



KEYSTONE SPACE COLLABORATIVE

# Mapping the Tri-State Space Supply Chain

A landscape analysis of the industries, firms, capabilities, and federal demand shaping the space economy across Pennsylvania, Ohio, and West Virginia.

Companion to the **Keystone Space Tri-State Ecosystem Explorer**.

August 2026

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SOLUTIONS INC.

Prepared by Econsult Solutions, Inc.



## THE TRI-STATE SPACE ECONOMY AT A GLANCE



A regional supply chain anchored by spacecraft, propulsion, and satellite firms— concentrated around research institutions and federal facilities.

**1,124**

Firms identified across the core & supporting supply chain

**213**

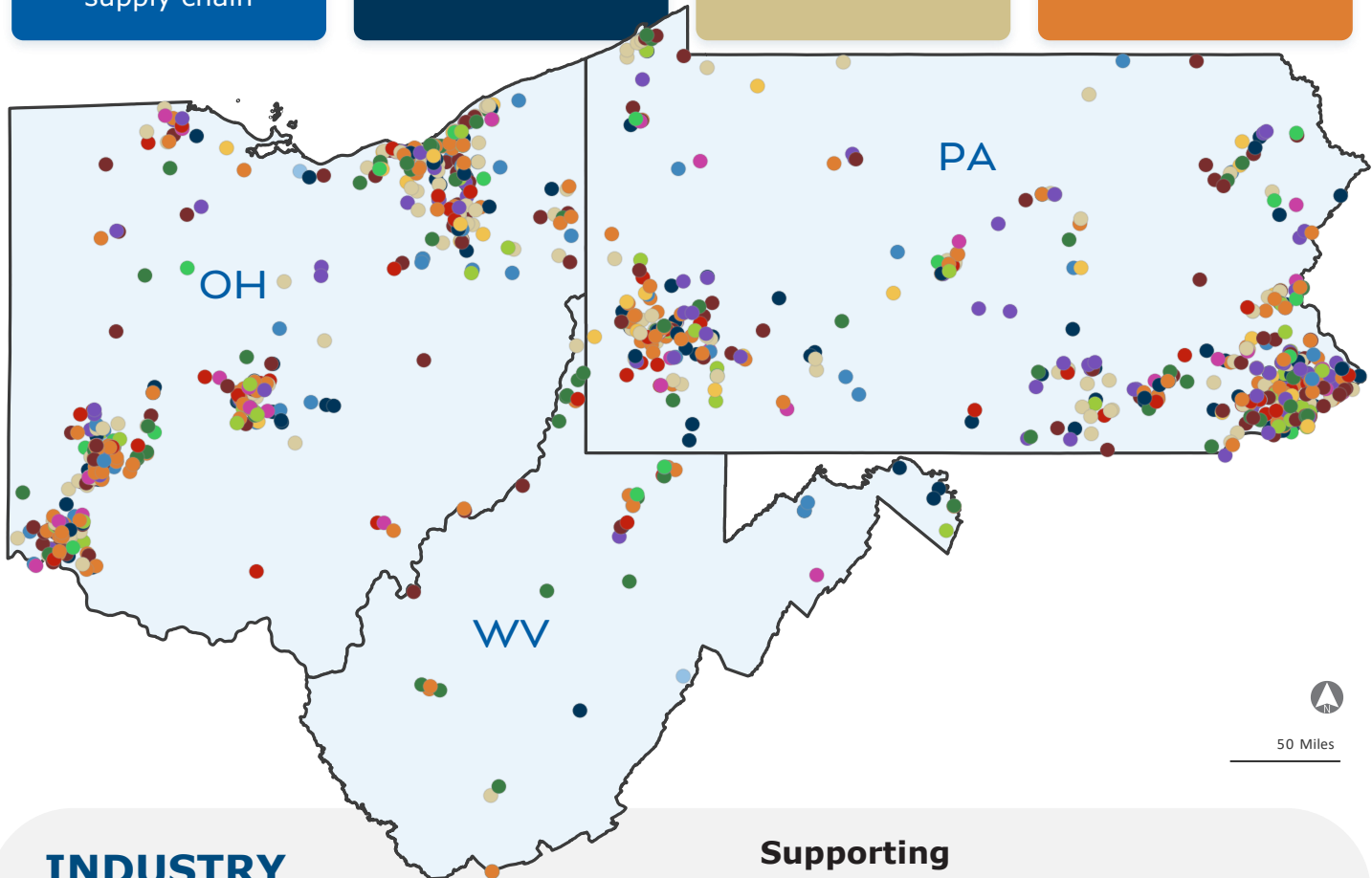
Core space industry firms

**911**

Supporting space industry firms

**\$9.53B**

Federal prime obligations, FY22–FY26



## INDUSTRY CATEGORIES

### Core

- Space Systems / Instruments / Communications
- Spacecraft / Propulsion Manufacturing
- Government Space Research / Technology

### Supporting

- Engineering / Research / Testing
- Distribution / Logistics / Wholesale
- Machining / Fabrication
- Instrumentation / Electronics / Components
- Academia / Civic Institutions
- Software / Computing / Digital Services
- Business / Infrastructure Services
- Machinery / Equipment Manufacturing
- Materials / Metals / Chemicals
- Aerospace / Defense

