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BUILDING AMERICA'S INDUSTRIAL BASE

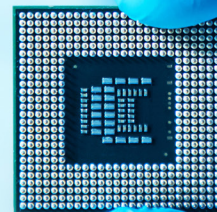
Case Study: Building Semiconductor Ecosystems in Arizona and Upstate New York

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KEY FINDINGS

Arizona and Upstate New York are at the forefront of a historic wave of semiconductor manufacturing growth, home to the country's largest private investments supported by the CHIPS and Science Act. Their experiences demonstrate that attracting anchor investment is only the beginning. Lasting economic impact will depend on whether local small and mid-sized businesses can strengthen their capabilities, expand their workforce, and secure the capital needed to compete in semiconductor supply chains. This report compares the two regions to identify lessons for building competitive supplier ecosystems that translate anchor investments into long-term growth.

1. **Supplier development should reflect regional market conditions.** Arizona has an active and expanding semiconductor manufacturing hub, while Upstate New York is preparing for Micron's planned production. In both regions, large-scale investment alone does not guarantee local supplier growth. Firms generally add capacity only when rising production volumes and facility utilization provide sufficient confidence in sustained commercial demand.
2. **Anchor manufacturers shape supplier ecosystems through procurement.** Procurement strategies and facility ramp-up determine where local firms can participate, what capabilities they need, and when demand can justify investment. TSMC's global sourcing model, for example, creates different opportunities for local suppliers than Micron's coordinated regional procurement strategy.
3. **Near-term contractor opportunities differ from deeper supply chain participation.** Construction, facilities support, and maintenance offer earlier entry points for suppliers, while materials, equipment, and production inputs require greater technical capabilities and capital investments. Programs such as New York's Semiconductor Growth Access Program (SGAP) and Arizona's manufacturing extension network help firms navigate these requirements.
4. **Coordination distinguishes competitive supplier ecosystems.** Both regions have strong business support, workforce, and financial institutions. Their effectiveness depends on how well these organizations align their services with supplier capabilities and buyer demand, as illustrated by GO-SEMI's integrated approach in New York and Arizona's efforts to coordinate support across multiple anchor manufacturers.
5. **Building supplier ecosystems is becoming a core element of industrial policy.** The experiences of Arizona and Upstate New York demonstrate that the long-term impact of anchor investments depends on whether regions can translate them into broader supplier participation, stronger local businesses, and more resilient industrial ecosystems.

Research Series Context

This case study is part of "Building America's Industrial Base," a research series examining the dynamics that shape how suppliers and their workers participate in and scale within U.S. industrial supply chains. The series is organized around five industry pillars critical to long-term U.S. competitiveness: Supply Chain and Advanced Manufacturing; Defense and Aerospace; Energy Independence and Resilience; Frontier and Strategic Technologies; and Pharma and HealthTech.

This second case study examines Arizona and Upstate New York, which together represent the country's largest concentration of greenfield semiconductor investment. Their experiences underscore that large-scale investment does not automatically translate into local supplier growth. Suppliers typically follow proven demand rather than announced investment, while qualification requirements, capital needs, and established global sourcing relationships all dictate the pace of local supply chain development. Together, the two regions show how supplier development strategies must reflect local market conditions while aligning business support, workforce development, capital, and procurement with the evolving needs of anchor manufacturers and suppliers.

SECTION I: CONTEXT - TWO REGIONS, ONE SUPPLY CHAIN CHALLENGE

Over the past several years, semiconductor manufacturing has become a central pillar of U.S. industrial policy. Rapid advances in AI, advanced computing, and connected technologies are driving demand for more sophisticated chips, while global competition and supply chain vulnerabilities have raised the industry's strategic importance. The CHIPS and Science Act, alongside complementary federal and state investments, has led to the largest expansion of U.S. semiconductor manufacturing in decades. As new fabs come online, suppliers, workers, and regional institutions will need to expand alongside them.

Arizona and Upstate New York are at the center of this expansion. Together, they account for the country's largest greenfield semiconductor investments, anchored by commitments from multinational corporations including Micron, TSMC, Intel, and Amkor. Yet both regions face a common challenge: translating these investments into broader supply chain growth, particularly among small and mid-sized businesses (SMBs). To participate in these expanding ecosystems, suppliers must satisfy stringent technical and quality requirements, invest in specialized equipment and facilities, develop specialized workforces, and establish trusted relationships with highly sophisticated buyers.

Building a competitive semiconductor ecosystem extends beyond fab facilities. Semiconductor investment is also increasing demand for housing, infrastructure, utilities, and skilled workers while requiring years of investment to develop a supplier base that meets leading-edge manufacturing standards. This case study focuses on one part of that broader transition: how business support organizations, investors, and workforce institutions are helping local small businesses compete in semiconductor supply chains.

Despite facing many of the same opportunities and constraints, the two regions entered this period of investment with different industrial assets, supplier bases, and workforce capabilities. Those differences shape the opportunities available to local firms and the strategies each region is pursuing to strengthen its semiconductor ecosystem.

Arizona: Scaling an Established Ecosystem

Arizona has one of the longest-established semiconductor manufacturing ecosystems in the United States. Beginning with Motorola's Scottsdale facility in 1948 and Intel's Chandler fabrication campus in the early 1980s, successive waves of investment helped build a skilled workforce and a broad network of semiconductor manufacturers, suppliers, and complementary service firms. Today, the state is home to an estimated 140,000 workers in semiconductor-related occupations, supported by experienced suppliers, longstanding manufacturer relationships, and established workforce and research institutions.¹

TSMC Fab 21, Phoenix, AZ; Photo credit: Hunter Trick (TrickHunter) / Wikimedia Commons, CC BY-SA



The state's industrial base extends beyond semiconductors. Arizona has one of the nation's largest aerospace and defense clusters, with major operations from Raytheon, Boeing, Honeywell, L3Harris, General Dynamics, and Northrop Grumman. Together, these industries have built a strong base of precision manufacturers with capabilities in advanced machining, electronics, optics, materials science, and quality management systems that can transfer to semiconductor manufacturing. Tucson complements the Phoenix metropolitan area with specialized capabilities in defense systems, optics, sensors, and advanced manufacturing.

