Pennsylvania defines industry clusters to serve as the basis for data-driven workforce development policies. An industry cluster includes industries closely linked by common products, labor pools, technologies, supplier chains and training needs. They take on strategic importance for long-term economic planning as changes that benefit one group member will generally impact other members of the cluster.

Industry clusters are comprised of specific six-digit North American Industry Classification System, or NAICS, codes. They are mutually exclusive, so that no two clusters contain the same NAICS code. Currently, there are 12 clusters identified, along with several critical sub-clusters. Combined, these 12 industry clusters account for nearly 83 percent of all employment in the commonwealth.
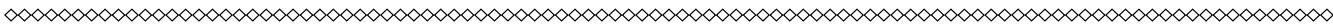
Cluster Summary

The Advanced Manufacturing (AM) cluster is made up of mostly durable goods manufacturing but also includes wholesalers, and some retailers such as car dealers. Other industry clusters contain segments of manufacturing within them, while the AM cluster is focused around its four sub-clusters:
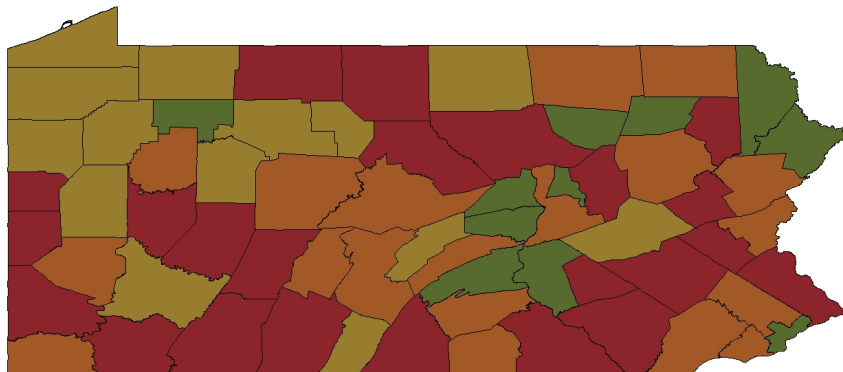
Chemicals, Rubber & Plastics (AM- CRP)

Electronics (AM-E)

Metals (AM-M)

Vehicles & Vehicle Equipment (AM-VVE)

	2016	2019	2021
Employer Units	23,449	23,272	23,078
Number of Jobs	433,368	443,315	415,915
Percent of Total Pennsylvania Jobs	7.6%	7.5%	7.4%
Average Annual Wages	$56,090	$60,784	$66,907
Location Quotient (LQ)	1.02	1.01	1.01

LQs greater than one suggest a competitive advantage.

AM employment has decreased 4% from five years ago in Pennsylvania. The state remains competitive and the majority of Workforce Development Areas (WDAs) also have competitive Location Quotients (LQs) (as seen on page 3) due to large employment declines throughout the nation. The cluster pays a reasonable average wage and is above the statewide average for all jobs in 2021 ($64,700).

Percent Employment by County

▨	> 12.0%
▨	12.0% - 8.0%
▨	8.0% - 5.0%
▨	< 5.0%

Major Employers

- The Boeing Company
- Mack Trucks Inc
- Wabtec US Rail Inc
- Lockheed Martin Corp
- Carpenter Technology Corp
- Northtec LLC

Top Industries Based on Employment

- New Car Dealers
- All Other Plastics Product Manufacturing
- General Automotive Repair
- Machine Shops
- Electronics & Appliance Stores
- Automotive Parts & Accessories Stores
- Industrial Machinery Merchant Wholesalers
- Automotive Body & Interior Repair
- Iron & Steel Mills & Ferroalloy Manufacturing
- New Motor Vehicle Parts Wholesalers

