



```
from qiskit import QuantumCircuit, execute, Aer,
from qiskit.providers.ibmq import least_busy
from qiskit.tools.monitor import job_monitor

class QuantumLayer:
    def __init__(self, n_qubits, n_classical_bits, backend):
        # initialize empty circuit
        self.n_qubits = n_qubits
        self.n_classical_bits = n_classical_bits
        self.circuit = QuantumCircuit(self.n_qubits,
                                      self.n_classical_bits)

        # job execution parameters
        self.backend = backend
        self.shots = shots

    def __create_circuit__(self):
        """Creates the quantum circuit for each calculation"""
        self.circuit = QuantumCircuit(self.n_qubits,
```

Quantum

Building bridges between
quantum physics
and the industry.
Think ahead.
Let us do the Math.

About Quantum Quants

Quantum Quants helps companies to get insights on quantum computing and its application to real world problems.

Quantum Quants has the knowledge and skills to deliver value-added services with feasibility studies and business analysis to address the potential impact of quantum computing within the organization.

We provide a full range of advisory services, including courses and workshops on quantum computing applications, feasibility studies on a wide range of businesses (from finance and data science to supply chain and material science) and implementation of prototype algorithms and models in existing quantum architectures.



Quantum Quants services

Feasibility studies and business case development

We perform feasibility studies and business investigation to assess:

- the **potential impact** of quantum computing on a business
- the possible **competitive advantage** of the use of quantum computing
- the impact on the **security** for an organization
- the business **risks** that can emerge by using (or not) quantum computing



Quantum computing innovations

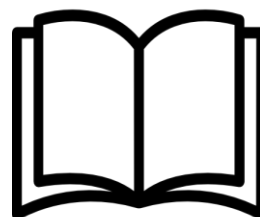
We are interested in investigating the goals and needs of an organization to analyze the **bottlenecks in its business operations** and how they can be addressed with quantum computing.

We build **prototypes** and organize **pilot projects** to assess the role of cloud quantum computing in ordinary activities, with focus on **optimization, scheduling problems** and **simulations**.

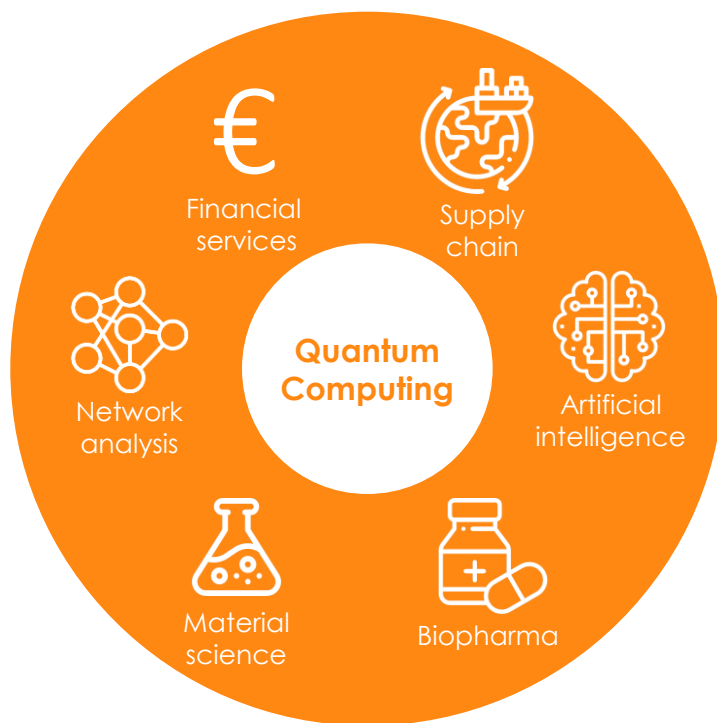
Education and trainings

We organize **lectures, trainings and workshops** on quantum computing related topics:

- Foundations of quantum mechanics and quantum computing
- IBM Qiskit prototyping
- AWS Braket (Amazon cloud quantum computing service)
- Python frameworks for quantum computing



Multidisciplinary approach and industry expertise



The advantages of quantum computing to industry applications can be mainly found in:

1. Optimization problems
2. Simulations
3. Data science

These tasks are currently being addressed by Quantum Computers across a **wide range of industry fields**. Examples of practical applications are:

- Portfolio optimization
- Monte Carlo simulations
- Traffic control
- Job scheduling
- Molecule simulation

At Quantum Quants we have deep expertise in multiple disciplines, supported by connections with experts from different fields.

Contacts

Giuseppe Colucci (founder) is a PhD in theoretical physics, expert on quantum theory, financial models and data science.

He developed interest for quantum computing since his physics studies and he is currently active in publishing academic papers on practical applications of quantum computing.

He started Quantum Quants to show the power and possibilities of quantum computing and enjoy the development and implementation of quantum algorithms in real applications in finance, data science, logistics and material research.

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