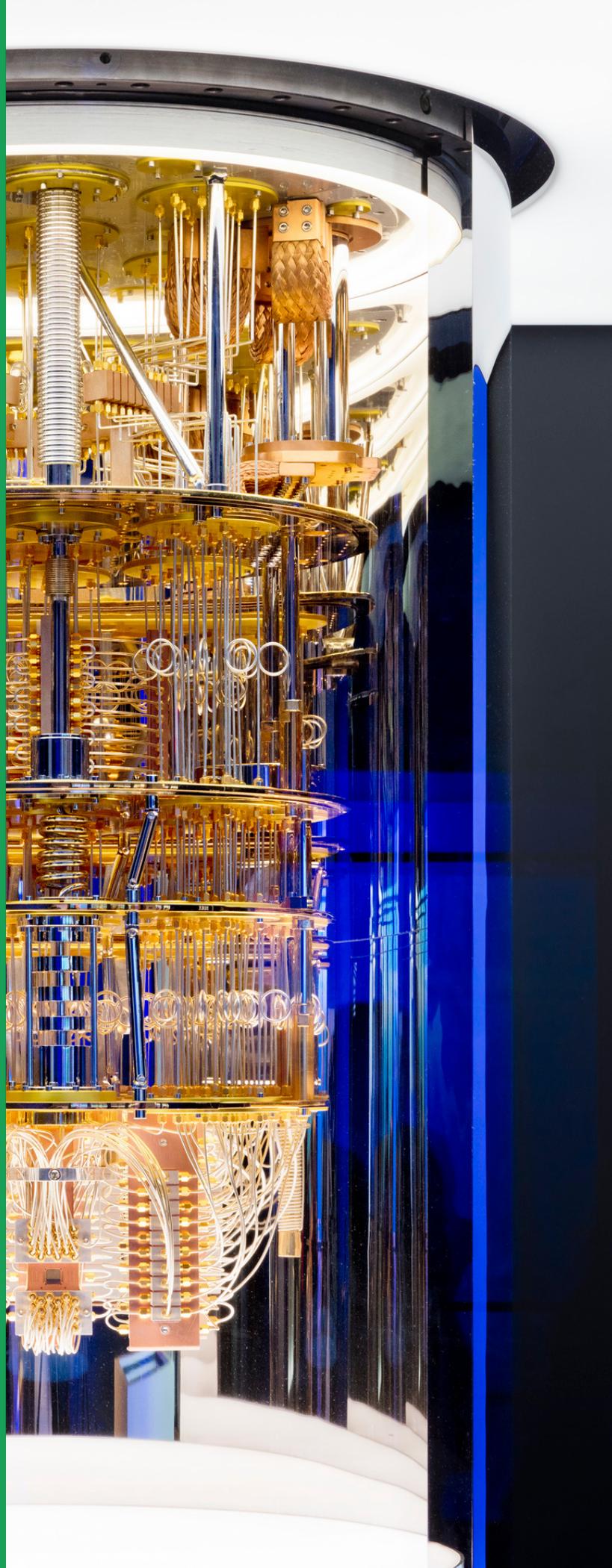


# IBM Q HUB AT INSTITUT QUANTIQUE

 INSTITUT  
QUANTIQUE  
UNIVERSITÉ DE SHERBROOKE



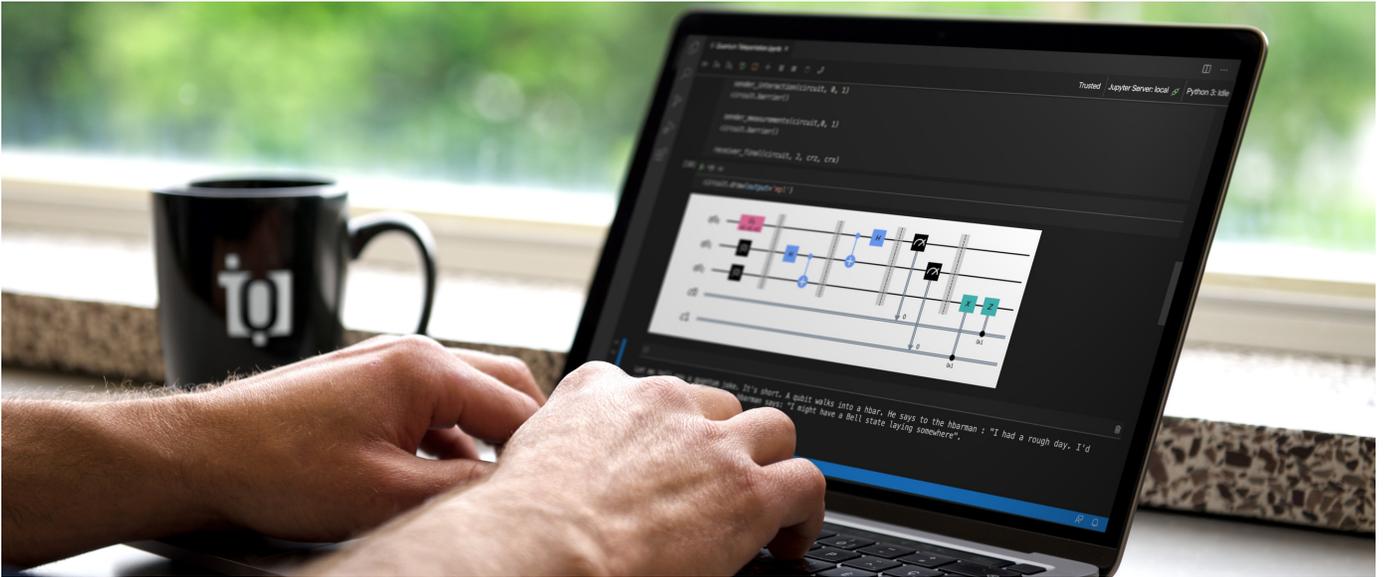


Photo: IQ / Maxime Dion

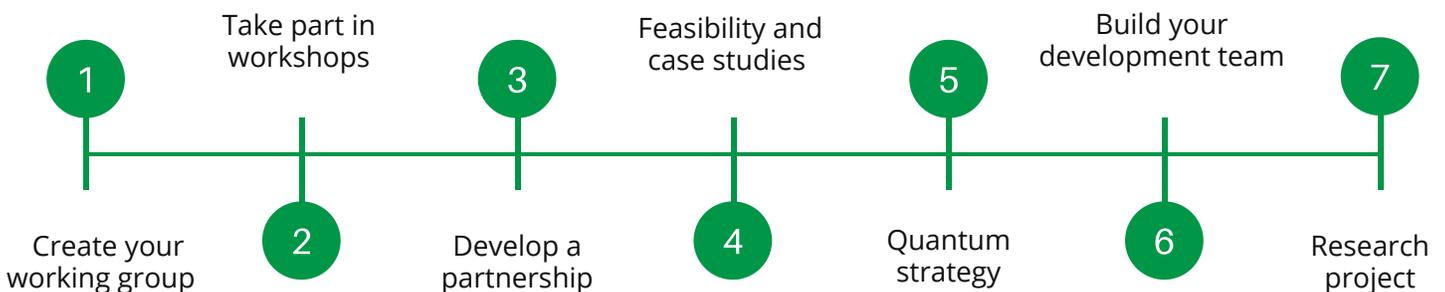
## QUANTUM COMPUTING TODAY

Recent technical and scientific advances have brought about the advent of quantum computing and with it, the potential to solve complex problems in optimization, modelling and data analysis.

The three most frequently cited reasons by companies for being interested in quantum computing are:

1. the computational limitations of classical supercomputers
2. the risk of being disrupted by quantum applications in the near future
3. the first-mover leadership position in the market