The semiconductor industry has expanded alongside one of the nation's fastest-growing regional economies. Over the past two decades, Arizona has experienced sustained population, jobs, and business growth, particularly in the Phoenix metropolitan area. This growth has attracted talent and diversified the state's economy while increasing demand for housing, transportation, water, and other critical infrastructure. The recent wave of semiconductor investment has accelerated these trends, intensifying competition for skilled workers, industrial land, utilities, and supplier capacity.

As investment grows, Arizona's semiconductor industry sits within a broader advanced manufacturing ecosystem where aerospace, defense, electronics, and other industries share many of the same suppliers, workers, facilities, and infrastructure. Many of the capabilities needed for semiconductor manufacturing already exist across these industries, creating opportunities for more Arizona firms to participate in semiconductor supply chains.

Yet as Arizona looks to grow its semiconductor industry, much of the semiconductor supply chain serving the state's anchor manufacturers remains overseas. Decades of globalization and competition from lower-cost manufacturing centers shifted significant portions of semiconductor production and sourcing abroad, limiting the depth of domestic supply chains even in established hubs such as Arizona. As manufacturers expand production in the state, many specialized materials, components, and equipment continue to come from established global suppliers.

Arizona's challenge is to help more local firms qualify for core semiconductor contracts while coordinating workforce, supplier, and infrastructure investments across multiple manufacturers and institutions. The state enters this phase with deep industrial capabilities and an established base of semiconductor and adjacent suppliers. Broadening local participation will depend on the pace of facility ramp-up, clearer demand signals, and targeted support that helps firms meet the industry's technical, financial, and workforce requirements.

Upstate New York: Reinvigorating a Historic Manufacturing Hub

Upstate New York is rebuilding an advanced manufacturing ecosystem around a new generation of semiconductor investment. For more than a century, companies including General Electric, IBM, Xerox, and Corning established the region as a center of advanced manufacturing, optics, electronics, and precision manufacturing. These industrial roots laid the foundation for the region's computing, electronics, and semiconductor research sectors, anchored by IBM's East Fishkill campus and Albany NanoTech Complex, one of the world's leading semiconductor research centers.

Beginning in the 1970s, however, globalization, automation, and corporate restructuring steadily reshaped the regional economy. Manufacturing employment declined as many of the region's largest employers downsized, relocated production, or closed facilities. Between 2000 and 2008 alone, the region lost nearly 105,000 manufacturing jobs.² Communities like Rochester illustrate the scale of this transition: the share of the city's workforce employed by Eastman Kodak, Xerox, and Bausch + Lomb fell from roughly 60 percent at their peak to under 10 percent by 2014.³ As large employers contracted, supplier networks weakened, industrial capabilities regressed, and the region experienced sustained population loss, particularly among younger and college-educated workers.

The current wave of semiconductor investment marks a significant turning point. Micron's planned megafab campus in Clay—the largest private investment in New York State history—is part of a coordinated effort by state and local governments, research institutions, and industry partners to position Upstate New York to expand semiconductor manufacturing in the region.⁴ The investment builds on renowned research facilities, major universities (including Cornell University, Syracuse University, the University at Buffalo, and the University of Rochester), and decades of engineering expertise.

As fab construction advances, the region's priorities are shifting from attracting investment to developing the supplier networks, workforce pipelines, and business support systems needed to sustain a globally competitive semiconductor ecosystem. Upstate New York enters this next phase with distinctive legacy assets, deep research capabilities, and institutional capacity, while rebuilding supplier networks that were weakened by decades of deindustrialization.

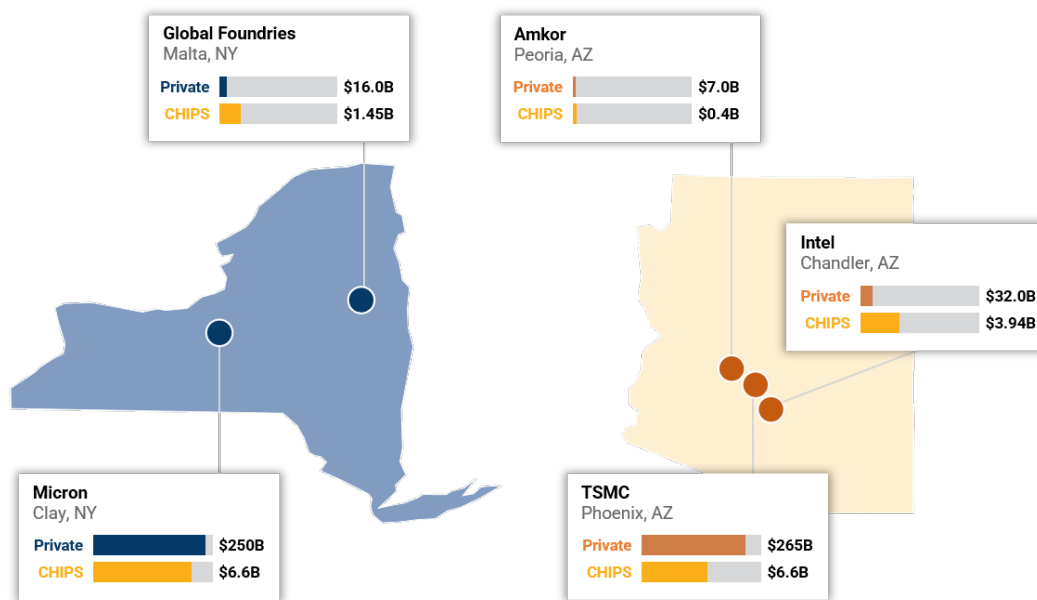
SECTION II: CURRENT CONDITIONS - DIFFERENT STARTING POINTS FOR SUPPLY CHAIN GROWTH

Arizona and Upstate New York are part of the same wave of semiconductor investment but are building their local industries from different starting points. Arizona has multiple anchor manufacturers, an established supplier base, and several facility expansions underway or planned. Upstate New York is rebuilding its semiconductor manufacturing hub around Micron's planned investment. These starting points shape the opportunities available to suppliers today and the priorities for supplier development. Yet both regions face a similar dynamic: suppliers generally invest in response to demonstrated demand rather than announced investments alone, making facility ramp-up a key determinant of how quickly local supply chains develop.

