

INDUSTRY RESEARCH EXCHANGE

Manufacturing:

Forging a Growing Kansas Economy

What are the biggest manufacturing issues in 2023 (one or two-word responses)?





Agenda



Beech Aircraft Corporation (1940-1945) Source: Kansas Historical Society Does manufacturing drive the Kansas economy?

 What skills, knowledge, and abilities are needed within manufacturing in 2030?

 How globally connected is the Kansas manufacturing economy?

 How important is manufacturing to the Kansas economy?





Why Manufacturing?

- Generates new income into a regional economy
- Creates jobs and upward mobility
- Supports infrastructure
 (transportation, energy,
 communications) that other
 industries benefit from
- Spurs innovation, which creates wealth



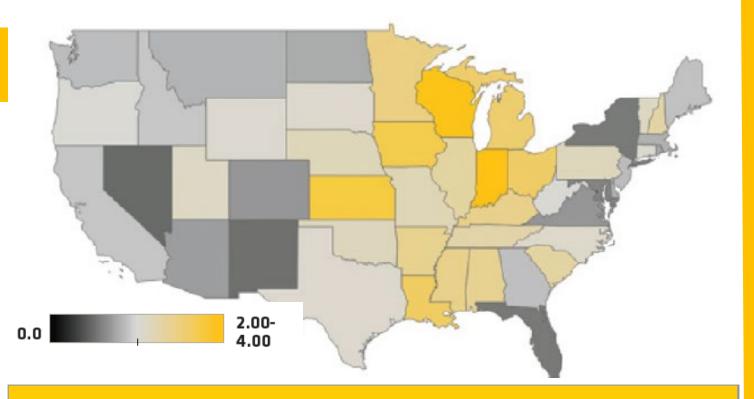
Manufacturing Share

Employment 14.4%

Wages 17.0%







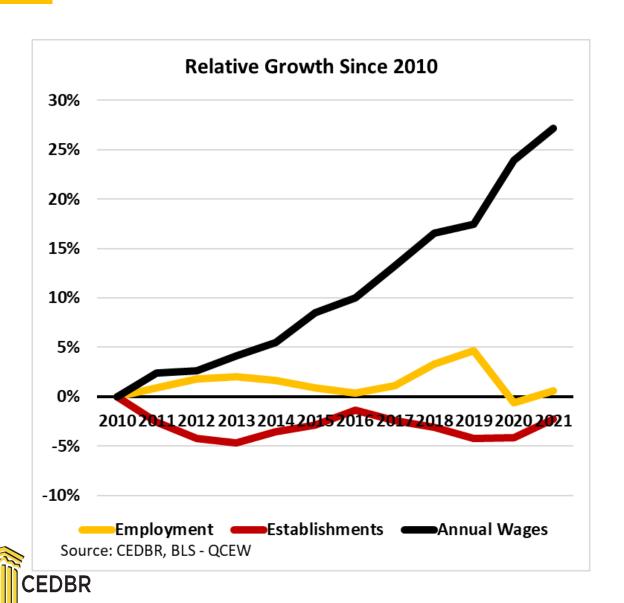
REGIONAL CONCENTRATION

State	Employment	Employment LQ	Average Wages	Wage LQ	
Colorado	148,649	0.64	\$80,779	0.65	
Kansas	160,731	1.39	\$64,603	1.48	
Missouri	270,834	1.15	\$63,452	1.15	
Nebraska	99,519	1.2	\$59,991	1.18	
Oklahoma	128,694	0.96	\$62,625	1.03	
Source: CEDBR, BLS, Q	Source: CEDBR, BLS, QCEW				

KS is 1.4X more concentrated in Manufacturing than the nation.



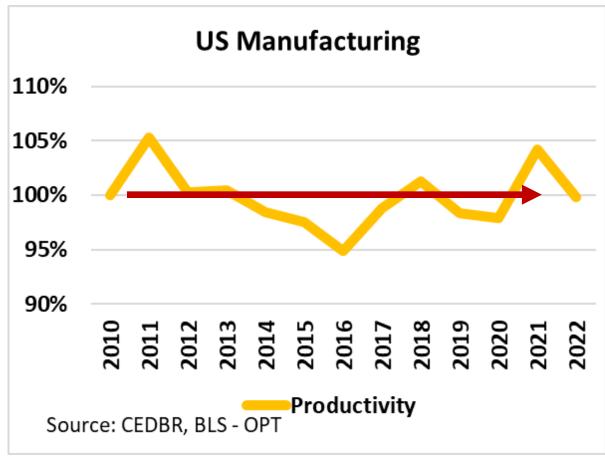
Manufacturing was resilient during a turbulent decade

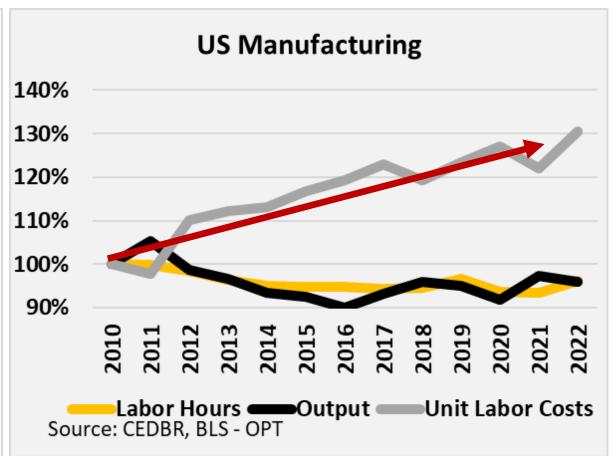


- **Employment** has grown by 0.6% since 2010, adding 960 jobs.
- Kansas lost 73 manufacturing
 Establishments over the eleven-year period.
- Kansas manufacturing Wages grew by 27%, ten percentage points slower than the overall state average.
 - Manufacturing \$64,603
 - Total \$53,422



Productivity was flat, but labor costs skyrocketed

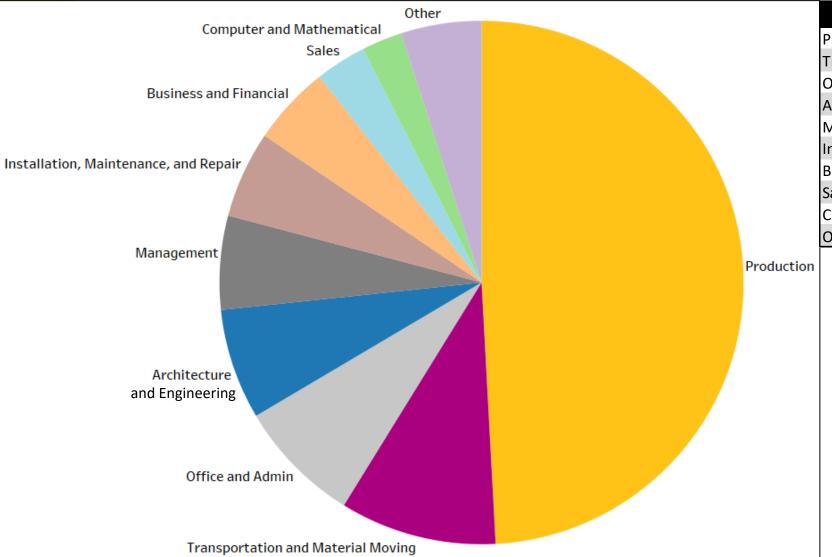








Manufacturing Occupations



Occupation Type	Share of Employment
Production	49.2%
Transportation and Material Moving	9.6%
Office and Admin	7.7%
Architecture and Engineering	6.8%
Management	5.8%
Installation, Maintenance, and Repair	5.4%
Business and Financial	4.9%
Sales	3.2%
Computer and Mathematical	2.5%
Other	4.9%

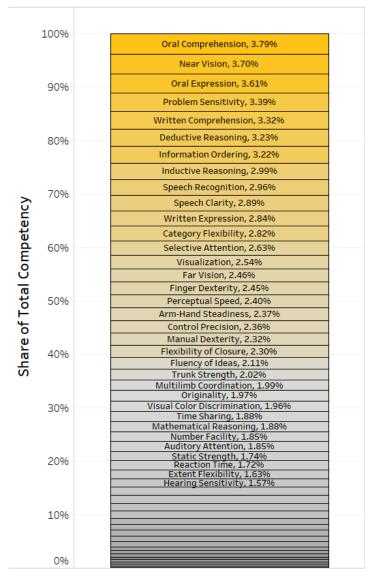
- Production occupations are the primary driver
- Production, Transportation, Office, and Engineering account for almost
 75% of employment
- Manufacturing industry is dependent upon a variety of occupations





Key Attributes - Manufacturing

Abilities Knowledge Skills



English Language, 7.01% Mathematics, 6.82% Mechanical, 6.76% Customer and Personal Service, 6.35% Computers and Electronics, 5.74% Administration and Management, 5.28% Education and Training, 5.22% Engineering and Technology, 4.42% Public Safety and Security, 4.30% Administrative, 4.25% Design, 3.86% Personnel and Human Resources, 2.86% Transportation, 2.79% Sales and Marketing, 2.68% Chemistry, 2.61% Physics, 2.31% Building and Construction, 2.18% Law and Government, 2.08% Economics and Accounting, 2.06% Psychology, 2.05%	English Language, 7.01% Mathematics, 6.82% Mechanical, 6.76% Customer and Personal Service, 6.35% Computers and Electronics, 5.74% Administration and Management, 5.28% Education and Training, 5.22% Engineering and Technology, 4.42% Public Safety and Security, 4.30% Administrative, 4.25% Design, 3.86% Personnel and Human Resources, 2.86% Transportation, 2.79% Sales and Marketing, 2.68% Chemistry, 2.61% Physics, 2.31% Building and Construction, 2.18% Law and Government, 2.08% Economics and Accounting, 2.06%	English Language, 7.01% Mathematics, 6.82% Mechanical, 6.76% Customer and Personal Service, 6.35% Computers and Electronics, 5.74% Administration and Management, 5.28% Education and Training, 5.22% Engineering and Technology, 4.42% Public Safety and Security, 4.30% Administrative, 4.25% Design, 3.86% Personnel and Human Resources, 2.86% Transportation, 2.79% Sales and Marketing, 2.68% Chemistry, 2.61% Physics, 2.31% Building and Construction, 2.18% Law and Government, 2.08% Economics and Accounting, 2.06%
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Equipment Maintenance, 2.00%	Troubleshooting, 2.54%
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	Repairing, 1.82%

Abilities - Enduring Attributes

- Oral comprehension/ expression exceeds written
- Cognitive abilities dominate
 - Idea Generation and Reasoning
 - Verbal Abilities

Knowledge - Domain Principles

- Procedure knowledge occupies many of top competencies
 - Composition effect
- Customers Service
- Admin/Management
- English Language

Skills - Developed Capacities

- Basic skills rank highest
- Cross-functional technical skills form mid-range



Abilities: oral comprehension and near vision

Production

Transportation and Material Moving

Architecture and Engineering

Office and Administration

Near Vision, 3.45% Oral Comprehension, 3.11% Control Precision, 3.07% Arm-Hand Steadiness, 3.07% Manual Dexterity, 3.03% Finger Dexterity, 2.97% Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.139% Extent Flexibility, 2.089% Visual Color Discrimination, 2.089% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78% Pluency of ideas, 1.59% Originality, 1.50% Stamina, 1.44%		
Near Vision, 3.45% Oral Comprehension, 3.1196 Control Precision, 3.07% Arm-Hand Steadiness, 3.07% Manual Dexterity, 3.03% Finger Dexterity, 2.97% Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Fluency of Ideas, 1.59% Originality, 1.50% Stamina, 1.44%		
Control Precision, 3.07% Arm-Hand Steadiness, 3.07% Manual Dexterity, 3.03% Finger Dexterity, 2.97% Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Wisualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.133% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Time Sharing, 1.82% Hearing Sensitivity, 1.78% Depth Perception, 1.77% Fluency of Ideas, 1.59% Stamina, 1.44%)	Near Vision, 3.45%
Control Precision, 3.07% Arm-Hand Steadiness, 3.07% Manual Dexterity, 3.03% Finger Dexterity, 2.97% Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.48% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Spassilivity, 1.78% Hearing Spassilivity, 1.78%		Oral Comprehension, 3,11%
Arm-Hand Steadiness, 3.07% Manual Dexterity, 3.03% Finger Dexterity, 2.97% Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78% Hearing Sensitivity, 1.78%		
Manual Dexterity, 3.03% Finger Dexterity, 2.97% Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Wisualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		· · · · · · · · · · · · · · · · · · ·
Finger Dexterity, 2.97% Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Visualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78% Hearing Sensitivity, 1.789%		· · · · · · · · · · · · · · · · · · ·
Problem Sensitivity, 2.92% Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Visualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		**
Oral Expression, 2.89% Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Visualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.1796 Auditory Attention, 2.1496 Written Expression, 2.1396 Extent Flexibility, 2.089% Visual Color Discrimination, 2.089% Rate Control, 1.95% Time Sharing, 1.8296 Hearing Sepsitivity, 1.7896		Finger Dexterity, 2.97%
Information Ordering, 2.84% Deductive Reasoning, 2.66% Selective Attention, 2.65% Visualization, 2.6596 Written Comprehension, 2.5896 Category Flexibility, 2.5796 Perceptual Speed, 2.5296 Inductive Reasoning, 2.5096 Speech Recognition, 2.4896 Multilimb Coordination, 2.4896 Trunk Strength, 2.4496 Speech Clarity, 2.4396 Reaction Time, 2.4296 Far Vision, 2.4096 Flexibility of Closure, 2.1896 Static Strength, 2.1796 Auditory Attention, 2.1496 Written Expression, 2.1396 Extent Flexibility, 2.0896 Visual Color Discrimination, 2.0896 Rate Control, 1.9596 Time Sharing, 1.8296 Hearing Sensitivity, 1.7896		Problem Sensitivity, 2.92%
Deductive Reasoning, 2.66% Selective Attention, 2.65% Visualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.1396 Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sepsitivity, 1.78%		Oral Expression, 2.89%
Selective Attention, 2.65% Visualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.149% Written Expression, 2.139% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		Information Ordering, 2.84%
Visualization, 2.65% Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.48% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		Deductive Reasoning, 2.66%
Written Comprehension, 2.58% Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.48% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		Selective Attention, 2.65%
Category Flexibility, 2.57% Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		Visualization, 2.65%
Perceptual Speed, 2.52% Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sepsitivity, 1.78%		Written Comprehension, 2.58%
Inductive Reasoning, 2.50% Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.149% Written Expression, 2.139% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		Category Flexibility, 2.57%
Speech Recognition, 2.49% Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity. 1.78%		Perceptual Speed, 2.52%
Multilimb Coordination, 2.48% Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity. 1.78%		Inductive Reasoning, 2.50%
Trunk Strength, 2.44% Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.139% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sepsitivity, 1.78%		
Speech Clarity, 2.43% Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		
Reaction Time, 2.42% Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.1396 Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		• •
Far Vision, 2.40% Flexibility of Closure, 2.18% Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		
Flexibility of Closure, 2.18% Static Strength, 2.1796 Auditory Attention, 2.1496 Written Expression, 2.1396 Extent Flexibility, 2.0896 Visual Color Discrimination, 2.0896 Rate Control, 1.9596 Time Sharing, 1.8296 Hearing Sensitivity, 1.7896		-
Static Strength, 2.17% Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		·
Auditory Attention, 2.14% Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		
Written Expression, 2.13% Extent Flexibility, 2.08% Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		
Visual Color Discrimination, 2.08% Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		
Rate Control, 1.95% Time Sharing, 1.82% Hearing Sensitivity, 1.78%		Extent Flexibility, 2.08%
Time Sharing, 1.82% Hearing Sensitivity, 1.78%		
Hearing Sensitivity, 1,78%		
Depth Perception, 1.75% Depth Perception, 1.75% Fluency of Ideas, 1.59% Originality, 1.50% Stamina, 1.44%		
Fluency of Ideas, 1.59% Originality, 1.50% Stamina, 1.44%		Depth Perception, 1,77%
Originality, 1.50% Stamina, 1.44%		Fluency of Ideas, 1.59%
Stamina, 1.4490		Originality, 1.50%
		Stamina, 1.44%

