

# QUANTUM OPTIMIZATION: THE KEY TO OPERATIONAL EXCELLENCE FOR TODAY'S BUSINESS

In an era of mounting complexities and often-unforeseen disruptions, quantum technology can help transcend traditional computing's limitations to enhance operational efficiencies and strengthen businesses' resilience

A business terrain that is increasingly shaped by a myriad of dynamic forces can make the pursuit of operational excellence daunting, especially when unexpected disruptions occur. Traditional computing systems often struggle to optimize complex operations, leaving businesses in need of innovative solutions that go beyond conventional methods. A constant stream of shifting requirements from various stakeholders necessitates a fresh approach to problem solving that can adapt to change and drive competitive advantage.

Quantum computing has emerged as a more efficient way to tackle intricate problems. With cloud-based access to quantum resources, businesses can harness this technology to enhance operational efficiencies. Quantum optimization excels in solving complex challenges, making it ideal for industries that frequently face scenarios where small changes have a widespread impact. Its applications are expanding, from improving delivery logistics and workforce management to optimizing telecommunication networks and cargo operations, all contributing to increased profitability, productivity, and sustainability.

## BY THE NUMBERS: HOW BUSINESSES VIEW THE QUANTUM OPTIMIZATION OPPORTUNITY

Quantum optimization is increasingly viewed as a contributor to competitive advantage, according to a 2024 D-Wave-commissioned Hyperion Research study of companies in the U.S. and Europe exploring quantum technology. Over 20% of respondents plan to implement production-level quantum computing solutions within the next 12 to 18 months, marking a 50% increase over the past two years. Most of the businesses surveyed reported they expect up to 20x ROI from quantum optimization investments.



"We believe that those who proactively embrace this technology and invest in optimization efforts stand to reap significant rewards. The anticipated gains and ROI projections paint a compelling picture of a possible near-term future where quantum computing becomes a fundamental driver of business success."

—Dr. Alan Baratz, CEO of D-Wave

## USE CASES AT A GLANCE

### Workforce Scheduling

Boost productivity and employee satisfaction in large or 24/7 operations and efficiently manage complex variables and constraints. Enable organizations to meet better employee needs and swiftly adapt to changes.

**Pattison Food Group**, a Canadian retailer, **reduced manual scheduling time by 80%**.

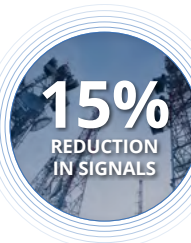
[Learn more about Pattison Food Group's success](#)

### Resource Optimization

Improve asset planning and allocation for industries like energy, defense, and telecommunications. Boost productivity and minimize downtime by efficiently managing complex resource allocation demands.

**NTT DOCOMO** sought to decrease network signal congestion across base stations to improve network performance. Using D-Wave's hybrid quantum technology, the resulting application identified a **15% reduction in paging signals during peak periods**, enhancing signal transmission efficiency and potentially lowering equipment costs.

[Discover how NTT DOCOMO looks to quantum optimization to improve network](#)



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## Production Scheduling

Sequence a build schedule to ensure resources are used efficiently and products are completed on time. Better manage complex dependencies between sequences and resources to enhance yields in capital-intensive production lines.

**Ford Otosan** reduced the scheduling time of 1,000 vehicles per run **from 30 minutes to less than five**.

[See How Ford Otosan is realizing the benefits of quantum optimization](#)

**30 MIN**  
TO LESS  
THAN FIVE

## Multi-Vehicle Routing

Balance route and schedule efficiency for delivery trucks, public transportation, and tour vehicles. Slash travel time and fuel consumption by managing complex logistics scenarios with ease.

**Momentum Worldwide** reduced the task of promotional tour route planning **from months to under an hour**.

[Explore how Momentum Worldwide leverages quantum optimization](#)

**MONTHS**  
TO UNDER  
AN HOUR



"From a logistics standpoint, so many elements go into making our experiences successful. We partnered with D-Wave to tackle the logistics for our large-scale tours and events in a whole new way. It's not just about doing things faster or cheaper, but also about being smarter and more sustainable in our approach. For our work, it has helped us make significant progress toward more sophisticated, efficient, and eco-friendly operation models."

— Jason Snyder, Global Chief Technology Officer at Momentum Worldwide

## PRODUCTION-GRADE QUANTUM AND HYBRID-QUANTUM TECHNOLOGY FOR RELIABLE, REAL-TIME SERVICE

D-Wave's annealing quantum computers, boasting over 5,000 qubits, are the largest in the world. They enable organizations to leverage quantum programming to develop advanced commercial applications. Through the Leap™ quantum cloud service, customers can access hybrid solvers capable of handling problems with millions of variables and hundreds of thousands of constraints. **This secure, real-time, production-grade service offers over 99% uptime and availability.**

## GET STARTED NOW

Are you ready to explore how quantum optimization can make a difference in your organization?

With our hands-on team of experts and our Launch™ program, it's easy to reap the benefits of quantum optimization now. Our team will guide you through every step of your journey: we'll validate your use case, offer an optimized and thoroughly tested solution, and ensure a smooth path to production deployment.

[Sign up for a consultation today.](#)