Investments Anchoring Growth

Large multinational firms—including Micron, TSMC, Intel, and Amkor—are driving a new wave of semiconductor investment in Arizona and New York (Exhibit 1). The CHIPS and Science Act accelerated these investments through direct incentives that unlocked additional state and private capital. While these investments share a common policy foundation, the structure of these investments is creating different opportunities for local suppliers.

Exhibit 1: A Wave of Semiconductor Investment in Arizona and Upstate New York



In Upstate New York, Micron's planned \$250 billion investment in Clay is the product of a deliberate state recruitment strategy, supported by approximately \$5.5 billion in state incentives and federal CHIPS funding.⁵ The investment is complemented by additional CHIPS-supported projects at GlobalFoundries, IBM, the Albany NanoTech Complex, the



National Semiconductor Technology Center, and other semiconductor research initiatives. Together, these investments are expanding the region's manufacturing and research capacity while creating a coordinated foundation for future supplier growth. Early implementation reflects this momentum: approximately \$675 million in construction contracts have been awarded to New York-based firms, and more than 80 percent of site workers are New York residents.⁶

Arizona follows a different approach. Rather than building around a single transformational investment, the state's semiconductor industry is anchored by three major CHIPS recipients—TSMC, Intel, and Amkor—each creating different opportunities for suppliers. Together, these investments span leading-edge fabrication, advanced packaging, and testing, making Arizona one of the nation's largest semiconductor manufacturing hubs.

Each multinational firm has taken a different supplier strategy. TSMC's Arizona footprint—now expected to expand to 10 fabs, two advanced packaging facilities, and one R&D center, supported by \$6.6 billion in CHIPS funding—draws on a global procurement network and longstanding relationships with multinational Tier 1 suppliers.⁷ Near-term local opportunities are therefore concentrated in construction, transportation, facility operations, maintenance, and select Tier 2 and downstream activities. Meanwhile, supplying materials, equipment, and other core production inputs requires extensive qualification, capital investment, and integration into global sourcing networks.

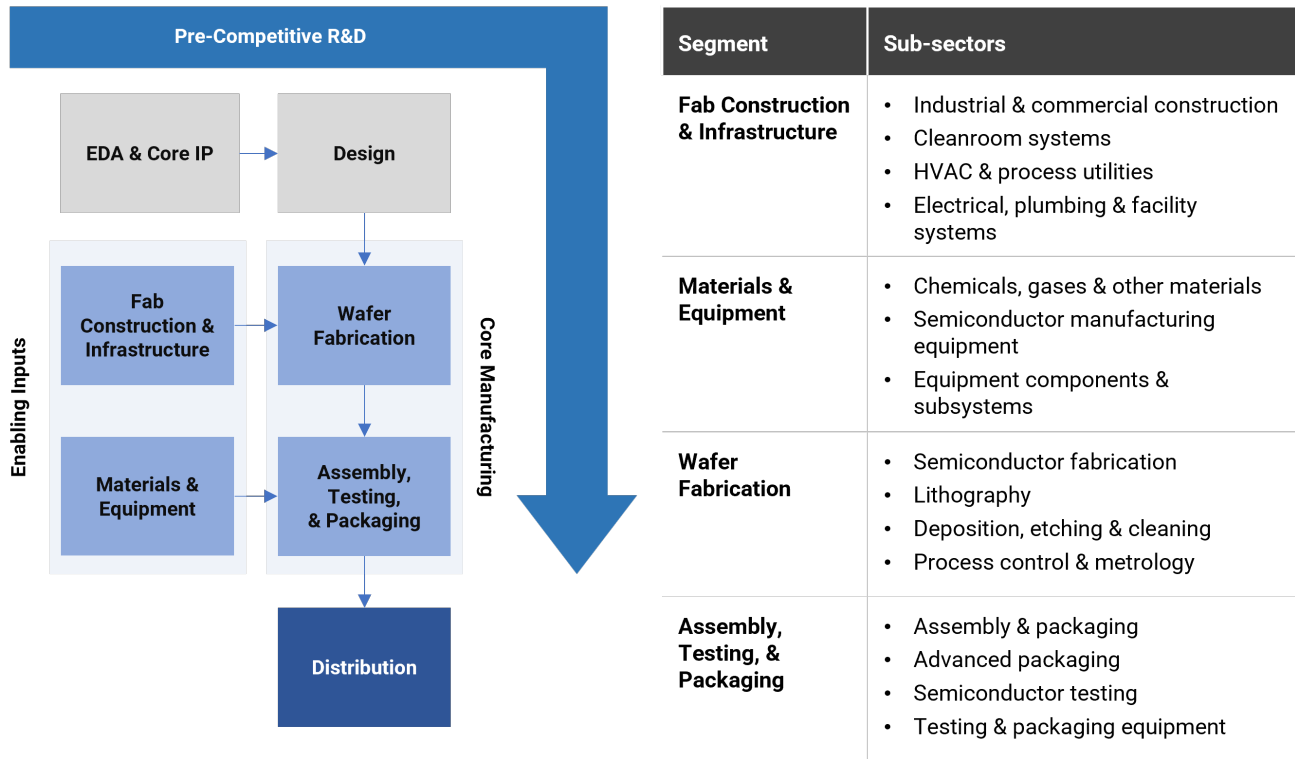
Intel's deeper roots in Arizona create broader opportunities for local suppliers. As a U.S.-headquartered company that has operated in the state for more than four decades, Intel has built extensive relationships with regional manufacturers, universities, and workforce organizations. The company's continued federal support—including the U.S. government's \$8.9 billion investment in Intel common stock in 2025—also reflects its central role in advancing the domestic semiconductor industry.⁸ Amkor offers a third source of demand through its advanced packaging and testing facility in Peoria, creating opportunities in packaging materials, testing equipment, automation, logistics, and industrial services.