## BACKGROUND

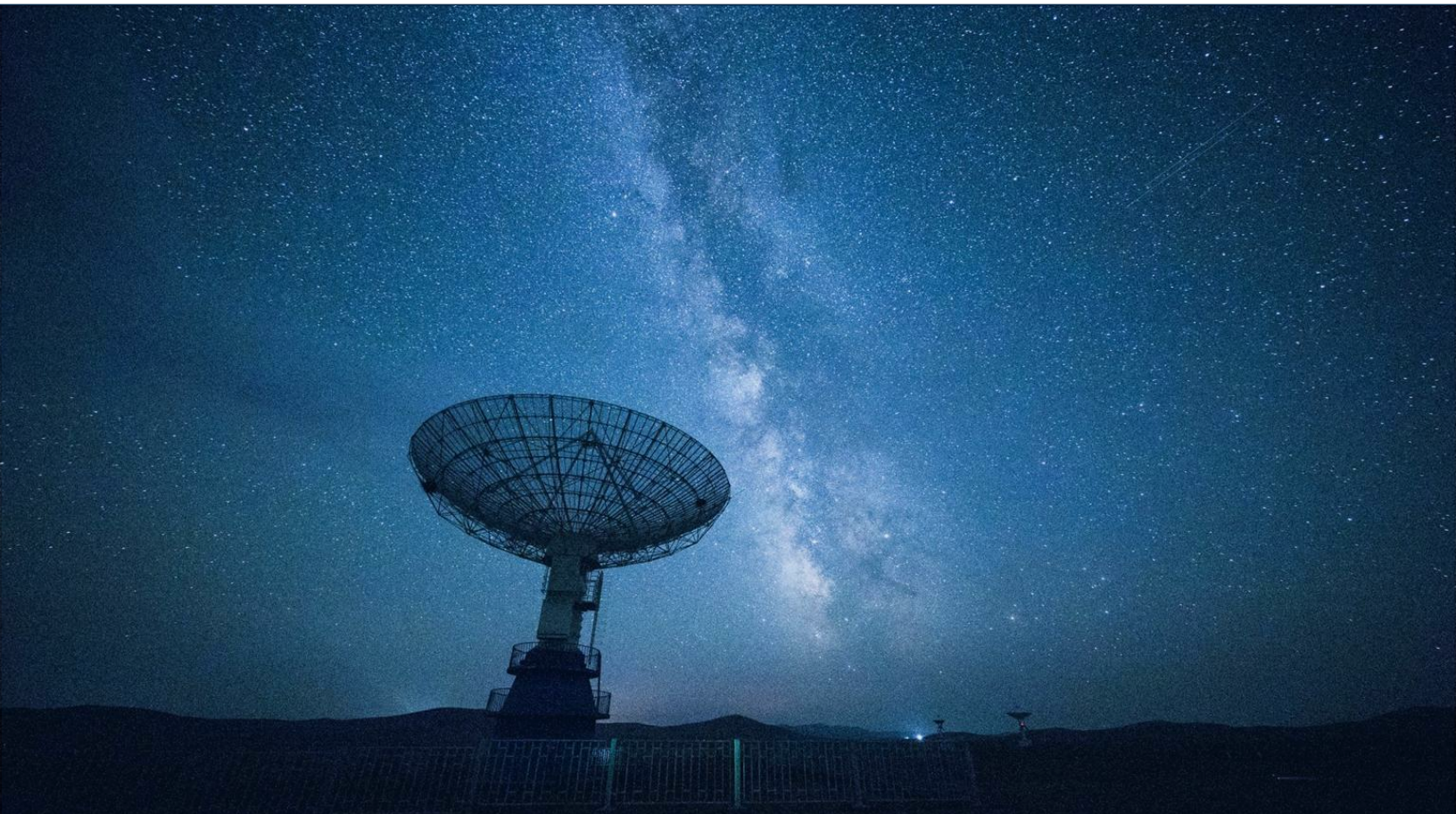
# About this Analysis

Keystone Space Collaborative's Keystone Space Tri-State Ecosystem Explorer connects industry, academia, investors, policymakers, and other stakeholders across the regional space economy. By identifying organizations participating in the ecosystem, the map supports collaboration, business development, and ecosystem growth throughout Pennsylvania, Ohio, and West Virginia.



This accompanying landscape analysis expands on that work by examining the regional space supply chain. It documents the structure of the ecosystem, the relationships between core space industries and supporting suppliers, and the research, manufacturing, testing, and institutional assets that enable space-related activity across the tri-state region.

Drawing on industry classification data, input-output modeling, commercial business records, federal procurement data, and Keystone's existing ecosystem inventory, this report provides complementary insight into the regional supply chain. The findings describe its composition, identify geographic concentrations and areas of specialization, examine participation in the federal space market, and highlight insights that can inform Keystone Space Collaborative's ecosystem development, advocacy, and business attraction efforts.





