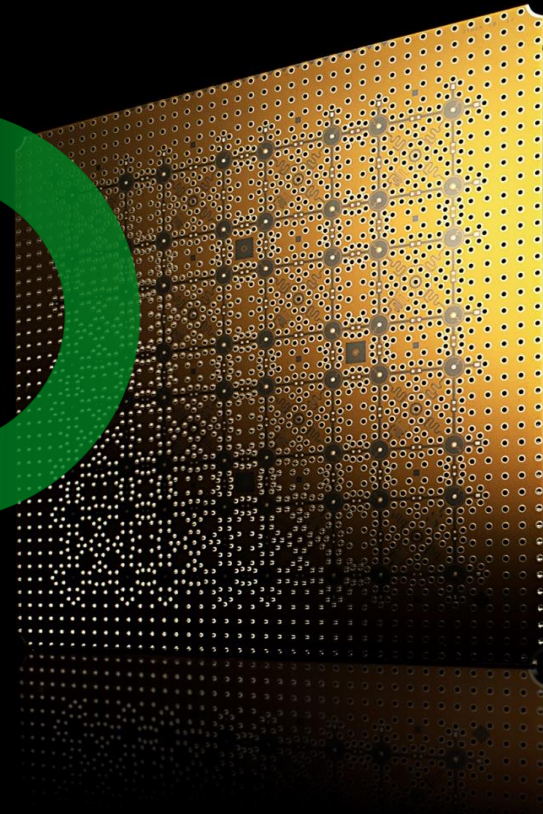
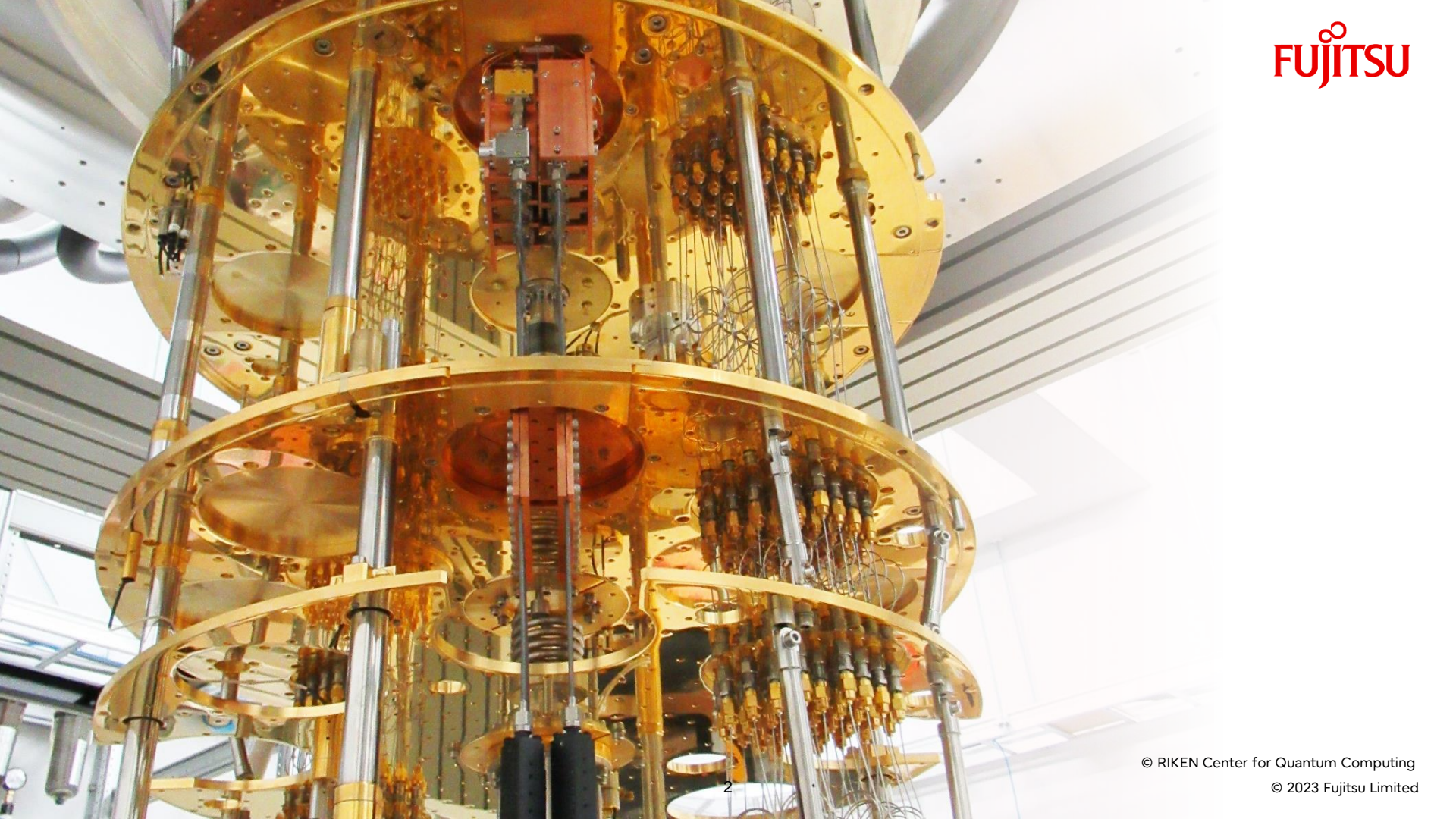
