

TALENT FOR TOMORROW



Labor Market Needs



Talent for Tomorrow Conceptual Framework



Increase the number of people in Missouri's workforce

- **Become the best place to live and work**
- **Connect all Missourians with work**

Increase the productivity of Missouri's workforce

- **Develop a labor market that works**
- **Work in a 21st century way**
- **Build infrastructure to drive economic development**

More on this on next slide...

Compete to win

- **Work together/compete together**
- **Create a new approach to economic development**

Developing a Labor Market that Works



- Increase overall educational attainment
- Increase overall educational attainment for populations and areas with relatively low levels of education
- Prepare people for work in high-demand fields
- Offer more certificate and alternative credential programs
- Ensure that those who hold degrees have the skills expected of people with degrees
- Align educational requirements with actual job duties
- Align K-12, higher education, and the workforce system
- Expand apprenticeships and increase the number of apprentices



More on this on next slide...

Zooming in on preparing people for work in high-demand fields...



1. Identify sectors of the economy Missouri needs to invest in to ensure long-term economic competitiveness. These are called “opportunity clusters.”
2. Identify the jobs needed to support each of those clusters.
3. Determine which of those jobs is the best long-term bet based on likelihood of automation and wages.
4. Support development or expansion of programs that prepare Missourians for those jobs.

Opportunity Clusters

The first step is identifying the sectors of the economy Missouri needs to invest in to ensure long-term economic competitiveness. These are called “opportunity clusters.”

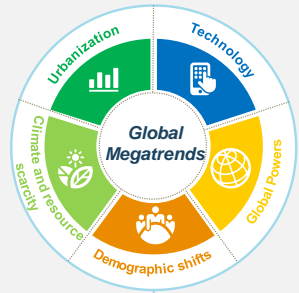
The consultants we worked with identified target clusters through a combination of quantitative and qualitative analyses, which are described on the next slide.

Methodology for Identifying Opportunity Clusters



1

Explored the impact of megatrends



Explored the impact of global megatrends on the Missouri economy

2

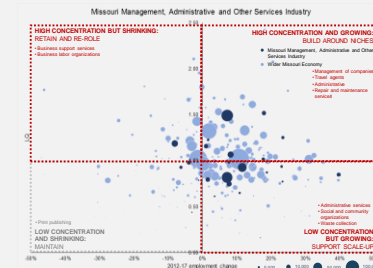
Identified tradable industries in the economy



Identified industries that are tradable, i.e., those that produce exportable goods and services

3

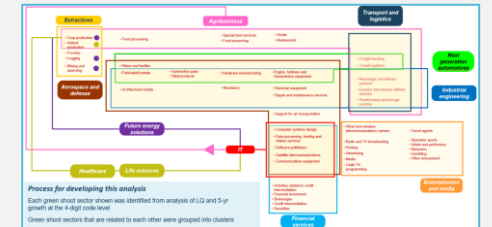
Narrowed tradable industries into "green shoots"



Narrowed the tradable industries into "green shoots" in which Missouri is particularly strong

4

Developed Opportunity Clusters



Aggregated the "green shoots" into Opportunity Clusters in which Missouri has a regional advantage

Opportunity Clusters are groups of industries that may drive future economic—and job—growth in Missouri.



Opportunity clusters are groups of interrelated industries that represent areas of growth and competitive advantage for Missouri.

To focus its economic, education and workforce development strategies, Missouri sought to identify groups of industries that are growing and share talent and other inputs.

Federal statistical agencies use the **North American Industry Classification System (NAICS)** system to group businesses into industries based on similarities in how they produce goods or services. Although NAICS codes enable important cross-sectional economic analysis, the classification system does not provide insight into the interconnectedness of firms across industries. Grouping NAICS codes into clusters captures the linkages between industries that share supply chains or inputs such as workers, information, or goods.

Using the methodology in the next slide, Missouri industries meeting these criteria were grouped into the Opportunity Clusters below.

In addition to the seven opportunity clusters, three cross-cluster priorities were identified because they support all or nearly all of the other clusters. Those cross-cluster priorities include healthcare, education, and manufacturing.

