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THE INSTITUTE FOR PUBLIC POLICY & ECONOMIC DEVELOPMENT

Artificial Intelligence and Its Impact on Northeastern Pennsylvania's Top Sectors

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Executive Summary

Artificial intelligence (AI) is rapidly reshaping the economic and workforce landscape of Northeastern Pennsylvania. The region's top industries are integrating AI at varied levels to improve efficiency, decision-making, and productivity. As AI adoption increases in Northeastern Pennsylvania, AI readiness remains comparatively low. This growing disconnect between *how deeply AI is affecting the regional labor market* and *how prepared the region is to engage with it* emerges as a key issue to be addressed.

AI adoption is rising across regional industries but readiness remains low. Nationwide, AI adoption is accelerating with generative AI usage in business functions rising from 55.0 percent in 2023 to 71.0 percent in 2024 and projected annual growth of 37.0 percent between 2023 and 2030. The Scranton–Wilkes-Barre metro area ranks in the lowest tier nationally for AI-readiness, lagging in talent, innovation, and adoption pillars, however. The region is at risk of falling behind economically without deliberate investment in AI capacity.

Jobs postings requiring AI skills have surged since 2015. Between 2015 and 2024, the share of regional jobs requiring AI-related skills more than doubled, with 1,566 unique AI-sector job postings recorded. Demand is highest in manufacturing and health care. Despite this surge, however, the region's lack of AI-readiness could limit employers' ability to adopt AI effectively.

A significant share of regional jobs are exposed to AI. The region's exposure to AI continues to grow, with 44,741 jobs in the Scranton–Wilkes-Barre MSA identified as AI-exposed as of 2024. This expanding exposure underscores the importance of upskilling initiatives and regional preparation. Without targeted workforce development, the region risks deepening skill gaps and economic disparities. Targeted upskilling will be essential to protect workers and promote economic resilience.

AI presents substantial opportunities for efficiency and innovation. Across sectors, AI improves productivity through automation, strengthens decision-making, and fosters innovation by freeing workers from repetitive tasks. AI-assisted customer service, predictive maintenance in manufacturing, and tailored education models are examples of applications with strong regional relevance. If businesses and organizations adopt and integrate AI tools strategically, AI can bolster their competitiveness.

Risks include job displacement and cybersecurity vulnerabilities. Nationally, AI-driven automation contributed to more than 10,000 job cuts in the first seven months of 2025, raising concerns about workforce displacement. Additionally, widespread data processing through AI tools raises privacy and cybersecurity vulnerabilities, particularly when employees use non-secure commercial AI platforms. Misinformation and bias pose further challenges, as AI systems can produce inaccurate or distorted outputs due to flaws or bias in their training data. Without safeguards and policy planning, AI adoption could increase vulnerability across the region.

Overall, the findings point to a region at an inflection point. To fully leverage the benefits of AI while mitigating its risks, Northeastern Pennsylvania must strengthen its workforce training systems, promote organizational experimentation, and develop supportive legislative and policy frameworks. With coordinated action—and a focus on building broad AI fluency across all sectors—the region can close the readiness gap, enhance economic resilience, and position itself for success in an increasingly AI-driven economy.

Research Methodology

As part of this evaluation, The Institute examined primary data as well as secondary data from various sources. Primary data includes responses to a digital survey and semi-structured interviews, whereas secondary data is primarily provided by The Institute's labor market data provider *Lightcast*, the U.S. Census Bureau's Annual Business Survey, and a variety of articles from reputable publishers. The qualitative responses from each of the surveys have not been edited for syntax or spelling. Each section of this report contains sourced information. The synthesis of secondary data was conducted with the assistance of Microsoft Copilot and then reviewed and edited by a research analyst.

Introduction

The following report is a synthesis of primary and secondary research related to artificial intelligence (AI) and its impact on the top industries in Northeastern Pennsylvania. The result of this synthesis includes conclusions and recommendations to foster an understanding of artificial intelligence and the role it currently plays and will continue to play in Northeastern Pennsylvania's top industries.

Artificial Intelligence Overview

In simple terms, AI describes "the ability of a machine to think and learn like a human."[1] AI is a combination of a wide range of technologies, including machine learning, deep learning, and natural language processing (NLP). Generally, AI falls into two categories: Narrow and General. Narrow AI (or Weak AI) refers to systems that are designed to do a specific task, such as data entry and processing. Most AI used in today's industries fall into the Narrow AI category. Some examples of Narrow AI include voice assistants (e.g. Siri, Alexa, Google Assistant, etc.), recommendation and facial recognition systems, chatbots (e.g. ChatGPT, Copilot, Gemini, etc.), autonomous vehicles, and predictive texts and autocomplete features. Additionally, Generative AI, which creates content (e.g. text and images) is considered an advanced subset of Narrow AI. In contrast, General AI (or Strong AI) describes AI that can match or exceed human cognitive abilities across various tasks. Although there have been advancements toward General AI, it does not yet exist. All current AI systems are still task specific. Despite its current limitations, however, AI is reshaping both professional and economic landscapes with its ability to perform repetitive tasks, enhance efficiency, improve decision making, and drive technological advances.

In recent years, there has been significant growth in the use and adoption of AI across many industries. For example, the Stanford Institute for Human-Centered AI (HAI) reported that 71.0 percent of its survey respondents used generative AI in at least one business function in 2024.[2] This percentage is an increase from 55.0 percent in 2023. Moreover, Grand View Research reported in a recent publication that AI is expected to have an annual growth rate of about 37.0 percent between 2023 and 2030.[3] The growth of generative AI in business functions as well as its expected annual growth in the coming years underscores the increasing impact AI will have on jobs and the larger economy. Consequently, it is important to understand the current roles AI is fulfilling in the top industries of Northeastern Pennsylvania as well as the skills that are in demand to meet AI-related needs.

In response to this growth, all 50 states, as well as Puerto Rico, the U.S. Virgin Islands, and Washington D.C., have introduced, adopted, and enacted AI-related legislation. In 2025 alone, 38 states adopted or enacted around 100 measures related to AI.[4] In Pennsylvania, 19 bills related to AI issues generally but excluding technologies like facial recognition, deepfakes, and autonomous vehicles are pending as of

August 2025: H 399, H 1448, H 594, H 518, H 95, H 140, S 806, H 317, H 431, H 1533, H 1188, H 1125, H 1625, H 1167, S 508, S 293, H 811, S 631, and HR 81.

Common Applications

The specific use of AI is largely dependent upon the setting or industry in which it is applied. Below are some general examples of the ways in which AI has been applied in various industries.

Finance

AI is being employed in the finance industry to either enhance or perform a variety of services, including market trend and data analysis, guidance of investors and customers using a personalized approach, and fraud detection and risk management. It is also being used to handle repetitive tasks such as data entry, document processing, and reporting – tasks which require manual effort and time.[5] Machine learning and robotic process automation (RPA), when paired with AI, make these actions possible. AI offers financial firms the ability to enhance efficiency, cut costs, detect fraudulent activity, mitigate risks, and improve investor and customer services.

Healthcare

In the healthcare industry, AI is being used to perform administrative duties, enhance communication between patients and care providers, and identify disease at earlier stages. More specifically, Narrow AI assists with the management of patient medical records. Translation needs can be addressed using AI, which can be useful for cities or communities that are primarily composed of non-English speakers. Similarly, AI can be used to convert voice-recorded reports dictated by physicians and healthcare professionals into text documents.[6] Moreover, AI can process and interpret massive amounts of data quickly and accurately, leading to earlier identification of disease.[7] With their ability to enhance medical research and provide earlier diagnoses and recommendations for treatment and after, AI and machine learning are being integrated into every step of the patient care process in the field of healthcare.[8]

Manufacturing

Through the implementation of AI technologies (e.g. machine learning and natural language processing) into its operations, the manufacturing industry is improving innovation, enhancing product quality, optimizing energy efficiency, minimizing waste, and reducing operational costs. For example, AI can perform predictive maintenance by analyzing data from sensors on machinery to forecast failures before they occur, reducing downtimes and minimizing costs.[9] Another example of AI in the manufacturing industry is its use to manage robots in the production of automobiles and electronics.[10]

Transportation

AI is being used in a variety of ways in the transportation industry. Most notably, the use of autonomous, or self-driving, vehicles is becoming more prevalent. One of the most significant benefits they offer is increased mobility for individuals who are unable to drive on their own. Not all autonomous vehicles are self-driving, however. For instance, vehicles that still require a driver behind the wheel but aid them via automated alerts or safety features such as blind spot warning and automatic emergency braking are considered autonomous. Other uses of AI in the transportation industry involve traffic management via signal adjustment and vehicle rerouting, as well as enhanced logistics to make the shipping and movement of goods more efficient.[11]

Retail and E-commerce

AI is employed in the retail and e-commerce industry to personalize shopping via tailored experiences, manage inventory, perform supply chain analytics, and enhance customer service.[12] Additionally, AI in retail and e-commerce is being used to optimize delivery routes and reduce transit times, increasing efficiency and reducing operational costs. These applications to the retail and e-commerce industry, as well as those in the finance, healthcare, manufacturing, and transportation industries, have the potential to benefit the economy of Northeastern Pennsylvania as they have in similar regions.

General Benefits

Though the opportunities and benefits of AI vary by industry, below are some general examples that apply to most, if not all, sectors – including those in Northeastern Pennsylvania.

Enhanced Efficiency and Productivity Through Automation

Various industries are enhancing efficiency through the incorporation of AI technologies into their operations. Specifically, machine learning, robotic process automation, and natural language processing allow for the automation of repetitive tasks involving human interaction. A study of 5,179 customer support agents, conducted by the National Bureau of Economic Research, found that AI-powered customer support agents could handle about 14 percent more inquiries per hour compared to traditional methods.[13] Furthermore, the study found that the lowest-performing agents improved their output with the assistance of AI. Aside from enhanced efficiency and productivity, the implementation of AI in the workplace also has the potential to help professionals improve their work-related decision-making, creativity, and work-life balance.