## Classical to Quantum Roadmap



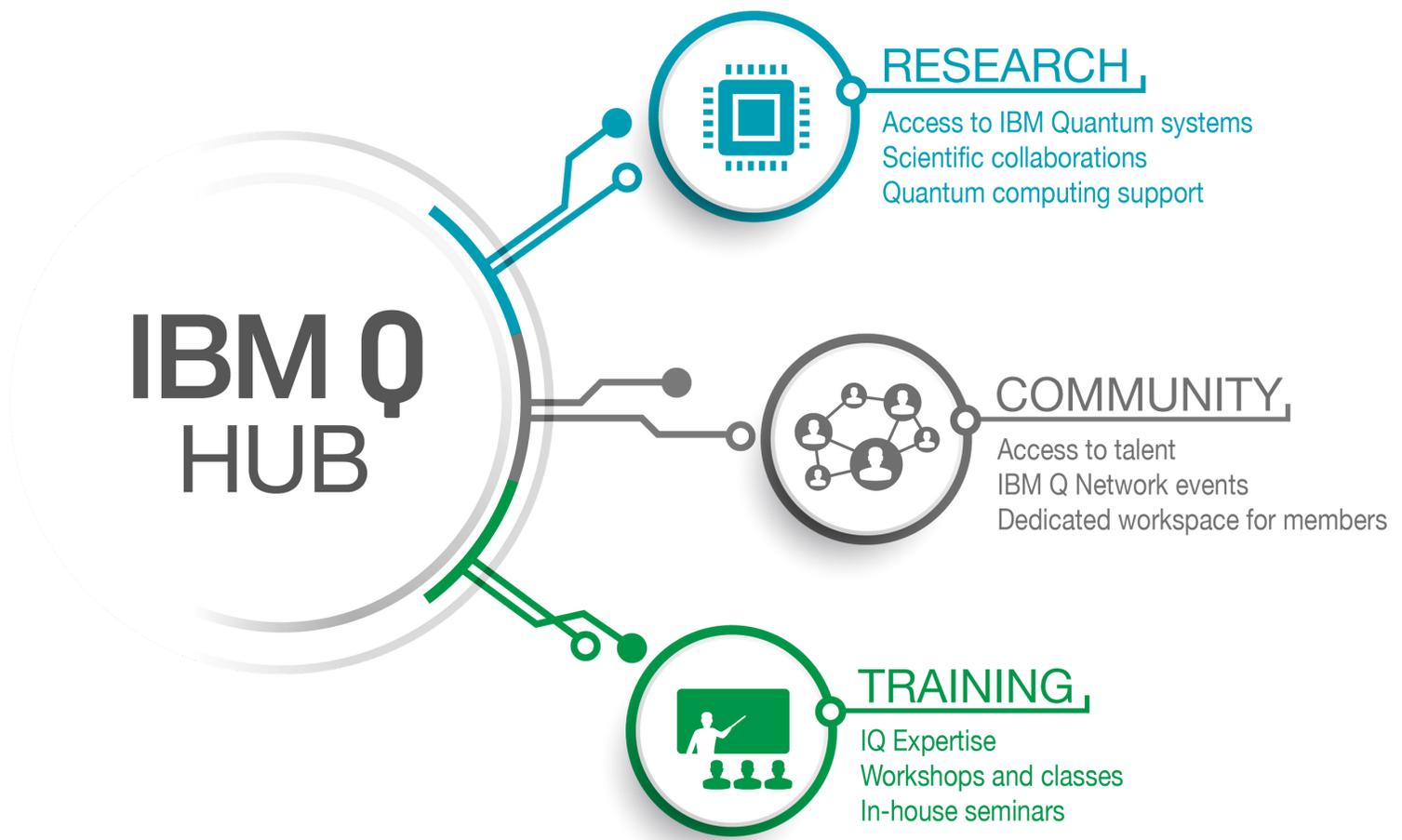
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# IBM Q HUB AT INSTITUT QUANTIQUE

Expertise, infrastructure and technology transfer are key challenges for the development of concrete quantum applications. By most estimates, only a few thousand scientists worldwide have the required technical know-how. In that regard, l'Université de Sherbrooke has substantial capacity in quantum.

An IBM Q Hub is a regional center for research, development and implementation of quantum computing within the IBM Q Network.

Our IBM Q Hub, the first of its kind in Canada, offers its members exclusive access to premium IBM quantum computing systems, a chance to take part in a unique scientific community and continuous education opportunities to support your team's research project.



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# QUANTUM PROGRAMMING APPLICATIONS