Opportunity Clusters



**Aerospace and
Defense**



Agribusiness



**Automotive and
Transportation**



**Energy
Solutions**



Life Sciences



**Financial
Services**



**Entertainment and
Media**

Cross-Cluster Priorities



Healthcare



Manufacturing



Education

Opportunity Clusters include three types of industries.



Opportunity Clusters at a Glance

| | |
|---|------------------|
| Total Jobs, 2016 | 2,144,762 |
| Projected Job Growth Rate, 2016 - 2026 | 7.1% |
| Median Annual Wage, 2017 | \$43,900 |

The Opportunity Clusters are composed of a mix of three different types of industries.*



Tradable

Tradable industries produce goods and services exportable to other states or countries. Tradable industries are the foundation of the opportunity clusters, as they bring money into the state, drive growth, and generate demand that spills over to other industries.

Fast Facts

| | |
|-------------------------------------|----------------|
| Total Jobs, 2016 | 395,950 |
| Job Growth Rate, 2016 - 2026 | 1.3% |



Cross-Cluster

Cross-cluster industries produce goods and services that may be exported to external markets or consumed in-state. Many cross-cluster industries are included in more than one opportunity cluster because they provide supportive services that are relevant to a broad range of clusters (e.g. legal services).

Fast Facts

| | |
|-------------------------------------|----------------|
| Total Jobs, 2016 | 460,360 |
| Job Growth Rate, 2016 - 2026 | 11.4% |



Local

Local industries sell to or service local markets. The local industries chosen for inclusion were selected based on their relevance to the opportunity cluster.

Fast Facts










| | |
|-------------------------------------|------------------|
| Total Jobs, 2016 | 1,281,630 |
| Job Growth Rate, 2016 - 2026 | 7.3% |

*A full list of the industries in each Opportunity Cluster is included in the appendix.

Cluster Summary

Though the clusters were selected based on their potential to drive economic growth, they also offer opportunities for workers.



| |  |  |  |  |  |  |  |  |  |
|--|---|---|---|---|---|---|---|---|---|
| | Missouri | Aerospace & Defense | Agribusiness | Automotive & Transportation | Energy Solutions | Entertainment & Media | Financial Services | Life Sciences | Cross-Sector Manufacturing |
| Employment | | | | | | | | | |
| Employment, 2016 | 3,009,181 | 782,372 | 1,112,213 | 1,034,371 | 815,332 | 1,237,132 | 780,521 | 984,759 | 827,280 |
| % of MO Employment | 100% | 26% | 37% | 34% | 27% | 41% | 26% | 33% | 27% |
| Job Growth, 2016 – 2026* | ▲7.3% | ▲8.6% | ▲8.2% | ▲7.3% | ▲9.4% | ▲7.1% | ▲10.4% | ▲11.0% | ▲8.5% |
| Wages | | | | | | | | | |
| 2017 Median Wages | \$49,850 | \$62,800 | \$30,720 | \$81,360 | \$30,720 | \$63,000 | \$77,100 | \$46,010 | \$52,860 |
| Difference Between Cluster and MO Median Wages | 0% | ▲26.0% | -38.4% | ▲63.2% | -38.4% | ▲26.4% | ▲54.7% | -7.7% | ▲6.0% |

Note: Because cluster mapping is not mutually exclusive (sectors appear in more than one cluster), summing multiple clusters will provide values larger than state totals.

Many Opportunity Clusters offer higher wages and job growth rates than the state average.

Coming Soon:
Healthcare and
Education

* The projected growth rates do not take into account future investments Missouri may make into the opportunity clusters. Investment could spur increased growth in cluster employment.

Regional Profiles

Each of the following regional profiles includes 6 slides:

1. An overview
2. A summary of jobs in local businesses/industries that sell to or service local markets and are linked to the opportunity clusters.
3. A summary of jobs in cross-cluster businesses/industries that produce goods and services that may be exported to external markets or consumed in-state and are linked to the opportunity clusters.
4. A summary of jobs in tradable industries, which produce goods and services exportable to other states or countries.
5. A summary of the number of jobs in the region's tradable industries.
6. A comparison of jobs needed to support the opportunity clusters – including local, cross-cluster, and tradable – to the region's current levels of educational attainment.