Improved Decision-Making

The ability of AI to analyze large amounts of data in a short amount of time allows business leaders to make informed decisions without the need for time-consuming research. This capability is particularly valuable in situations where data volume and variety can overwhelm human analysis. Moreover, by relying on data rather than human judgement, AI can mitigate biases that influence decision-making.[14] The use of AI in making well-informed decisions can be particularly useful in strategic planning, hiring, and policy making processes.

Bolstering Innovation and Creativity

By automating time-consuming or repetitive tasks, AI exposes opportunities for innovation and creativity. For instance, if businesses or companies automate tasks that can be accomplished by Narrow AI systems, such as data processing and reporting, more time and effort can be dedicated to higher-value work like strategic planning. Additionally, AI tools like ChatGPT, Copilot, and Gemini draw their responses from a vast array of sources, so they can support creative processes related to the altering or improvement of operations.

Regional Weaknesses and Challenges

Although there are numerous benefits to the use of AI in the region's top industries, there are also concerns associated with widespread use of AI as well as barriers and challenges to its implementation.

Low AI Capacity Levels

The opportunities created by AI and its associated benefits position the technology as a key driver of future economic development. Consequently, general AI readiness of a region is critical. In an analysis of AI readiness across the United States, Brookings grouped 195 metro areas into six categories or tiers: AI

Superstars, Star AI Hubs, Emerging AI Centers, Focused AI Movers, Nascent AI Adopters, and Others. These categories were developed using 14 measures that assess the core AI assets and capabilities of any given metro area as they relate to three pillars of AI readiness – talent, innovation, and adoption. The Scranton-Wilkes—Barre Metro Area is listed as one of the 43 metro areas in the lowest tier, because it currently lags in multiple AI pillars. For comparison, the Allentown-Bethlehem-Easton, PA-NJ Metro Area is listed as a Nascent AI adopter, meaning that it is one of 79 metro areas that shows moderate performance across all three pillars.

Innovation				
	AI Publications	AI Patents Granted	Federal R&D Contract Spending on AI	*HPC Usage From Academic Users
Scranton-Wilkes--Barre	N/A	1	N/A	0.0M Access Credits
Allentown-Bethlehem-Easton, PA-NJ	11	24	N/A	2.8M Access Credits

Source: Brookings

**High Performance Computing*

Adoption							
	Job Postings Requiring AI Skills	Firm AI Use	Firm Data Readiness	Firm Cloud Readiness	Share of Jobs Exposed to Generative AI	AI Startups	*VC Funding Raised by AI Startups
Scranton-Wilkes--Barre	220	3%	20%	19%	31%	N/A	N/A
Allentown-Bethlehem-Easton, PA-NJ	596	5%	25%	20%	31%	2	5 Deals

Source: Brookings

**Venture Capital*

Need for AI-Related Upskilling Among the Regional Workforce

Understanding how to properly use AI is essential for workers to fully benefit from the technology; however, familiarity with AI varies by age and level of education. The Pew Research Center found that AI users are generally younger than non-AI users and have higher educational attainment.[15] Industry of employment is another key determinant of workers' familiarity with AI. For example, in the same study conducted by the Pew Research Center, a majority of AI users' jobs involve data processing. If workers are not properly upskilled, AI may be misused, leading to errors, data privacy risks, and overreliance on inaccurate or biased outputs. Skill gaps can widen inequities in the workforce and prevent organizations from realizing the full productivity and innovation benefits of AI.

Potential Job Loss Through Automation

Early evidence suggests that artificial intelligence is contributing to measurable job displacement in the United States, even as its broader long-term impact continues to unfold gradually. Reports show that private employers attributed more than 10,000 job cuts in the first seven months of 2025 directly to the adoption of generative AI tools, with total AI-related layoffs since 2023 exceeding 27,000 positions.[16] Other studies indicate that AI-exposed occupations have experienced disproportionately higher increases in unemployment rates between 2022 and 2025, highlighting a strong correlation between AI adoption and labor market softening in certain fields.[17] Conversely, jobs with limited AI applicability experienced smaller increases. Though some studies emphasize that large-scale, economy-wide job disruption may take longer to materialize, the emerging data underscores that AI is already reshaping employment patterns and heightening concerns about workforce displacement.

For example, research suggests that clerical and administrative support roles are most likely to be highly exposed to AI.[18] In Lackawanna, Luzerne, and Wayne Counties specifically, 2,406 clerical- and secretarial-related occupations are projected to be lost between 2024 and 2035. The most significant decreases among these occupations are projected to be office clerks and customer service representatives.[19] Supplemental information can be found in The Institute's report on Economic Competitiveness in Northeastern Pennsylvania.

AI in Northeastern Pennsylvania's Top Industries

AI is being used to enhance efficiency, decision-making, and user experiences across various industries, including those with the highest number of jobs in Lackawanna, Luzerne, and Wayne Counties. In this analysis, the top industries in the three counties are determined by their total number of jobs.

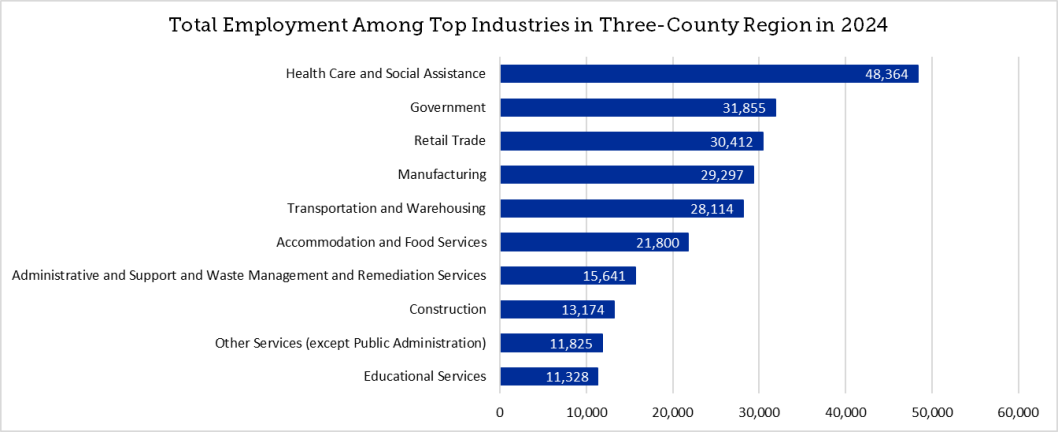
The Business Trends and Outlook Survey (BOTS) collects data on current business conditions as well as future expectations, including the use of AI in the production of goods and offering of services. According to data collected in 2024, the average share of U.S. businesses using AI to produce goods or services varies by industry at the national level. The nine industries listed in the table below comprise the top industries in the region. While the government or public administration sector is the second largest industry in the region in terms of employment, BOTS is limited to private, non-farm employer businesses. Therefore, public administration-related data is omitted.

At the national level, about 10.0 percent of employer businesses classified under educational services indicated that AI was used to produce goods or services. Compared to the region's other top industries, educational services show relatively strong adoption of AI. In the region, educational services includes 11,328 jobs, making the industry the tenth largest in terms of employment. Conversely, more labor- and asset-intensive sectors, such as accommodation and food services (1.5 percent), construction (1.6 percent), transportation and warehousing (1.6 percent), and manufacturing (2.6 percent), exhibit lower levels of AI use. Furthermore, core regional industries like health care and social assistance (5.5 percent) and retail trade (3.4 percent) fall in the middle, indicating early integration of AI technologies at the national level. Overall, the data suggests that AI adoption is currently concentrated in sectors where digital processes, data analysis, and professional services are central, while traditional service and production industries remain in the early stages of adoption.

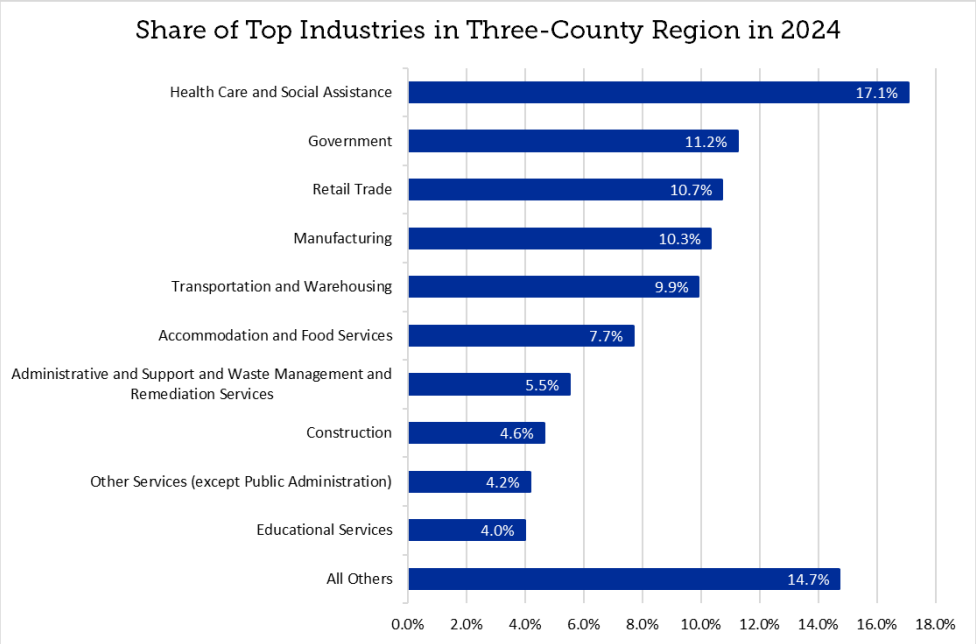
Average Share of US Businesses Using AI to Produce Goods or Services		
NAICS Code	Sector	%
62	Health Care and Social Assistance	5.5%
44	Retail Trade	3.4%
31	Manufacturing	2.6%
48	Transportation and Warehousing	1.6%
72	Accommodation and Food Services	1.5%
56	Administrative and Support and Waste Management and Remediation Services	4.8%
23	Construction	1.6%
81	Other Services (except Public Administration)	2.5%
61	Educational Services	10.2%
Source: U.S. Census Bureau — Business Trends and Outlook Survey		