Share of Total Competency

Multilimb Coordination, 3.50%
Static Strength, 3.42%
Near Vision, 3.17%
Trunk Strength, 3.12%
Control Precision, 3.08%
Oral Comprehension, 2.99%
Manual Dexterity, 2.83%
Extent Flexibility, 2.77%
Far Vision, 2.74%
Oral Expression, 2.69%
Problem Sensitivity, 2.69%
Arm-Hand Steadiness, 2.47%
Depth Perception, 2.40%
Finger Dexterity, 2.37%
Deductive Reasoning, 2.35%
Speech Recognition, 2.33%
Information Ordering, 2.30%
Selective Attention, 2.28%
Written Comprehension, 2.25%
Reaction Time, 2.22%
Stamina, 2.16%
Rate Control, 2.10%
Speech Clarity, 2.10%
Category Flexibility, 2.10%
Response Orientation, 2.08%
Visualization, 2.06%
Inductive Reasoning, 2.05%
Perceptual Speed, 1.98%
Dynamic Strength, 1.95%
Time Sharing, 1.83% Visual Color Discrimination, 1.81%
Auditory Attention, 1.79%
Flexibility of Closure, 1,71%
Written Expression, 1.61%
Written Expression, 1.61% Gross Body Coordination, 1.58% Spatial Orientation, 1.55%
Hearing Sensitivity, 1.51%
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Written Comprehension, 4.95%
Oral Comprehension, 4.88%
Deductive Reasoning, 4.68%
Oral Expression, 4.65%
Inductive Reasoning, 4.44%
Problem Sensitivity, 4.36%
Written Expression, 4.26%
Information Ordering, 4.22%
Near Vision, 4.01%
Mathematical Reasoning, 3.84%
Category Flexibility, 3.72%
Visualization, 3.42%
Fluency of Ideas, 3.40%
Originality, 3.33%
Number Facility, 3.29%
Speech Recognition, 3.08%
Speech Clarity, 2.94%
Flexibility of Closure, 2.81%
Selective Attention, 2.74%
Far Vision, 2.53%
Perceptual Speed, 2.50%
Visual Color Discrimination, 2.30%
Time Sharing, 2.02% Speed of Closure, 1.86%
Memorization, 1.73%
Auditory Attention, 1.71%
Hearing Sensitivity, 1.65% Finger Dexterity, 1.60%
Finger Dexterity, 1.00%

Oral Comprehension, 5.32%
Oral Expression, 5.26%
Near Vision, 4.92%
Written Comprehension, 4.65%
Written Expression, 4.38%
Speech Recognition, 4.24%
Speech Clarity, 4.10%
Problem Sensitivity, 4.06%
Information Ordering, 3.98%
Deductive Reasoning, 3.72%
Inductive Reasoning, 3.52%
Category Flexibility, 3.42%
Selective Attention, 3.15%
Perceptual Speed, 2.74%
Far Vision, 2.70%
Mathematical Reasoning, 2.66%
Number Facility, 2.66%
Flexibility of Closure, 2.64%
Fluency of Ideas, 2.39%
Time Sharing, 2.16%
Originality, 2.09%
Finger Dexterity, 1.98%
Visualization, 1.92%
Speed of Closure, 1.85% Memorization, 1.77%
Visual Color Discrimination, 1.62%
Auditory Attention, 1.59%

Production workers

- Dexterous and precise
- Oral communicators

Transportation/Material

 Physical strength and strong far vision

Architecture/Engineering

- Communication
- Understanding of complex problems and information

Office/Administration

- Communication
- Speaking ranks more highly than other occupation categories



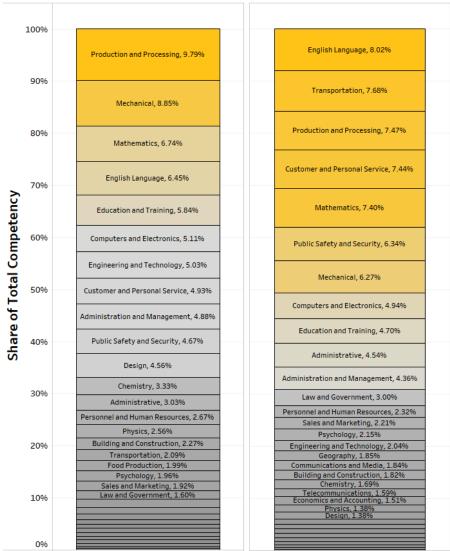
Knowledge: mathematics and English

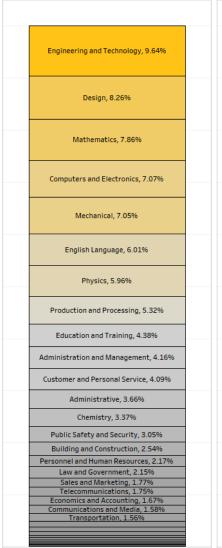
Production

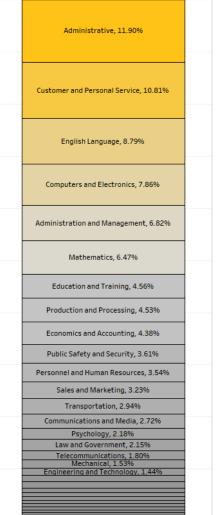
Transportation and Material Moving

Architecture and Engineering

Office and Administration







Production

- Technical knowledge dominates
- Production, Mechanical,
 Mathematics, and Computers
 & electronics

Transportation

- Language knowledge and customer service
- Needs both business management and applied production knowledge

Engineering

- Inventiveness and innovation
- Strong math skills, applied tech

Office

 Business management, communications, and enabling systems



Skills: critical thinking and active listening

Production

Transportation and Material Moving

Architecture and Engineering

Office and Administration

Operations Monitoring, 5.10% Monitoring, 4.84% Quality Control Analysis, 4.58% Critical Thinking, 4.56% Active Listening, 4.55% Operation and Control, 4.43% 70% Reading Comprehension, 4,28% Share of Total Competency Speaking, 4,24% Coordination, 4,14% Time Management, 3.96% Judgment and Decision Making, 3.85% Social Perceptiveness, 3.74% Complex Problem Solving, 3.71% Writing, 3.31% Troubleshooting, 3.15% Active Learning, 3.11% Instructing, 3.08% Management of Personnel Resources, 2.73% Learning Strategies, 2.62% Equipment Maintenance, 2.60% Service Orientation, 2.52% Mathematics, 2.49% Persuasion, 2.38% Repairing, 2.35% Systems Analysis, 2.26% Negotiation, 2.22% 10% Systems Evaluation, 2.16% Equipment Selection, 2.05%

Operation and Control, 5.41% Coordination, 5.09% Active Listening, 4.96% Operations Monitoring, 4.93% Monitoring, 4.89% Reading Comprehension, 4.87% Critical Thinking, 4.77% Speaking, 4.50% Time Management, 4.28% Judgment and Decision Making, 3.94% Social Perceptiveness, 3.76% Writing, 3,59% Complex Problem Solving, 3.54% Service Orientation, 3,35% Quality Control Analysis, 3.32% Troubleshooting, 3.26% Equipment Maintenance, 2.89% Active Learning, 2.81% Instructing, 2.45% Mathematics, 2,45% Management of Personnel Resources, 2.38% Learning Strategies, 2.37% Repairing, 2.34% Systems Analysis, 2.26% Persuasion, 2,17% Systems Evaluation, 2,09% Negotiation, 2.08% Equipment Selection, 1,76%

Reading Comprehension, 5.28% Critical Thinking, 4.88% Complex Problem Solving, 4,64% Active Listening, 4,64% Speaking, 4,29% Writing, 4,28% Mathematics, 4,27% Monitoring, 3.97% Active Learning, 3.93% Judgment and Decision Making, 3.91% Systems Evaluation, 3.67% Systems Analysis, 3,61% Operations Analysis, 3.21% Science, 3.09% Time Management, 3.04% Coordination, 3.03% Instructing, 2.87% Quality Control Analysis, 2.84% Learning Strategies, 2.77% Social Perceptiveness, 2.74% Operations Monitoring, 2.60% Persuasion, 2,52% Management of Personnel Resources, 2.44% Service Orientation, 2.38% Negotiation, 2.18% Technology Design, 2.15% Troubleshooting, 2.01% Management of Material Resources, 1.64% Operation and Control, 1.38

Active Listening, 6.70% Reading Comprehension, 6.44% Speaking, 6.17% Critical Thinking, 5.58% Monitoring, 5.06% Writing, 5.05% Time Management, 4.83% Service Orientation, 4,73% Coordination, 4.73% Social Perceptiveness, 4.57% Judgment and Decision Making, 4,24% Complex Problem Solving, 4.14% Active Learning, 4.03% Persuasion, 3,48% Negotiation, 3.40% Instructing, 3.34% Mathematics, 3.23% Learning Strategies, 2.94% Management of Personnel Resources, 2.81% Systems Analysis, 2,78% Systems Evaluation, 2.36% Quality Control Analysis, 1.49%

Production

 Less problem-solving, more procedural skills

Transportation

 Less problem-solving, more procedural skills

Engineering

Reading and content/process skills

Office

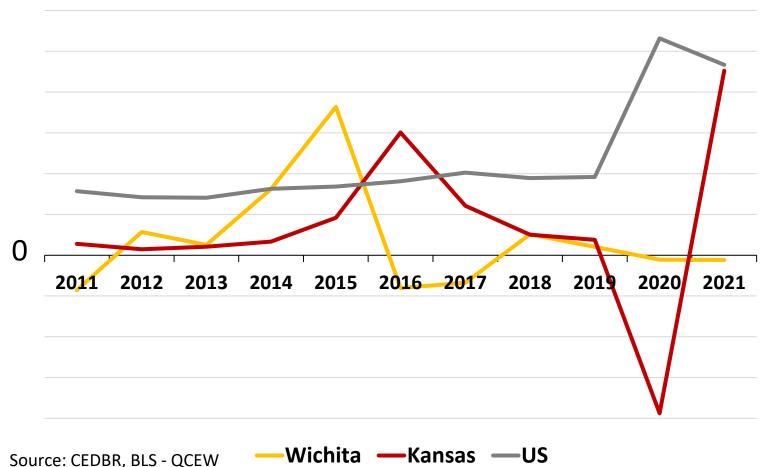
 Less problem solving, more writing and communication skills

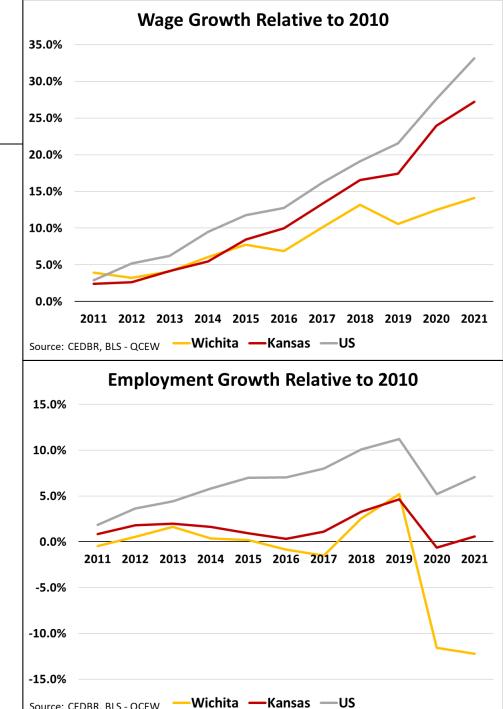


Though KS manufacturing labor demand increased in 2021, wages have not kept pace compared to the nation.