These procurement models shape how suppliers enter each market. Arizona offers opportunities across several manufacturers with distinct purchasing relationships. Upstate New York's near-term opportunity is centered on preparing for Micron's facility ramp-up. In both regions, the pace of localization will depend on facility ramp-up, anchor firm procurement decisions, and recurring demand.

Regional Supplier Landscapes

Semiconductor investment creates opportunities well beyond chip manufacturing. The value chain spans R&D and design, fab construction and infrastructure, materials and equipment, wafer fabrication, assembly, testing and packaging, and distribution, creating multiple entry points for regional suppliers (Exhibit 2).

Exhibit 2: Semiconductor Value Chain Flow and Sub-Sectors



Sources: SEMI and BCG

Each region's supplier landscape reflects its own distinct history. Arizona has evolved around multiple global manufacturers, while Upstate New York is building a new hub around Micron. Yet both face the same questions: what supply chain activities will be sourced locally, when demand will materialize, and whether regional firms can meet the requirements to compete.

Anchor firms in Arizona are generating demand as TSMC expands production, Intel builds on its longstanding presence, and Amkor scales advanced packaging. For many local firms, near-term opportunities are concentrated in construction, transportation, logistics, facility operations, maintenance, and other services. Opportunities supplying materials, equipment, and other core inputs are narrower and require more advanced qualification, capital investments, and integration into global supplier networks. In Upstate New York, manufacturing demand remains several years away; near-term opportunities are concentrated primarily in construction and related services.

These different timelines coincide with different supplier landscapes. Arizona has more firms across every directly comparable segment, including more than twice as many in the broader construction base and nearly three times as many in fab construction and infrastructure. Upstate New York has a narrower supplier base but a longer runway to prepare firms before production reaches scale (Exhibit 3).

Exhibit 3: Semiconductor Industry Landscape in Arizona vs. Upstate New York

	Arizona			Upstate New York		
	Number of firms	% of SMBs (<500 employees)	Avg. revenue / firm	Number of firms	% of SMBs (<500 employees)	Avg. revenue / firm
All Construction	 15,551	>99%	\$5.5M	 7,198	>99%	\$2.9M
Fab Construction & Infrastructure	 5,023	>99%	\$3.6M	 1,808	97%	N.A.
All Related Durable Manufacturing	 1,560	99%	\$14M	 1,054	91%	\$18M
Semiconductor Materials & Equipment	 418	94%	\$5M	 262	82%	N.A.
Core Semiconductor Manufacturing¹	 40	72%	\$148M	 38	87%	\$124M

Notes: Upstate New York includes Albany, Erie, Monroe, Oneida, Onondaga, Oswego, and Saratoga counties. Core semiconductor manufacturing includes wafer fabrication and assembly, testing, and packaging. Estimates are approximate where establishment-size data are partially suppressed in CBP. Receipts reflect 2022 SUSB data, the latest year available. Core semiconductor manufacturing statistics reflect New York State due to county-level data limitations

Sources: U.S. Census Bureau, 2023 County Business Patterns (CBP); U.S. Census Bureau, 2022 Statistics of U.S. Businesses (SUSB)

Upstate New York's longer investment timeline creates an opportunity to build supplier capabilities before manufacturing demand reaches scale. State and industry partners have identified 169 firms supplying major semiconductor manufacturers and more than 175 Tier 2 suppliers while mapping opportunities across materials, equipment services, logistics, facilities, and construction.⁹ Micron has also committed 30 percent of eligible construction spending and 20 percent of eligible operating spending toward supplier diversity goals.¹⁰ Construction and related services can generate early local activity, but they are not an automatic pathway into core value chains, which require distinct capabilities, qualification, capital investments, and customer relationships.

Upstate New York also has transferable industrial capabilities to build on. In related durable manufacturing, the region has over 1,000 firms compared with over 1,500 in Arizona, but average revenue per firm is approximately \$18 million versus \$14 million in Arizona. This suggests that while Upstate New York has a narrower pool of firms, it includes established manufacturers with meaningful scale.

Arizona faces a related challenge at a later stage: converting a larger industrial base into broader semiconductor participation while much of the supply chain remains global. SMBs account for nearly all of the firms in fab construction and infrastructure and 94 percent in materials and equipment. Many of these businesses may need certifications, operational improvements, working capital, procurement capabilities, and stronger buyer relationships rather than entirely new technical capabilities. Better data on supplier readiness, qualification gaps, and the timing of anchor demand could help firms and support providers sequence investment.

The regions face a shared localization challenge at different stages. Arizona has more active demand and a deeper industrial base but must broaden participation; Upstate New York currently has a smaller base and a longer runway to prepare it. In both, progress will depend on helping firms respond to credible demand and move from adjacent capabilities to sustained contracts—a transition that may take years.

SECTION III: ECOSYSTEM RESPONSES – BUILDING SUPPORT SYSTEMS AROUND REGIONAL CONDITIONS

Differences in the industrial makeup of firms and workers have shaped how Arizona and Upstate New York have organized their semiconductor ecosystems. While both regions are investing in the institutions that help small and medium-sized businesses participate in semiconductor supply chains, they have prioritized different capabilities based on their industrial foundations, market conditions, and timelines for growth.

Business support organizations, workforce systems, and capital providers each play a complementary role in helping firms navigate procurement requirements, build operational capabilities, finance investments, and compete for contracts. Together, these institutions determine how effectively regional supplier ecosystems translate semiconductor investment into broader participation by local businesses.

The following sections compare how each region has organized these ecosystem supports, while Exhibit 4 summarizes the distinguishing characteristics of each approach.