- Motor Vehicle Merchant Wholesalers
- Elec. Equip. & Wiring Merchant Wholesalers
- Used Car Dealers
- Other Automotive Repair & Maintenance
- Tire Dealers
- Sheet Metal Work Manufacturing
- Aircraft Manufacturing
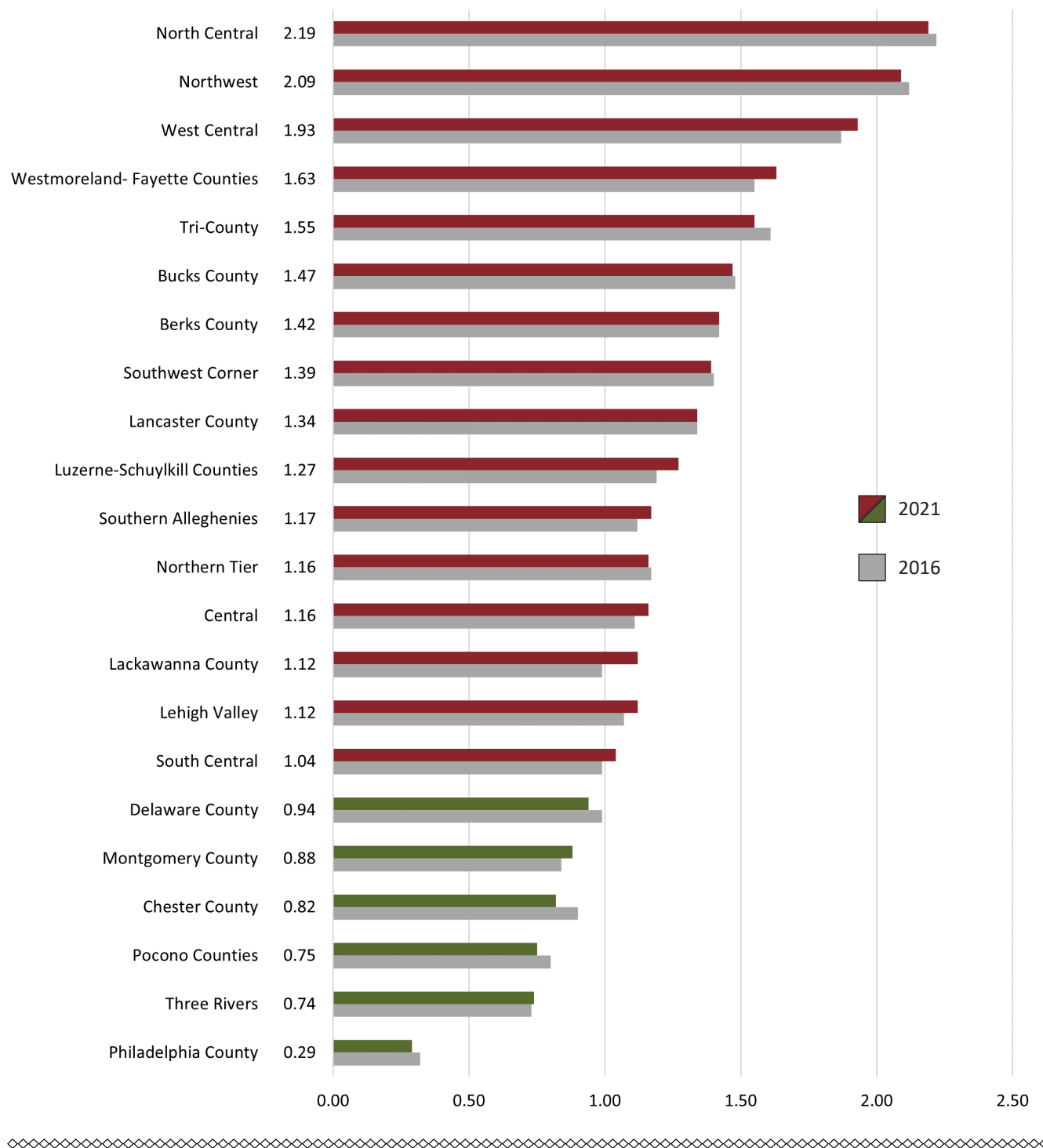- Powder Metallurgy Part Manufacturing
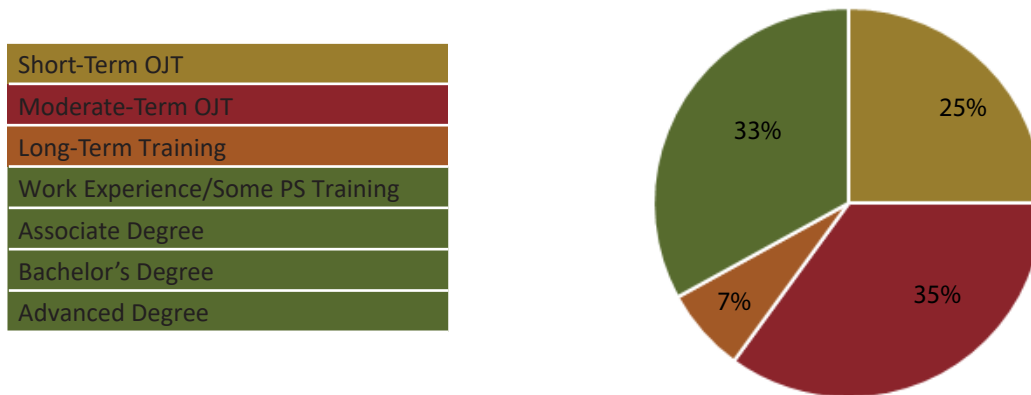- Toilet Preparation Manufacturing
- Other Chemicals Merchant Wholesalers