Breakdown of Top Industries

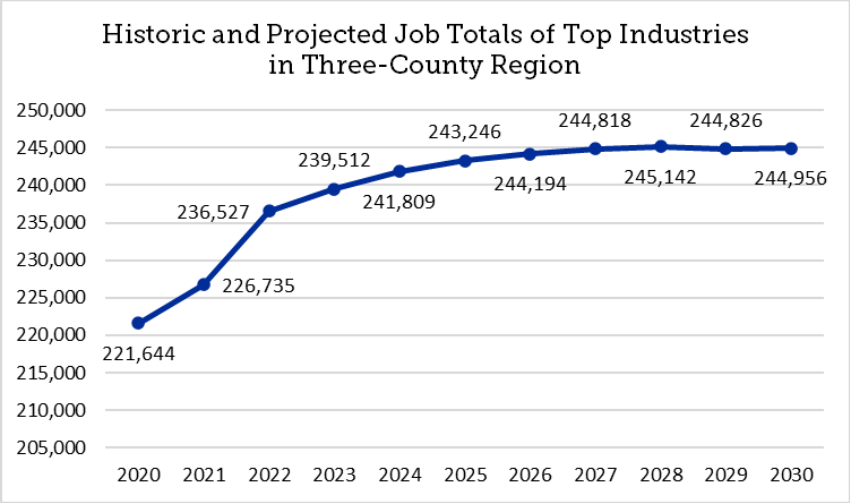
A region's economic resilience is revealed in part by identifying its top industries. If substantial numbers of workers are concentrated in only a few sectors, for instance, that region is more vulnerable to economic downturn should any of those industries experience significant layoffs. The table below breaks down the top ten industries in Lackawanna, Luzerne, and Wayne Counties in terms of jobs. In total, the three counties' industries provide 241,809 jobs. The health care and social assistance industry leads the region in jobs by a significant margin.



The top ten industries in Lackawanna, Luzerne, and Wayne Counties comprise 85.3 percent of all jobs in the region. More specifically, the top four industries comprise nearly half (49.4 percent) of all jobs in the region. The largest industry in terms of employment, health care and social assistance, encompasses 17.1 percent of all jobs. The only other industries that comprise more than 10.0 percent of the total number of jobs in the three-county region are government, retail trade, and manufacturing. The transportation and warehousing industry falls just short of 10.0 percent. The remaining 14.7 percent of jobs are dispersed across the remaining 10 industry categories.



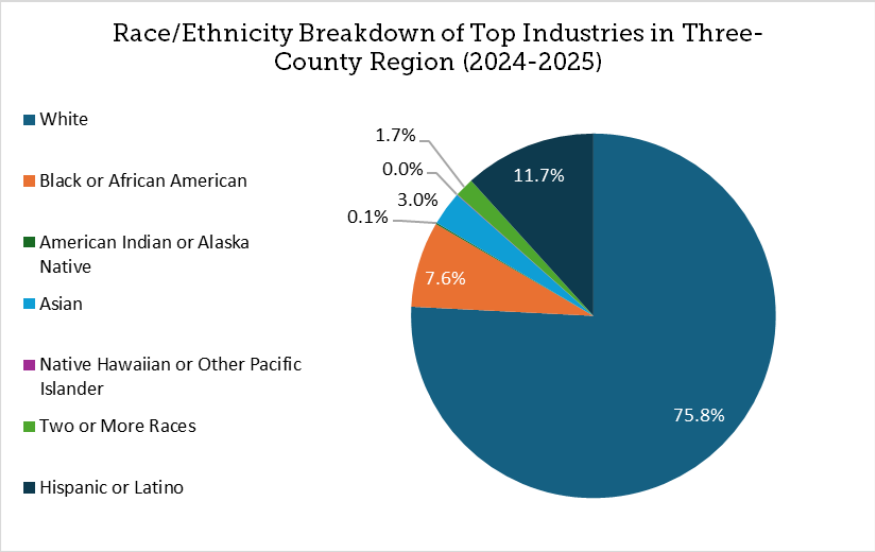
The region's top industries have experienced a steady increase in jobs since the COVID-19 pandemic. Between 2020 and 2024, the number of total jobs among the top industries increased by an average of 2.2 percent. In 2021 alone, the number of jobs increased by 2.3 percent. With 241,809 total jobs in 2024, employment has surpassed pre-pandemic levels and is expected to continue growing over the next six years, with the exception of a slight decline in 2029.



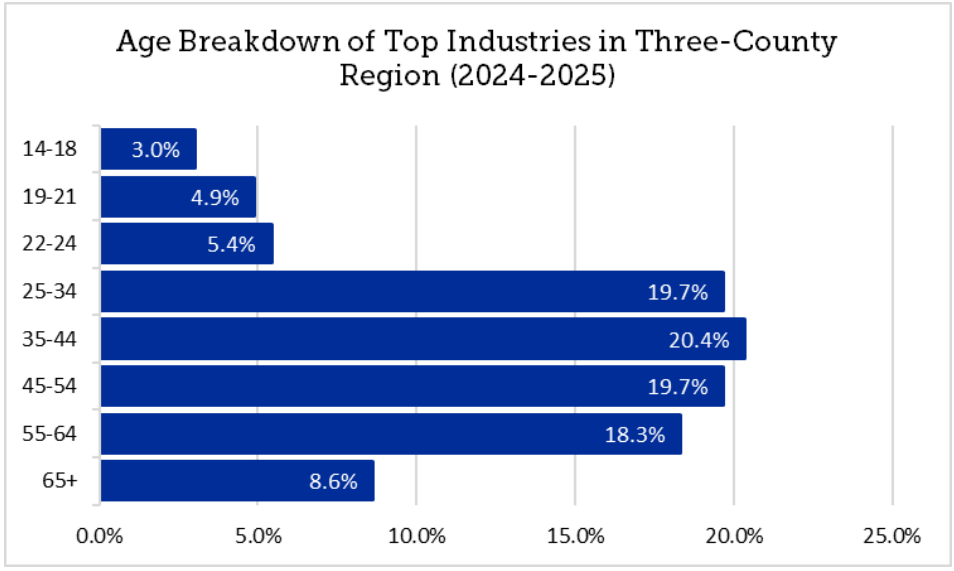
Breakdown of Top Industry Demographics

Gender representation across the top industries is relatively balanced, with females accounting for 50.8 percent of the workforce and males accounting for 49.2 percent. In terms of race and ethnicity, the top industries' workforce largely reflects the region as a whole. Individuals who identify as White, for

example, comprise the largest share of the workforce just as they comprise the largest share of the regional population. Similarly, shares of workers who identify as American Indian or Alaska Native, as well as Native Hawaiian or Other Pacific Islander, are similar in proportion to the shares of those populations at the regional level. There are disparities between the workforce and regional demographic compositions related to the Black or African American, Asian, and Hispanic or Latino populations, however. The Black or African American and Asian populations comprise 4.5 percent and two percent of the region's population respectively, they comprise larger shares of the region's workforce (7.6 percent and about three percent, respectively). Conversely, the Hispanic or Latino population comprises 15.1 percent of the region's population, but 11.7 percent of the workforce.



In terms of age, the workforce of the top industries in the region largely consist of those over 45 years old. Although a plurality of workers among the region's top industries are between the ages of 35 and 44 years, nearly half the workforce (46.6 percent) is over the age of 45 years. Conversely, those under 35 years of age comprise about one-third of the workforce. These shares reflect an aging labor force.



The combined Gross Regional Product (GRP) of these top industries exceeds $22 billion, which comprises 61.3 percent of the region's entire GRP. GRP is a measure similar to Gross Domestic Product (GDP) but instead focuses on smaller geographic areas. It is the measure of the economic output of a specific region, reflecting the total value of goods and services produced within that area over a given period.