# Defining the Space Economy

The regional space supply chain was defined using a two-tier framework consisting of core and supporting industries. Core industries represent organizations directly engaged in the production of space-related technologies, systems, communications, and research. Supporting industries include the broader network of manufacturers, suppliers, engineering firms, and technology providers that produce the goods and services required by those core industries.

The analysis begins by identifying the six North American Industry Classification System (NAICS) industries most directly associated with the space economy. These industries establish the foundation of the regional ecosystem and serve as the starting point for identifying the upstream suppliers and supporting industries examined throughout the analysis.



## CORE INDUSTRY FIRMS

Entities directly engaged in space-related manufacturing, communications & research



## SUPPORT INDUSTRY FIRMS

Entities supplying specialized manufacturing, components, engineering, software, testing, research & other critical inputs.

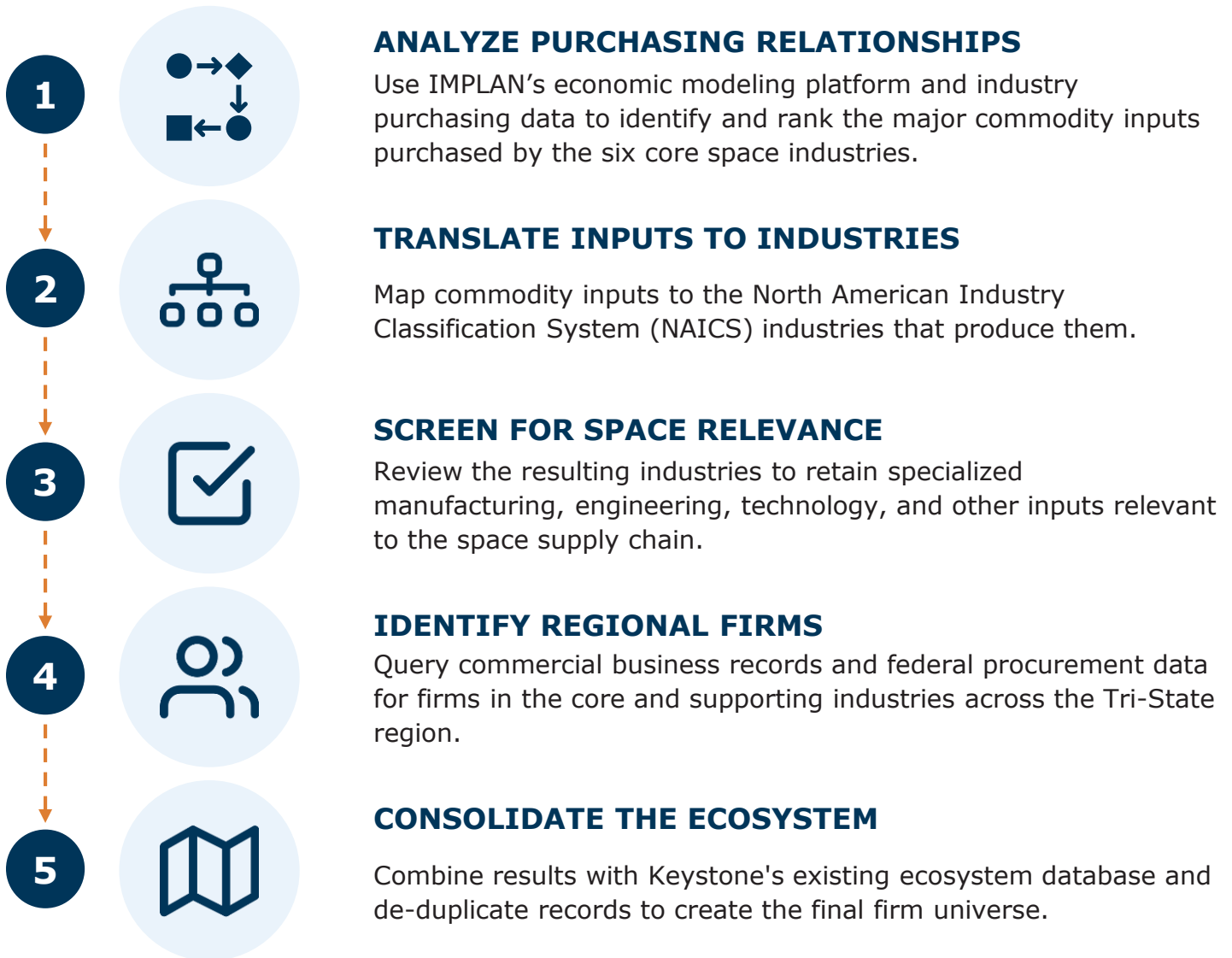
## NAICS CODES USED TO DEFINE CORE SPACE INDUSTRIES

| Category                                    | NAICS  | Industry                                                                                                |
|---------------------------------------------|--------|---------------------------------------------------------------------------------------------------------|
| Space Instruments, Systems & Communications | 334511 | Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing |
|                                             | 517410 | Satellite Telecommunications                                                                            |
|                                             | 336414 | Guided Missile and Space Vehicle Manufacturing                                                          |
| Spacecraft & Propulsion Manufacturing       | 336415 | Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing                |
|                                             | 336419 | Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing                      |
| Government Space Research                   | 927110 | Space Research and Technology                                                                           |



# Identifying the Upstream Supply Chain

Starting with the six core space industries, purchasing relationships were used to trace the industries supplying the goods and services required for space-related activity. Those industry connections were then used to identify firms across Pennsylvania, Ohio, and West Virginia.