Labor Demand

Employment Growth Relative to Wage Growth





Source: CEDBR. BLS - QCEW

Kansas will likely have an increased labor gap of 21,500 by 2030

Labor Gap - Manufacturing

Occupation	2023	2025	2030
Management	817	1,167	1,656
Business and Financial Operations	598	844	1,165
Computer and Mathematical	363	545	851
Architecture and Engineering	864	1,254	1,842
Life, Physical, and Social Science	147	202	261
Legal	12	17	22
Arts, Design, Entertainment, Sports, and Media	86	118	152
Healthcare Practitioners and Technical	12	17	22
Protective Service	12	17	22
Food Preparation and Serving Related	133	205	338
Building and Grounds Cleaning and Maintenance	74	101	131
Sales and Related	417	571	740
Office and Administrative Support	751	863	613
Farming, Fishing, and Forestry	37	50	65
Construction and Extraction	231	340	512
Installation, Maintenance, and Repair	764	1,141	1,767
Production	5,736	7,600	9,054
Transportation and Material Moving	1,172	1,654	2,287
Total 12,225 16,705 21,			21,502
Source: CEDBR, BLS - QCEW, BLS - National Employment Matrix, KLIC			

Solutions to the KS labor gap

- Internal training
- Labor attraction

Increased wages





Rank the following supply chain strategies for 2023 (top=most important).

Relationship management

Building redundancy

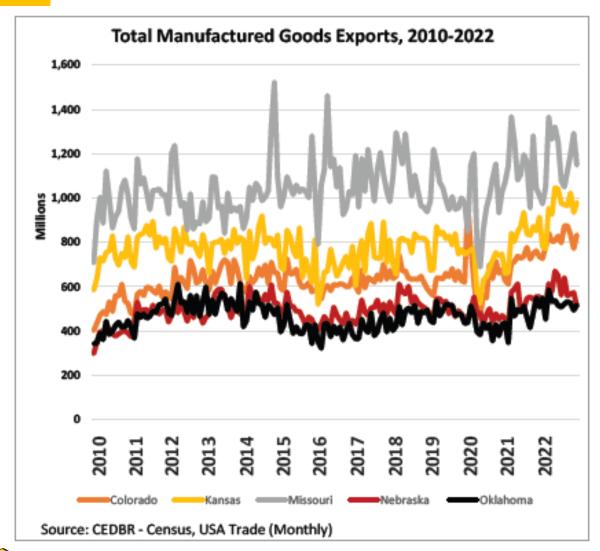
Increasing alternatives or domestic options

Implementing digital solution





KS had 1.7 X more manufacturing exports per capita than MO



Manufacturing Exports per Capita

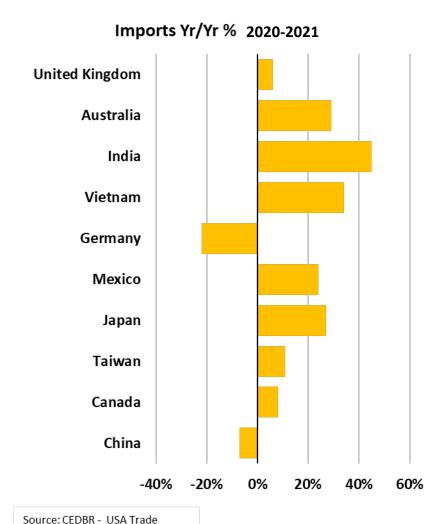
State	2021	2022
Colorado	\$1,490	\$1,693
Kansas	\$3,381	\$3,869
Missouri	\$2,223	\$2,294
Nebraska	\$3,266	\$3,552
Oklahoma	\$1,442	\$1,584
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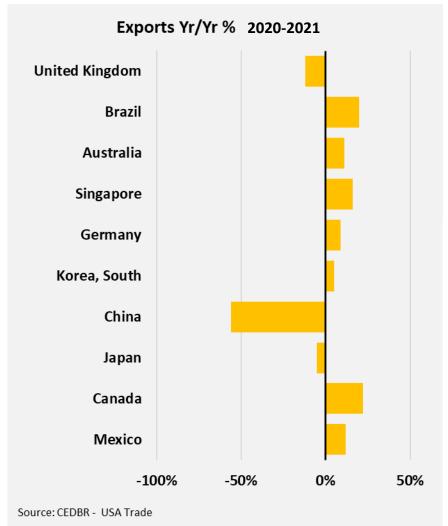
Source: CEDBR, USA Trade





Who are we trading with?



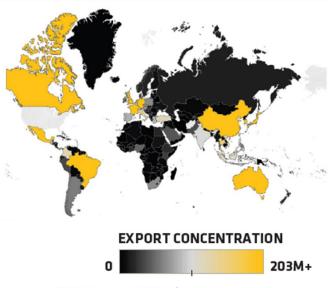


Imports

- Germany vs. India
 - Agricultural Machinery
 - Chemicals

Exports

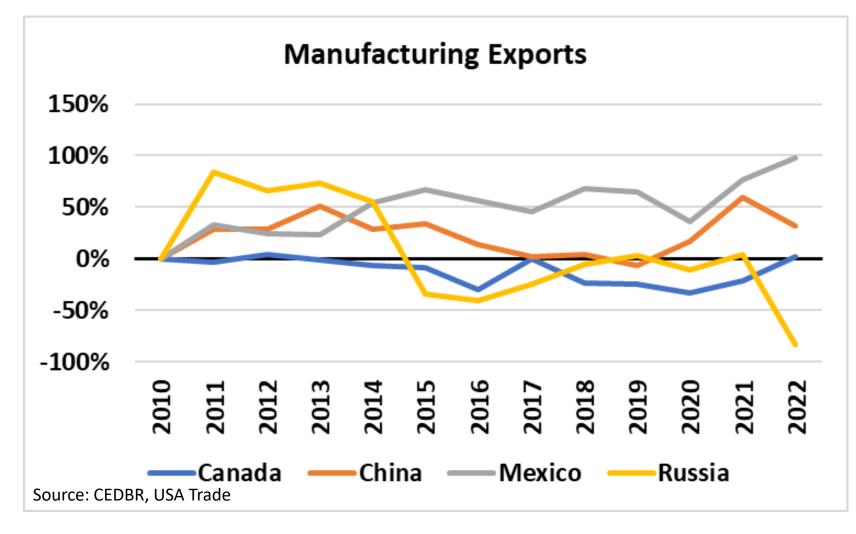
- China
 - Food
 - Transportation Equipment



Source: CEDBR, Census - USATrade



Trade relations and activity



Russia

- Decreasing overall
 - Internal sanctions
 - External factors

China

- Increased political tensions
- Volatile market demand
- Supply chain issues

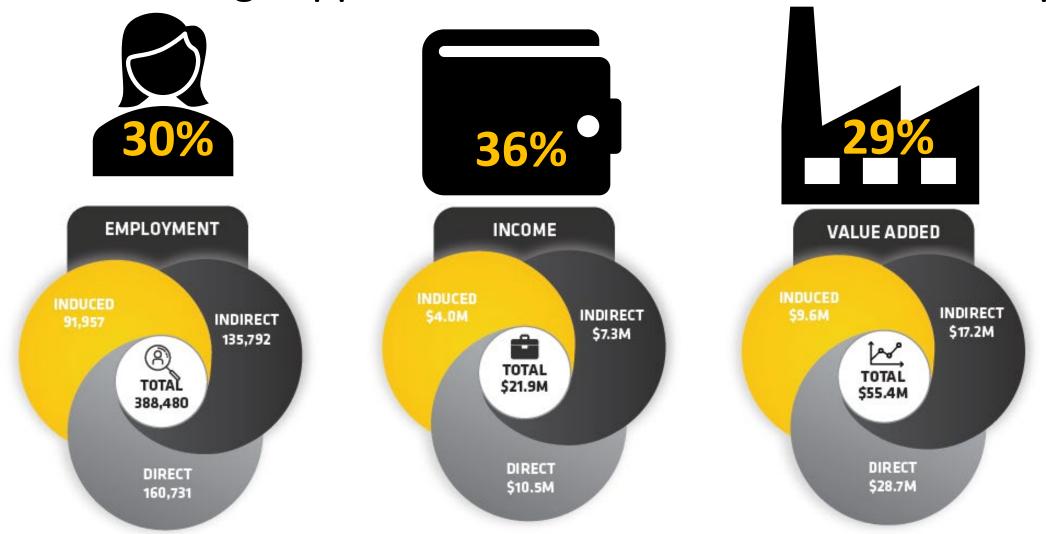
USMCA

- Canada recovery to 2010 standard
- Improving export relations with Mexico





Manufacturing Supports Over 1/3 of the Kansas Economy.







Summary



Kansas City's Garment District Christmas Party

Source: KCUR.org

- Kansas was resilient during a turbulent decade.
- Skilled-labor gap is increasing, necessitating higher wages and education investment to meet demand
- Kansas eclipses surrounding states in manufacturing exports per capita.
- KS manufacturing supports over 1/3 of the Kansas Economy annually.





Why the top ten?

- ...because 21 sectors are too many.
- Kansas has a comparative advantage
- The sectors drive the economy, and impact booms and busts the most.
- The sectors uniquely capitalize on our resources (land, labor, and capital).



Employment 88.3% Wages 90.1%

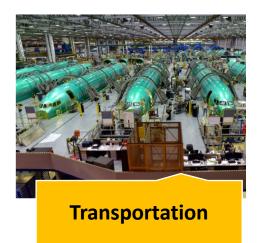




Top Ten-Defining Manufacturing Segments





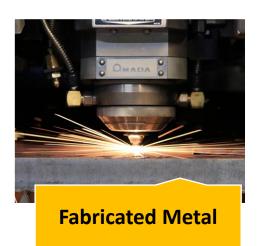




















Selected companies by the top 10











Petroleum





Printing

Machinery













Chemical

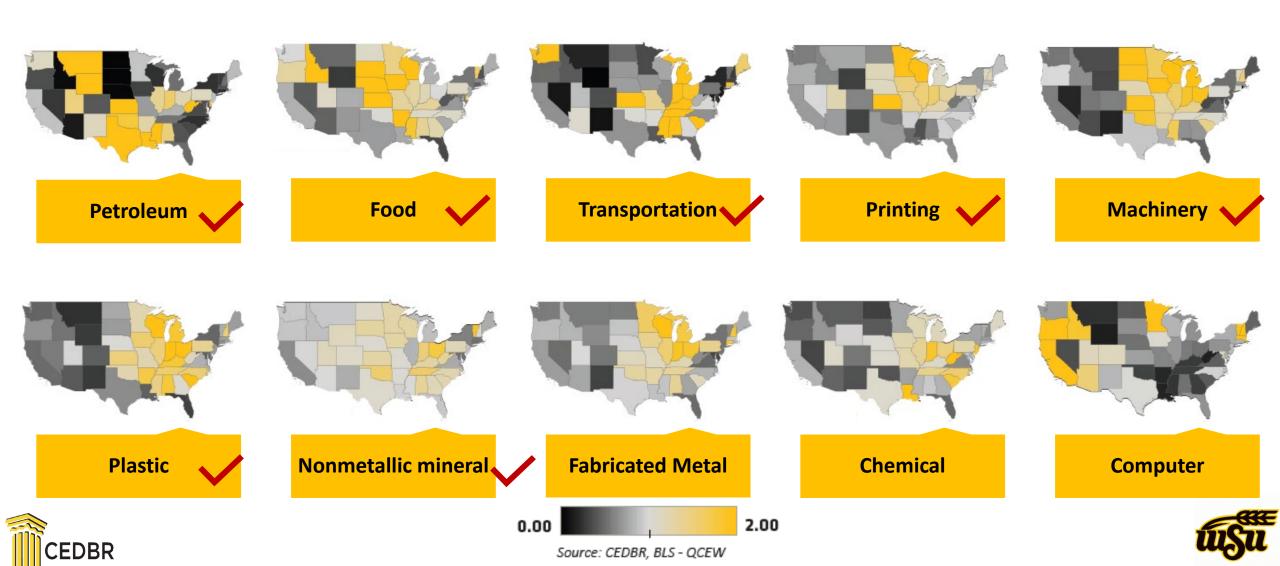
GARMIN

Computer

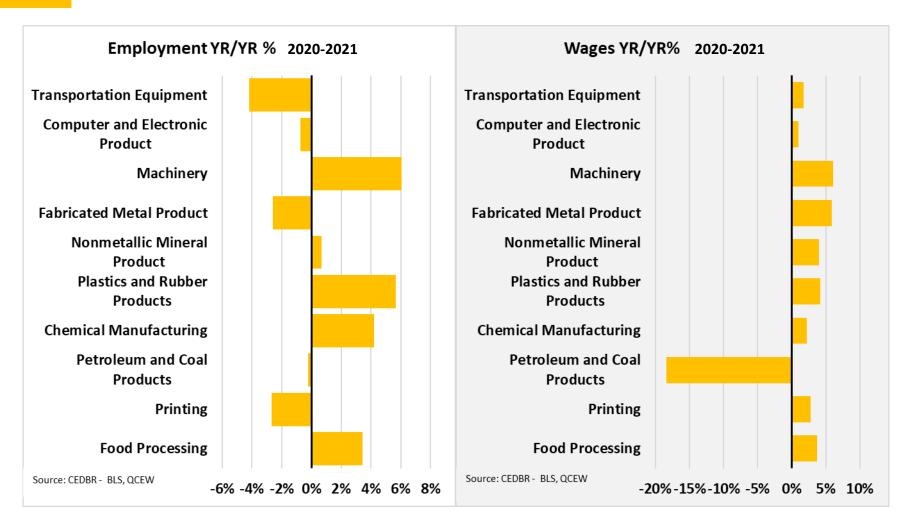




Kansas Tops the Nation in 7 of our Top 10 Segments



KS machinery and plastics are expanding

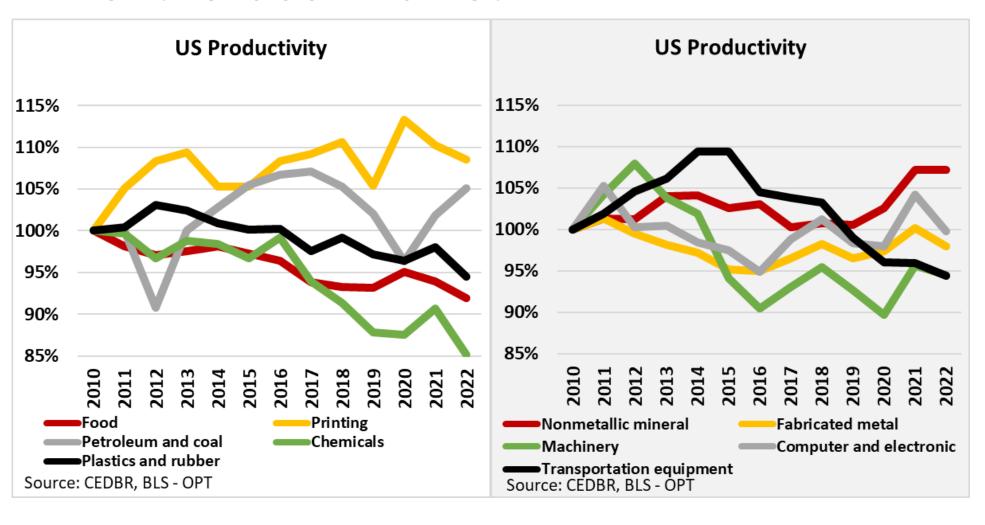


- Transportation
 Equipment
 employment declined
 by 4% over the last
 year while wages
 increased.
- Machinery
 Manufacturing had the
 strongest growth of all
 sectors.
- Plastics and Rubber employment grew by 5.4%
- Food processing is at an all-time high