Employment Concentration

A location quotient, or LQ, compares a cluster's share of local employment to its share of national employment. This value can be used when evaluating the strength of an industry cluster within an area. An LQ greater than one indicates that the cluster has, on average, more employees locally than typically expected implying a possible competetive advantage. West Central, Westmoreland-Fayette Counties, Luzerne-Schuylkill Counties, Southern Alleghenies, Central, Lackawanna County, Lehigh Valley and South Central Workforce Development Areas (WDAs) all have LQs greater than one and have also increased their competitveness since 2016.

Area	LQ
North Central	2.19
Northwest	2.09
West Central	1.93
Westmoreland- Fayette Counties	1.63
Tri-County	1.55
Bucks County	1.47
Berks County	1.42
Southwest Corner	1.39
Lancaster County	1.34
Luzerne-Schuylkill Counties	1.27
Southern Alleghenies	1.17
Northern Tier	1.16
Central	1.16
Lackawanna County	1.12
Lehigh Valley	1.12
South Central	1.04
Delaware County	0.94
Montgomery County	0.88
Chester County	0.82
Pocono Counties	0.75
Three Rivers	0.74
Philadelphia County	0.29

Legend: 2021, 2016

Educational Requirements

This graph illustrates the minimum educational attainment levels for jobs found in this cluster's various industries. Approximately 60 percent of AM jobs require less than one year of on-the-job training to enter employment. As technology plays an ever-increasing role in the day-to-day processes of this cluster, it is likely that educational expectations will continue to increase for many workers.

Short-Term OJT	
Moderate-Term OJT	
Long-Term Training	
Work Experience/Some PS Training	
Associate Degree	
Bachelor's Degree	
Advanced Degree	

25%
35%
7%
33%

Occupations with Significant Employment

The following table lists occupations that employ at least 8,100 people in the AM cluster.

SOC Code	Occupation	Average Wage	Annual Demand	
			All Industries	Industry Cluster
49-3023	Automotive Service Technicians & Mechanics	$47,850	3,181	2,437
41-2031	Retail Salespersons	$33,120	19,990	2,264
53-7062	Laborers & Freight/Stock/Material Movers	$38,900	20,297	2,159
51-2090	Misc. Assemblers & Fabricators	$39,110	4,434	1,813
41-4012	Sales Representatives	$78,550	5,875	1,444
53-7061	Cleaners of Vehicles & Equipment	$32,560	1,846	1,250
53-3033	Light Truck Drivers	$43,010	5,503	1,229
51-4041	Machinists	$50,420	1,719	1,198
43-9061	Office Clerks, General	$41,880	16,622	1,193
41-2022	Parts Salespersons	$38,580	1,313	1,157
51-4121	Welders, Cutters, Solderers & Brazers	$50,270	2,119	1,137
51-1011	Supervisors- Production & Operating Workers	$68,750	2,804	1,075
51-9161	CNC Tool Operators	$48,430	1,210	994
51-2028	Elec. & Electromechanical Assemblers	$40,210	1,366	981
11-1021	General & Operations Managers	$121,750	7,891	883

*The 2022 average annual wage reflects wages across all industries and is not specific to the cluster.