Northwest



Northwest Region: Overview

Regional Employment in the Opportunity Clusters, 2016

| | |
|---|--------|
| Total Employment in the Opportunity Clusters, 2016 | 72,456 |
| Average Annual Openings in the Opportunity Clusters | 8,716 |

Employment by Industry Type



Top Jobs in the Northwest Region

Residents of the Northwest region need access to more and better jobs. Good jobs provide stability for the employee and value for the region. The following jobs were identified using three criteria: annual openings, automation risk, and median annual wages. The impact score merges the three factors into one composite metric.

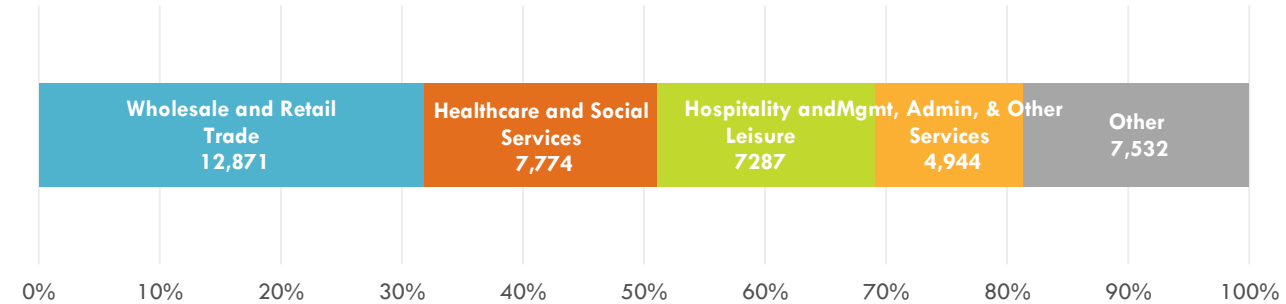
| | Annual Job Openings | Automation Risk* | Median Wages, 2017 | Impact Score |
|---|---------------------|------------------|--------------------|--------------|
| Short-Term Training Required | | | | |
| Laborers and Freight, Stock, and Material Movers, Hand | 253 | High | \$25,040 | 11.39 |
| Meat, Poultry, and Fish Cutters and Trimmers | 206 | High | \$30,626 | 11.01 |
| Secretaries and Administrative Assistants | 199 | High | \$27,823 | 9.80 |
| Packaging and Filling Machine Operators and Tenders | 133 | High | \$31,586 | 7.30 |
| Food Batchmakers | 127 | High | \$31,938 | 7.06 |
| Intermediate-Term Training Required | | | | |
| First-Line Supervisors of Production and Operating Workers | 76 | Low | \$58,431 | 12.12 |
| Heavy and Tractor-Trailer Truck Drivers | 121 | High | \$38,148 | 7.80 |
| First-Line Supervisors of Retail Sales Workers | 78 | Medium | \$36,237 | 6.47 |
| First-Line Supervisors of Office and Administrative Support Workers | 46 | Low | \$43,282 | 5.54 |
| Automotive Service Technicians and Mechanics | 50 | Medium | \$42,835 | 4.80 |
| Longer-Term Training Required | | | | |
| Registered Nurses | 112 | Low | \$58,606 | 17.75 |
| Secondary School Teachers, Except Special and Career/Technical Ed | 138 | Low | \$42,076 | 16.19 |
| General and Operations Managers | 81 | Low | \$69,714 | 15.16 |
| Elementary School Teachers, Except Special Education | 76 | Low | \$39,530 | 8.46 |
| Middle School Teachers, Except Special and Career/Technical Ed | 54 | Low | \$46,024 | 6.93 |

*Automation risk refers to the probability that the occupation will eventually be computerized. Risk ratings were derived from a study performed by the University of Oxford in 2013 entitled, "The Future of Employment: How Susceptible are Jobs to Computerization?".