## ANALYTICAL APPROACH



### IMPLAN

Ranks upstream purchasing relationships using industry purchasing data.



### NAICS CROSSWALK + REVIEW

Translates commodity inputs into relevant industries & screens for space relevance.



### BUSINESS + PROCUREMENT DATA

Identifies firms across Pennsylvania, Ohio & West Virginia.



# Functional Roles in the Space Ecosystem

A diverse set of organizations work together to design, build, launch, operate, and support modern space systems. To characterize the supply chain, supporting industry firms were grouped into ten functional categories spanning the region's space sector.



## SUPPORTING INDUSTRY CATEGORIES

1



### Engineering, Research & Testing

Engineering services, R&D, and qualification and flight testing.

2



### Distribution, Logistics & Wholesale

Specialty distribution and wholesale of materials and components.

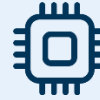
3



### Machining & Fabrication

Precision machining, fabricated components, and specialized production.

4



### Instrumentation & Electronics

Sensors, guidance electronics, and precision components.

5



### Academia & Civic Institutions

Universities, labs, and workforce and talent programs.

6



### Software & Digital Services

Software, computing, and digital engineering services.

7



### Business & Infrastructure

Facilities, professional, and operational support services.

8



### Machinery & Equipment Mfg.

Industrial machinery and equipment production.

9



### Materials, Metals & Chemicals

Raw and processed materials, metals, and chemical inputs.

10



### Aerospace & Defense

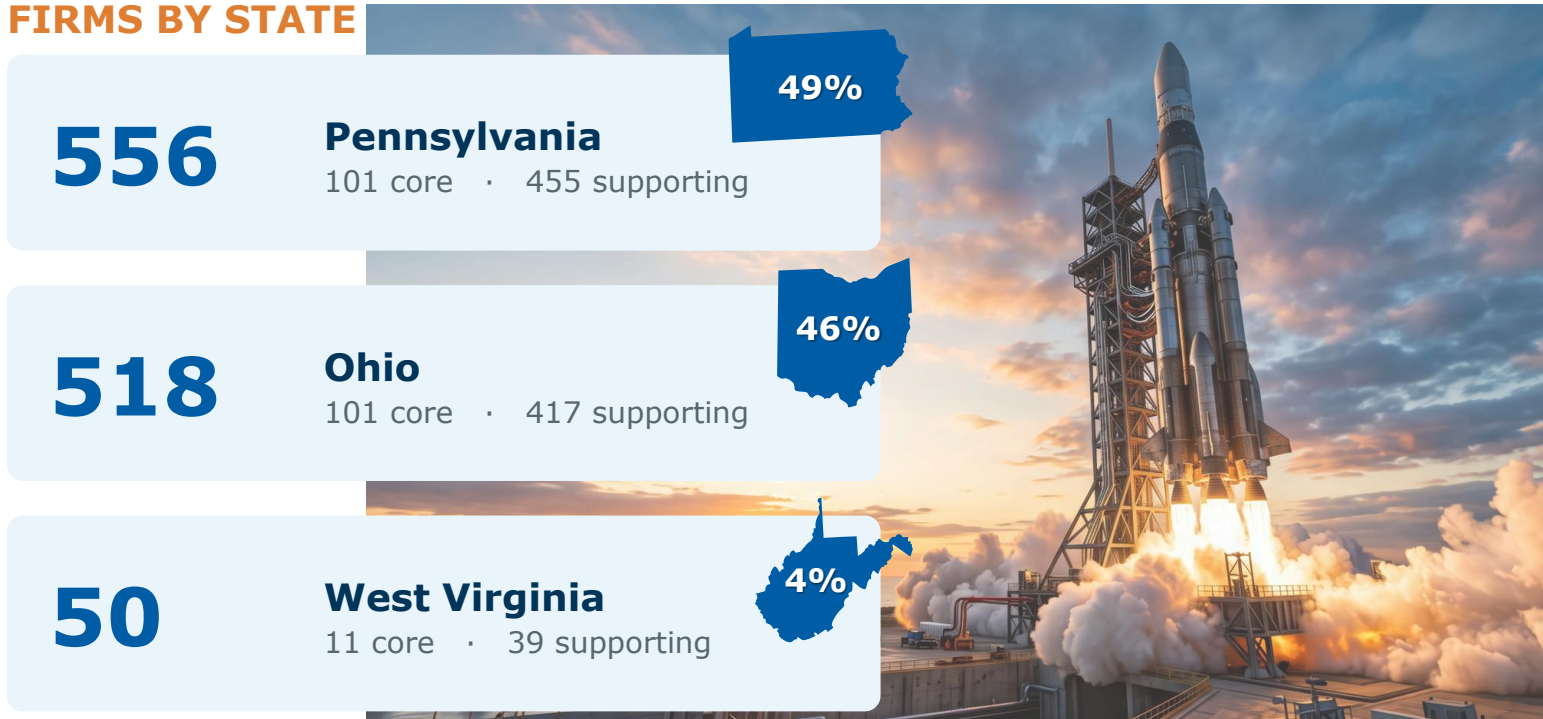
Prime aerospace and defense manufacturing and integration.