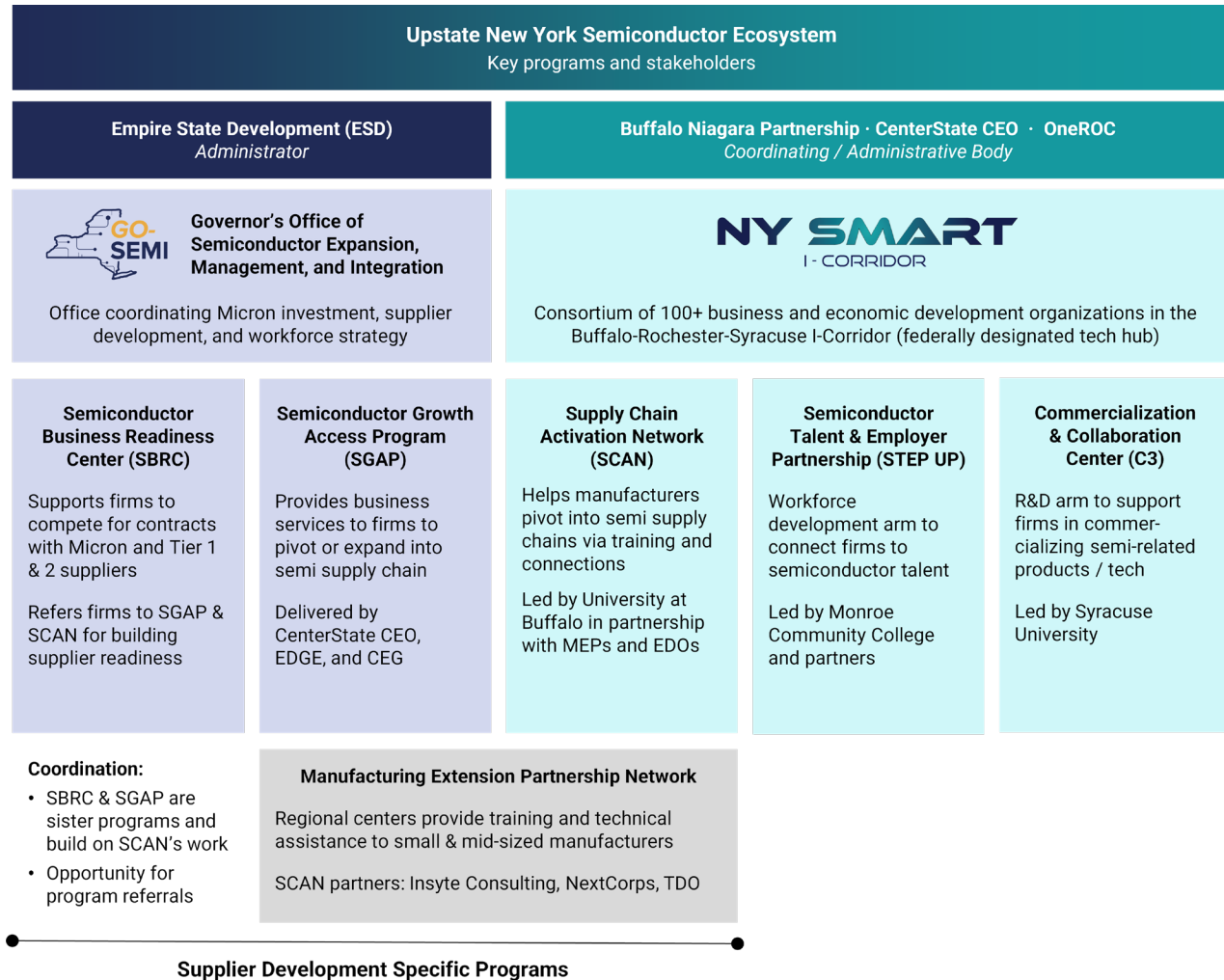
Exhibit 4: Comparing Regional Approaches to Semiconductor Supplier Development

	Upstate New York	Arizona
Business Support	• Focused on preparing firms before Micron's production reaches scale • Coordinated ecosystem led by GO-SEMI / Empire State Development and the NY SMART I-Corridor Tech Hub • Supported by network of Manufacturing Extension Partnership (MEP) centers (NextCorps, TDO, Insyte)	• Distributed ecosystem led by the Arizona Commerce Authority (ACA), Greater Phoenix Economic Council (GPEC), and Arizona Semiconductor Task Force • Programs include TechSmart, Arizona Hispanic Chamber Capital Readiness, and supplier outreach initiatives • Focus on connecting suppliers to multiple anchor firms with distinct procurement
Workforce Development	• Building workforce capacity through ON-RAMP, the Micron-NY CREATES IMT Apprenticeship, STEP UP, and OCC's Cleanroom Simulation Lab • Universities and community colleges aligned to future industry needs	• Scaling an established workforce through programs like the ACA Registered Apprenticeship and TSMC Apprenticeship programs • Supported by Arizona State University, the University of Arizona, and Northern Arizona University
Capital Access	• Supplier financing integrated with SGAP, SSBCI, and GO-SEMI referrals • Loans, venture capital, and technical assistance aligned with semiconductor supplier readiness	• Capital available via local investors and financial institutions, supported by SSBCI and orgs like the AZ Venture Development Corporation • Opportunities to better align with semiconductor supplier development

Business Support: Different Models for Supplier Development

Building a competitive supplier base requires each region to support small businesses in understanding where they fit in the value chain, building technical and operational capabilities, accessing capital, navigating procurement processes, and developing relationships with buyers. As shown in Exhibits 5 and 6, both Arizona and Upstate New York have organizations supporting each stage of this journey. The difference lies less in the availability of support than in how the ecosystem is organized around semiconductor demand.

Exhibit 5: Upstate New York Semiconductor Support Ecosystem



In Upstate New York, the ecosystem is being intentionally built around Micron's planned investment through two complementary tracks. The first, led by the Governor's Office of Semiconductor Expansion, Management, and Integration (GO-SEMI) and Empire State Development, focuses on supplier development, workforce alignment, and implementation of Micron's procurement and community commitments. Programs such as the Small Business Growth Accelerator Program provide legal, financial, and business advisory services for small and supplier-diverse firms, while the planned Small Business Resource Center will help businesses identify and compete for opportunities with Micron and its Tier 1 and Tier 2 suppliers.