Northwest Region: Local Employment in the Opportunity Clusters

| | |
|--------------------------------|--|
| Top Local Industries | <ul style="list-style-type: none"> Food Services and Drinking Places Hospitals Administrative and Support Services Ambulatory Health Care Services |
| Employment in Local Industries | 40,408 |
| Annual Job Openings | 5,144 |

Local Employment by Industry Category



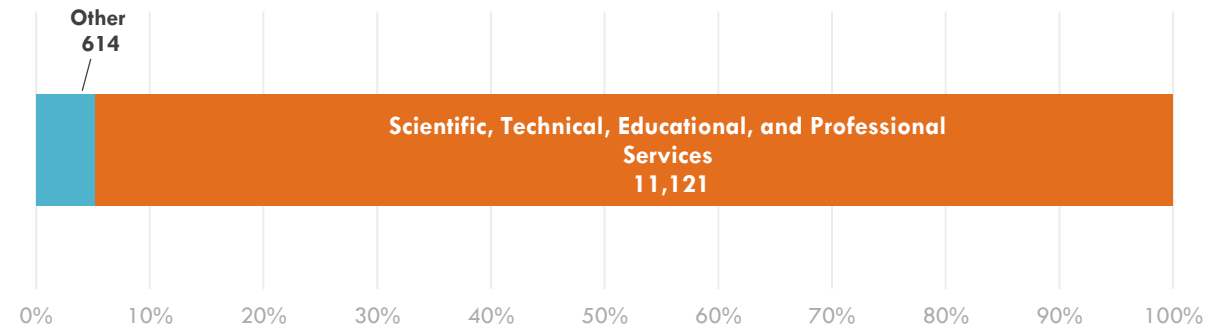
Top Jobs in Local Industries

| | Annual Job Openings | Automation Risk | Median Wages, 2017 | Impact Score |
|--|---------------------|-----------------|--------------------|--------------|
| Short-Term Training Required | | | | |
| Laborers and Freight, Stock, and Material Movers, Hand | 215 | High | \$25,040 | 9.69 |
| Stock Clerks and Order Fillers | 126 | High | \$23,474 | 5.39 |
| Helpers--Production Workers | 103 | High | \$29,363 | 5.31 |
| Customer Service Representatives | 56 | Medium | \$29,882 | 3.91 |
| Bus Drivers, School or Special Client | 74 | High | \$28,705 | 3.75 |
| Intermediate-Term Training Required | | | | |
| First-Line Supervisors of Retail Sales Workers | 78 | Medium | \$36,237 | 6.45 |
| Heavy and Tractor-Trailer Truck Drivers | 93 | High | \$38,148 | 6.01 |
| Automotive Service Technicians and Mechanics | 48 | Medium | \$42,835 | 4.55 |
| First-Line Supervisors of Office and Admin Support Workers | 37 | Low | \$43,282 | 4.43 |
| Electrical Power-Line Installers and Repairers | 21 | Low | \$69,928 | 3.96 |
| Longer-Term Training Required | | | | |
| Registered Nurses | 106 | Low | \$58,606 | 16.84 |
| General and Operations Managers | 47 | Low | \$69,714 | 8.85 |
| Medical and Health Services Managers | 12 | Low | \$89,873 | 2.82 |
| Financial Managers | 8 | Low | \$102,860 | 2.08 |
| Loan Officers | 20 | High | \$54,491 | 1.79 |

Northwest Region: Cross-Cluster Employment in the Opportunity Clusters

| | |
|---|--|
| Top Cross-Cluster Industries | <ul style="list-style-type: none"> • Educational Services • Professional, Scientific, and Technical Services • Management of Companies and Enterprises • Other Information Services • Data Processing, Hosting and Related Services |
| Employment in Cross-Cluster Industries | 11,735 |
| Annual Job Openings | 1,083 |