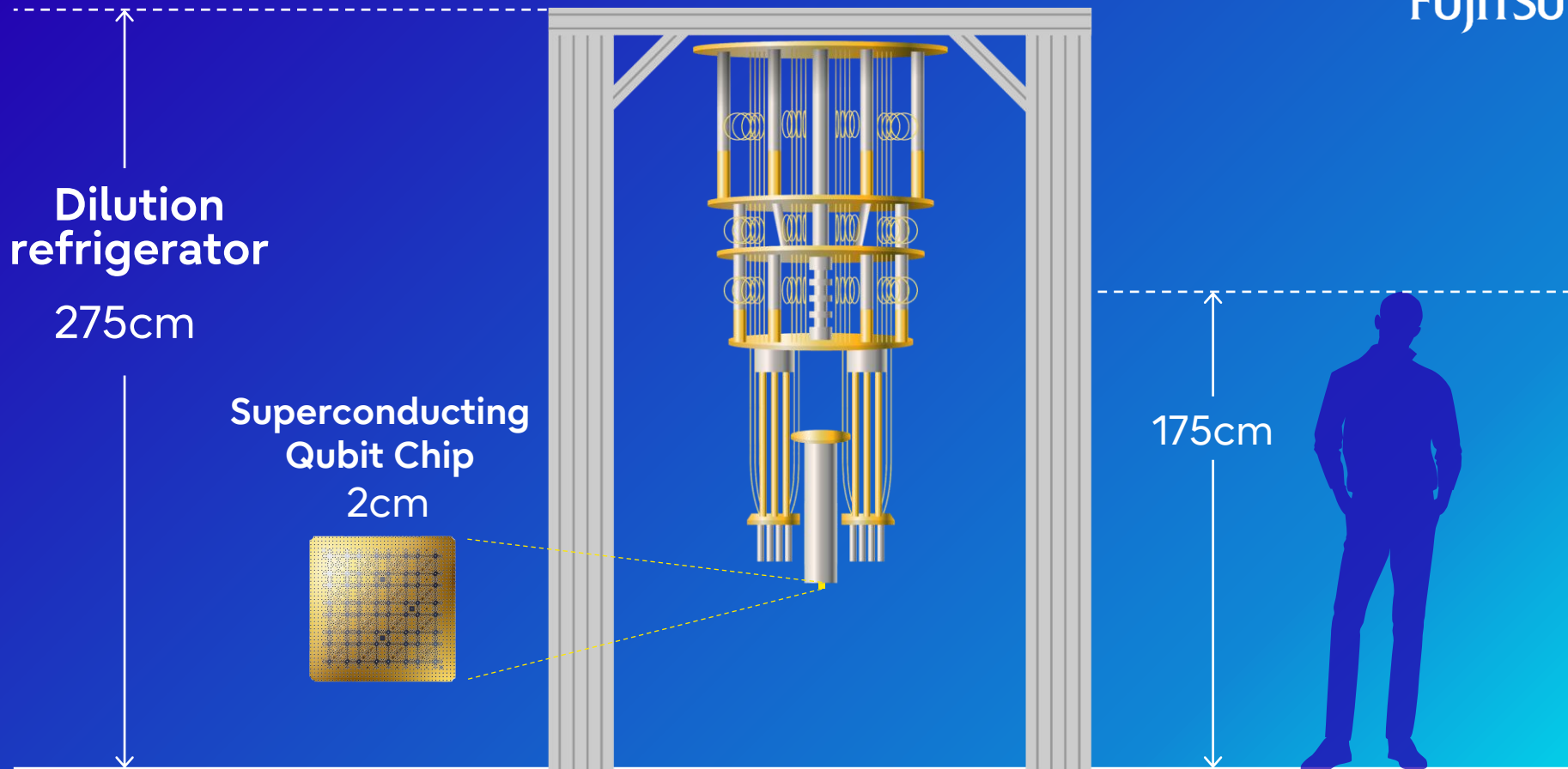