US firms are finding it difficult to squeeze value out of the labor market

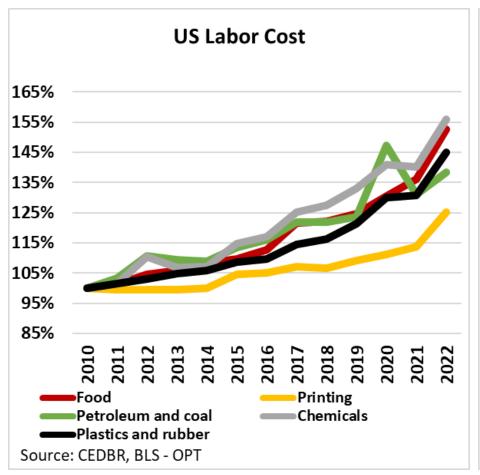


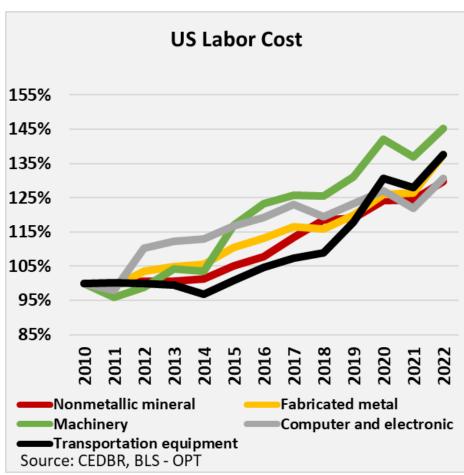
- Printing grew by almost 9%, the fastest among selected sectors
- Chemicals had the biggest decline from increasing input costs
- Transportation productivity dropped 6% as labor became more difficult to find





Total unit labor costs soar, as firms fight over talent





- Chemicals and food manufacturing had the highest increase in labor costs.
- Printing was the laggard in labor costs, a sign of decreasing labor demand.





Rank the following talent management strategies for 2023(top=most important).

Upskilling and reskilling (increased training dollars)

DEI (diversity, equity, and inclusion) strategy

Pay or bonus increases

Flexible work arrangements



Mathematics, critical thinking, and oral comprehension are in high demand across industries

Knowledge					
Attribute	Chemical Products	Computer Products	Transportation Equipment		
Mathematics	6.66%	7.11%	7.06%		
Mechanical	5.76%	5.24%	6.98%		
English Language	7.00%	7.46%	6.87%		
Computers and Electronics	5.98%	8.33%	6.72%		
Production and Processing	6.88%	5.93%	6.65%		
Engineering and Technology	4.02%	5.62%	5.88%		
Customer and Personal Service	6.07%	6.39%	5.72%		
Education and Training	5.14%	5.07%	5.40%		
Administration and Management	5.28%	5.35%	5.17%		
Design	2.97%	4.77%	5.17%		

Skills				
Attribute	Chemical Products	Computer Products	Transportation Equipment	
Critical Thinking	4.70%	4.95%	4.77%	
Reading Comprehension	4.87%	5.05%	4.70%	
Active Listening	4.80%	4.99%	4.64%	
Monitoring	4.55%	4.37%	4.37%	
Speaking	4.42%	4.67%	4.37%	
Complex Problem Solving	3.85%	4.11%	4.08%	
Judgment and Decision Making	3.92%	4.06%	3.95%	
Writing	4.02%	4.11%	3.87%	
Coordination	3.98%	3.85%	3.81%	
Time Management	3.78%	3.81%	3.68%	

Abilities										
Attribute	Chemical Products	Computer Products	Transportation Equipment							
Oral Comprehension	4.07%	4.63%	4.09%							
Oral Expression	3.94%	4.40%	3.86%							
Written Comprehension	3.71%	4.35%	3.86%							
Near Vision	3.67%	4.19%	3.78%							
Problem Sensitivity	3.63%	4.04%	3.72%							
Deductive Reasoning	3.44%	4.08%	3.71%							
Information Ordering	3.33%	3.90%	3.58%							
Inductive Reasoning	3.23%	3.82%	3.45%							
Written Expression	3.27%	3.81%	3.32%							
Speech Recognition	3.03%	3.43%	3.05%							
Source: CEDBR, Census - ONET										

Knowledge shows the greatest variance by subsector.

•Specialized manufacturing processes create unique requirements of knowledge.

Large skill and ability overlap among chemical products, computer products, and transportation equipment

- •Most key:
 - Oral/verbal comprehension and expression,
 - Critical thinking
 - Process monitoring



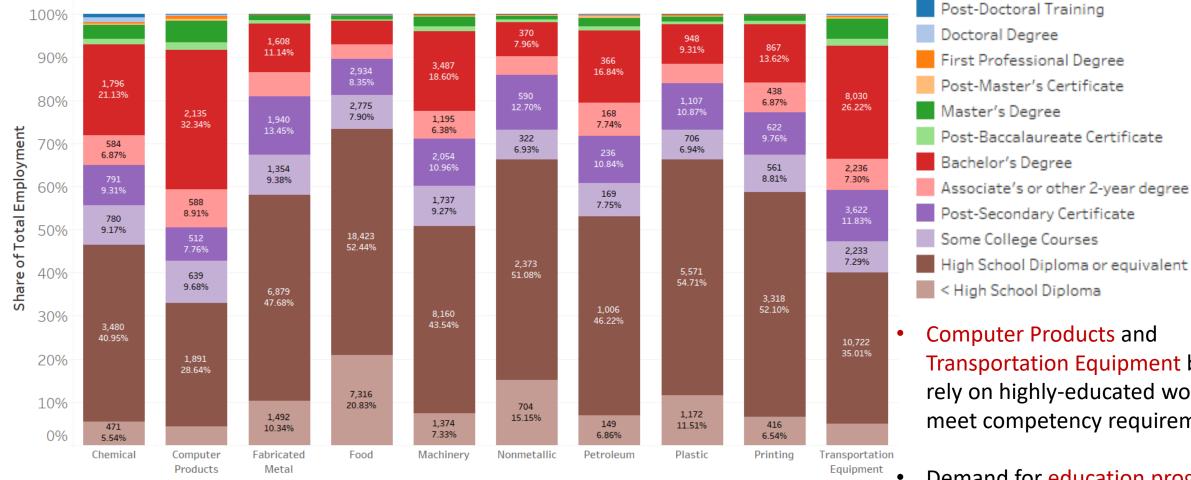
Food and Transportation have the largest expected gap in 2030

Labor Gap in 2030, By Manufacturing Subsector

Occupation	Food	Printing	Petrol.	Chemical	Plastic	Nonmetal	Fab. Metal	Machinery	Comp. & Elect.	Transp. Eq
Management	176	15	18	262	64	3	89	157	347	325
Business and Financial Operations	122	8	17	183	39	2	47	111	294	380
Computer and Mathematical	44	6	2	57	8	0	6	74	505	256
Architecture and Engineering	25	0	16	180	48	1	50	32 9	612	752
Life, Physical, and Social Science	53	0	9	282	4	O	3	5	22	25
Legal	0		0	3	0		0	2	15	0
Arts, Design, Entertainment, Sports, and Media	4	14	1	11	2	l o	1	7	22	18
Healthcare Practitioners and Technical	4		0	8	0		0	0	3	0
Healthcare Support	0			3						
Protective Service	4	0	0	3	0	l o	1	0	3	12
Food Preparation and Serving Related	107							0	0	0
Building and Grounds Cleaning and Maintenance	110	0	0	25	4	0	4	22	9	12
Sales and Related	116	20	5	86	28	2	36	81	135	91
Office and Administrative Support	89	-56	2	165	28	- 31	4	32	178	219
Farming, Fishing, and Forestry	41			5				0		
Construction and Extraction	8	0	17	13	4	13	65	15	6	154
Installation, Maintenance, and Repair	407	1	41	224	124	1 <mark>6</mark>	70	162	90	518
Production	2,050	29	74	962	485	3 <mark>6</mark>	399	588	827	3,065
Transportation and Material Moving	<mark>8</mark> 31	15	22	195	139	17	76	86	69	349
Total	4,192	52	224	2,665	976	60	851	1,672	3,137	6,177
Source: CEDBR, BLS - QCEW, BLS - National Employment Matrix, KLIC										



43% of all manufacturing workers require more than HS

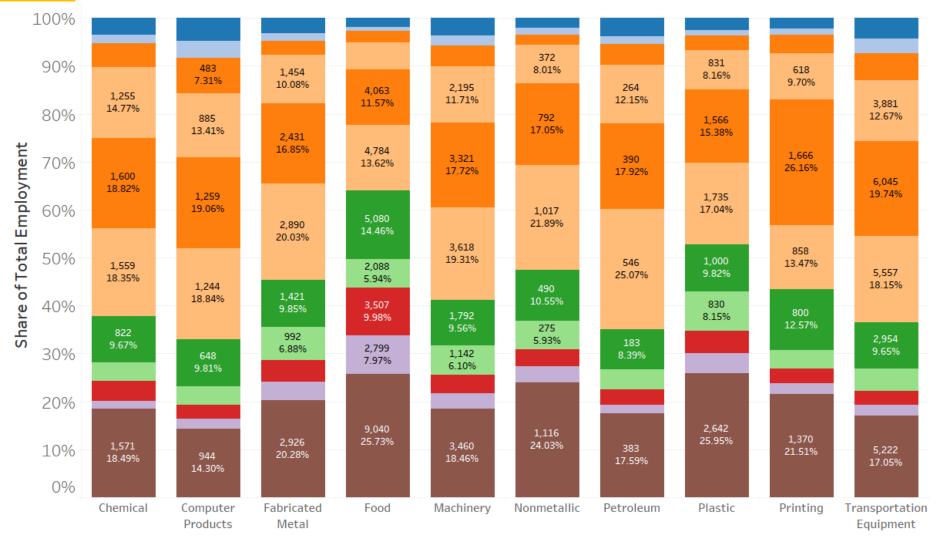


- **Computer Products and** Transportation Equipment both rely on highly-educated workers to meet competency requirements.
- Demand for education programs that raise student interest.





Required prior experience is critical in KS manufacturing



- Over 10 years

 8 to 10 years

 6 to 8 years

 4 to 6 years

 2 to 4 years

 1 to 2 years

 6 months to 1 year

 3 to 6 months

 1 to 3 months

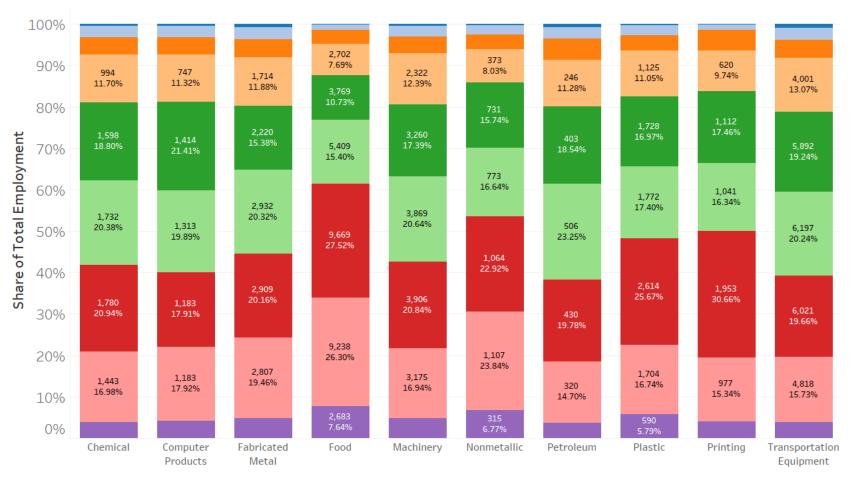
 Up to 1 month

 None
- 35% require >2 years
- Petroleum, Computer
 Products, and Transportation
 Equipment require the most
 prior experience.
- Food and Plastics require the least prior experience.