# Firm Inventory



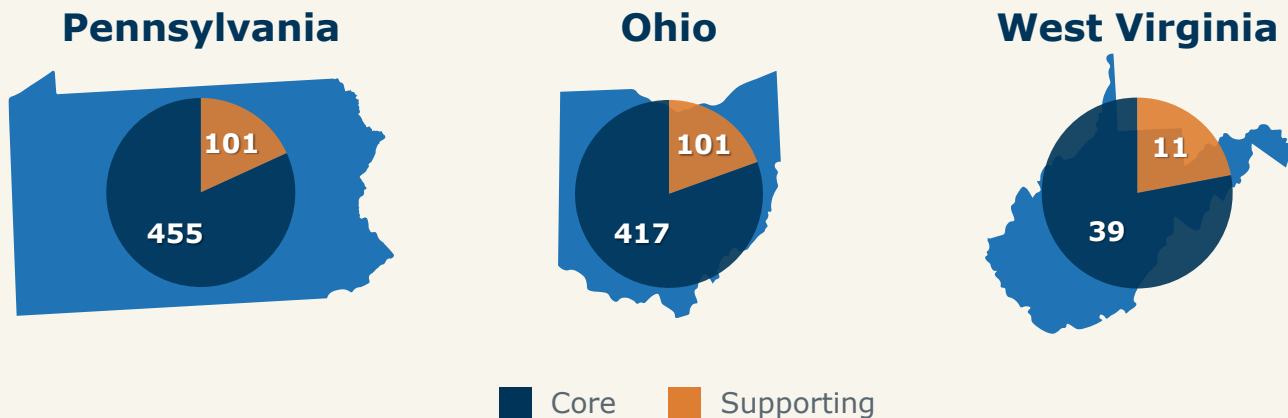
The tri-state region is home to 1,124 firms across the space supply chain, spanning core space industries and a broad supplier base with capabilities in engineering, manufacturing, electronics, software, materials, and logistics.

## FIRMS BY STATE



## STATE DISTRIBUTION OF CORE & SUPPORTING FIRMS

Pennsylvania and Ohio anchor the regional ecosystem, accounting for 96 percent of all identified firms and 95 percent of core industry firms. Their ecosystems are also similar in composition, with supporting firms accounting for roughly four out of every five firms in each state. West Virginia represents a smaller but established component of the regional supply chain.



