

# Large Barriers: NAS Consensus Study Report from this summer...

1. **Noise:** Quantum gates cannot reject noise (noise confused with actual state)
  2. **I/O:** Conversion of "normal" data to quantum state is time consuming; bad news for geospatial big data
  3. **Coding:** New algorithms and software stack required
  4. **Debugging:** difficult since measurement of a quantum state halts execution (when a register is read, superposition collapses)
  5. **IC "virtuous cycle" not present:** Voracious market generated profits that were reinvested in R&D that led to new products that created new revenue streams
- Quantum Initiative Act is intended as a jump-start, but IBM, Google and others don't need this money



<https://pubs.nas.org/10.17226/253196>