

Strategic Frameworks for Organizational Readiness and Competitive Advantage in the Adoption of Quantum Computing

Technologies Across Global Financial and Technology Enterprises

Mehmet Efe Gürkan
Bogazici University

Abstract—Quantum computing is emerging as a potentially transformative technology with the capacity to redefine computational boundaries in finance and technology-intensive industries. However, the strategic adoption of quantum computing remains uneven, constrained by technological uncertainty, organizational readiness, and significant capability gaps. This paper examines strategic frameworks for organizational readiness and competitive advantage in the adoption of quantum computing technologies across global financial and technology enterprises. Drawing on theories of dynamic capabilities, technological innovation, and strategic management, the study conceptualizes quantum adoption as a multi-dimensional process encompassing technological infrastructure, human capital, governance structures, and ecosystem integration. The paper synthesizes existing research to identify critical readiness factors and proposes a strategic framework that aligns organizational capabilities with the evolving quantum computing landscape. By emphasizing the role of strategic foresight, cross-functional integration, and adaptive governance, this research contributes to understanding how organizations can transition from experimental engagement to sustained competitive advantage through quantum-enabled innovation.

■ The accelerating pace of technological innovation has intensified competition among global financial and technology enterprises, compelling organizations to continuously reassess their computational capabilities. Among emerging technologies, quantum computing represents a paradigm shift with the potential to solve classes of problems that are computationally

intractable for classical systems [6]. Applications such as portfolio optimization, cryptographic security, risk modeling, logistics optimization, and complex system simulation highlight the strategic relevance of quantum computing for data-intensive industries [5]. Despite this promise, the transition from theoretical potential to organizational value creation remains a significant challenge.

Digital Object Identifier 10.62802/5h6v7241

Date of publication 30 01 2026; date of current version 30 01 2026

Unlike incremental digital innovations, quantum