# Welcome to the world of "Quantum Computing"



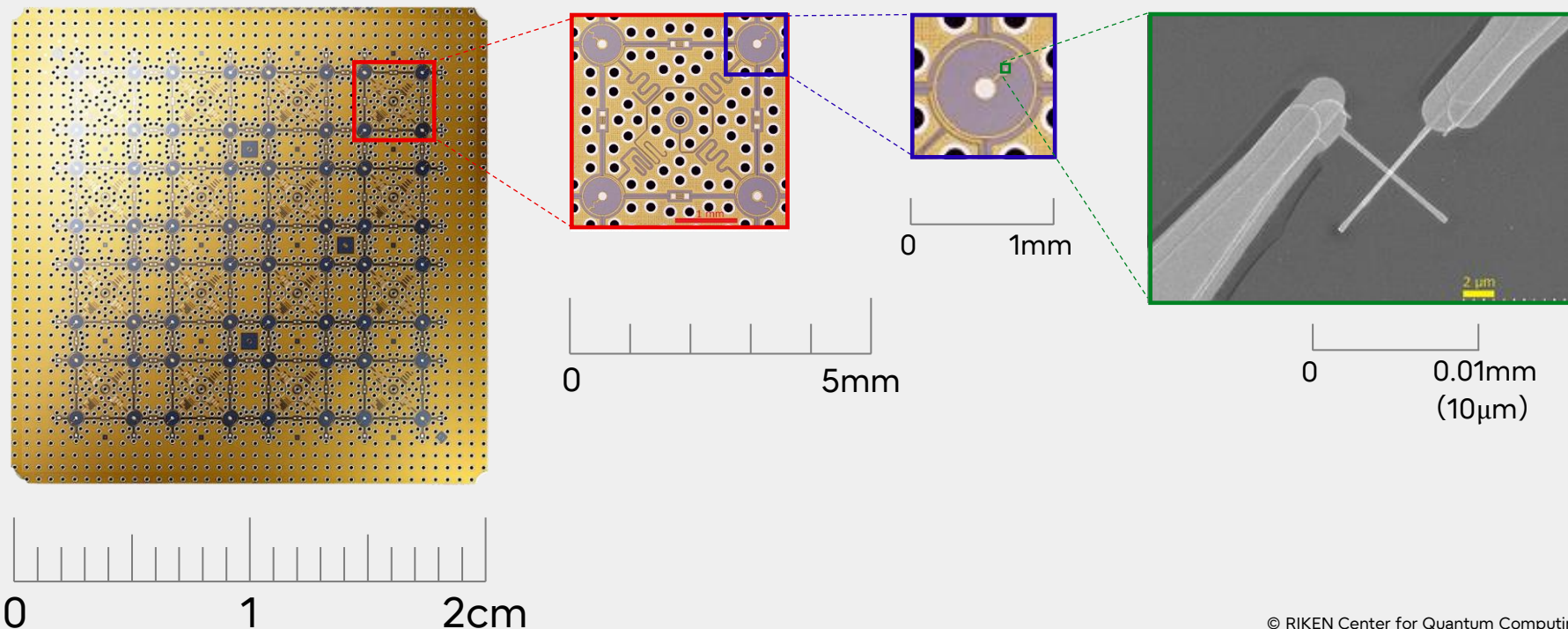


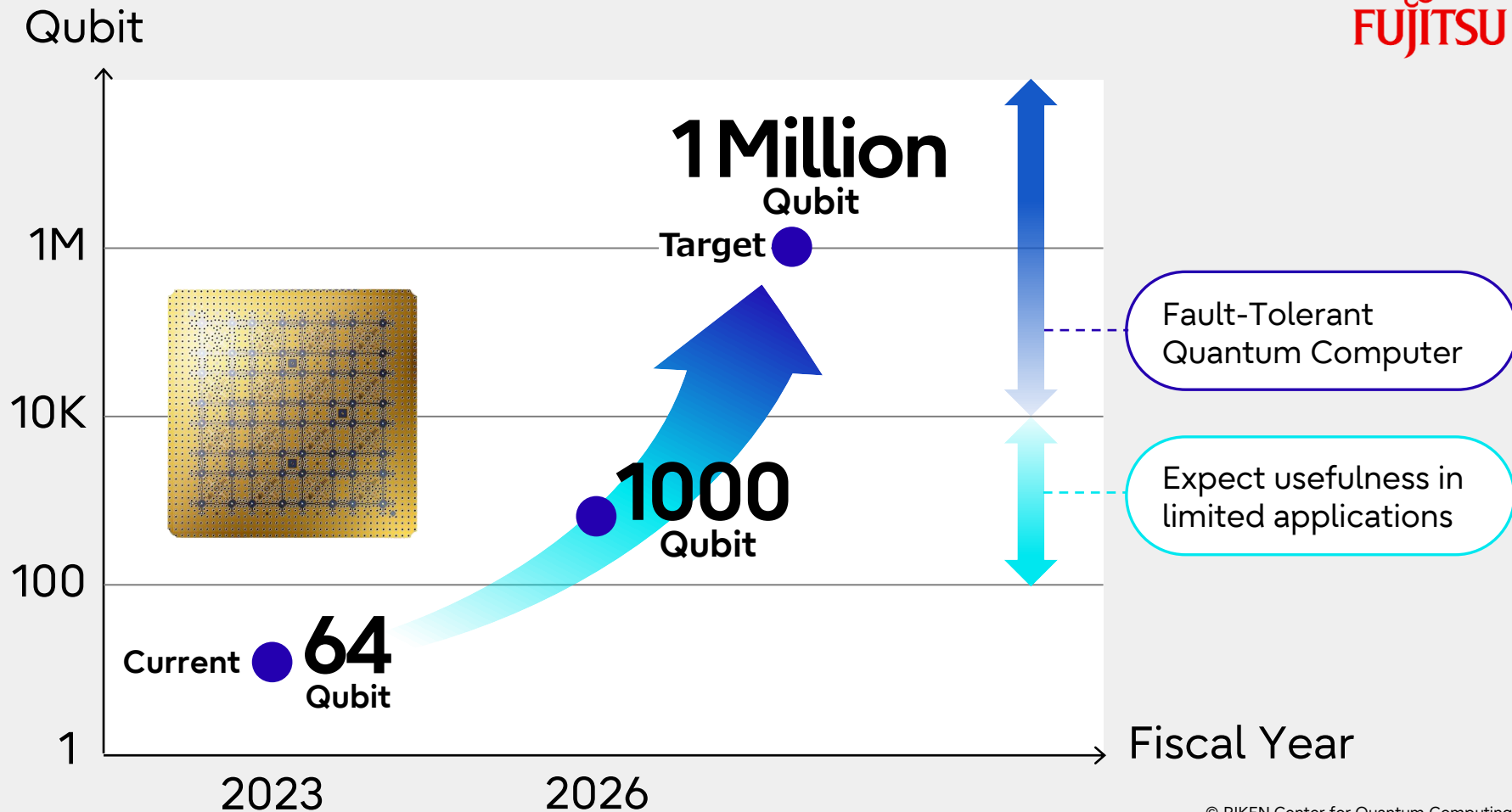




8 x 8  
= **64 Qubit**

**1 Qubit**





# Hardware

Gate-based machine

Ising machine

Superconducting

Diamond spin

Silicon

Trapped Ion

Fujitsu  
Google  
IBM  
Intel

Fujitsu

Intel

IonQ  
Quantum

## Software

### Application

- Materials
- Finance
- Drug discovery

### Algorithms

- Quantum chemistry
- Quantum machine learning

### Platform software

- Quantum error mitigation
- Quantum error correction



## Hardware

### Gate-based machine

- Superconducting
- Diamond spin



## Collaboration with the world's leading research institutes

Osaka University

Keysight

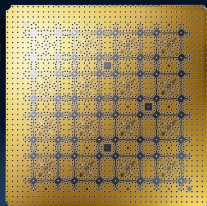
QunaSys

RIKEN

TU Delft

# Release of a 64-qubit System (Oct. 5, 2023)

- Collaboration with Prof. Nakamura
- Developed Japan's second domestic quantum computer at RIKEN RQC-Fujitsu Collaboration Center
- Plan to develop applications with end users mainly in the industry using this system