The second track, the New York Semiconductor Manufacturing and Research Technology Innovation Corridor (NY SMART I Corridor) Tech Hub, brings together more than 100 regional organizations to strengthen supplier mapping through the Supply Chain Activation Network (SCAN), manufacturing commercialization through the Center for Commercialization and Competition (C3), workforce development through the Semiconductor Talent & Employer Partnership (STEP UP), and firm-level technical assistance through the New York Manufacturing Extension Partnership (MEP) centers. Together, these initiatives help firms assess readiness and prepare for procurement.

Arizona has developed a different model (Exhibit 6). The Arizona Commerce Authority, through its leadership of the Arizona Semiconductor Task Force, coordinates a statewide ecosystem spanning business attraction, supplier development, manufacturing modernization, workforce, and capital access. The ecosystem brings together regional economic development organizations, manufacturing extension services, universities, community colleges, industry associations, and anchor firms to strengthen the state's long-term semiconductor competitiveness.

At the firm level, the Arizona Manufacturing Extension Partnership network supports operational excellence and supplier readiness, while organizations such as the Arizona Hispanic Chamber of Commerce help small businesses prepare for capital and procurement opportunities. Unlike New York, however, these institutions support multiple anchor firms—including TSMC, Intel, Amkor, and Microchip—with distinct procurement systems and supplier networks. As a result, the ecosystem functions as a distributed supplier development network rather than a single supplier pathway.

These different institutional models reflect the needs of each region's supplier base. New York is building an integrated supplier- support ecosystem as production demand develops. Arizona is adapting a longer-established manufacturing and workforce ecosystem to broaden participation in a market where localization is growing. In both regions, success will ultimately be measured by whether more small and medium-sized businesses move through the supplier journey — from awareness and capability building to procurement and sustained commercial growth.



Exhibit 6: Arizona Semiconductor Support Ecosystem

Arizona Semiconductor Ecosystem

Key programs and stakeholders



State administrator and convening authority overseen by the Governor

Arizona Semiconductor Task Force

Coordinates Arizona's statewide semiconductor strategy; convenes 100+ industry, government, and academic partners

Supply Chain & Business Development

Arizona Manufacturing Extension Partnership (MEP) Network

Statewide manufacturing assistance network helping improve supplier readiness

Part of NIST MEP network

Arizona Small-Scale Supplier Consortium

State industry consortium supporting suppliers to compete for semiconductor supply chain opportunities

Arizona APEX Accelerator

Procurement assistance program for firms looking to bid and win contracts in government and defense

Arizona Small Business Development Center Network

Network of SBDCs offering 1-on-1 advice and training for small businesses across a range of industries

Greater Phoenix Economic Council

Regional economic development organization with a mission to attract investment and connect firms to sites, talent, and partners in the Greater Phoenix area

Workforce & Talent

AZ Semi Career and Apprenticeship Network

Semiconductor employer and workforce network with a mission to expand semiconductor apprenticeships and career pathways

Greater Phoenix Chamber of Commerce

Runs employer-led workforce collaboratives connecting member companies to talent and business development

Future48 Workforce Accelerators

Industry-led training centers preparing semiconductor technicians, expanding workforce across Arizona

Operated by ACA with community college partners

TechSmart Learning Fund

Workforce platform aligning education and industry around semiconductor and high-tech talent pathways in Arizona

Programs led by community colleges and universities

Semiconductor degree and certificate programs at ASU, UArizona, and Maricopa Community Colleges

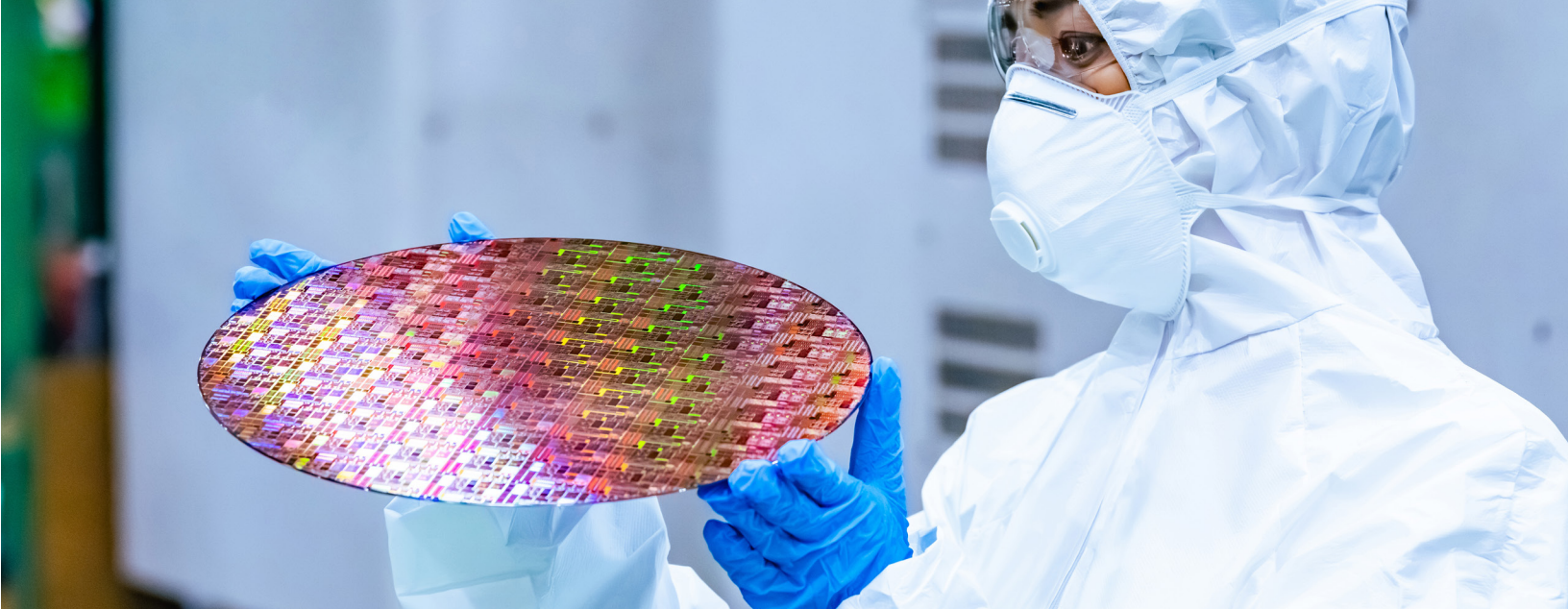
Includes programs co-led with Intel, TSMC, and Amkor

Workforce: Building Talent Pipelines

The workforce available to suppliers is one of the most important differences between Arizona and Upstate New York. As shown in Exhibit 7, both regions have invested across the talent pipeline—from K-12 education and technical training to community colleges, universities, apprenticeships, and incumbent worker development. However, they are engaging markedly different labor markets.