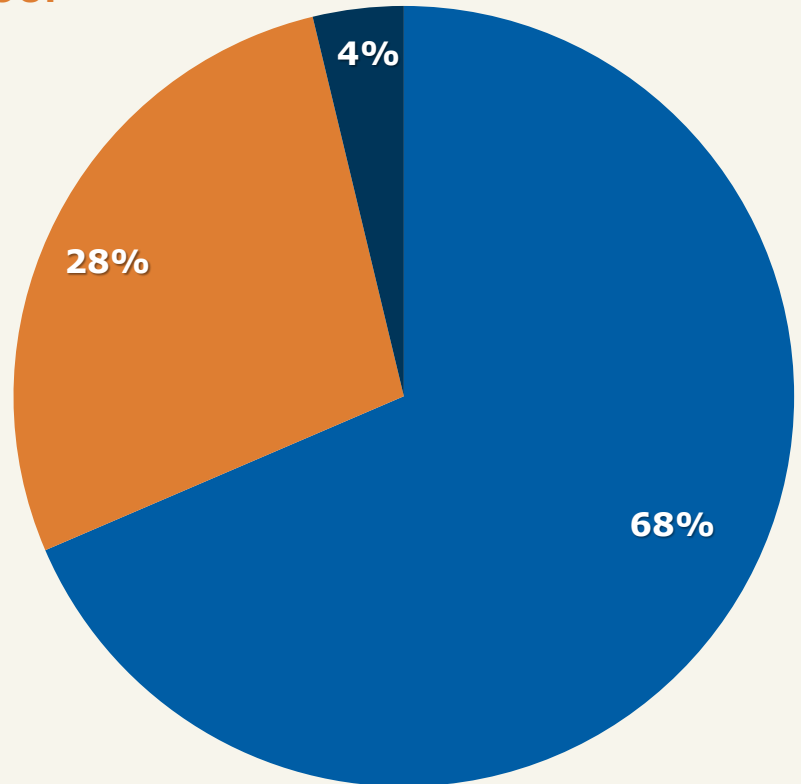


# A Concentrated Core Supported by a Diverse Supply Chain

## CORE FIRMS BY INDUSTRY GROUP

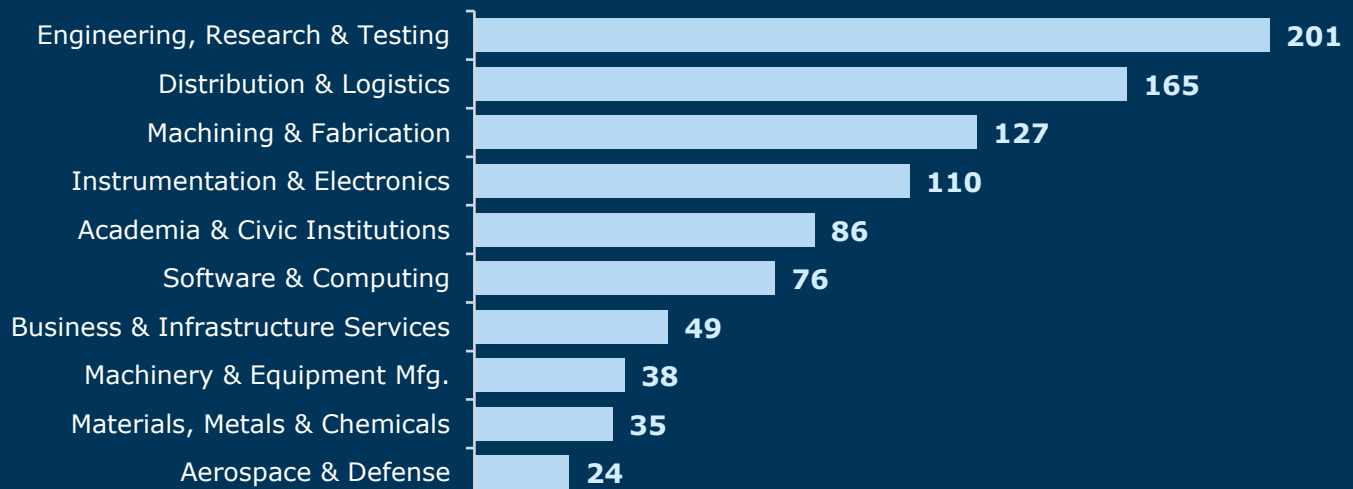
The tri-state's core space industry is concentrated in two major areas. Space systems, instruments, and communications account for 68 percent of core firms, while spacecraft & propulsion manufacturing represent another 28 percent. This mix reflects both technology-intensive systems capabilities and a substantial manufacturing base supporting spacecraft, propulsion systems, and components.

- Space Systems, Instruments & Communications
- Spacecraft & Propulsion Manufacturing
- Government Space Research & Technology



## SUPPORTING FIRMS SPAN A WIDE RANGE OF TECHNICAL & INDUSTRIAL CAPABILITIES

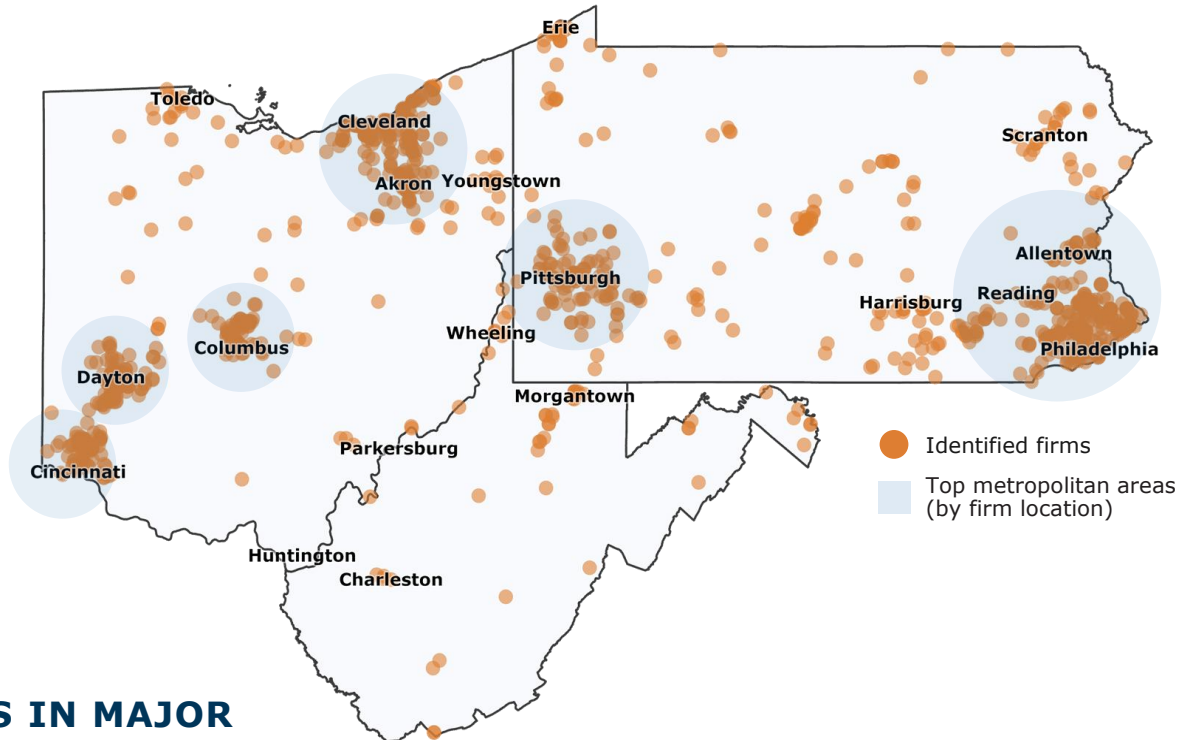
More than half of supporting firms are concentrated in engineering, research & testing; distribution & logistics; and machining & fabrication. The remaining firms span electronics, software, machinery, materials, business services, and other capabilities that support the region's core space industries.