©RQC

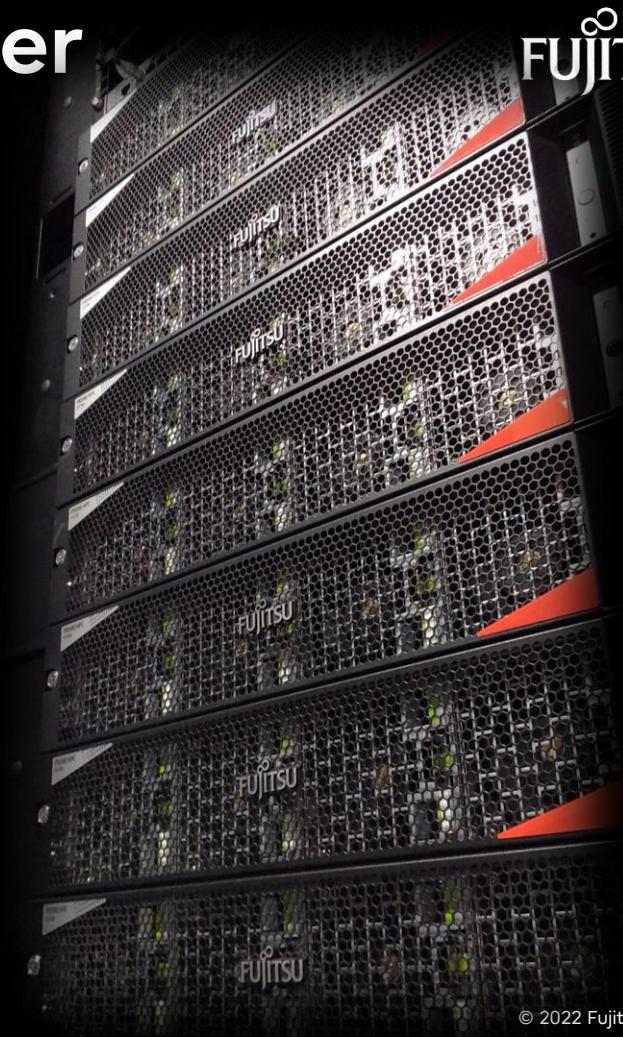




# 40-qubit Quantum Computer Simulator

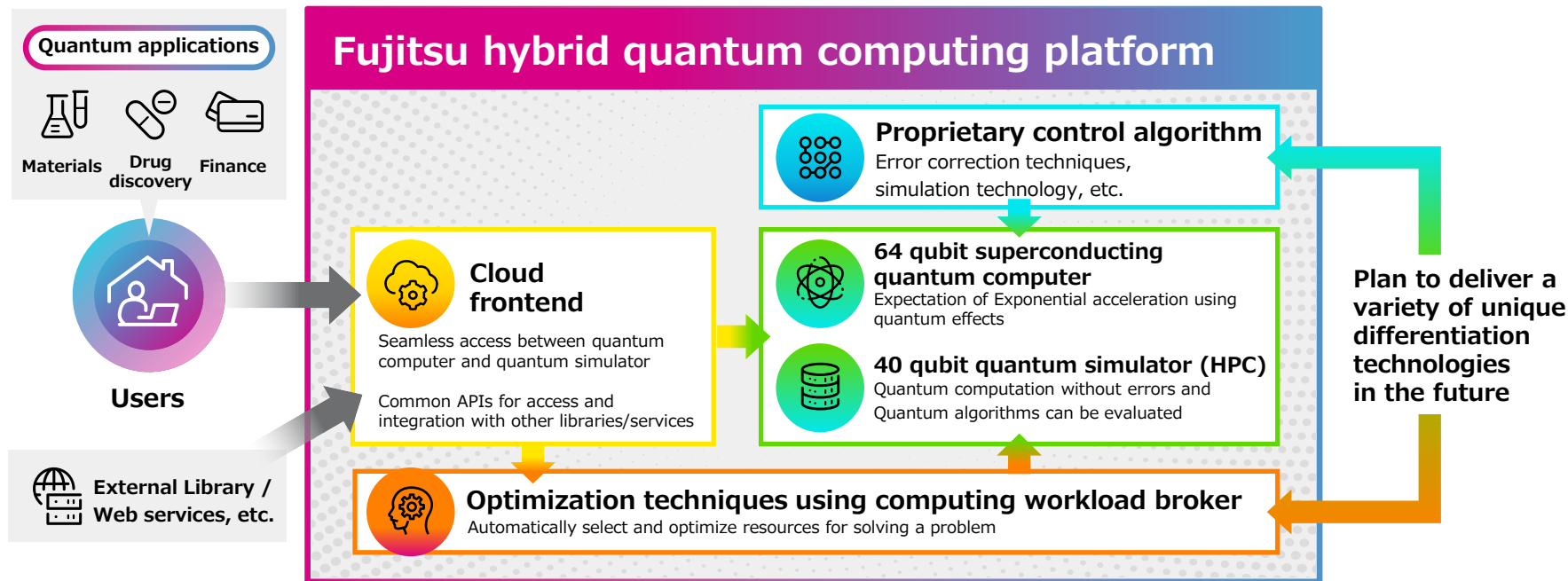
FUJITSU

- The world largest-class state vector simulator on PRIMEHPC FX700 cluster as a permanent dedicated system
- Research on new-type simulators for larger scale
  - ✓ Tensor Network simulator with Barcelona Supercomputing Center
  - ✓ Decision Diagram simulator



# Fujitsu Hybrid Quantum Computing Platform

- Seamless operation between quantum computer and quantum simulator
- Development of computational methods that take advantage of both quantum computers and quantum simulators



# About the Future

To release large-scale simulators and actual machines successively in order to solve societal problems

2023.7

Released a high-speed and large-scale 40 qubit quantum simulator

2023.10

Released a superconducting quantum computer (64 qubits) at the RIKEN RQC- Fujitsu Cooperation Center



FY2025

To release of a larger-scale superconducting quantum computer (256 qubits), and implement the error correction

FY2026~

To release a superconducting quantum computer with >1000 qubits

FY 2020

2030

**Thank you**