Cross-Cluster Employment by Industry Category

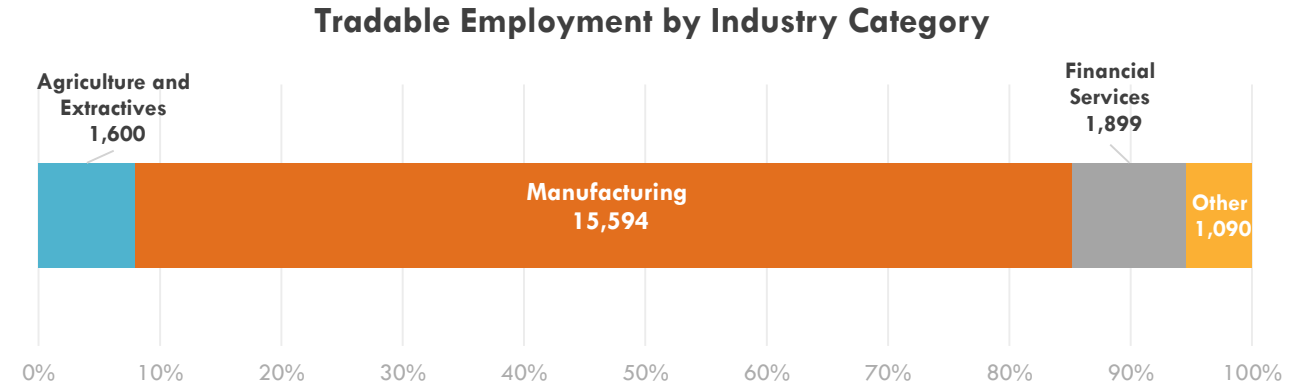


Top Jobs in Cross-Cluster Industries

| | Annual Job Openings | Automation Risk | Median Wages, 2017 | Impact Score |
|---|---------------------|-----------------|--------------------|--------------|
| Short-Term Training Required | | | | |
| Secretaries and Administrative Assistants | 74 | High | \$27,823 | 3.65 |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 68 | High | \$23,733 | 2.91 |
| Office Clerks, General | 23 | High | \$28,891 | 1.19 |
| Maintenance and Repair Workers, General | 8 | High | \$34,827 | 0.46 |
| Bus Drivers, School or Special Client | 9 | High | \$28,705 | 0.45 |
| Intermediate-Term Training Required | | | | |
| Bookkeeping, Accounting, and Auditing Clerks | 30 | High | \$32,504 | 1.71 |
| Engineering Technicians, Except Drafters, All Other | 7 | Low | \$59,801 | 1.11 |
| Self-Enrichment Education Teachers | 12 | Low | \$31,905 | 1.08 |
| Veterinary Technologists and Technicians | 6 | Low | \$32,237 | 0.56 |
| Paralegals and Legal Assistants | 8 | High | \$37,673 | 0.51 |
| Longer-Term Training Required | | | | |
| Secondary School Teachers, Except Special and Career/Technical Ed | 138 | Low | \$42,076 | 16.19 |
| Elementary School Teachers, Except Special Education | 76 | Low | \$39,530 | 8.46 |
| Middle School Teachers, Except Special and Career/Technical Ed | 54 | Low | \$46,024 | 6.93 |
| Education Administrators, Elementary and Secondary School | 21 | Low | \$76,343 | 4.23 |
| Teachers and Instructors, All Other, Except Substitute Teachers | 23 | Low | \$54,575 | 3.44 |

Northwest Region: Tradable Employment in the Opportunity Clusters









| | |
|--|---|
| Top Tradable Industries | <ul style="list-style-type: none"> • Food Manufacturing • Fabricated Metal Product Manufacturing • Insurance Carriers and Related Activities • Chemical Manufacturing |
| Employment in Tradable Industries | 20,183 |
| Annual Job Openings | 2,471 |



Top Jobs in Tradable Industries

| | Annual Job Openings | Automation Risk | Median Wages, 2017 | Impact Score |
|--|---------------------|-----------------|--------------------|--------------|
| Short-Term Training Required | | | | |
| Meat, Poultry, and Fish Cutters and Trimmers | 201 | High | \$30,626 | 10.75 |
| Food Batchmakers | 127 | High | \$31,938 | 7.06 |
| Packaging and Filling Machine Operators and Tenders | 121 | High | \$31,586 | 6.61 |
| Farmworkers, Farm, Ranch, and Aquacultural Animals | 69 | Medium | \$28,074 | 4.58 |
| Welders, Cutters, Solderers, and Brazers | 71 | High | \$37,435 | 4.51 |
| Intermediate-Term Training Required | | | | |
| First-Line Supervisors of Production and Operating Workers | 70 | Low | \$58,431 | 11.05 |
| Industrial Machinery Mechanics | 53 | High | \$45,133 | 4.00 |
| Sheet Metal Workers | 15 | High | \$74,986 | 1.84 |
| Claims Adjusters, Examiners, and Investigators | 16 | High | \$68,494 | 1.79 |
| Heavy and Tractor-Trailer Truck Drivers | 25 | High | \$38,148 | 1.60 |
| Longer-Term Training Required | | | | |
| Chemists | 25 | Low | \$70,773 | 4.78 |
| General and Operations Managers | 22 | Low | \$69,714 | 4.04 |
| Industrial Production Managers | 11 | Low | \$105,872 | 3.14 |
| Industrial Engineers | 14 | Low | \$71,309 | 2.59 |
| Software Developers, Systems Software | 7 | Low | \$87,077 | 1.56 |