AI Exposure

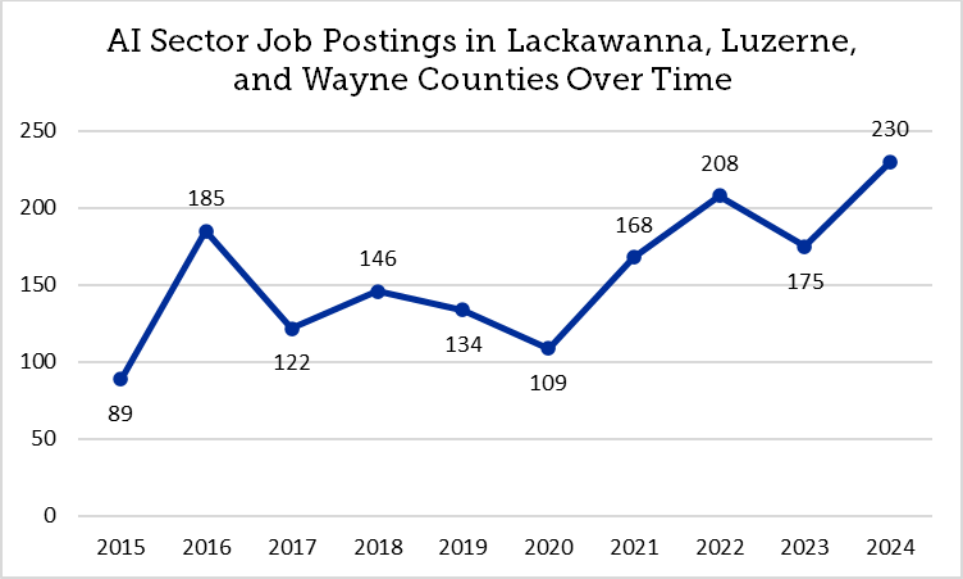
AI is used in a variety of ways across industries, including those among the top ten largest employers in Lackawanna, Luzerne, and Wayne counties. Though none of these industries encompass computer services – which are classified under the Professional, Scientific, and Technical Services sector – studies show that the shares of jobs requiring AI skills have grown across every major job function between 2016 and 2024.[20] To better understand the demand for AI-related skills in Lackawanna, Luzerne, and Wayne counties, The Institute examined the number of job postings classified by Lightcast as being part of the AI Sector. These job postings are directly related to AI and provide insight into the region's need for professionals with AI-related skills. Lightcast Sectors compiles relevant skills across occupations and industries to describe distinct parts of the labor market.[21]

AI-Exposed Jobs

A study published by the Federal Reserve Bank of Philadelphia in October 2025 determined that the Scranton—Wilkes-Barre Metropolitan Statistical Area (MSA) has a total of 44,741 AI-exposed jobs. Using the methodology developed by Eloundou et al., the report defines AI-exposed jobs as those in which a significant portion of tasks could be enhanced, expedited, or partially automated by generative AI tools, even if full job displacement is unlikely. Across all third district MSAs analyzed in the study, exposure is primarily associated with clerical, customer service, and white-collar support roles. Although ranked tenth by percent of AI-exposed jobs (18.4 percent), the Scranton—Wilkes-Barre ranks sixth in the number of AI-exposed jobs across Third District Metro Areas.[22]

AI-Related Job Postings

In Lackawanna, Luzerne, and Wayne counties specifically, a total of 1,566 unique job postings belonging to the Lightcast AI Sector were created between 2015 and 2024. During this period, the region has experienced a fluctuation in the number of relevant unique job postings. Between 2015 and 2024, the share of regional jobs requiring AI skills has more than doubled, growing by 158.4 percent. On average, the AI sector saw about an 18.0 percent increase year-over-year. Since the pandemic, AI-related job postings have not only rebounded but exceeded pre-pandemic totals. Although the actual percentages of job postings that are classified under the AI Sector remain small in most of the industries in the region, overall totals indicate general growth.



Collectively, between January and December 2024, there were 190 unique job postings applicable to Lightcasts's AI Sector for Lackawanna, Luzerne, and Wayne Counties. Chewy leads with 10 postings, closely followed by Niagara Bottling, Amcor, and CBRE. In total, 97 employers were identified as having posted at least one AI sector-related job in 2024. Its distribution suggests that AI demand spans across varied industries, including manufacturing, finance, real estate, and education.

AI Sector Job Postings by Company		
Total AI Job Postings	190	
Chewy	10	5.3%
Niagara Bottling	9	4.7%
Amcor	8	4.2%
CBRE	7	3.7%
Capital One	6	3.2%
The Hershey Company	6	3.2%
MetLife	6	3.2%
Jobs For Humanity	5	2.6%
Berkshire Hathaway	5	2.6%
Canon	5	2.6%
All Others	123	64.7%
Source: Lightcast		

In terms of occupation, nearly one-quarter of these job postings were for healthcare practitioners and technical occupations, closely followed by postings for computer and mathematical occupations (24.8 percent and 23.9 percent, respectively).

AI Sector Job Postings by Occupation		
Total AI Job Postings	230	
Healthcare Practitioners and Technical Occupations	57	24.8%
Computer and Mathematical Occupations	55	23.9%
Installation, Maintenance, and Repair Occupations	30	13.0%
Management Occupations	14	6.1%
Architecture and Engineering Occupations	14	6.1%
Business and Financial Operations Occupations	13	5.7%
Office and Administrative Support Occupations	12	5.2%
Sales and Related Occupations	7	3.0%
Construction and Extraction Occupations	7	3.0%
Production Occupations	6	2.6%
All Others	15	6.5%
Source: Lightcast		

Industry-level analysis shows that the demand for professionals with AI-related skills is highest in the manufacturing sector, closely followed by demand in the health care and social assistance industry. In manufacturing, roles requiring AI-related skills include maintenance technicians and electrical control technicians. In health care and social assistance, roles requiring AI-related skills mostly include licensed practical and vocational nurses and registered nurses.

AI Sector Job Postings by Industry		
Total AI Job Postings	230	
Manufacturing	53	23.0%
Health Care and Social Assistance	52	22.6%
Administrative and Support and Waste Management and Remediation Services	23	10.0%
Finance and Insurance	20	8.7%
Educational Services	13	5.7%
Retail Trade	11	4.8%
Professional, Scientific, and Technical Services	11	4.8%
Wholesale Trade	10	4.3%
Real Estate and Rental and Leasing	7	3.0%
Information	3	1.3%
All Others	27	11.7%
Source: Lightcast		

AI-Related Skills in Demand

Job skills provide insight into emerging trends or shifts in industry expectations, guiding employers' professional development and training decisions. In Lightcast, job posting skills are broken down into three categories: common, software, and specialized.

Common skills refer to those that are generally found across occupations and industries. These skills are also referred to as soft skills. Communication is the most frequently cited common skill among AI Sector job postings in Lackawanna, Luzerne, and Wayne counties. It is mentioned in about one-third of all job postings.

Top Common Skills Among Unique AI Job Postings in Lackawanna, Luzerne, and Wayne Counties		
Total AI Job Postings in 2024	230	
Communication	75	32.6%
Management	46	20.0%
Troubleshooting (Problem Solving)	46	20.0%
Research	42	18.3%
Operations	41	17.8%
Microsoft Office	34	14.8%
Microsoft Excel	33	14.3%
Leadership	32	13.9%
Microsoft Outlook	30	13.0%
Customer Service	27	11.7%

Source: Lightcast

Software skills encompass all tools or programs used to help perform a job. Familiarity with Microsoft Office and some of its applications (e.g., Excel, Outlook, Azure, and PowerPoint) is among the most frequently citing software skills in the AI Sector in the three-county region. Programming languages like Python, SQL, and R are cited frequently as well. Though each of these programs have their own unique applications, their general purpose is to serve as the bridge between human logic and computers. Other frequently cited software skills include familiarity with Amazon Web Services and SAP Applications.

Top Software Skills Among Unique AI Job Postings in Lackawanna, Luzerne, and Wayne Counties		
Total AI Job Postings in 2024	230	
Microsoft Office	34	14.8%
Microsoft Excel	33	14.3%
Python (Programming Language)	32	13.9%
Microsoft Outlook	30	13.0%
SQL (Programming Language)	30	13.0%
Amazon Web Services	19	8.3%
Microsoft Azure	19	8.3%
R (Programming Language)	17	7.4%
Microsoft PowerPoint	14	6.1%
SAP Applications	12	5.2%

Source: Lightcast

Specialized skills, or hard skills, describe those that are uniquely required to perform specific jobs. The most frequently cited specialized skills among job postings classified in the AI Sector vary widely. Expectedly, artificial intelligence is the most frequently cited specialized skill, with 23.5 percent of all AI Sector job postings including the skill in their descriptions. This skill encompasses the development of algorithms and models that enable machines to perform tasks such as learning, reasoning, problem-solving, and understanding natural language.[23] The demand for professionals with AI skills in the regional health care and social assistance industry is reflected in some of the top specialized skills cited among job postings; they pertain to pediatrics, nursing, and home health care. The remaining skills largely pertain to the tech industry.

Top Specialized Skills Among Unique AI Job Postings in Lackawanna, Luzerne, and Wayne Counties		
Total AI Job Postings in 2024	230	
Artificial Intelligence	54	23.5%
Pediatrics	47	20.4%
Nursing	46	20.0%
OpenAI Gym Environments	45	19.6%
Home Health Care	42	18.3%
Machine Learning	39	17.0%
Computer Science	35	15.2%
Programmable Logic Controllers	34	14.8%
Python (Programming Language)	29	12.6%
Data Analysis	28	12.2%

Source: Lightcast

Implications

Considering the growth in AI-related job postings and rising employer demand for AI competencies across Northeastern Pennsylvania, it is essential to ensure that the region's workforce is prepared to meet these rapidly evolving expectations. Although AI exposure is accelerating – reflected in the 44,741 local jobs already identified as AI-exposed as of 2024 and a 158.4 percent increase in AI-related job postings since 2015 – the region's overall AI readiness continues to rank among the lowest tiers nationally. This widening gap between *high exposure* and *low readiness* represents an opportunity for workforce development in order for the region to remain economically competitive.

Without targeted and accessible upskilling efforts, Northeastern Pennsylvania risks falling further behind peer regions that are already implementing coordinated training, policy, and infrastructure strategies to support AI integration. As automation reshapes task structures and decision-making processes, workers who cannot effectively incorporate AI tools into daily workflows face growing vulnerability to displacement, and employers may struggle to innovate or expand due to talent constraints.

There is possibility of significant AI-inflicted job displacement, as well as possibility that new skills will emerge from AI adoption. Studies show that AI enhances productivity among augmentation-prone roles (i.e., occupations more likely to be complemented than replaced by generative AI), resulting in a need for more advanced skill sets.[24] With the potential for job loss tied to generative AI adoption among task-heavy, repetitive occupations, as well as the emergence of new skill sets, there is a need to develop both protective policies and reskilling pathways for workforce members.