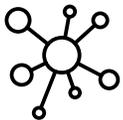
Optimisation

Risk analysis  
Logistics  
Planning



Machine Learning / AI

Data analysis  
Imaging  
Prediction models



Quantum Modelling

Materials  
Molecular simulations  
Particle physics

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## Other Applications



Quantum Cryptography



Quantum Sensors

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## SOME COMPANIES ALREADY INVOLVED IN QUANTUM

Manufacturing

Boeing  
Daimler  
Samsung

Health

Anthem  
JSR Corp  
Mitsubishi Chemical

Finances

BMO  
Banque Scotia  
JPMorgan Chase

Computing

1QBit  
CMC Microsystemes  
Xanadu

Energy

Accenture  
BP  
ExxonMobil

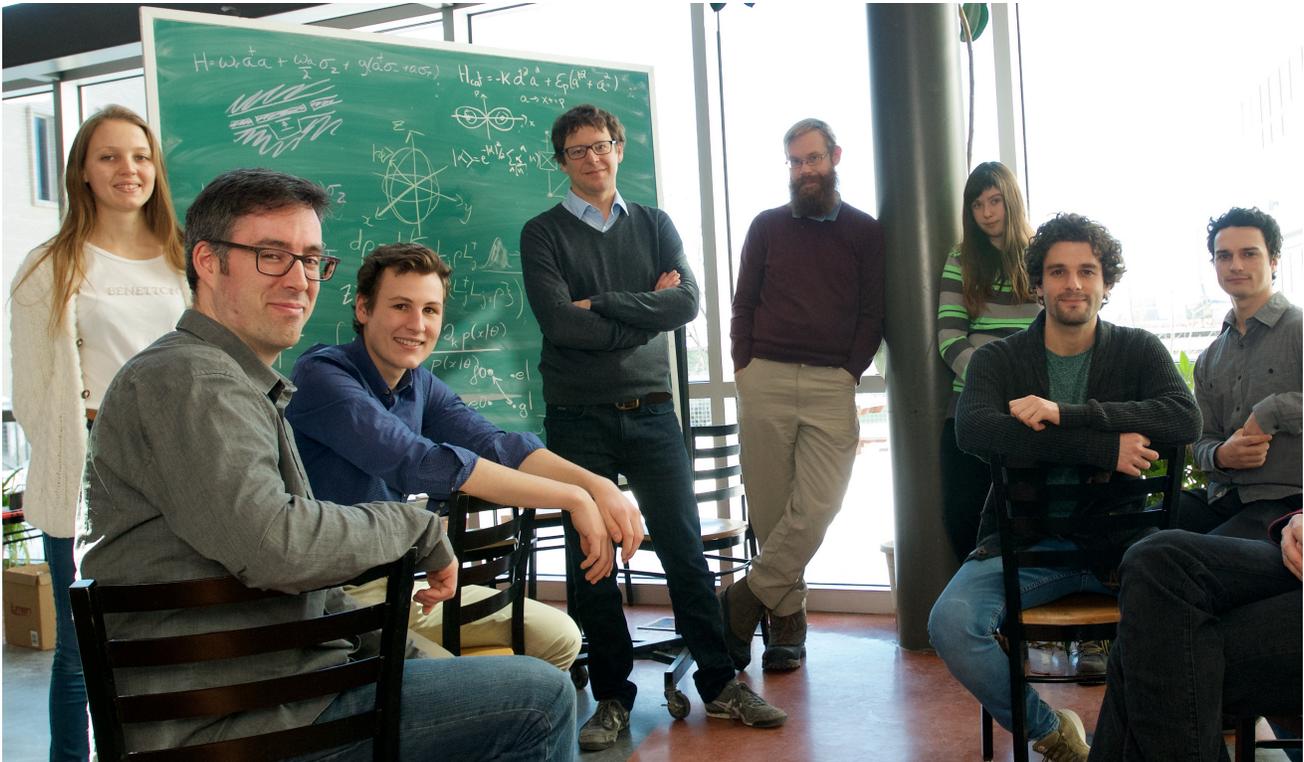
Artificial  
Intelligence

Netramark  
Solid State AI



# INSTITUT QUANTIQUE

UNIVERSITÉ DE SHERBROOKE



The Université de Sherbrooke's Institut quantique (IQ) is at the heart of an ecosystem that is well established in the Estrie region, with key partners, state-of-the-art infrastructure and qualified technical teams.

Quantum technology platforms including the Q Fab Lab and IBM Q Hub are a testament to the exceptional research environment as well as the spirit of scientific and industrial collaboration at Institut quantique.

IQ has over 200 members including internationally renowned scientists and a student community working to accelerate the transition from science to quantum technologies.



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# INVESTING IN YOUR QUANTUM ROADMAP WITH US

Investment level	Reflection	Exploration	Research	Application
Company workshop (1-2 days)	██████████			
Project with student (2-6 months)	████████████████████			
Project with professional (6-12 months)		████████████████████		
Doctoral project with professional (1-3 years)		████████████████████████████████		
Member (3 years)		██		
Member with research project (3 years)		██		
Member with research chair (5 years)		██		

## What a research project in quantum enables you to do



Develop your expertise and transfer your knowledge internally



Model a case study with a quantum computer



Identify the quantum algorithms that show the most potential



Determine the challenges linked to implementing quantum algorithms



Find the right quantum solutions adapted to your market reality

Email us: [info.IBMQ@usherbrooke.ca](mailto:info.IBMQ@usherbrooke.ca)

Avec la participation financière de :



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# YOUR QUANTUM ADVANTAGE STARTS HERE

