



Event Summary: The Case for Science & Technology Parks in the U.S.

Session 1: Keynote Presentation: *The Case for S&T Parks in Critical and Emerging Technologies* by H.-S. Philip Wong (Stanford University)

- CHIPS grants and investment tax credit, narrows cost gap between US & Taiwan to ~8%, but: **subsidies alone are not sustainable** – if U.S. fabs aren't cost-competitive, orders flow elsewhere, utilization drops, no tool upgrades → U.S. falls behind
- **Current challenges:** Regulatory and permitting complexity (average LEED environmental impact statement takes 4.5 years); weak supply chain and infrastructure ecosystem (suppliers, roads, housing, utilities)
- Additional federal actions needed in S&T parks: Streamlined permitting coordination across all agencies, expanded tax and customs treatment (tariffs, industrial zones, investment tax credit), infrastructure finance from government agencies, immigration channels for specialist workers. **Federal Role:** Commerce/CHIPS Program Office funds and coordinates pilots; **State/Local Role:** Tax incentives, land parcels, permitting coordination; **Private Role:** Anchor tenant (major fab), for-profit developer, crowded-in capital.
- **Key Recommendation:** Creation of 3 to 5 pilot S&T parks, starting with semiconductors. Privately developed, state/local-backed, federally coordinated. Localized & integrated suppliers. A sustainable business model with recurring revenue from land, facility and management fees.

Session 2: Fireside Chat: *NIST Investments in S&T Competitiveness* with Shankar Sastry (UC Berkeley) and Arvind Raman (National Institute of Standards and Technology)

- NIST is American industry's national lab. "*What cannot be measured cannot be traded, cannot be scaled, cannot be improved.*"
- NIST Quantum Manufacturing Engineering Center (QMEC) model: identify 5 technologies, set 2-year 10x targets, use public-private procurement bids to drive commercialization
- **Key Takeaway:** Standards & measurement science speed the path from lab to production; NIST is an ecosystem catalyst: Boulder quantum cluster, for example. NIST can seed regional clusters.

Session 3: Panel Discussion: *Advanced Semiconductor Manufacturing* with Edlyn Levine (TCIP Center), Dan Armbrust (Silicon Catalyst), Thomas Caulfield (GlobalFoundries), and Mark Liu (Formerly TSMC and TCIP Center)

- The U.S. already has nascent clusters: upstate New York, Arizona, Texas, and Oregon (GlobalFoundries in New York, for example, anchored by the nanotechnology center already there.)
- Scale is essential: suppliers only co-locate when volume justifies it
- **Future-proofing:** New cluster sites must be chosen with water and power availability in mind



Key Recommendation: Fund shared ecosystem infrastructure and build on existing clusters. Demand certainty is critical: without it, companies won't invest in fabs with 2-year build times and 10-year return horizons. Demand volume ensures scaling.

Session 4: Fireside Chat: *NSF's New TIP Directorate: Powering America's New Innovation Industrial Base*, with Shankar Sastry (UC Berkeley) and Erwin Gianchandani (National Science Foundation)

- NSF TIP Directorate builds bridges from lab to market. (Piloted SBIR in the 1970s-80s, now the **Regional Innovation Engines program** = model of workforce development outside major cities & cross-agency coordination)
- Federal programming can help update PhD training for industry (75% of students go into industry and need more specific training) & university grant infrastructure
- **Case for federal investment in deep tech:** Most VC capital still flows to software, not hardware-intensive deep tech. (Longer timeline for deep tech = capital needed to mature technologies to the point VCs will pick them up.)

Key Takeaways: The U.S. still lags in getting ideas/innovation to market, partly due to need to update PhD training and university grant infrastructure. Emerging deep tech could benefit from federal investment. Region-specific programming helps source and develop talent outside major cities and build investment-worthy technology hubs.

Session 5: Panel Discussion: *Quantum's Industrial Moment* with Constanza M. Vidal Bustamante (Center for a New American Security), Harley Johnson (Illinois Quantum and Microelectronics Park), Nick Mondrik (IonQ), and Tyler Morgus (Elevate Quantum)

- Recent rapid expansion of U.S. quantum infrastructure, including federally designated Quantum Tech Hubs in Colorado and **the Illinois Quantum and Microelectronics Park (multi-company hub built around PsiQuantum)**, and roughly \$2B in CHIPS funding supporting nine quantum companies. Additional state-led initiatives are emerging across the country, in MA, MD, CA, MT, NM.
- **Core challenge:** Quantum's current market remains too small to sustain many specialized suppliers and facilities, particularly across photonics, optics, cryogenics, advanced packaging, and specialized materials. Govt funding is substantial now, but sustainability of this infrastructure post-funding remains a question.
- **Applying the S&T park model:** Regional ecosystems can share infrastructure, open-access facilities, streamlined permitting, skilled workforce, localized suppliers, and state-federal partnerships for cost-competitiveness & efficiency. Increases sustainability beyond initial public funding.
 - Quantum currently depends on semiconductor supply chains and the competition for capacity from larger markets such as AI, datacom, and telecom. Quantum companies and suppliers could be integrated into semiconductor-oriented parks.
- **Key takeaway:** Durable quantum industrial capacity will depend on aligning regional infrastructure investments with real market demand, broader semiconductor ecosystems, private-sector participation, and long-term operating models.