33% of KS manufacturing jobs require >6 months On-The-Job Training



- Over 10 years
 4 to 10 years
 2 to 4 years
 1 to 2 years
 6 months to 1 year
 3 to 6 months
 1 to 3 months
 Short demonstration to 1 month
 None or short demonstration
- Lengthier OJT needed to meet competency requirements among:
 - Transportation Equipment
 - Chemicals
 - Computer Products
 - Metal Fabrication
- Food manufacturing has fastest on-the-job training process to meet competencies





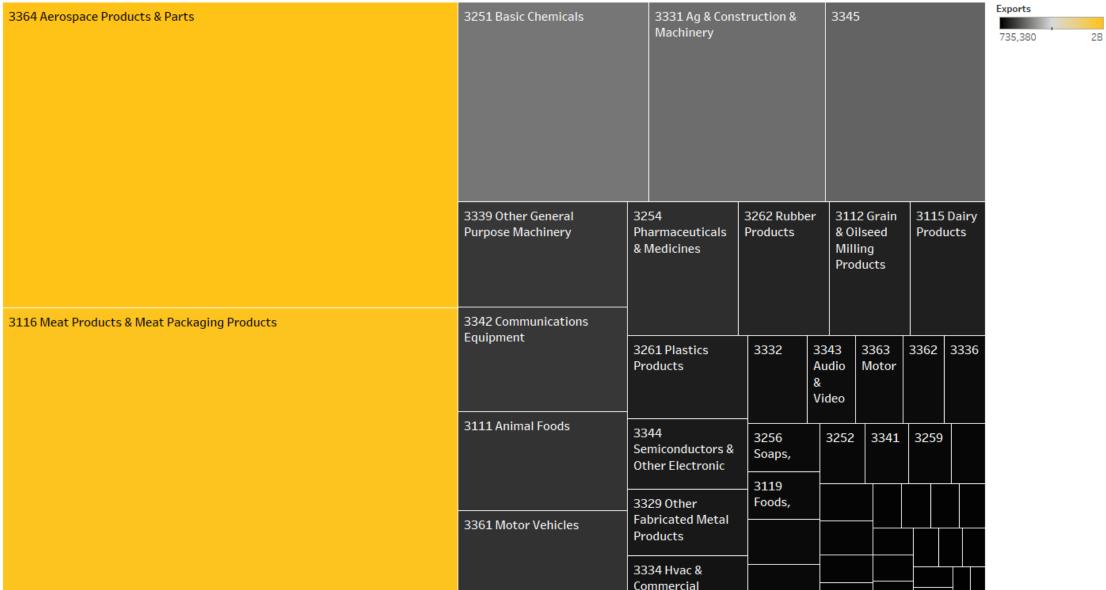
Food and Transportation Share Top Spot

Exports Machinery Computer & Food \$3,204,412,721 Electronic **Products Transportation Equipment** Plastics & Chemical \$2,944,377,744 \$1,128,358,211 Rubber Products





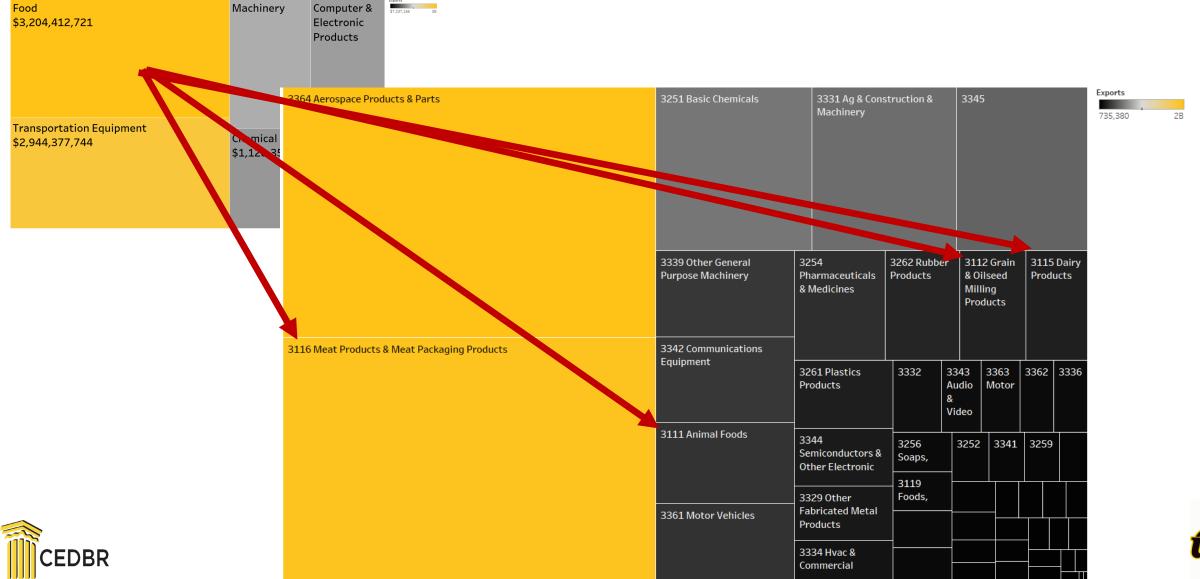
Aerospace still dominates Kansas manufacturing exports





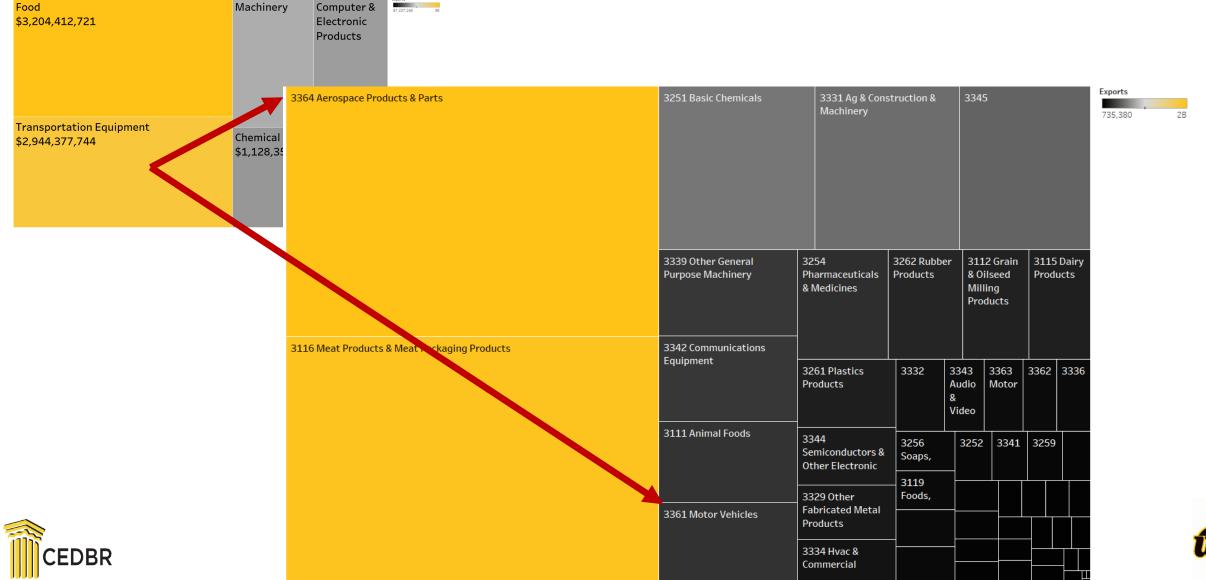


MEAT!



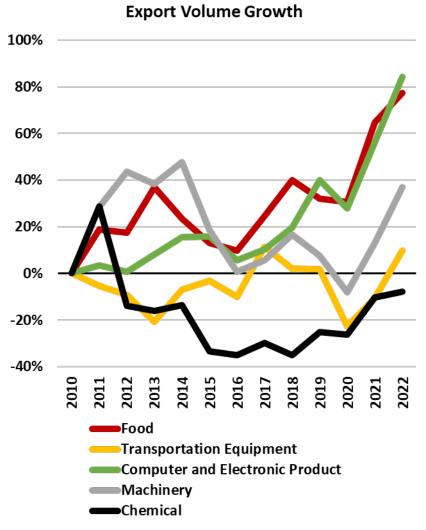


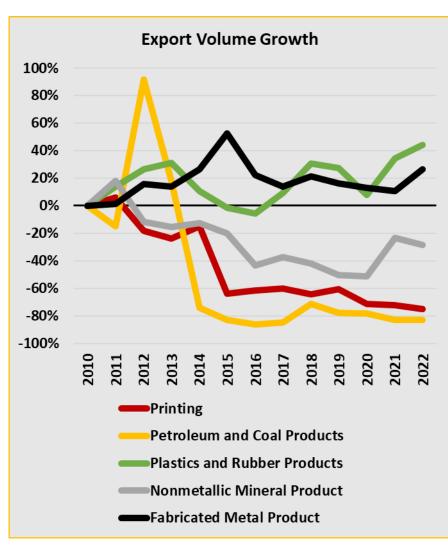
Aerospace Products = \$2.45B





Food and computer accelerate



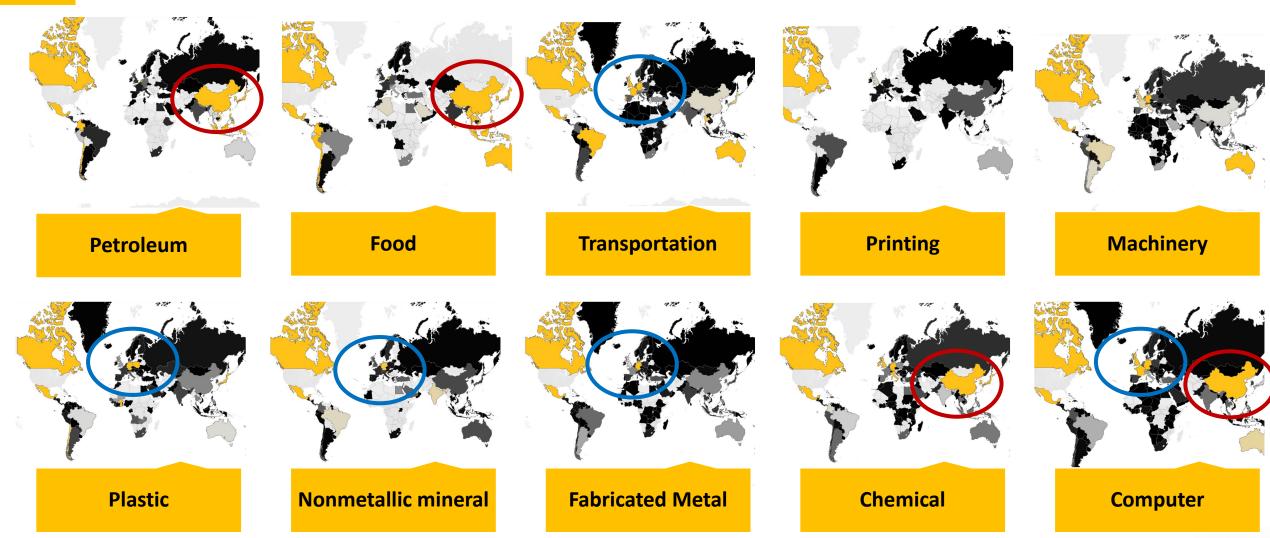


- Not a 1:1 with overall production – Goods are traded domestically
- Varying composition effects (food vs. petroleum)
- Important to consider business cycles





Exports by Country





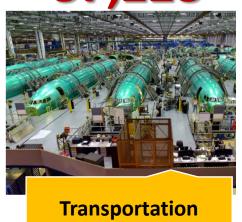


Total Employment Contribution by Segment 9,157 66,779 57,228 10,953 19

9,157





















25,150



16,887



Summary



Coleman Demonstration Car (1920)

Source: Kansas Historical Society

- KS machinery and plastics both had strong recent growth.
- KS top subsectors need higheducation, experienced workers to meet competency requirements
- For 7/10 top manufacturing sectors, exports continue to increase.
- Food and Transportation
 manufacturing support the most
 jobs across the state annually.



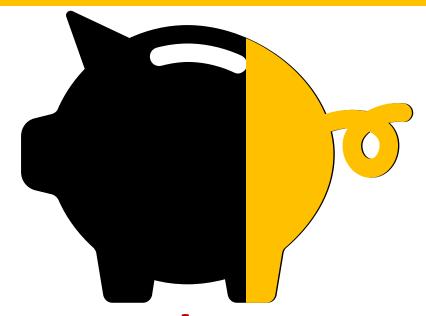


Manufacturing by Region



Dairy Industry in Ottawa, Kansas (1930-1950)

Source: Kansas Historical Society



South Central Kansas

• The region represents 29% of all Manufacturing Employment in the state.





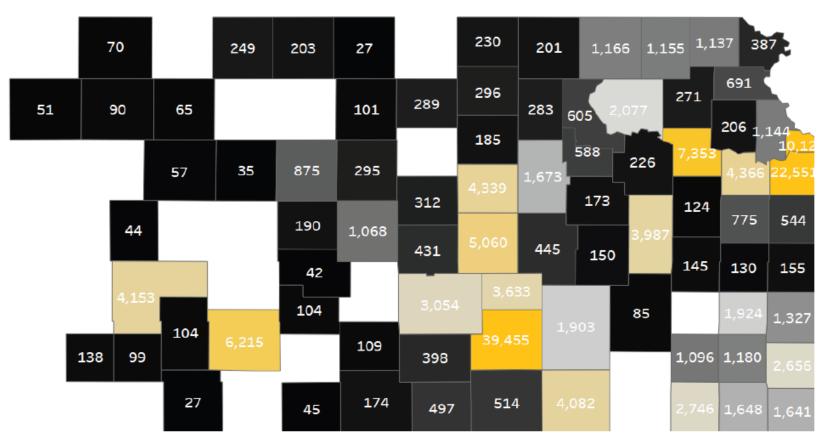
Rank the following potential State/Local policies based on what would be more beneficial to your company in 2023 (top= most important).