Exhibit 7: Select workforce programs supporting semiconductor industry growth

Program	Established	Description
Upstate New York		
One Network for Regional Manufacturing Program (ON-RAMP)	2023	\$200M statewide initiative coordinating employer-led workforce development for Micron's expansion
New York Creates / Micron Industrial Manufacturing Technician Apprenticeship	2026	Registered apprenticeship combining classroom instruction and hands-on training aligned with Micron Fab 1 hiring
Semiconductor Career and Apprenticeship Network (SCAN)	2023	GO-SEMI-led network coordinating semiconductor career pathways, apprenticeships, employer engagement, and recruitment
Semiconductor Talent and Employer Partnership (STEP UP)	2024	NY SMART I-Corridor Tech Hub workforce initiative connecting training providers, suppliers, and employers
Onondaga Community College Cleanroom Simulation Lab	2024	\$15M cleanroom simulation facility providing hands-on semiconductor technician training
Arizona Workforce Programs		
BuildItAZ	2023	Construction apprenticeship initiative to support semiconductor facility investments
Arizona Commerce Authority (ACA) Registered Apprenticeship Program	2024	\$4M statewide apprenticeship initiative, developed with the SEMI Foundation, aligned with employer demand
Ready, Tech, Go	2024	Statewide initiative aligning semiconductor curricula across four community colleges
TSMC Semiconductor Technician Apprenticeship	2024	\$5M employer-led apprenticeship expanding the semiconductor technician workforce in Phoenix region
Northern Arizona University Microelectronics Metrology Certificate Program	2024	\$13M-funded certificate program preparing semiconductor metrology and quality specialists
TechSmart Learning Fund	2025	Cross-sector partnerships that align education, workforce training, and industry needs to create scalable talent pipelines for Arizona's semiconductor sector
Arizona State University (ASU) Semiconductor Programs	Various	\$47.5M funded university ecosystem spanning semiconductor education, research, and workforce development
Maricopa Community Colleges Quick Start Program	Various	Accelerated semiconductor technician training delivered across three campuses and 31 programs



Arizona already has one of the nation's largest semiconductor manufacturing workforces, employing nearly 22,000 workers across 90 semiconductor manufacturing establishments reported—almost three times New York's employment—and ranks among the national leaders in semiconductor processing technicians. By contrast, New York employs approximately 7,800 semiconductor manufacturing workers across 84 reported establishments.⁹ Its semiconductor ecosystem has historically centered on research, innovation, and specialty manufacturing and is now expanding into large-scale fabrication through Micron's planned investment.

These different workforce foundations shape each state's strategy. In Upstate New York, the priority is building the production workforce needed to support Micron and the region's growing supplier base. ON-RAMP serves as the state's flagship workforce initiative, while NY CREATES, Onondaga Community College, and the NY SMART I Corridor Tech Hub are expanding apprenticeships, technician training, cleanroom education, and supplier-focused workforce programs. Together, these investments are designed to develop the skilled production workforce required as semiconductor manufacturing capacity expands.

Arizona's strategy focuses on scaling an established talent base. State investments are expanding engineering and technician training through public universities, the Maricopa County Community College District, and programs such as Quick Start and the planned Future48 Workforce Accelerator. The Arizona Semiconductor Task Force complements these efforts by aligning employers, education providers, and workforce agencies around shared workforce priorities.

Ultimately, workforce development reflects the same strategic challenge as supplier development. New York is building the production workforce needed to support a rapidly expanding semiconductor ecosystem, while Arizona is scaling an established workforce to meet growing demand across multiple manufacturers. In both regions, long-term success will depend on whether workforce systems develop the engineers, technicians, and skilled trades workers needed across the semiconductor supply chain—not only at anchor firms, but throughout the supplier base.

Capital Access: Financing Supplier Growth

Supplier readiness requires investment before revenue is secured. Small and medium-sized businesses must finance certifications, quality management systems, equipment upgrades, cybersecurity, documentation, and other operational improvements before they qualify for a first purchase order. ISO 9001 certification (the international standard for quality management systems) alone can cost approximately \$6,000 to \$25,000 for a small business, while semiconductor-specific requirements (including SEMI standards and cleanroom qualification) can require substantially larger investments.¹² Because these costs are incurred before firms generate new revenue, supplier readiness depends on access to working capital and growth capital rather than future cash flow.

Suppliers in both Arizona and Upstate New York have access to established capital markets—including commercial banks, alternative lenders, private equity, and venture capital—along with government-backed financing and grants. The difference lies in how these sources of capital are connected to semiconductor supplier development.

New York has built a more integrated capital ecosystem that combines technical assistance, lending, and investment with semiconductor-specific supplier development. Arizona relies more heavily on broad-based entrepreneurship and manufacturing finance programs that can support semiconductor suppliers but are not explicitly organized around supplier qualification and procurement.

In Upstate New York, the Semiconductor Growth Access Program (SGAP) addresses one of the earliest financing barriers by helping very small and socially and economically disadvantaged individual (SEDI)-owned businesses strengthen business planning, accounting, legal documentation, financial management, and procurement readiness before pursuing semiconductor contracts. SGAP complements a broader SSBCI portfolio that includes manufacturing loans, contractor financing, loan guarantees, venture capital funds, and technical assistance, creating a continuum from supplier readiness to business expansion.¹³ Through the GO-SEMI and regional partners, firms are also connected to lenders, investors, and financing resources alongside procurement and business support.

