



Market Survey

# Quantum Readiness in Belgium

Insights from a Market Survey  
conducted by Quantum Circle



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### 1. Introduction

Imagine a future where quantum technology revolutionizes every industry, from finance to healthcare, from transportation to aerospace. This future might be closer than we think. To better understand the current landscape of quantum technology adoption in Belgium, our Quantum Circle community conducted a comprehensive survey among 100+ stakeholders from universities, research institutes, public services, private sector companies, startups, consultants, and technology providers.

First, we provide a snapshot of the data and findings. Next, we dive deeper into the figures, implications, and final conclusions. We end with a compelling look at the motivations, challenges, and future visions of Belgian organizations.

- **Quantum Engagement Levels:** The survey found that 36% of organizations are actively involved in quantum tech, 27% are exploring it, 21% are considering it, 12% have no plans, and 5% are unsure about their engagement plans.
- **Motivations for Adoption:** Organizations are driven by competitive advantage (39%), technology leadership (43%), R&D (43%), futureproofing (30%), customer demand (20%), and efficiency improvement (15%).
- **Challenges in Quantum Adoption:** Key barriers include a lack of expertise (49%), technological immaturity (41%), uncertain ROI (30%), high costs (27%), and a lack of clear strategies (20%).
- **Budget Allocation:** Only 13% of organizations have allocated significant funds for quantum initiatives, while 30% have limited budgets, and another 30% have no budget plans yet.
- **Areas of Interest:** Interest areas include quantum computing (61%), quantum communications (41%), and quantum sensing (25%).
- **Timeline for Benefits:** Organizations expect to see practical benefits from their quantum investments within 1-2 years (14%), 3-5 years (20%), 6-10 years (16%), or over 10 years.



- **Addressing the Skills Gap:** To tackle the skills gap, organizations are partnering with academic institutions (38%), attending industry conferences (33%), investing in internal R&D (27%), and leveraging personal interest among employees (28%).<sup>1314</sup>
- **Collaboration and Community Engagement:** Many organizations are interested in engaging with the Quantum Circle community for networking (62%), staying informed (74%), seeking partnerships (56%), and gaining a competitive edge (40%).<sup>1516</sup>

Our survey reveals a strong interest in quantum technologies among organizations in Belgium, driven by competitive advantage and technological leadership. However, challenges such as a lack of expertise, high costs, and technological immaturity persist. Budget allocation for quantum initiatives varies, with only a minority having significant funds. Organizations are primarily focused on quantum computing, with expected benefits ranging from 1 to over 10 years. Addressing the skills gap through academic partnerships and internal R&D is crucial. Collaboration within the Quantum Circle community is seen as vital for networking, staying informed, and seeking partnerships. Strategic planning, investment, and cohesive policy frameworks are essential for successful quantum adoption.

## 2. A snapshot of quantum engagement

Our survey reveals a diverse array of organizations engaging with quantum technologies at varying levels. From academic institutions and government agencies to tech startups and established corporations, the landscape is rich and varied.

- **Active engagement:** 36% of organizations are actively involved in researching and developing quantum technologies.
- **Exploratory phase:** 27% are in the exploration phase, investigating potential applications of quantum technologies.
- **Future consideration:** 21% are considering engaging with quantum technologies in the future.
- **No current plans:** 12% have no current engagement or plans to engage.
- **Uncertainty:** 5% are unsure about their engagement plans.

This spectrum highlights that while quantum technology is gaining traction, many are still in the early stages of considering its impact.



### 3. Driving forces behind the quantum leap

What motivates these organizations to delve into the quantum realm? Our survey shows that individual organizations can have multiple drivers.

- **Competitive advantage:** 39% are motivated by the desire to gain a competitive edge.
- **Technology leadership:** 43% aim to lead in technological innovation.
- **Research and development:** 43% are focused on advancing their R&D capabilities.
- **Futureproofing:** 30% want to ensure they remain relevant in a quantum-powered future.
- **Customer demand:** 20% will respond to market pressures and customer needs.
- **Efficiency improvement:** 15% seek to optimize their operations and workflows.

### 4. Navigating the quantum maze, challenges and barriers

The path to quantum adoption is fraught with many challenges. The survey highlights several significant barriers.

- **Lack of expertise:** 49% cite a shortage of skilled professionals as a major obstacle.
- **Technological immaturity:** 41% are concerned about the nascent state of quantum technologies.
- **Uncertain return on investment:** 30% are hesitant due to unclear long-term benefits.
- **High costs:** 27% find the expense of R&D and implementation prohibitive.
- **Lack of strategy:** 20% point to the absence of clear national and international strategies.

### 5. Budgeting for the Quantum Future

Despite these challenges, a minority of organizations are already making significant investments in quantum initiatives.



- **Significant budget:** 13% have allocated substantial funds for quantum initiatives already.
- **Limited budget:** 30% have allocated smaller amounts of money.
- **No budget plans yet:** 30%, don't plan to allocate a budget soon.

Funding sources include internal resources, government grants, private sector grants, and collaborative funding through joint ventures.

## 6. Quantum interest areas and applications

Our survey also sheds light on specific areas of interest within quantum technologies.