Northwest Region: Tradable Employment by Opportunity Cluster

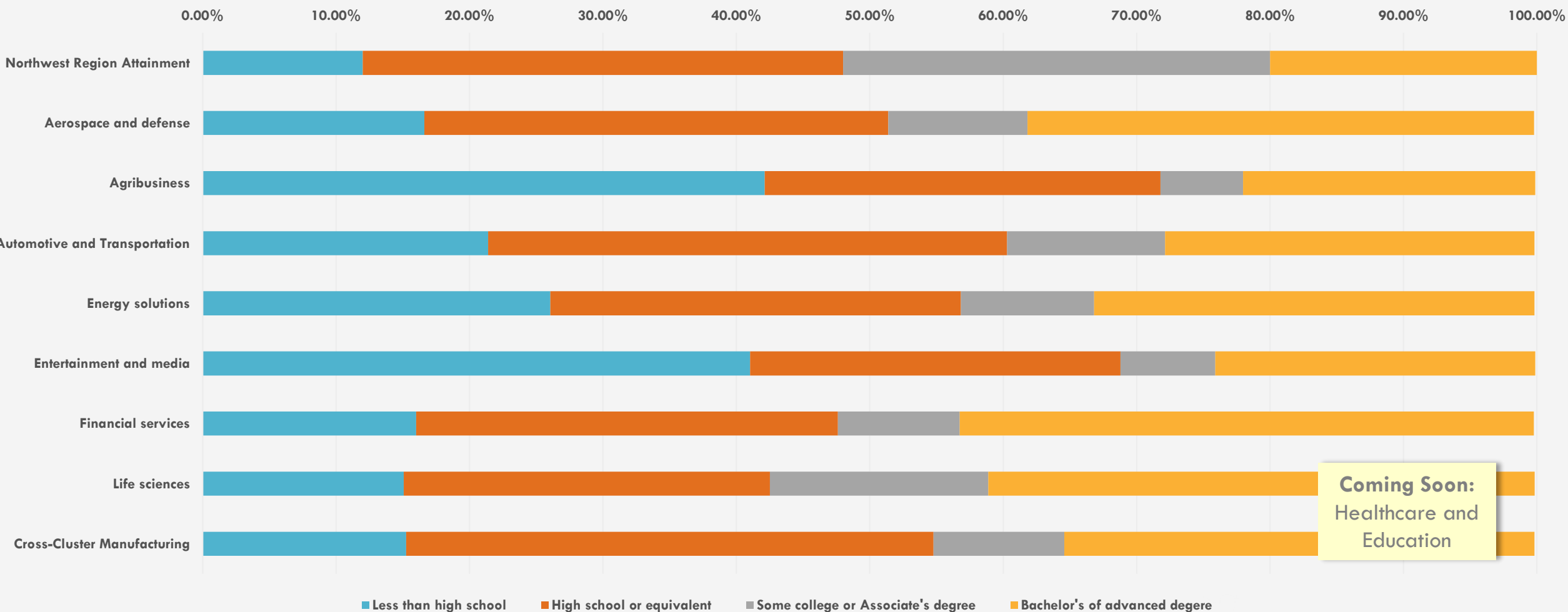
| |  Aerospace & Defense |  Agribusiness |  Automotive & Transportation |  Energy Solutions |  Entertainment & Media |  Financial Services |  Life Sciences |  Cross-Sector Manufacturing |
|-------------------------------|---|--|---|--|---|--|---|--|
| Regional Tradable Employment | 3,111 | 8,529 | 4,191 | 1,600 | 1,606 | 1,899 | 148 | 6,805 |
| Statewide Tradable Employment | 75,160 | 74,973 | 98,862 | 20,351 | 72,103 | 74,723 | 7,981 | 112,639 |

Key Takeaway

The region should consider focusing on those clusters in which concentration of employment is the strongest or where the region possesses a relative advantage.