Workforce development
Infrastructure investment
Energy Cost reducation
Export promotion/assistance
Reducing taxes





South Central Kansas has the highest share of manufacturing jobs



- Sedgwick County
 accounted for 25% of
 all manufacturing
 employment....
- Johnson County was the second largest manufacturing community, with 22,551 employees.
- Ford County had the highest concentration of manufacturing employment, with

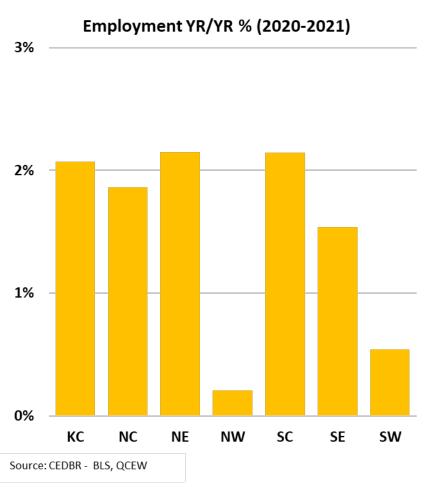
4.25 Employment

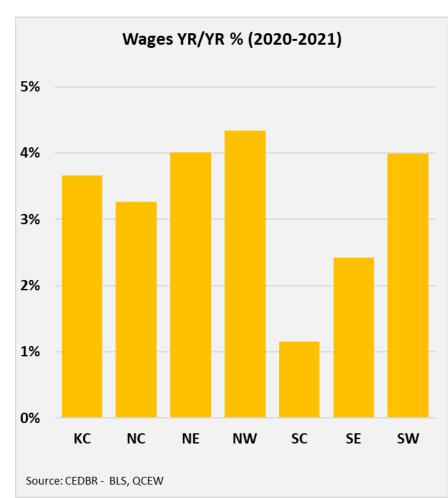






Regional employment and wage





South Central

 Although SC led the state in employment growth, it was a laggard in wage growth.

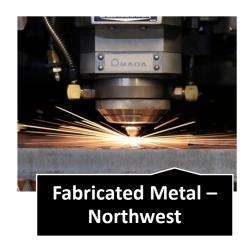
Northwest

 The NW region has the smallest share of total employment, but had the strongest wage growth





Top sectors by region



















Selected companies by region

























XXXXX



Expansion discussion





Panasonic

- Will bring in teams for several years to help train and establish
- Core labor pool already exists in Missouri
- Access to skilled labor was a strategic advantage
- Proximity to markets (geography and industries)

• Integra

- The 2,000 jobs needed are less than the 3,800 lost since 2019.
- The skills, abilities, and knowledge is a related to aerospace, providing some additional training
- The industry will be in a long growth cycle
- The new industry will be a compliment to the aerospace market, providing upward mobility



Summary



Furniture Factory, Arkansas City (1880-1890)

Source: Kansas Historical Society

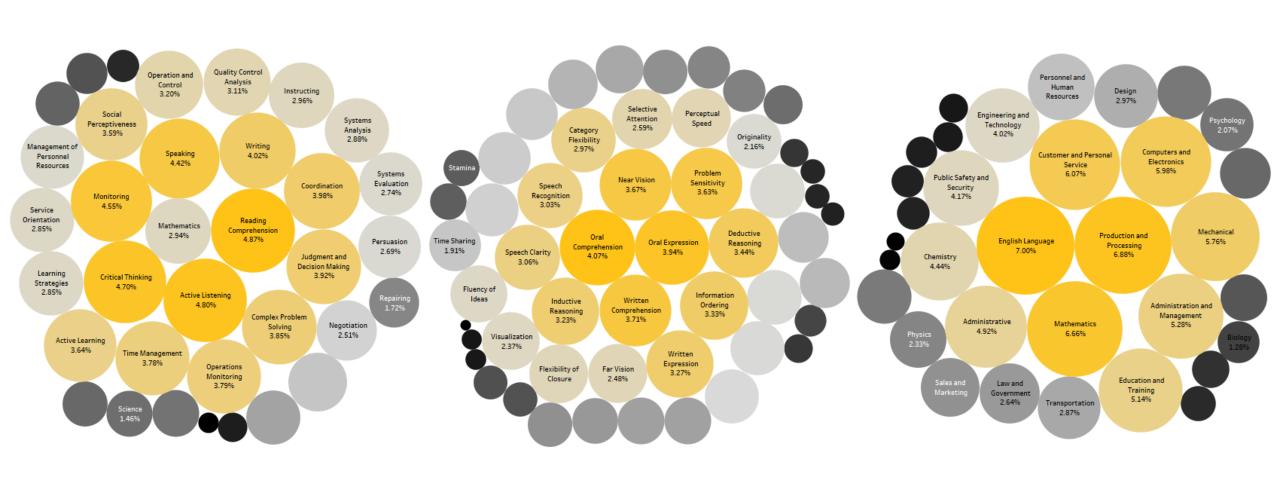
• South Central Kansas is the dominant manufacturing provider in the state.





Key Attributes – Chemical Products Manufacturing

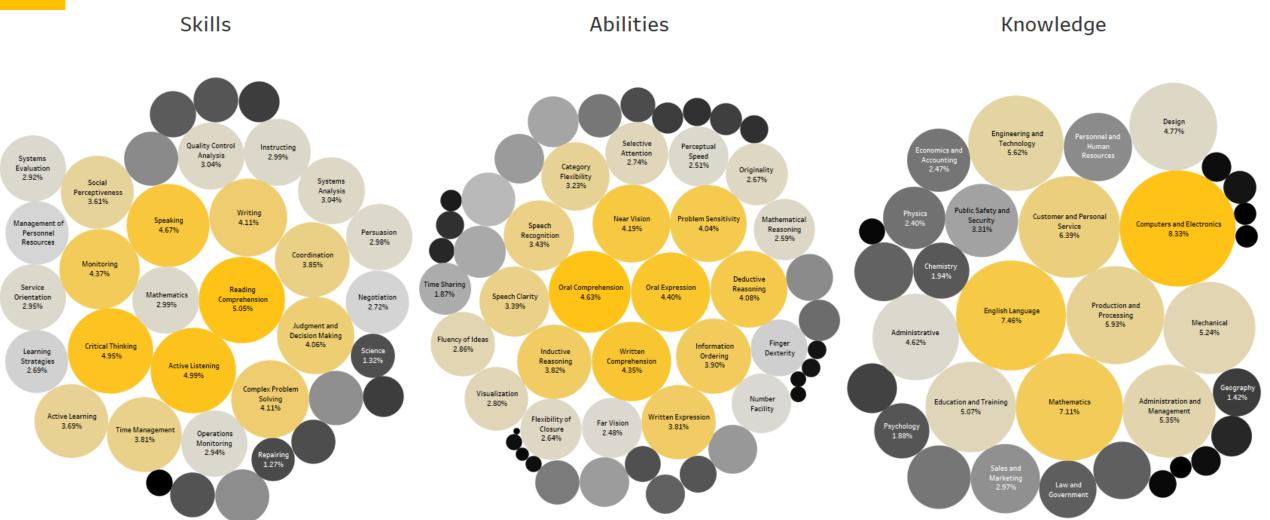
Skills Abilities Knowledge



Share of Total Competency
Share of Total Competency
Share of Total Competency

4.87% 0.08%
4.87% 0.08%
5.00%

Key Attributes – Computer Products



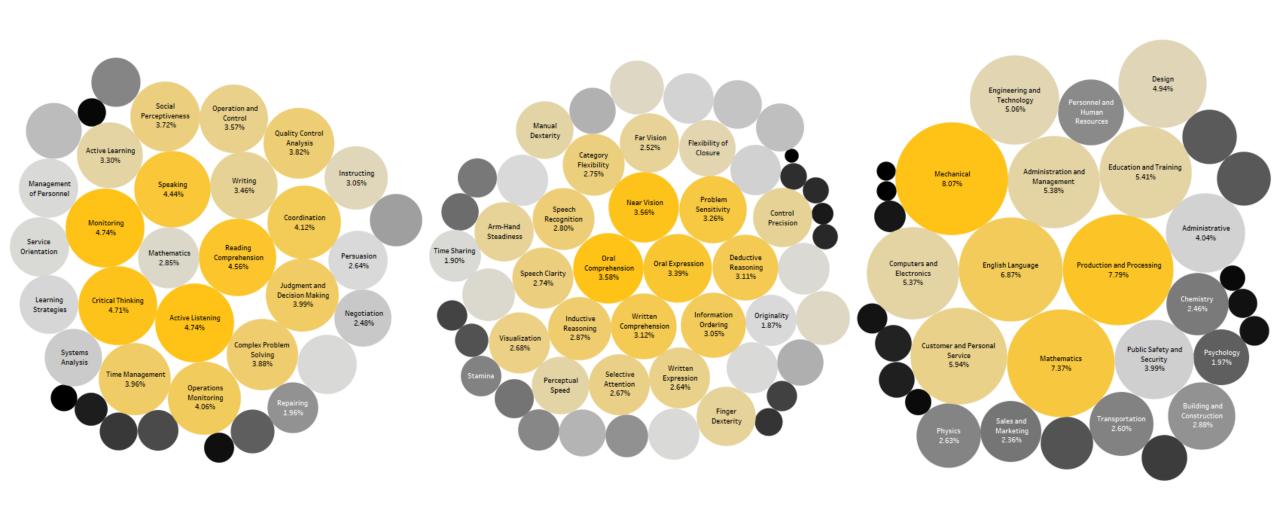
Share of Total Competency
Share of Total Competency

5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 0.03% 5.05% 5.05% 0.03% 5.05% 5