In Arizona, rather than developing semiconductor-specific financing programs, the state has expanded existing capital resources through its SSBCI portfolio, including loan guarantees, venture capital co-investment, technical assistance, and manufacturing support delivered through the Arizona Manufacturing Extension Partnership.¹⁴ Organizations such as the Arizona Hispanic Chamber of Commerce further strengthen capital readiness by helping firms prepare for financing and procurement opportunities, while the Arizona Venture Development Corporation partners with venture funds, institutional investors, and private co-investors to expand access to growth capital. Together, these resources provide broad support for entrepreneurship and manufacturing, although they are not yet integrated into a dedicated semiconductor supplier financing pathway.

The comparison shows that building the supplier base will require not only capital availability but also connecting capital to supplier readiness. Firms often require technical assistance, business planning, and supplier qualification before they can effectively access debt or equity financing. New York has begun integrating these functions into its semiconductor strategy, while Arizona relies on a broader manufacturing finance ecosystem that could be more closely linked to semiconductor supplier development. Expanding participation will require linking capital and technical assistance to credible procurement signals, enabling firms to invest as demand materializes without adding capacity too early.

TSMC Arizona Fab 21, Phoenix, Arizona. Photo courtesy of TSMC.



SECTION IV: LESSONS LEARNED - WHAT BUILDS COMPETITIVE SUPPLIER ECOSYSTEMS?

Examining the differences between Arizona and Upstate New York, there is no single model for building a supplier ecosystem around a major industrial investment. Although both regions are benefiting from the same wave of semiconductor investment, they differ in industry structures and the timing of market demand. Those differences have produced distinct approaches to business support, workforce development, capital access, and ecosystem coordination.

Rather than identifying a single best practice, the comparison points to a broader framework for organizing supplier support around market demand. Successful ecosystems align institutions, investments, and services with the needs of anchor firms while adapting to their own stage of industrial development.

Supplier Development Is Not One-Size-Fits-All

Supplier support should reflect where a regional industry is in its development. Regions preparing for production benefit from mapping capabilities, strengthening workforce pipelines, and building institutional partnerships. Capital investments, however, should be sequenced with credible demand and facility ramp-up. Regions with established manufacturing demand benefit more from helping existing firms qualify for current procurement opportunities and broadening participation among capable suppliers.

These differences also shape governance. Earlier stage ecosystems can establish shared intake systems, supplier maps, referral networks, and outcome measures before institutions become fragmented. More mature ecosystems often derive greater value from strengthening coordination across existing organizations than from creating new programs.

Upstate New York is using the period before Micron begins production to organize supplier mapping, business support, and workforce development. Arizona's active procurement makes qualification and buyer access more immediate. In both, localization will depend on facility ramp-up and visible, recurring demand from anchor firms.

Organize around Anchor Firm Procurement

Anchor firms define supplier opportunities through procurement strategies, technical requirements, production timelines, sourcing relationships, and credible forward demand signals. Business support, workforce development, financing, and technical assistance are most effective when they are organized around these market signals rather than generic small-business assistance.

For example, Micron's investment allows Upstate New York to organize supplier preparation around a single procurement pipeline. Arizona's ecosystem reflects a different reality: TSMC relies heavily on global Tier 1 suppliers, Intel builds on decades of regional supplier relationships, and Amkor creates demand in advanced packaging and testing. These differences require different supplier development approaches even within the same region.

Public investments create the greatest value when they reinforce—not duplicate—the procurement systems already shaping the market.

Integrate Business Support, Capital Access, and Workforce Development

Supplier qualification depends on more than technical capability. Firms often need financing for certifications and equipment, workforce training for new production requirements, operational improvements, and buyer relationships before they can compete successfully.

Both regions demonstrate the value of integrating these functions. In Upstate New York, supplier readiness, workforce initiatives, and capital programs are increasingly organized through GO-SEMI and the NY SMART I-Corridor Tech Hub. Arizona has many of the same capabilities—including manufacturing extension services, workforce providers, universities, and capital programs—but they are distributed across multiple organizations supporting different anchor firms.

Regions should therefore treat business support, workforce development, and capital access as parts of a single supplier development system rather than separate policy areas. Aligning these functions around supplier readiness creates a more direct path from capability building to commercial participation while reducing duplication across institutions.

Measure Supplier Outcomes

Supplier ecosystems should ultimately be evaluated by commercial outcomes rather than program activity. Measures such as supplier qualification, buyer engagement, contract awards, workforce placement, business growth, and follow-on investment provide a clearer picture of ecosystem performance than the number of firms served or programs delivered.

The comparison also highlights the importance of building measurement systems early. Upstate New York has mapped prospective suppliers but has not yet tracked how firms progress from readiness to contracts. Arizona has active supplier demand but lacks a common inventory identifying which businesses are semiconductor-ready or where qualification gaps remain. In both cases, stronger outcome measurement would help target support where it is most likely to increase supplier participation.

Building this measurement infrastructure early also allows ecosystem partners to identify gaps, improve coordination, and target resources toward interventions that lead to sustained supplier participation. Disaggregating outcomes by firm size, ownership, and geography can further ensure that supplier development expands opportunities across the broader industrial base rather than only among firms already positioned to compete.

CONCLUSION

Arizona and Upstate New York face a shared challenge from different starting points: translating semiconductor investment into stronger local supply chains. Arizona has a long-established manufacturing hub, but much of the supply chain serving its anchor manufacturers remains global. Upstate New York is using coordinated public investment to build supplier capabilities and institutional capacity before production begins. In both regions, deeper supplier participation will depend on demonstrated demand and the pace of facility ramp-up.

Together, these cases suggest that supplier development is less about replicating individual programs than about designing support systems that reflect local market conditions. The most effective ecosystems organize business support, workforce development, capital access, and coordination around the needs of anchor firms while helping more businesses progress from capability building to qualification, procurement, and long-term commercial growth.

As federal and private investment continues to reshape industries ranging from semiconductors to batteries, energy systems, and frontier technologies, regions will increasingly compete not only on their ability to attract anchor firms, but also on how they develop the supplier ecosystems that allow those investments to generate lasting economic growth.



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