Northwest Region: Comparison of Educational Supply and Demand

Comparison of Education Required by Jobs in the Opportunity Clusters and Educational Attainment in the Northwest Region, 2016



Coming Soon:
Healthcare and
Education

Top 75 Jobs by Region

Northwest Region: Top 25 “Short-Term Training Required” Jobs

| | Annual Job Openings | Automation Risk | Median Wage, 2017 | Impact Score |
|--|---------------------|-----------------|-------------------|--------------|
| Short-Term Training Required | | | | |
| Laborers and Freight, Stock, and Material Movers, Hand | 253 | High | \$25,040 | 11.39 |
| Meat, Poultry, and Fish Cutters and Trimmers | 206 | High | \$30,626 | 11.01 |
| Secretaries and Administrative Assistants, Except Legal, Medical, and Executive | 199 | High | \$27,823 | 9.80 |
| Packaging and Filling Machine Operators and Tenders | 133 | High | \$31,586 | 7.30 |
| Food Batchmakers | 127 | High | \$31,938 | 7.06 |
| Janitors and Cleaners, Except Maids and Housekeeping Cleaners | 163 | High | \$23,733 | 7.04 |
| Helpers--Production Workers | 136 | High | \$29,363 | 7.03 |
| Customer Service Representatives | 88 | Medium | \$29,882 | 6.17 |
| Stock Clerks and Order Fillers | 139 | High | \$23,474 | 5.95 |
| Office Clerks, General | 108 | High | \$28,891 | 5.50 |
| Farmworkers, Farm, Ranch, and Aquacultural Animals | 78 | Medium | \$28,074 | 5.18 |
| Welders, Cutters, Solderers, and Brazers | 77 | High | \$37,435 | 4.90 |
| Packers and Packagers, Hand | 69 | Medium | \$28,870 | 4.65 |
| Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products | 63 | High | \$43,297 | 4.53 |
| Maintenance and Repair Workers, General | 74 | High | \$34,827 | 4.40 |
| Bus Drivers, School or Special Client | 83 | High | \$28,705 | 4.20 |
| Farmworkers and Laborers, Crop, Nursery, and Greenhouse | 80 | High | \$25,379 | 3.65 |
| Insurance Sales Agents | 46 | High | \$36,693 | 2.89 |
| Industrial Truck and Tractor Operators | 49 | High | \$34,174 | 2.89 |
| Inspectors, Testers, Sorters, Samplers, and Weighers | 43 | High | \$38,077 | 2.78 |
| Computer-Controlled Machine Tool Operators, Metal and Plastic | 44 | High | \$36,901 | 2.73 |
| Cleaners of Vehicles and Equipment | 48 | Medium | \$23,346 | 2.70 |
| Medical Secretaries | 50 | High | \$30,268 | 2.65 |
| Light Truck or Delivery Services Drivers | 46 | High | \$31,786 | 2.54 |
| Sales Representatives, Services, All Other | 19 | Low | \$44,975 | 2.38 |