Key Attributes – Fabricated Metals

Share of Total Competency

Skills **Abilities** Knowledge



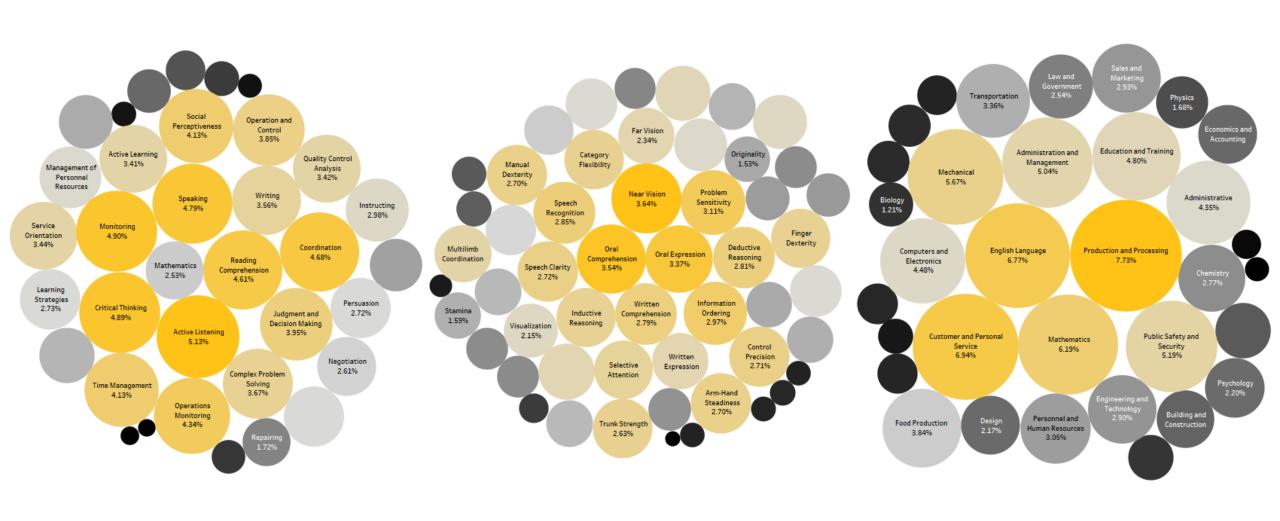
Share of Total Competency

Share of Total Competency

Key Attributes – Food Manufacturing

Share of Total Competency

Skills **Abilities** Knowledge

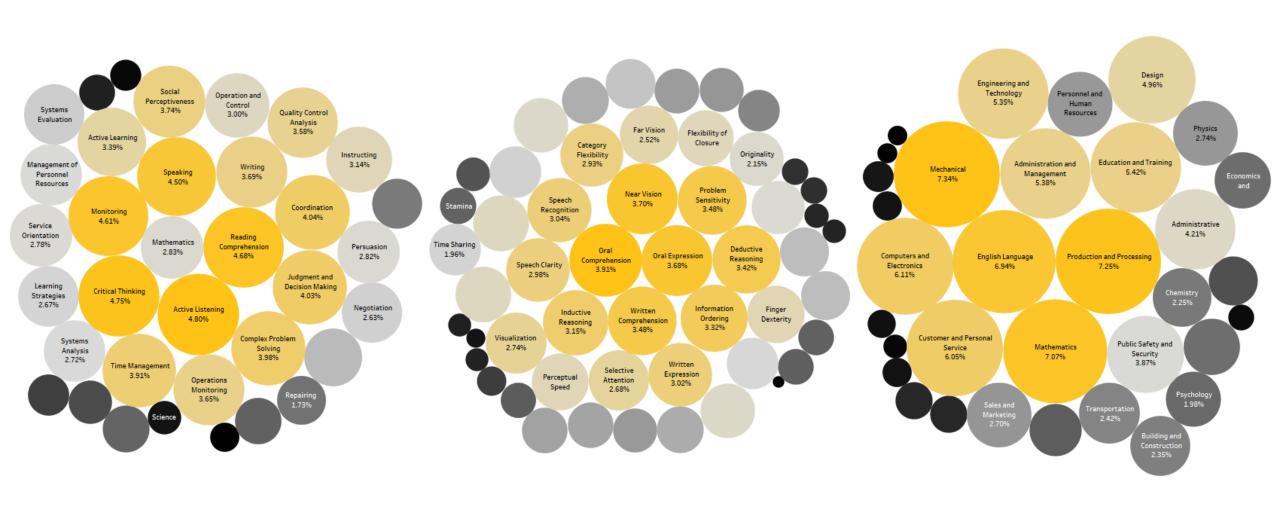


Share of Total Competency

Share of Total Competency

Key Attributes – Machinery Manufacturing

Skills **Abilities** Knowledge



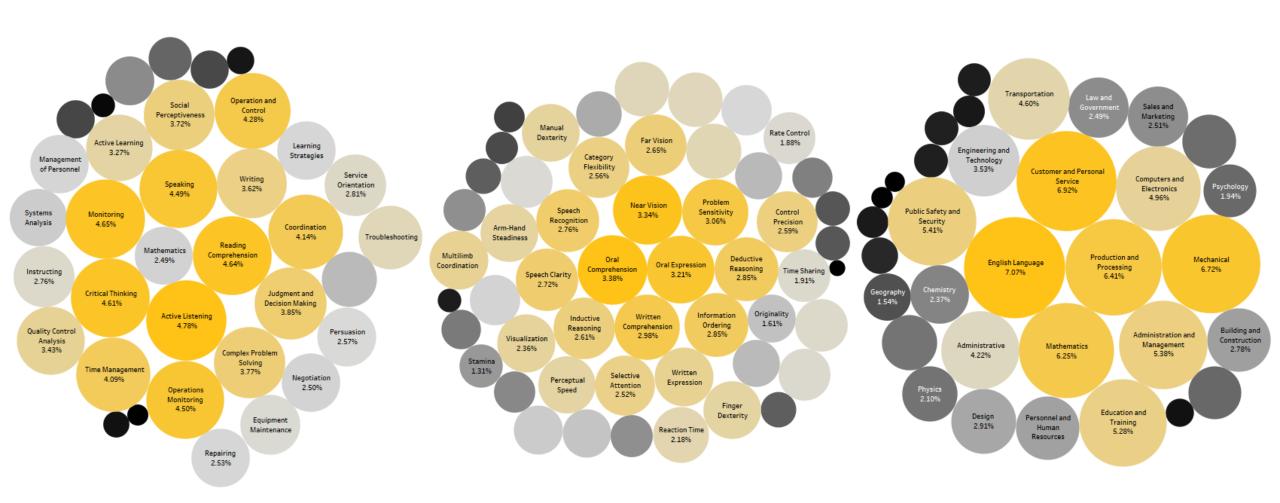
Share of Total Competency

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Share of Total Competency

Key Attributes – Non-Metallic Goods

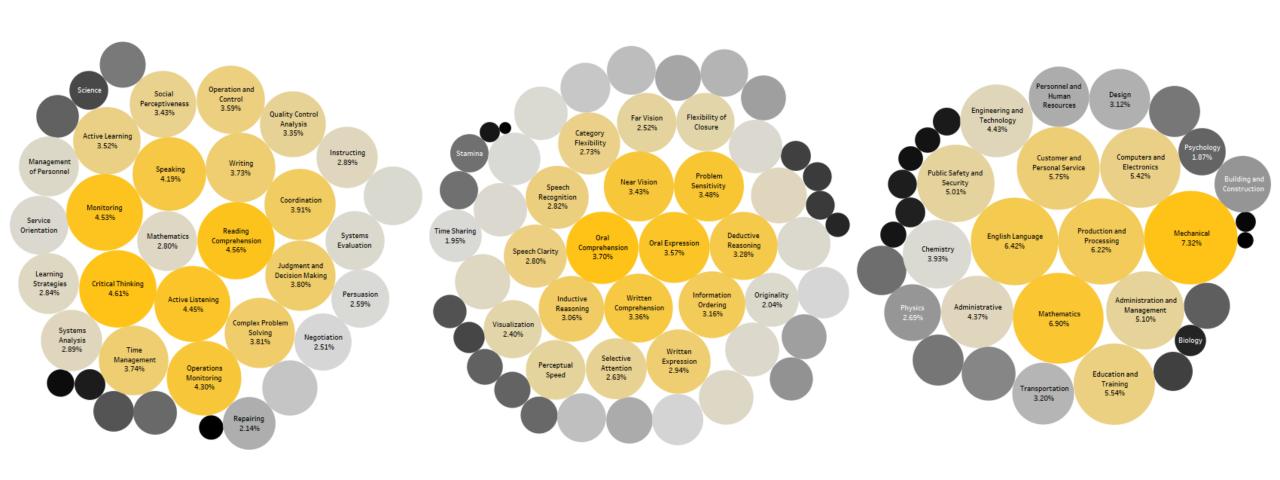
Skills Abilities Knowledge



Share of Total Competency Share of Total Competency Share of Total Competency Share of Total Competency 3.38% 0.28%

Key Attributes – Petroleum and Oil Processing

Skills Abilities Knowledge

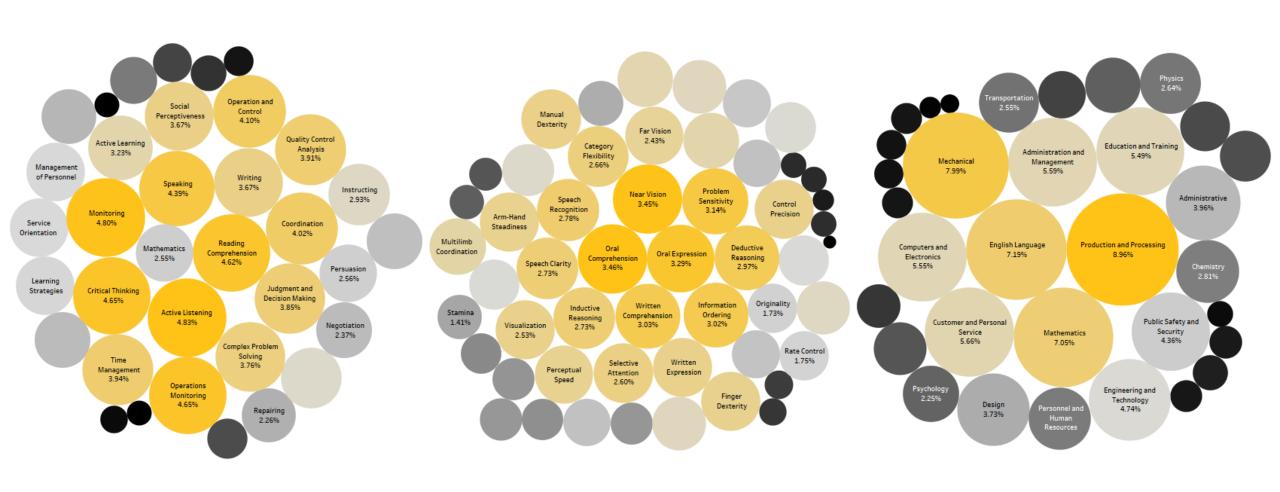


 Share of Total Competency
 Share of Total Competency
 Share of Total Competency

 0.46%
 4.61%
 0.10%
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Key Attributes – Plastics Manufacturing

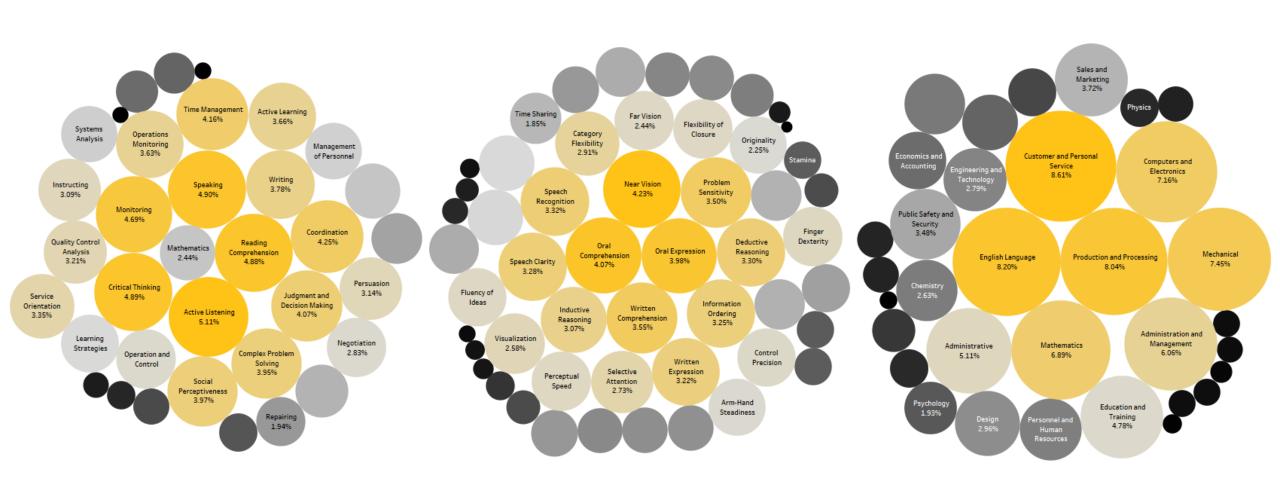
Skills Abilities Knowledge



Share of Total Competency Share of Total Competency Share of Total Competency Share of Total Competency 0.48% 0.12

Key Attributes - Printing

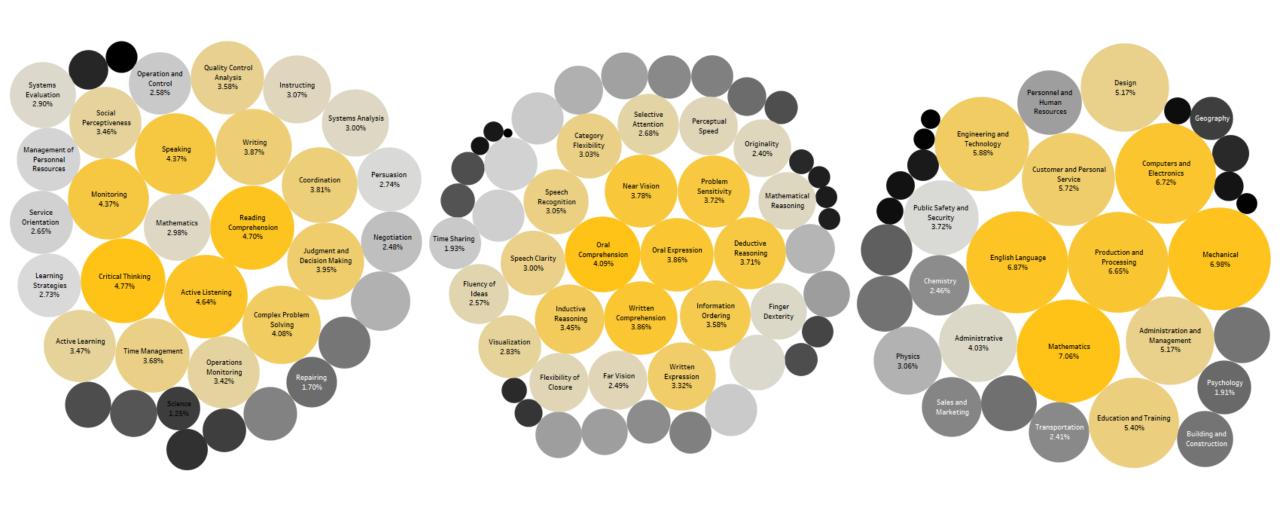
Skills Abilities Knowledge



Share of Total Competency Share of Total Competency Share of Total Competency Share of Total Competency 9.21% 9.21% 9.22

Key Attributes – Transportation Equipment

Skills Abilities Knowledge



 Share of Total Competency
 Share of Total Competency
 Share of Total Competency

 0.67%
 4.77%
 0.06%

Labor Gap - Food Manufacturing

Occupation	2023	2024	2025	2026	2027	2028	2029	2030
Management	13	35	57	80	106	129	152	176
Business and Financial Operations	10	25	40	56	74	90	106	122
Computer and Mathematical	4	10	15	21	27	32	38	44
Architecture and Engineering	2	5	8	11	15	18	21	25
Life, Physical, and Social Science	4	10	17	24	32	39	46	53
Community and Social Service	0	0	0	0	0	0	0	0
Legal	0	0	0	0	0	0	0	0
Arts, Design, Entertainment, Sports, and Media	0	1	1	2	2	3	4	4
Healthcare Practitioners and Technical	0	1	1	2	2	3	4	4
Healthcare Support	0	0	0	0	0	0	0	0
Protective Service	0	1	1	2	2	3	4	4
Food Preparation and Serving Related	7	21	34	48	65	78	92	107
Building and Grounds Cleaning and Maintenance	9	23	36	50	66	81	95	110
Personal Care and Service	0	0	0	0	0	0	0	0
Sales and Related	5	20	36	51	71	86	101	116
Office and Administrative Support	-1	12	24	37	55	66	78	89
Farming, Fishing, and Forestry	3	8	13	18	25	30	36	41
Construction and Extraction	1	2	3	4	5	6	7	8
Installation, Maintenance, and Repair	35	85	135	187	245	298	352	407
Production	139	398	658	923	1,242	1,506	1,778	2,050
Transportation and Material Moving	60	164	269	376	503	610	720	831
Source: CEDBR, BLS - QCEW, BLS - National Employme	ent Matrix, k	KLIC						





