

18.9% of U.S. Optical Plants in 3 Counties

The real bottleneck isn't quantum hardware—it's optics manufacturing.

THE DATA

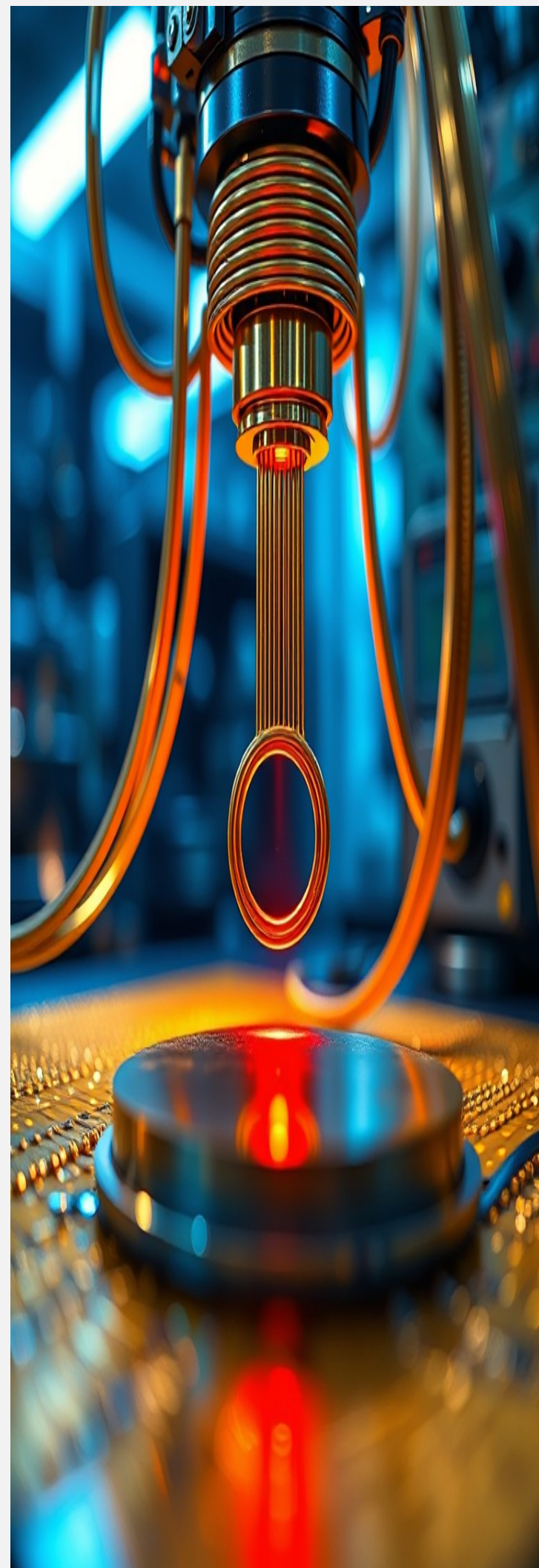
18.9%

Share of America's Optical Instrument Plants in Its Top Three Counties

In the top three counties, 18.9% of all U.S. optical instrument plants are concentrated.

This level of geographic concentration—Monroe County, NY; Orange County, CA; and San Diego County, CA—reveals a systemic vulnerability in the U.S. optical supply chain. Even as quantum computing advances, the physical foundation of quantum sensors and photonic circuits relies on a handful of counties, making the entire ecosystem susceptible to localized disruptions.

Source: U.S. Census Bureau, County Business Patterns 2022 • Published September 17, 2026
<https://alex-companies.com/data/2026-09-17-ai-quantum-conc-333314-county>



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Optics Drive Quantum, Not the Other Way

Quantum computing's progress is often framed as a race in qubit count or coherence time—but the real constraint is not in quantum logic, but in the precision optics needed to manipulate photons. The fact that nearly one-fifth of all U.S. optical instrument plants are clustered in just three counties shows that the quantum frontier is not a distributed innovation network, but a geographically brittle one.

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Bottlenecks Are Not in Code, But in Silicon

While AI and quantum algorithms evolve rapidly, hardware constraints remain underappreciated. The concentration of optical manufacturing in a few counties means that even with breakthroughs in quantum software, physical access to high-precision lenses, waveguides, and interferometers can delay deployment. This isn't a software lag—it's a supply chain bottleneck rooted in physical geography.

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george@alex.realestate · +1 713.918.9951



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