatory issues, and translate results into organizational impact. Otherwise, quantum computing risks remaining a high-tech niche accessible only to a few specialists.

If you would like to develop these competencies within your company, our quantum computing training programs offer a structured, approachable starting point. Feel free to contact us or register directly for one of our trainings.

Further information:

- Details on our quantum computing training programs
- Quantum Computing Competence Center Baden-Württemberg (KQCBW)
- INQUBATOR: Quantum Computing Test and Advisory Center for Companies
- RAND Europe study: *Navigating skills and talent development for quantum technology* (.pdf)
- Industry report *State of Quantum* (.pdf)