In Northeastern Pennsylvania, the presence of AI is significant among some of the top occupations. The first table below reports automation scores, indicating the share of tasks in each occupation that could be fully automated by AI, with clerical and routine jobs such as Office Clerks, General showing higher automation risk than hands-on roles like Industrial Truck and Tractor Operators. The second table presents augmentation scores, which estimate how much AI is likely to assist workers rather than replace

them, revealing that occupations such as Registered Nurses, Retail Salespersons, and General and Operations Managers are more likely to be enhanced by AI tools. Overall, the tables indicate a mixed regional impact of AI, with task-intensive occupations most vulnerable to automation and interpersonal, decision-making, and managerial roles primarily experiencing augmentation.

Automation Among Top Occupations in Scranton--Wilkes-Barre MSA		
Occupation	Total Employment	Automation Score
Laborers and Freight, Stock, and Material Movers, Hand	10,160	0.11
Home Health and Personal Care Aides	9,340	0.18
Stockers and Order Fillers	6,810	0.33
Retail Salespersons	6,700	0.34
General and Operations Managers	5,910	0.39
Fast Food and Counter Workers	5,900	0.11
Industrial Truck and Tractor Operators	5,880	0.0
Registered Nurses	5,430	0.32
Cashiers	5,220	0.15
Heavy and Tractor-Trailer Truck Drivers	5,210	0.20
Office Clerks, General	5,210	0.60
Sources: OEWS & Harvard Business School		

Augmentation Among Top Occupations in Scranton--Wilkes-Barre MSA		
Occupation	Total Employment	Augumentation Score
Laborers and Freight, Stock, and Material Movers, Hand	10,160	0.20
Home Health and Personal Care Aides	9,340	0.33
Stockers and Order Fillers	6,810	0.49
Retail Salespersons	6,700	0.50
General and Operations Managers	5,910	0.41
Fast Food and Counter Workers	5,900	0.22
Industrial Truck and Tractor Operators	5,880	0.0
Registered Nurses	5,430	0.50
Cashiers	5,220	0.33
Heavy and Tractor-Trailer Truck Drivers	5,210	0.36
Office Clerks, General	5,210	0.45
Sources: OEWS & Harvard Business School		

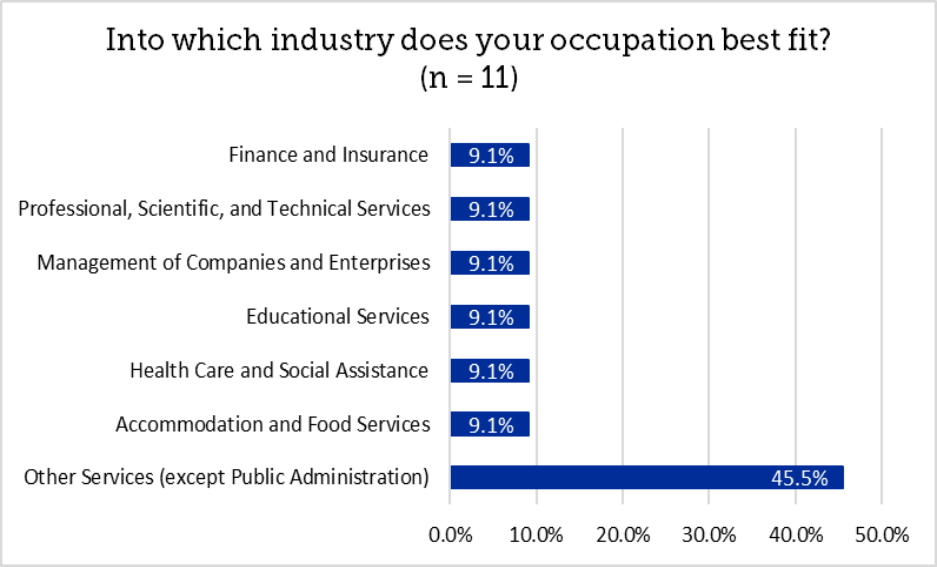
To ensure that AI strengthens rather than destabilizes the region's economic trajectory, industry leaders, educators, and policymakers must prioritize collaborative strategies that expand AI readiness. This includes building a baseline level of AI fluency across the workforce, promoting safe and intentional AI experimentation within organizations, and enacting policies that both encourage innovation and safeguard workers. Without such interventions, the region's accelerating exposure to AI may deepen existing structural vulnerabilities rather than drive the economic resilience and competitiveness that AI makes possible.

Primary Data Collection and Analysis

An electronic survey was distributed among community stakeholders to enhance understanding of their perceptions of AI and its impact on their professional careers as well as their personal lives. Stakeholders were also provided with the opportunity to participate in a semi-structured interview to elaborate on their survey responses. Here, both the survey and semi-structured interview responses are summarized. Please note that responses to open-ended survey questions and semi-structured interview questions have not been edited for syntax or spelling. Where the number of respondents to a specific survey question is unclear or not mentioned, it is noted by *n = #*.

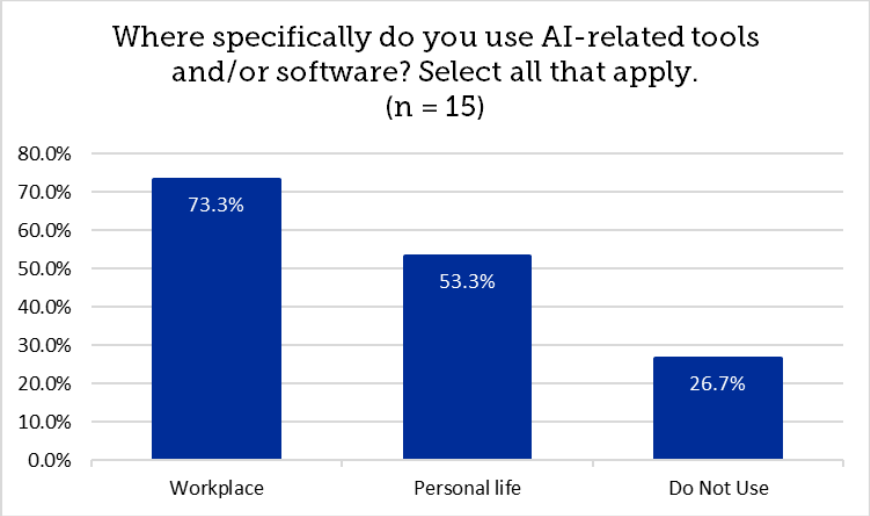
The primary data collected for this report is directional and exploratory, offering context for understanding how local professionals perceive and use AI. The results highlight perceptions and emerging themes among engaged stakeholders, but they are not intended to serve as statistically generalizable findings for the entire regional workforce. Though not representative of the entire regional workforce, these findings reveal early signals of both opportunity and risk that align with broader quantitative labor market trends.

The survey included responses from 15 individuals with a diverse range of occupations consisting of consultants, nonprofit managers, community development specialists, supervisors, cooks, attorneys, financial service providers, and marketing experts. When asked to classify their occupations into two-digit NAICS code industries, a plurality of the respondents (45.5 percent, or five respondents) opted not to do so. None of the respondents indicated that they are currently unemployed.



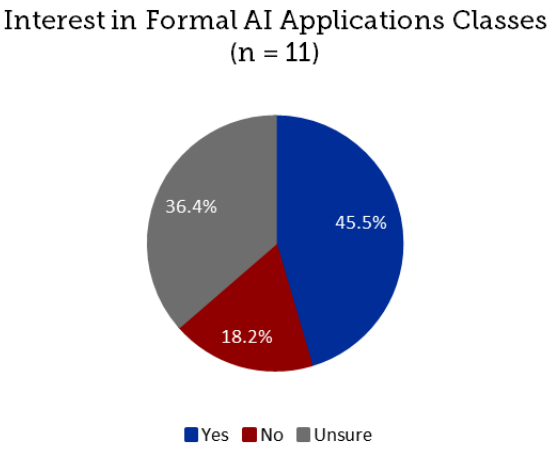
Nearly three-quarters of respondents (73.3 percent) use AI-related tools and/or software in the workplace and over half use them in their personal or home lives. Studies show that one in five U.S. workers (or 21.0 percent) use AI in their work whereas about 33.0 percent of the U.S. population use Generative AI outside the workplace.[25, 26]

Of the survey respondents who use AI in the workplace, nearly three-quarters (72.7 percent) also use it in their personal lives or at home. Over one-quarter of respondents, or four people, indicated that they do not use AI-related tools and/or software at all.



