
Part 10

Shaping the Quantum Future

Part I introduced the functional capabilities of quantum technologies. This part focuses on the policy issues that emerge from these technologies. For example, the possibility of improved quantum computing tomorrow means that we must start upgrading encryption algorithms *today*. Quantum computing will provide speedups in certain kinds of computations that are important for scientific discovery broadly. And while the most assured and lowest-risk approach to avoid quantum cryptanalysis is to use quantum key distribution, another approach is to use improved mathematical algorithms that are believed to be quantum resistant. Meanwhile, quantum sensors that can measure gravimetric and magnetic fields more precisely and accurately may enable visibility into secret compounds or even private homes.

Part II builds on the implications and continues our discussion of the technological possibilities that flow from quantum technologies, which we discuss in Chapter 8. Once the likely paths of the technology are understood, the next chapter proceeds to the legal and policy issues raised by the special affordances of quantum metrology and sensing, communications, and computing technologies in Chapter 9. We conclude the book in Chapter 10.