- **Quantum computing:** 61% are focused on quantum computing mainly. This area holds the most promise for transformative applications in many industries.
- **Quantum communications:** 41% are exploring quantum communications. Here quantum technology will transform secure data transmission and security of physical fiber networks as well as satellite communications.
- **Quantum sensing:** 25% are interested in quantum sensing. Quantum sensors will find potential applications in various fields, including healthcare, location services and environmental monitoring.

Promising applications include quantum-enhanced cybersecurity, chemical reaction modeling, molecular simulation, supply chain optimization, and fraud prevention.

## 7. The timeline for practical benefits

When do organizations expect to see the benefits of their quantum investments?

- **Next 1-2 Years:** 24% anticipate seeing practical benefits from their quantum investments in the near term.
- **Next 3-5 Years:** 33% expect benefits in the medium term.
- **Next 6-10 Years:** 27% have a longer-term outlook.
- **Over 10 Years:** Some organizations foresee benefits beyond a decade. They are taking a very long-term view, recognizing that quantum technology may take time to mature.



## 8. Addressing the Skills Gap and Education

Recognizing the need for talent, organizations are employing various strategies to educate their teams:

- **Academic partnerships:** 62% are collaborating with academic institutions. These partnerships can provide access to cutting-edge research and dedicated training programs.
- **Industry conferences:** 54% value seminars and webinars. Events are opportunities to learn from experts and stay updated on the latest developments.
- **Quantum technology providers:** 51% count on technology providers to educate their teams.
- **Internal research & development:** 44% are leveraging their own research capabilities. They are investing in internal projects to build their quantum expertise.
- **Personal interest of co-workers:** 46% benefit from the individual interest of their employees. Passionate and curious employees can drive peer engagement and innovation.

## 9. The Quantum Circle and other collaborative initiatives

Collaboration through communities plays a crucial role in quantum technology adoption. Many organizations are interested in engaging with our Quantum Circle community for networking, staying informed about advancements, seeking partnerships for co-creation, and gaining a competitive advantage.

- **Networking opportunities:** 62% are interested in engaging with the Quantum Circle community for networking with peers.
- **Staying informed:** 74% want to stay informed about the latest advancements and trends.
- **Seeking partnerships:** 56% are looking for partnerships and collaborations.
- **Gaining competitive advantage:** 40% see engagement with the Quantum Circle to gain a competitive edge.



## **10. Looking ahead: implications of our survey findings**

The survey results indicate a strong interest in quantum technologies, tempered by a mix of excitement and caution. Organizations are eager to explore the potential of quantum but are also mindful of the challenges. Here are some key implications of these findings:

### **Strategic planning and investment**

The diverse levels of engagement and the significant interest in quantum technology suggest that strategic planning and investment are crucial. Organizations that are already investing in a specific domain are positioning themselves as future leaders in their respective fields. However, the high costs and uncertain return on investment highlight the need for careful financial planning and risk management.

### **Skills development and education**

The lack of expertise is a major barrier to quantum adoption. This underscores the importance of developing a skilled workforce through education and training programs. Academic partnerships, industry conferences, and internal R&D initiatives are essential for building the necessary talent pool. Organizations that invest in skills development will be better equipped to leverage quantum technologies effectively.

### **Collaboration and community engagement**

The interest in networking and collaboration through initiatives like the Quantum Circle indicates that community engagement is vital. By sharing knowledge and resources, organizations can overcome common challenges and accelerate progress. Collaborative efforts can also lead to innovative solutions and new business opportunities.

### **Technological Maturity and Innovation**

The concerns about technological immaturity and the nascent state of quantum technologies suggest that ongoing research and development are critical. Organizations need to stay informed about the latest advancements and be prepared to adapt to new developments. Those that invest in R&D will be better positioned to capitalize on emerging opportunities.

### **Policy and Strategic Direction**

The lack of clear national and international strategies for quantum technology adoption highlights the need for cohesive policy frameworks. The Belgian federal & regional governments and industry & technology federations should work together to create supportive environments that encourage innovation and



investment. Clear strategic direction will help mitigate risks and provide a roadmap for successful quantum adoption in Belgium and across the EU.

## II. Conclusion

The survey results provide a compelling and engaging overview of the key trends and insights into quantum technology adoption in Belgium.

Among the 100+ respondents to the survey, most organizations are at least already aware of the potential opportunities of quantum technology.

Many organizations are keen to explore the potential of quantum technologies. At the same time, they are also aware of the challenges. By addressing these implications and following the actionable recommendations, organizations can better navigate the quantum landscape and position themselves for success in a rapidly evolving technological environment.

The future of quantum technology looks bright, and with the right strategies and cooperation Initiatives, organizations can be at the forefront of this revolution.

### Disclaimer

This paper is intended for information and discussion purposes only. Information and opinions contained herein are not to be seen as exhaustive or definitive statements on the subject matter and do not constitute legal advice. Our survey findings and conclusions exclusively reflect the opinions of the authors and consulted experts based on a market survey. These opinions may change. The Quantum Circle community offer no guarantee that the information herein is accurate, complete or up to date.

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