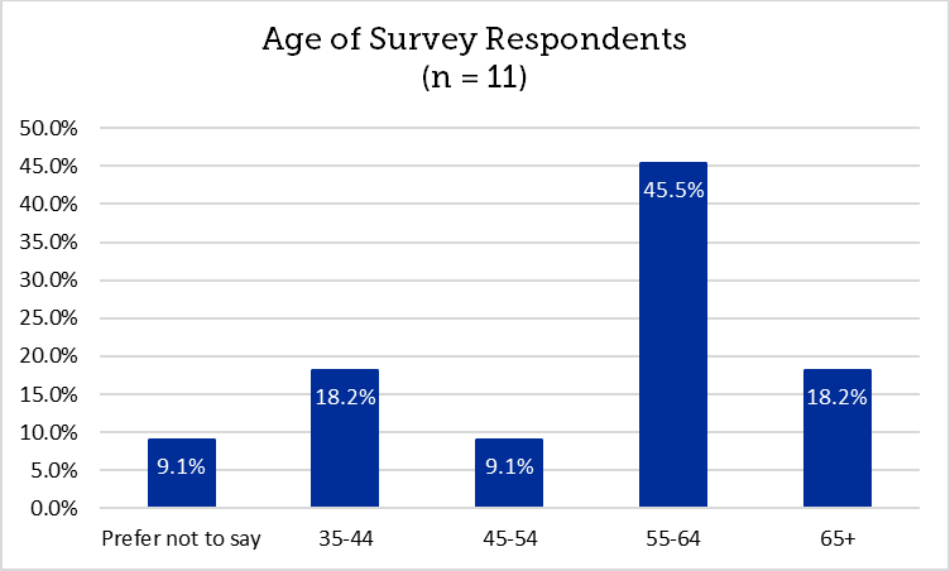
Moreover, all 11 respondents who use AI in their workplaces have received post-secondary education, and nearly three-quarters of them (72.7 percent, or eight respondents) have graduate or professional degrees. Studies show that U.S. adults with higher levels of education are more likely to use Generative AI than those with only a high school diploma or some college experience but no degree, which includes LLMs.[27] Also, studies have found that occupations requiring higher educational requirements (e.g., technical research, writing, and administrative roles) are disproportionately exposed to AI.[28]

An understanding of how AI is integrated into workplace applications and operations allows industry leaders to more thoughtfully define its appropriate roles and limitations within their organizations. As one respondent asserted, "Staying deeply informed provides us all an opportunity to intelligently weigh-in on future uses, regulations, etc..." A plurality of respondents expressed interest in participating in formal AI applications classes if available in their local communities, reflecting the desire to learn more about AI.



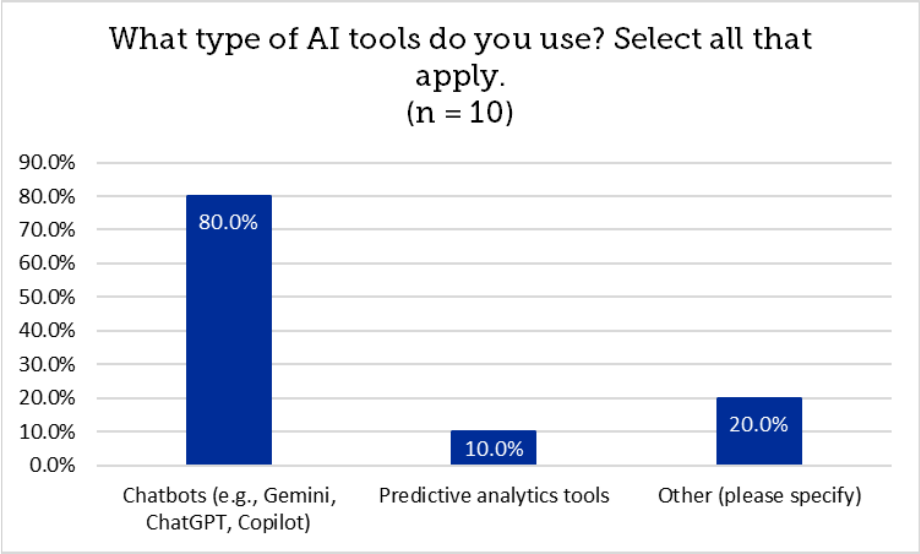
The extent of AI use is largely dependent on the type of industry to which an occupation belongs or is classified, the age of the user is also meaningful. Studies show that millennials aged 35 to 44 represent the most active and confident generation of AI users.[29]

Among survey respondents in Lackawanna, Luzerne, and Wayne counties, however, those over the age of 55 comprise the largest share of AI users in the workplace (54.5 percent). Conversely, respondents between the ages of 35 and 54 comprise 27.3 percent of those who indicated that they use AI in the workplace. Although these shares indicate that older generations in the region are more familiar with AI than those at the national level, it should be noted that nearly two-thirds of the survey respondents are at least 55 years old.



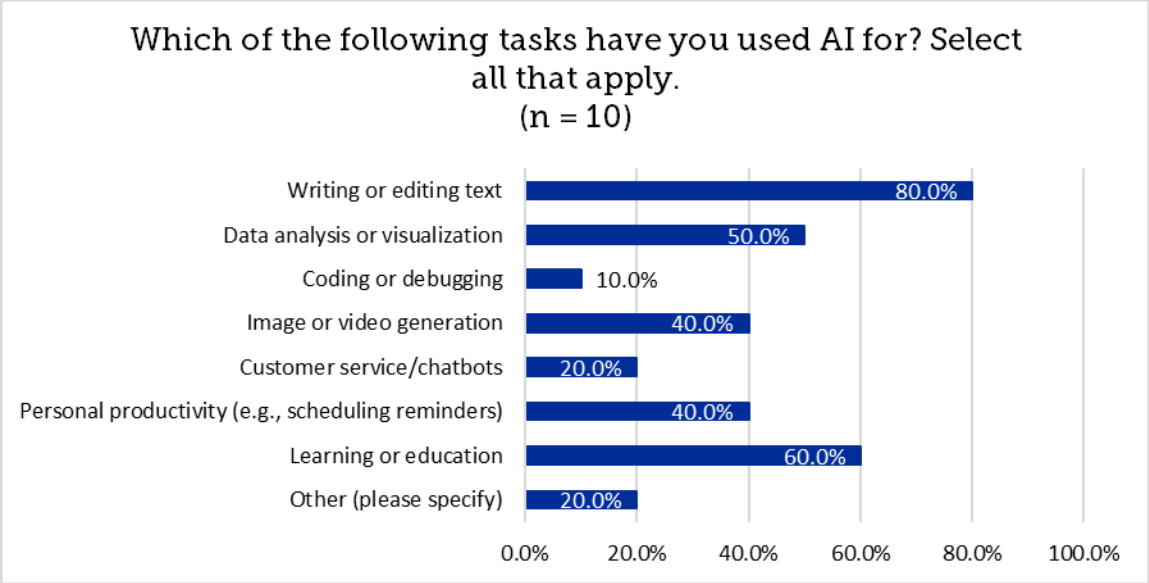
A majority of respondents who use AI indicated that they use chatbots. A survey of U.S. workers conducted in October 2024 found that about one in ten workers use AI chatbots at work every day or a few times a week.[30]

Only one respondent uses predictive analytics tools. Other AI tools used by respondents include "data processing tools" and "Amazon."

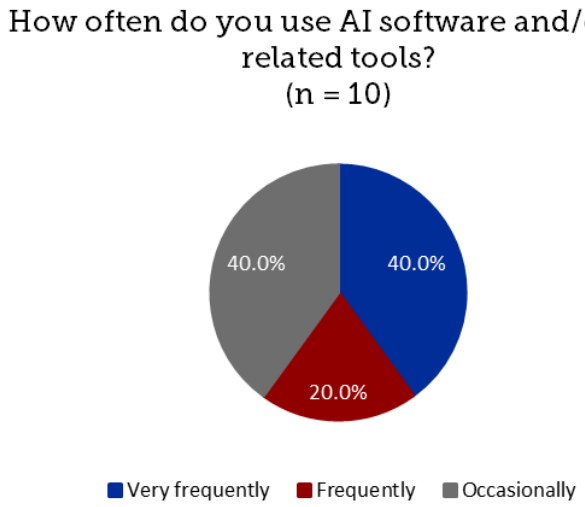


Survey respondents primarily use AI to generate or edit text. Other common uses of AI among respondents include learning or education and data analysis or visualization. Identical shares of respondents employ AI to generate images or videos and supplement personal productivity. Two respondents indicated that they use AI for customer service purposes, and one uses it for coding or

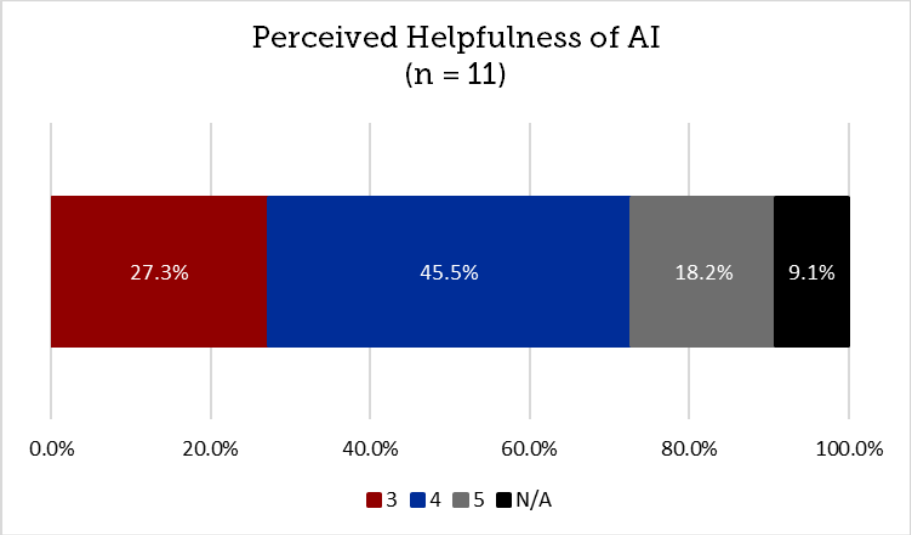
debugging purposes. Other uses of AI identified by respondents include “client data processing and issuing payments” and “searching for information.”



Sixty percent of survey respondents use AI either ‘Frequently’ or ‘Very frequently.’ The remaining 40.0 percent use it ‘Occasionally.’ Studies conducted among AI experts estimate that about 79.0 percent of people in the U.S. interact with AI almost constantly or several times a day.[31] In combination with the growing shares of jobs requiring AI skills across major job functions at the national level and increasing AI-related job posts at the regional level, this frequency further suggests that AI plays a role in operations across industries in Lackawanna, Luzerne, and Wayne counties.