Labor Gap - Printing & Support												
Occupation	2023	2024	2025	2026	2027	2028	2029	2030				
Management	2	4	6	7	9	11	13	15				
Business and Financial Operations	1	2	3	4	5	6	7	8				
Computer and Mathematical	1	2	2	3	4	5	6	6				
Architecture and Engineering	0	0	0	0	0	0	0	0				
Life, Physical, and Social Science	0	0	0	0	0	0	0	0				
Arts, Design, Entertainment, Sports, and Media	2	4	5	7	9	11	12	14				
Protective Service	0	0	0	0	0	0	0	0				
Building and Grounds Cleaning and Maintenance	0	0	0	0	0	0	0	0				
Sales and Related	3	5	8	10	13	15	18	20				
Office and Administrative Support	-7	-14	-21	-28	-35	-42	-49	-56				
Construction and Extraction	0	0	0	0	0	0	0	0				
Installation, Maintenance, and Repair	0	0	0	1	1	1	1	1				
Production	5	8	12	15	19	22	26	29				
Transportation and Material Moving	2	4	6	7	9	11	13	15				
Source: CEDBR, BLS - QCEW, BLS - National Employme	ent Matrix, k	KLIC	-	-		-	-					





Labor Gap - Petroleum & Oil Products Mfg

Occupation	2023	2024	2025	2026	2027	2028	2029	2030		
Management	3	6	8	10	12	14	16	18		
Business and Financial Operations	3	5	7	9	11	13	14	17		
Computer and Mathematical	0	1	1	1	1	2	2	2		
Architecture and Engineering	3	5	7	8	10	12	14	16		
Life, Physical, and Social Science	1	3	4	5	6	6	7	9		
Legal	0	0	0	0	0	0	0	0		
Arts, Design, Entertainment, Sports, and Media	0	0	0	0	0	1	1	1		
Healthcare Practitioners and Technical	0	0	0	0	0	0	0	0		
Protective Service	0	0	0	0	0	0	0	0		
Building and Grounds Cleaning and Maintenance	0	0	0	0	0	0	0	0		
Sales and Related	1	2	2	3	3	4	4	5		
Office and Administrative Support	1	1	2	2	2	2	2	2		
Construction and Extraction	3	5	7	9	11	13	14	17		
Installation, Maintenance, and Repair	6	11	16	21	26	31	36	41		
Production	13	25	33	40	49	57	65	74		
Transportation and Material Moving	3	7	9	12	14	17	19	22		
Source: CEDBR. BLS - OCEW. BLS - National Employment Matrix. KLIC										

Source: CEDBR, BLS - QCEW, BLS - National Employment Matrix, KLIC





Labor Gap - Chemical Products Mfg

	•							
Occupation	2023	2024	2025	2026	2027	2028	2029	2030
Management	19	87	154	175	197	218	240	262
Business and Financial Operations	14	60	106	121	136	151	167	183
Computer and Mathematical	4	18	32	37	42	47	52	57
Architecture and Engineering	14	56	99	115	131	147	163	180
Life, Physical, and Social Science	21	90	158	182	207	232	256	282
Legal	0	1	2	2	2	2	2	3
Arts, Design, Entertainment, Sports, and Media	1	4	6	7	8	9	10	11
Healthcare Practitioners and Technical	1	3	5	5	6	7	7	8
Healthcare Support	0	1	2	2	2	2	2	3
Protective Service	0	1	2	2	2	2	2	3
Building and Grounds Cleaning and Maintenance	2	7	13	15	18	20	22	25
Sales and Related	6	28	50	57	64	71	79	86
Office and Administrative Support	10	65	120	129	139	148	157	165
Farming, Fishing, and Forestry	0	2	3	4	4	4	5	5
Construction and Extraction	1	4	8	9	10	11	12	13
Installation, Maintenance, and Repair	18	69	121	141	162	182	203	224
Production	66	341	614	684	754	824	893	962
Transportation and Material Moving	14	65	115	131	147	163	179	195
Source: CEDBR, BLS - QCEW, BLS - National Employme	ent Matrix, I	KLIC						





Labor Gap - Plastics & Rubber Products Mfg

Occupation	2023	2024	2025	2026	2027	2028	2029	2030		
Management	7	15	24	32	40	48	56	64		
Business and Financial Operations	4	9	15	20	25	29	34	39		
Computer and Mathematical	1	2	3	4	5	6	7	8		
Architecture and Engineering	5	11	18	24	30	36	42	48		
Life, Physical, and Social Science	0	1	1	2	2	3	3	4		
Legal	0	0	0	0	0	0	0	0		
Arts, Design, Entertainment, Sports, and Media	0	0	1	1	1	1	2	2		
Healthcare Practitioners and Technical	0	0	0	0	0	0	0	0		
Protective Service	0	0	0	0	0	0	0	0		
Building and Grounds Cleaning and Maintenance	0	1	1	2	2	3	3	4		
Sales and Related	3	6	10	14	17	21	24	28		
Office and Administrative Support	2	6	12	16	19	22	25	28		
Construction and Extraction	0	1	1	2	2	3	3	4		
Installation, Maintenance, and Repair	13	28	46	61	76	92	108	124		
Production	47	109	189	249	309	366	426	485		
Transportation and Material Moving	14	32	52	69	87	104	121	139		
Source: CEDBR, BLS - QCEW, BLS - National Employment Matrix, KLIC										





Labor Gap - Nonmetallic Mineral Products Mfg

Occupation	2023	2024	2025	2026	2027	2028	2029	2030
Management	0	1	1	2	2	2	3	3
Business and Financial Operations	0	0	1	1	1	1	1	2
Computer and Mathematical	0	0	0	0	0	0	0	0
Architecture and Engineering	0	0	0	1	1	1	1	1
Life, Physical, and Social Science	0	0	0	0	0	0	0	0
Arts, Design, Entertainment, Sports, and Media	0	0	0	0	0	0	0	0
Protective Service	0	0	0	0	0	0	0	0
Building and Grounds Cleaning and Maintenance	0	0	0	0	0	0	0	0
Sales and Related	0	1	1	1	1	2	2	2
Office and Administrative Support	-4	-7	-11	-15	-19	-23	-27	-31
Construction and Extraction	2	3	5	6	8	10	11	13
Installation, Maintenance, and Repair	2	4	6	8	10	12	14	16
Production	5	9	14	18	22	27	31	36
Transportation and Material Moving	2	5	7	9	11	13	15	17





Labor Gap - Fabricated Metal Products Mfg

Occupation	2023	2024	2025	2026	2027	2028	2029	2030
Management	13	29	42	54	65	74	83	89
Business and Financial Operations	7	16	23	29	35	40	44	47
Computer and Mathematical	1	2	3	4	5	5	6	6
Architecture and Engineering	8	17	25	32	38	43	47	50
Life, Physical, and Social Science	0	1	1	2	2	2	2	3
Legal	0	0	0	0	0	0	0	0
Arts, Design, Entertainment, Sports, and Media	0	0	0	1	1	1	1	1
Healthcare Practitioners and Technical	0	0	0	0	0	0	0	0
Protective Service	0	0	0	1	1	1	1	1
Building and Grounds Cleaning and Maintenance	1	2	2	3	3	4	4	4
Sales and Related	6	12	17	22	27	30	34	36
Office and Administrative Support	5	12	16	18	18	15	11	4
Construction and Extraction	9	19	29	37	45	53	59	65
Installation, Maintenance, and Repair	10	21	32	41	49	57	64	70
Production	74	167	239	296	340	372	392	399
Transportation and Material Moving	12	25	37	47	56	64	70	76
Source: CEDBR, BLS - QCEW, BLS - National Employmer	nt Matrix, K	KLIC						_





Labor Gap - Machinery Mfg

2023	2024	2025	2026	2027	2028	2029	2030
21	41	61	80	99	118	138	157
15	29	43	57	71	84	98	111
9	19	28	37	46	56	65	74
42	83	124	165	206	246	287	329
1	1	2	3	3	4	4	5
0	0	1	1	1	1	1	2
1	2	3	4	4	5	6	7
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
3	5	8	11	13	16	19	22
11	21	31	41	51	61	71	81
7	13	17	21	25	28	30	32
0	0	0	0	0	0	0	0
2	4	6	8	10	12	13	15
20	41	61	81	101	121	141	162
87	167	243	316	386	454	522	588
11	23	33	44	55	65	76	86
	21 15 9 42 1 0 1 0 0 0 3 11 7 0 2 20 87 11	21 41 15 29 9 19 42 83 1 1 0 0 1 2 0 0 0 0 0 0 3 5 11 21 7 13 0 0 2 4 20 41 87 167	21 41 61 15 29 43 9 19 28 42 83 124 1 1 2 0 0 1 1 2 3 0 0 0 0 0 0 0 0 0 3 5 8 11 21 31 7 13 17 0 0 0 2 4 6 20 41 61 87 167 243 11 23 33	21 41 61 80 15 29 43 57 9 19 28 37 42 83 124 165 1 1 2 3 0 0 1 1 1 2 3 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 5 8 11 11 21 31 41 7 13 17 21 0 0 0 0 2 4 6 8 20 41 61 81 87 167 243 316 11 23 33 44	21 41 61 80 99 15 29 43 57 71 9 19 28 37 46 42 83 124 165 206 1 1 2 3 3 0 0 1 1 1 1 2 3 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 5 8 11 13 11 21 31 41 51 7 13 17 21 25 0 0 0 0 0 2 4 6 8 10 20 41 61 81 101 87 167 243 316 386 11 23 33 34 55 </td <td>21 41 61 80 99 118 15 29 43 57 71 84 9 19 28 37 46 56 42 83 124 165 206 246 1 1 2 3 3 4 0 0 1 1 1 1 1 1 1 2 3 4 4 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 5 8 11 13 16 11 21 31 41 51 61 7 13 17 21 25 28 0 0 0<td>21 41 61 80 99 118 138 15 29 43 57 71 84 98 9 19 28 37 46 56 65 42 83 124 165 206 246 287 1 1 2 3 3 4 4 0 0 1 1 1 1 1 1 1 2 3 4 4 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 5 8 11 13 16 19 11 21 31 41 51 61 71 7 13 17 21 25 28 30 0 0 0 0 0 0 0 2 4 6 <t< td=""></t<></td></td>	21 41 61 80 99 118 15 29 43 57 71 84 9 19 28 37 46 56 42 83 124 165 206 246 1 1 2 3 3 4 0 0 1 1 1 1 1 1 1 2 3 4 4 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 5 8 11 13 16 11 21 31 41 51 61 7 13 17 21 25 28 0 0 0 <td>21 41 61 80 99 118 138 15 29 43 57 71 84 98 9 19 28 37 46 56 65 42 83 124 165 206 246 287 1 1 2 3 3 4 4 0 0 1 1 1 1 1 1 1 2 3 4 4 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 5 8 11 13 16 19 11 21 31 41 51 61 71 7 13 17 21 25 28 30 0 0 0 0 0 0 0 2 4 6 <t< td=""></t<></td>	21 41 61 80 99 118 138 15 29 43 57 71 84 98 9 19 28 37 46 56 65 42 83 124 165 206 246 287 1 1 2 3 3 4 4 0 0 1 1 1 1 1 1 1 2 3 4 4 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 5 8 11 13 16 19 11 21 31 41 51 61 71 7 13 17 21 25 28 30 0 0 0 0 0 0 0 2 4 6 <t< td=""></t<>

Source: CEDBR, BLS - QCEW, BLS - National Employment Matrix, KLIC





Labor Gap - Computer Products Mfg

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Occupation	2023	2024	2025	2026	2027	2028	2029	2030
Management	11	120	230	253	276	299	323	347
Business and Financial Operations	10	102	195	214	233	253	273	294
Computer and Mathematical	22	162	306	343	382	422	463	505
Architecture and Engineering	21	210	402	442	483	525	568	612
Life, Physical, and Social Science	1	8	15	16	18	19	20	22
Legal	1	4	7	8	10	11	13	15
Arts, Design, Entertainment, Sports, and Media	1	8	15	16	18	19	20	22
Healthcare Practitioners and Technical	0	1	2	2	3	3	3	3
Protective Service	0	1	2	2	3	3	3	3
Food Preparation and Serving Related	0	0	0	0	0	0	0	0
Building and Grounds Cleaning and Maintenance	0	3	6	7	8	8	9	9
Sales and Related	4	47	91	99	108	117	126	135
Office and Administrative Support	2	72	142	149	156	163	171	178
Construction and Extraction	0	2	4	5	5	5	6	6
Installation, Maintenance, and Repair	3	30	58	64	70	77	83	90
Production	21	303	586	633	680	729	778	827
Transportation and Material Moving	2	24	46	51	55	60	64	69
Source: CEDBR, BLS - QCEW, BLS - National Employme	ent Matrix, I	KLIC						





Labor Gap - Transportation Equipment Mfg

Occupation	2023	2024	2025	2026	2027	2028	2029	2030
Management	65	164	217	239	252	267	292	325
Business and Financial Operations	77	193	255	281	295	314	342	380
Computer and Mathematical	48	118	158	178	192	207	229	256
Architecture and Engineering	146	364	484	539	573	614	674	752
Life, Physical, and Social Science	5	13	17	19	19	20	22	25
Legal	0	0	0	0	0	0	0	0
Arts, Design, Entertainment, Sports, and Media	4	10	13	14	15	15	17	18
Healthcare Practitioners and Technical	0	0	0	0	0	0	0	0
Protective Service	3	7	9	9	10	10	11	12
Food Preparation and Serving Related	0	0	0	0	0	0	0	0
Building and Grounds Cleaning and Maintenance	3	7	9	9	10	10	11	12
Sales and Related	16	40	53	61	67	73	81	91
Office and Administrative Support	55	143	183	191	190	191	201	219
Construction and Extraction	32	82	107	117	122	128	139	154
Installation, Maintenance, and Repair	93	230	310	352	382	415	461	518
Production	678	1,735	2,260	2,430	2,491	2,587	2,782	3,065
Transportation and Material Moving	67	167	223	248	265	284	312	349
Source: CEDBR, BLS - QCEW, BLS - National Employme	nt Matrix, k	KLIC						



