

# Quantum Business Proof of Concept

## Achieve Quantum Customer Advantage Today

**Is your company quantum ready?** We're still waiting for benchmarked quantum advantage, but our customers already enjoy benefits in performance, accuracy, and capabilities from quantum computing Proof of Concepts (PoC). Quantum will soon deliver on all three of the faster, better, and cheaper triad—no picking two.

### How Protiviti Can Help:

- Do you want to be a quantum leader? We help you gain an edge with the most disruptive technology since machine learning.
- Protiviti's Proof of Concept service leverages quantum computers to help clients identify real use cases, determine value, assess risks, and take action to become quantum-ready.
- We supply you with the code necessary to solve real problems, such as portfolio optimization, fraud detection, or vehicle routing, and provide support tailored to your needs.
- We empower your team through weekly knowledge transfers and workshops that enable you to become experts and experiment on your own.

### Choose the Right Quantum PoC for You:



#### Portfolio Optimization

- Use quantum annealing to optimize trading trajectory and portfolio gains
- Maximize profits while minimizing risk
- Encode real constraints such as asset holding time and desired percent return



#### Fraud Detection

- Integrate quantum machine learning for fraud detection
- Use the power of quantum to handle larger data sets and/or improve accuracy
- Adapt code to solve other types of binary classification problems



#### Vehicle Routing

- Solve the notorious traveling salesman problem in hours instead of millennia
- Deliver orders on time and in sequence to revolutionize logistics
- Factor in time, weight, fuel, and distance for optimized delivery



#### Unique Use Cases

- Solve your unique business problem using the correct type of quantum computer
- Work with our team to translate classical computing problems into quantum algorithms and code
- Innovate with a custom solution that will scale in step with future quantum hardware

# Quantum Computing Offerings

## Start Today and Benefit From:



Reduced time to market



Innovative solutions to product development



Optimized product delivery



New products and services



Better decision making

## Leading Financial Services Company

### Client Challenge



The client wanted to see if it was possible to achieve some type of practical advantage at portfolio optimization using a quantum computer. They hoped to better meet specific investing goals or other customized requirements for clients.

### Solution



Protiviti evaluated the client's classical approach. They were running fast optimizations, so we worked with the client to develop a quantum method to improve accuracy via cardinality constraints. This replicating of financial indexes with a limited subset of assets is a challenge for classical computers.

### Client Value



Client was able to maximize returns and minimize risk profiles by up to 2X. The quantum index tracking approach matches traditional portfolios with only 25 to 10 percent of assets. This algorithm can be used for managing ETFs and reducing costs for financial managers and customers.

## Innovate with Quantum in 3 Steps:

Start your journey with a Proof of Concept

1

Experiment with quantum technology

3

Participate in a workshop at your site, online, or in our iNNovation center to become an expert

2

Let's Transform Together.



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