## WHY QUBIT COST CANNOT BE TOMORROWS PROBLEM

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QUANTUM SIMULATION

SHOR 2048-FACTORING Application: Cryptoanalysis	70,000 LOGICAL QUBITS	Nitrogen Fixation Application: Agriculture/Fertilizer	200,000 Logical Qubits
Total cost, \$1000/qubit	\$70 Billion	Total cost, \$1000/qubit	\$200 Billion
Total cost, \$100/qubit	\$7 Billion	Total cost, \$100/qubit	\$20 Billion
Total cost, \$10/qubit	\$700 Million	Total cost, \$10/qubit	\$2 Billion
Total cost, \$1/qubit	\$70 Million	Total cost, \$1/qubit	\$200 Million
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Fowler, Mariantoni, Cleland, Martinis (PRA-2012)

**Microsoft QuARC group (PNAS-2017)**