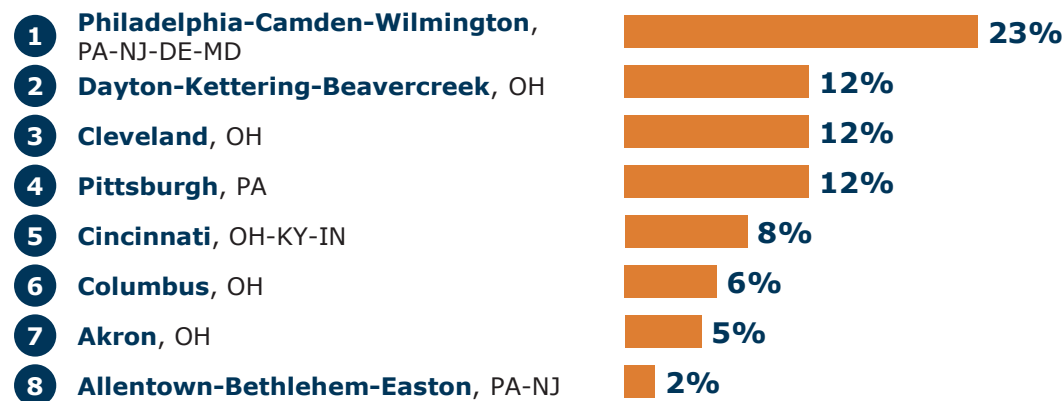
# A Multi-Center Regional Ecosystem

Space supply chain activity spans the Tri-State Region but clusters around several major metropolitan areas. Eight metros account for nearly 80 percent of identified firms, led by Greater Philadelphia and a network of Ohio and western Pennsylvania hubs.



## FIRMS IN MAJOR METROPOLITAN HUBS

Share of total identified firms



# 80%

of identified firms are located in these eight metropolitan areas

## INSTITUTIONAL ANCHORS

- NASA Glenn Research Center**  
Cleveland, OH — Federal space R&D
- Neil A. Armstrong Test Facility**  
Sandusky, OH — Spaceflight testing
- Katherine Johnson IV&V Facility**  
Fairmont, WV — NASA software IV&V
- Air Force Research Laboratory**  
Wright-Patterson AFB, OH — Aerospace R&D
- Research Universities**  
Penn State, Ohio State, Carnegie Mellon & more

## GEOGRAPHIC PATTERN

- Greater Philadelphia is the largest hub.**  
Nearly one-quarter of firms are in the Philadelphia metro.
- Activity is distributed across centers.**  
Dayton, Cleveland, and Pittsburgh each hold approximately 12 percent of firms.
- Ohio contains a network of centers.**  
Five of the eight leading metros are in Ohio.



## FEDERAL CONTRACT SPENDING

# Federal Demand Across the Space Industry

Federal procurement is a major source of demand for the regional space industry. Between FY2022 and May of FY2026, \$9.53 billion in federal prime contract obligations supported work performed across Pennsylvania, Ohio, and West Virginia. Federal contracting reaches broadly across the regional ecosystem, with 874 identified unique firms participating as prime contractors, subcontractors, or both.