Northwest Region: Top 25 “Intermediate-Term Training Required” Jobs

| | Annual Job Openings | Automation Risk | Median Wage, 2017 | Impact Score |
|---|---------------------|-----------------|-------------------|--------------|
| Intermediate-Term Training Required | | | | |
| First-Line Supervisors of Production and Operating Workers | 76 | Low | \$58,431 | 12.12 |
| Heavy and Tractor-Trailer Truck Drivers | 121 | High | \$38,148 | 7.80 |
| First-Line Supervisors of Retail Sales Workers | 78 | Medium | \$36,237 | 6.47 |
| First-Line Supervisors of Office and Administrative Support Workers | 46 | Low | \$43,282 | 5.54 |
| Automotive Service Technicians and Mechanics | 50 | Medium | \$42,835 | 4.80 |
| Bookkeeping, Accounting, and Auditing Clerks | 78 | High | \$32,504 | 4.40 |
| Industrial Machinery Mechanics | 56 | High | \$45,133 | 4.18 |
| Electrical Power-Line Installers and Repairers | 21 | Low | \$69,928 | 3.96 |
| First-Line Supervisors of Food Preparation and Serving Workers | 88 | High | \$24,026 | 3.81 |
| First-Line Supervisors of Mechanics, Installers, and Repairers | 23 | Low | \$56,492 | 3.58 |
| Licensed Practical and Licensed Vocational Nurses | 30 | Low | \$37,972 | 3.25 |
| Medical Assistants | 33 | Medium | \$26,324 | 2.06 |
| Telecommunications Equipment Installers and Repairers, Except Line Installers | 19 | Medium | \$48,953 | 2.02 |
| Food Service Managers | 15 | Low | \$46,986 | 1.97 |
| Sheet Metal Workers | 16 | High | \$74,986 | 1.90 |
| Electricians | 11 | Low | \$64,809 | 1.85 |
| Claims Adjusters, Examiners, and Investigators | 16 | High | \$68,494 | 1.80 |
| Telecommunications Line Installers and Repairers | 17 | Medium | \$44,230 | 1.70 |
| Butchers and Meat Cutters | 32 | High | \$28,350 | 1.62 |
| Radiologic Technologists | 10 | Low | \$52,022 | 1.43 |
| Engineering Technicians, Except Drafters, All Other | 8 | Low | \$59,801 | 1.28 |
| Executive Secretaries and Executive Administrative Assistants | 15 | High | \$50,328 | 1.26 |
| Self-Enrichment Education Teachers | 13 | Low | \$31,905 | 1.20 |
| Machinists | 15 | High | \$44,754 | 1.09 |
| Computer User Support Specialists | 16 | High | \$37,532 | 0.99 |

Northwest Region: Top 25 “Longer-Term Training Required” Jobs

| | Annual Job Openings | Automation Risk | Median Wage, 2017 | Impact Score |
|--|---------------------|-----------------|-------------------|--------------|
| Longer-Term Training Required | | | | |
| Registered Nurses | 112 | Low | \$58,606 | 17.75 |
| Secondary School Teachers, Except Special and Career/Technical Education | 138 | Low | \$42,076 | 16.19 |
| General and Operations Managers | 81 | Low | \$69,714 | 15.16 |
| Elementary School Teachers, Except Special Education | 76 | Low | \$39,530 | 8.46 |
| Middle School Teachers, Except Special and Career/Technical Education | 54 | Low | \$46,024 | 6.93 |
| Chemists | 27 | Low | \$70,773 | 5.13 |
| Financial Managers | 16 | Low | \$102,860 | 4.38 |
| Education Administrators, Elementary and Secondary School | 21 | Low | \$76,343 | 4.23 |
| Accountants and Auditors | 39 | High | \$56,831 | 3.61 |
| Teachers and Instructors, All Other, Except Substitute Teachers | 23 | Low | \$54,575 | 3.47 |
| Industrial Production Managers | 12 | Low | \$105,872 | 3.26 |
| Medical and Health Services Managers | 13 | Low | \$89,873 | 3.05 |
| Human Resources Specialists | 22 | Low | \$47,335 | 2.82 |
| Industrial Engineers | 14 | Low | \$71,309 | 2.68 |
| Sales Managers | 8 | Low | \$115,293 | 2.34 |
| Business Operations Specialists, All Other | 11 | Low | \$64,573 | 2.00 |
| Educational, Guidance, School, and Vocational Counselors | 15 | Low | \$45,438 | 1.91 |
| Loan Officers | 20 | High | \$54,491 | 1.79 |
| Market Research Analysts and Marketing Specialists | 22 | High | \$48,129 | 1.73 |
| Computer Occupations, All Other | 9 | Low | \$72,508 | 1.70 |
| Software Developers, Systems Software | 7 | Low | \$87,077 | 1.63 |
| Pharmacists | 5 | Low | \$132,443 | 1.56 |
| Chief Executives | 6 | Low | \$94,972 | 1.50 |
| Training and Development Specialists | 14 | Low | \$36,422 | 1.47 |
| Marketing Managers | 4 | Low | \$143,898 | 1.43 |