On a scale from one to five, with one being not at all helpful and five being extremely helpful, a plurality of respondents (45.5 percent, or five people) rated the helpfulness of AI at a four, and two others rated it at a five (18.2 percent). When elaborating on their responses, respondents generally indicated that AI is helpful for completing “mundane,” “menial,” and “time consuming” tasks. They explained that they can save time researching topics, processing data, and summarizing or combining documents using AI tools. One respondent simply stated that AI “makes life much easier,” and another asserted that “no matter how you 'feel' about AI's influence in your work / personal life - it's best to learn all you can about how it can enhance each.” Furthermore, some respondents felt that AI can serve as a “thought partner” and help generate ideas, whereas others asserted that it “is not a replacement for thinking or ideation.”



Synthesis of Findings

Artificial intelligence is reshaping labor markets across the country. In Northeastern Pennsylvania the pace of transformation is creating a widening divide between accelerating AI exposure and the region's comparatively low AI readiness. As of 2024, 44,741 jobs in the Scranton–Wilkes-Barre MSA are classified as AI-exposed, and regional job postings requiring AI skills have increased by 158.4 percent since 2015. On average, the AI sector saw about an 18.0 percent increase year-over-year. Despite this acceleration, the region continues to lag in key readiness indicators. Limited AI fluency among workers, insufficient upskilling infrastructure, and the heightened risk of task automation pose significant challenges to workforce stability and economic competitiveness.

Despite these risks, AI also presents clear opportunities. Across industries – health care, manufacturing, transportation, government services, education, and retail – AI has the potential to improve efficiency, enhance decision-making, expand access to services, and enable innovation. At scale, these benefits can support regional productivity and economic resilience, particularly in sectors facing persistent labor shortages, growing demand, or high administrative loads. When implemented thoughtfully, AI has the potential to augment workers rather than replace them, supporting productivity growth and long-term economic resilience.

Targeted workforce upskilling, expanded access to practical AI training, and organizational support for safe experimentation are essential to closing the readiness gap. Complementary policy efforts – such as legislation to assess AI's labor market impact and mechanisms to mitigate job displacement – will further support an equitable transition. Together, these strategies can help position the region to harness AI's benefits while safeguarding workers and sustaining competitiveness in an increasingly AI-driven economy.

Conclusion and Recommendations

Artificial intelligence is transforming industries across the country, and Northeastern Pennsylvania enters this transition from a position of vulnerability. While AI adoption is accelerating nationally, the Scranton–Wilkes-Barre metro area remains in the lowest tier for AI readiness, lagging in the foundational pillars of talent, innovation, and adoption. This limited capacity constrains the region's ability to fully leverage the economic benefits of AI-driven technologies and increases its exposure to risks such as workforce displacement, cybersecurity concerns, and widening skill gaps.

This report provides a deeper understanding of AI's current and emerging impact on the region's top industries. Preparing Northeastern Pennsylvania for an AI-driven future will require intentional investment in workforce training, organizational experimentation, and regulatory and policy frameworks that evaluate and guide the role of AI in the labor market. By addressing existing readiness gaps and adopting a proactive approach, the region can better position itself to mitigate risks while capturing the substantial opportunities presented by AI. The recommendations that follow offer actionable steps to equip the regional workforce for the evolving demands of AI technologies.

Embrace AI Adoption and Experimentation

To help the current workforce, as well as its future members, gain the AI proficiency necessary to secure jobs, advance in the workplace, and stay competitive in a rapidly shifting market, workforce leaders need to embrace AI adoption within their organizations and promote experimentation among their employees. Studies show that the biggest barriers to preparing employees for AI is leadership.[32] C-suite leaders need to create a culture where employees feel comfortable experimenting with AI within organizational properties to enhance the region's competitiveness. As determined by the Federal Reserve Bank of Philadelphia, about 18.0 percent of jobs in the Scranton—Wilkes-Barre, PA MSA are exposed to AI. For comparison, the same study determined that the share of AI-exposed jobs in the Harrisburg-Carlisle, PA MSA and Lancaster, PA MSA, both of which are most similar to the Scranton—Wilkes-Barre, PA MSA in terms of population, are 24.2 percent and 18.9 percent, respectively. Similarly, Brookings listed the Scranton-Wilkes—Barre Metro Area among the lowest tier of metro areas in terms of AI readiness. Despite its moderate share of AI-exposed jobs and reported lack of AI readiness, however, the region's demand for professionals with AI skills has steadily increased over the past decade.

Invest in AI Training for Current and Future Workforce Leaders and Their Employees

Embracing AI adoption and experimentation will consequently result in the need to educate the regional workforce and its leaders about how to properly leverage AI. This preparation will help deter displacement resulting from AI-related labor market shifts and foster a more resilient labor market. A plurality of respondents (45.5 percent, or five respondents) expressed interest in participating in formal AI applications classes if they were made available in their local community. Studies show that employees are not getting the support they need when it comes to adopting AI into their skillsets, whereas business leaders underestimate how extensively their employees are using AI.[33] Moreover, the share of jobs requiring AI skills has grown significantly in the region between 2015 and 2024. Educational institutions (specifically community colleges), nonprofit workforce organizations (e.g., chambers of commerce, workforce development boards, etc.), and corporate training programs that identify in-demand AI skill requirements and teach them systematically will better prepare workers to meet the AI-related needs of regional industries. Maryland, for example, established the Talent Innovation Program and 4.0 Technology Grant Program to increase access to high-quality job training to help meet skill needs

in the State's prominent and emerging industry sectors and assist manufacturing enterprises in implementing new technologies. Other education-related AI bills that have been enacted at the state level include but are not limited to AL H 187 2020, UT S 96 2020, MS H 633 2021, NC H 8 2023, NJ A 4700 2024, SC H 5100 2024, and WA S 5950 2024.[34]

Enact Proposed Legislation to Analyze the Impact of AI on the Pennsylvania Workforce

Understanding data trends permits informed decision making and proper resource allocation. House Resolution 170 of the General Assembly of Pennsylvania was adopted in 2024, establishing an advisory committee to conduct a study on the field of AI and its impact and potential future impact in Pennsylvania. While HR170 calls for a study that encompasses all aspects of AI and its potential impact on Pennsylvania, Senate Bill 293 of 2025 focuses on its impact on the workforce of the Commonwealth. As of this publication, SB293 has not yet received a third consideration in the Pennsylvania State Senate. This bill directs the Departments of Labor and Industry and Community and Economic Development to conduct a comprehensive study on AI and its impact on the Commonwealth workforce. Analyzing the impact of AI on the Commonwealth's workforce will help key community stakeholders to better prepare for changes to industry operations. Furthermore, monitoring AI and its trends will help local business leaders to properly upskill their workforce. Similar legislation that has passed in other states include but is not limited to NY S 3971 2019, MA H 5250 2020, MD H 658 2021, MD S 444 2021, CA A 2885 2024, OR S 5701 2024, and WA S 5838 2024. Passing Senate Bill 293 will better prepare the Commonwealth's workforce for AI-induced operational changes across industries.

Propose Legislation to Protect Pennsylvanians From and/or Mitigate the Effects of Job Displacement Resulting from AI

While growing the region's AI workforce is crucial for maintaining its competitiveness, it is important that the current workforce is not significantly displaced as the AI workforce grows. Policymakers should explore mechanisms to link AI adoption with workforce adjustment supports, including incentives or requirements for employers adopting labor-replacing AI technologies to invest in retraining, redeployment, or income-support programs for affected workers. Pilot programs targeted at workers displaced by automation can help stabilize local labor markets and reduce long-term unemployment risks.

Some states have started to propose laws to protect employees from job displacement resulting from AI. In California, for example, Assembly Bill 3058 was introduced to create a pilot program to aid individuals who are unemployed because of automation or AI. In New York, Assembly Bill 7634 was introduced, amending the tax law regarding the definition of "qualified film" and prohibiting the use of AI or autonomous vehicles in productions that would displace employees whose salaries are qualified expenses. Other examples of legislation that have been proposed at the state level to protect workers from AI displacement include New Jersey bills S3046 and A1255 and Illinois House Bill 4875. However, no states have enacted bills implementing broad worker safeguards in employment or surveillance.[35]

Implement Targeted Regulation to Mitigate AI-Driven Job Displacement

Though artificial intelligence presents meaningful opportunities to enhance productivity and innovation, the pace and scale of its adoption necessitate guardrails to ensure that economic gains do not come at the expense of workforce stability. Regulatory measures should balance innovation with worker protections. This includes requiring greater transparency from employers regarding the use of AI systems