**\$9.53B**

Federal prime contract obligations


**\$2.7M**

Average prime contract value


**7,371**

Tri-State prime & subaward records



## WHO PARTICIPATES IN THE FEDERAL MARKET


**874 firms**

hold federal contracts


**441 firms**

have won work as a prime contractor


**513 firms**

appear as a subcontractor on federal awards


**80 firms**

have acted as both prime & subcontractor



## FEDERAL PRIME OBLIGATIONS BY STATE

**\$9.53B total**

■ PA **\$8.12B** 85%

■ OH **\$1.34B** 14%

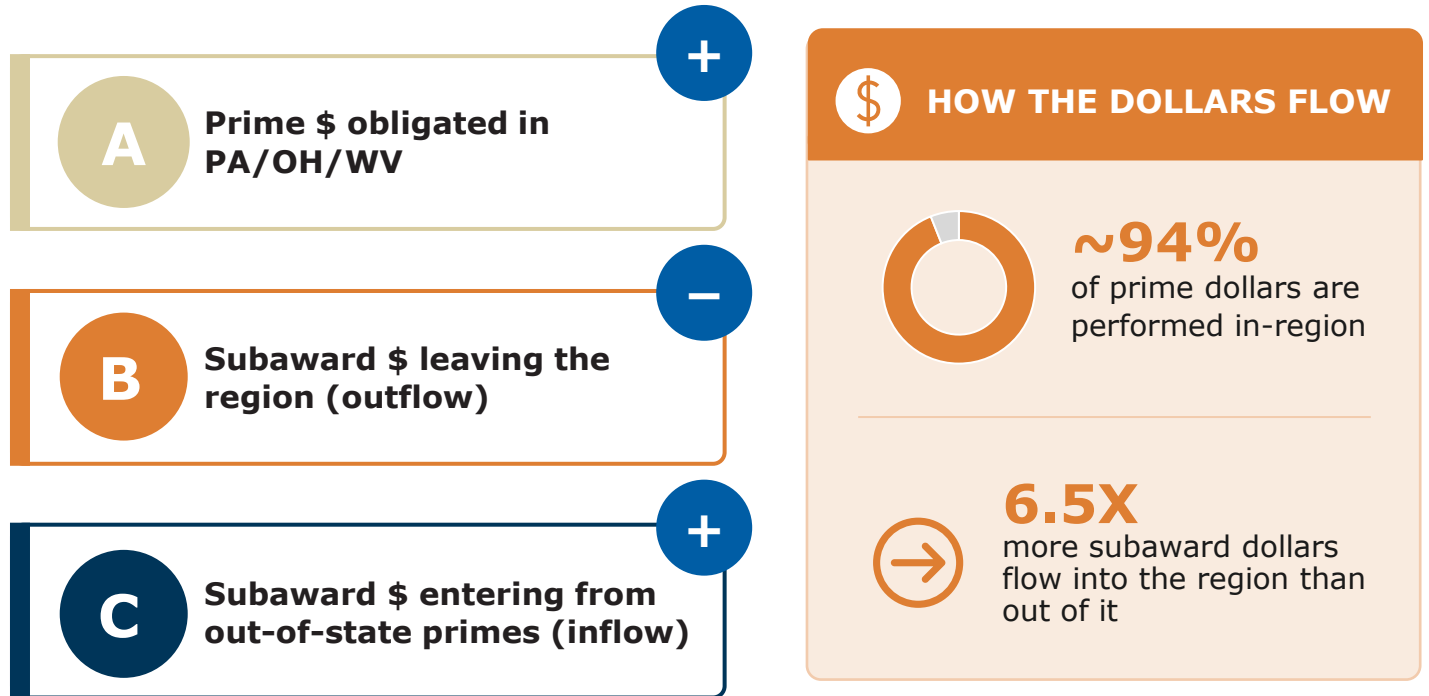
■ WV **\$77M** 1%



## FEDERAL CONTRACT SPENDING

# Net Regional Investment

Federal contract dollars both enter and leave the tri-state region through subcontracting. Net regional investment combines \$9.53 billion in prime contract obligations performed in Pennsylvania, Ohio, and West Virginia with reported first-tier subaward flows to estimate the total federal contract value supporting work in the region. The region received \$3.78 billion in subawards from prime contracts outside the region, while \$582.7 million in reported subawards under regional prime activity flowed to work performed elsewhere.



## NET REGIONAL INVESTMENT

**\$9.53B – \$582.7M + \$3.78B**

*Only 6% of prime dollars leave the region*

**\$12.73  
Billion**

FY2022-2026

## FLOW OF FEDERAL DOLLARS

INFLOW (A + C)



**TRI-STATE REGION**



OUTFLOW (B)



*Net regional investment = Inflow (A + C) – Outflow (B)*

*Note: Subawards under contracts already counted in A are excluded from inflow, so no dollar is counted twice; records with no reported state are excluded.*



# Where The Region Competes

The Keystone Tri-State Region is home to a deep and diverse network of firms that power the space economy across multiple specialties and throughout the supply chain.

## FOUR REGIONAL SPECIALIZATIONS



**Space systems, instruments & communications**

**146**

**core firms**

The largest core group spanning guidance, navigation & satellite communications.

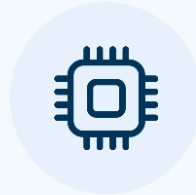


**Spacecraft & propulsion manufacturing**

**59**

**core firms**

Building vehicles, propulsion units & flight hardware.



**Precision manufacturing & components**

**237**

**supporting firms**

Working in machining, fabrication, instrumentation & electronics feed the core supply chain.



**Engineering, research & testing**

**201**

**supporting firms**

Anchored by NASA Glenn & the Armstrong Test Facility.

## SUPPLY CHAIN DEPTH



**4 supporting firms for every core firm**

**911 supporting firms** complement 213 core firms, demonstrating the breadth of the region's supplier base.



**94% of prime contract dollars stay in the region**

Most federal prime contract dollars awarded stay in the region. **Only \$410.7M flows to subcontractors outside the region.**



**\$12.73B in federal industry awards**

Regional firms received **\$12.73B in space-related federal prime and subcontract awards** during the period analyzed.



**The supply chain extends beyond what federal data captures**

USAspending reports only **first-tier subawards** & **excludes some lower-value subawards**, so additional supplier relationships are not reflected in the data.



## ABOUT KEYSTONE SPACE COLLABORATIVE

The Keystone Space Collaborative is Pennsylvania's leading space and aerospace ecosystem organization, bringing together industry, government, academia, and investors to grow the Commonwealth's space economy. Additionally, the Collaborative connects organizations across the Tri-State Region (PA, OH, WV) region, advances workforce and economic development, and positions Pennsylvania and the Tri-State region as a national leader in space innovation, manufacturing, and technology.

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