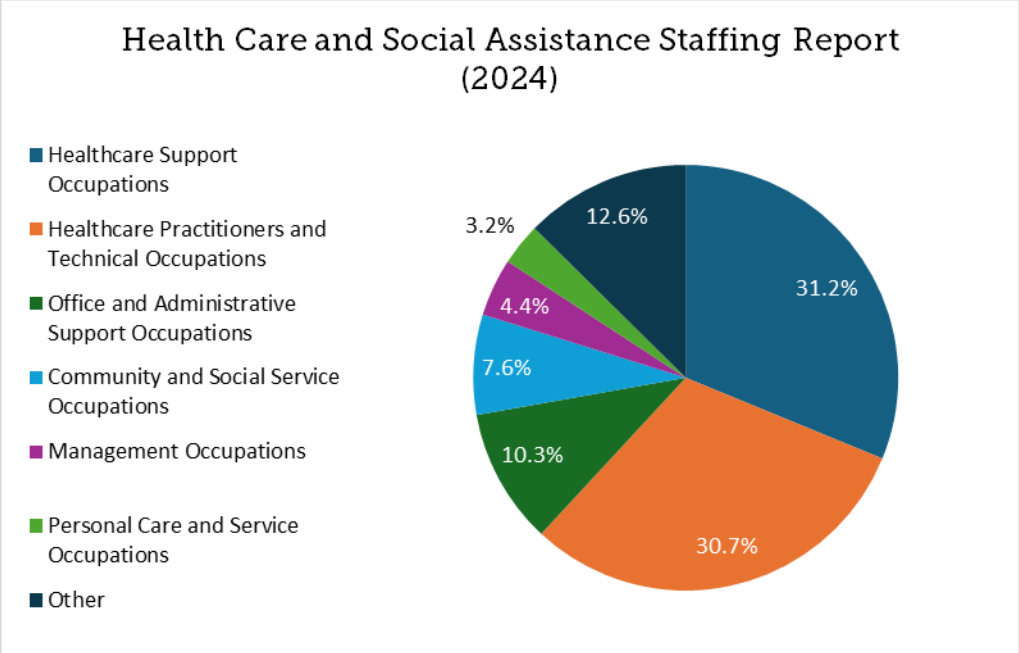
that automate or alter job functions, particularly in industries with high concentrations of routine or support roles. Disclosure requirements can help workers, workforce boards, and educators anticipate shifts in skill demand and respond proactively through reskilling and career transition pathways. Additionally, regulatory efforts should be paired with ongoing monitoring of AI's labor market impacts to track AI adoption, displacement patterns, and emerging risks. Monitoring regional AI adoption and implementation could for the adaptation of regulations as technologies evolve over time. By taking a proactive regulatory approach, Northeastern Pennsylvania can reduce the disruptive effects of AI-driven job displacement while creating a more secure and equitable transition to an AI-enabled economy.

Appendix – Top Industries Profiles

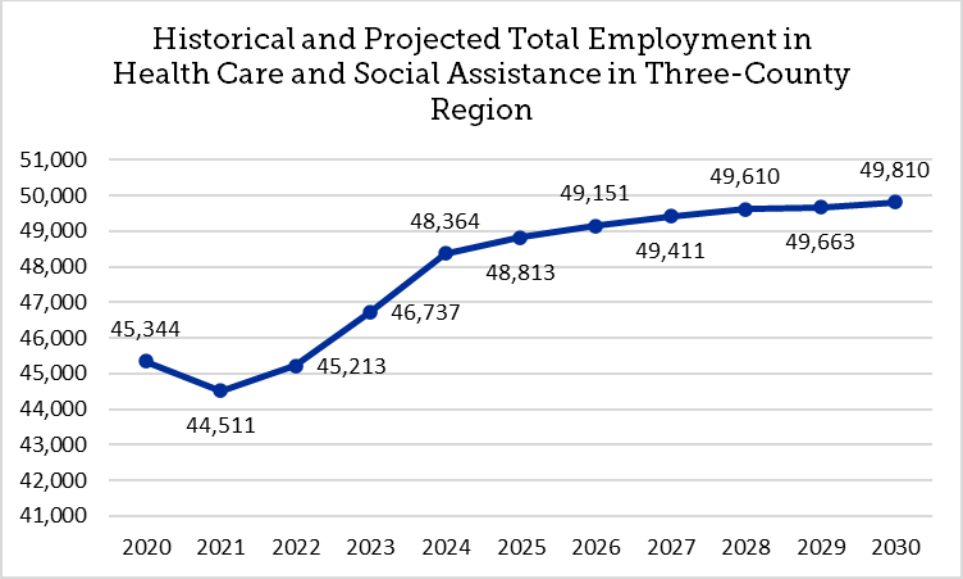
The following profiles provide a snapshot of each of the top ten industries in the three-county region as well as the impact of AI on its operations and workforce.

Health Care and Social Assistance

In terms of total employment, the health care and social assistance industry is the largest in the three-county region. As of 2024, it has the second highest GRP in the region behind only the manufacturing industry, comprising 11.5 percent of the region's entire GRP. The health care and social assistance industry largely consists of support occupations and practitioners and technical occupations.



The health care and social assistance industry experienced an employment decrease of about two percent in 2021. Since then, however, the industry has seen a steady increase in total employment. The projected total employment of the industry is also expected to steadily increase. A growing health care and social assistance industry can improve access to preventive care, chronic disease management, and mental health services. Moreover, as the region's population of retirement-aged residents continues to grow, the need for health care professionals will grow as well. The shares of seniors in three counties and the Commonwealth have trended upward since 2010. Given the region's large population of residents aged 65 and older and rising life expectancy, the capacity to care for older adults an important issue to address.



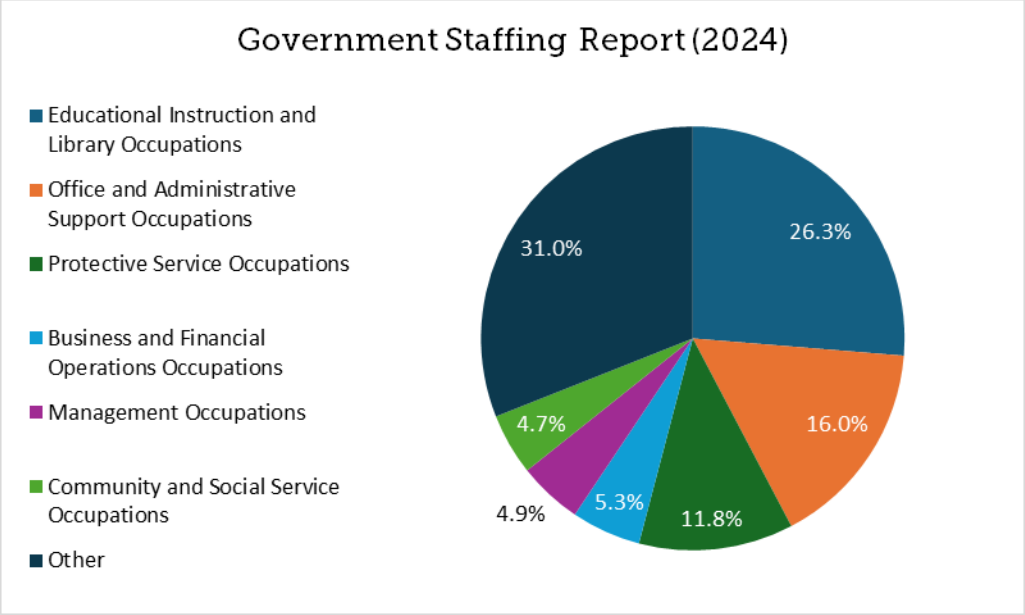
The health care and social assistance industry in Lackawanna, Luzerne, and Wayne counties largely consists of females (78.7 percent). Over half of the workforce (50.6 percent) is 45 years of age or older, whereas 40.8 percent is between the ages of 25 and 44 years of age. Reflecting the demographics of the entire region, the health care and social assistance industry workforce mostly consists of workers who identify as White (80.1 percent).

Potential Function of AI in Health Care and Social Assistance

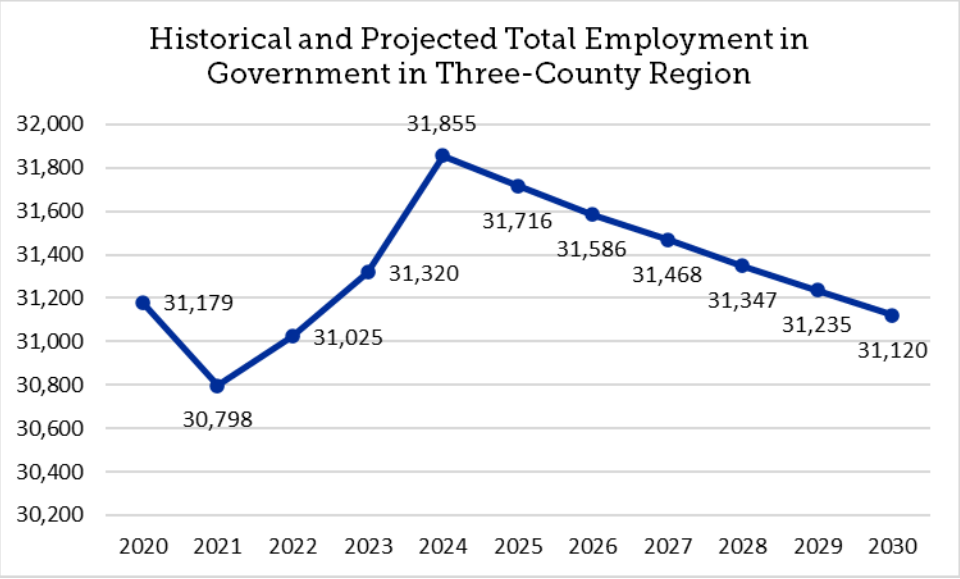
The use of AI in the health care and social assistance industry is largely task specific. For example, mental health professionals have implemented AI to better detect developing mental health concerns in their patients, augment care through digital therapeutics, and enhance many of the methods that are used to train clinicians.[36] In the hospital setting, AI is being used to improve clinical decision-making, streamline operation and administrative services, and supplement patient care technologies.[37] These same benefits can largely be applied to healthcare support occupations (e.g., home health and personal care aides, nursing assistants, occupational therapy aides, medical assistants, pharmacy aides, etc.), which comprise a plurality of health care and social assistance occupations in the region.

Government

The governmental sector in Lackawanna, Luzerne, and Wayne counties employs 31,855 workers. As of 2024, it has the fourth highest GRP in the region, comprising 9.4 percent of the region's overall GRP. Over one-quarter of occupations in government-run establishments consist of educational instruction and library occupations.



Although the employment total of government-run establishments saw a decrease of about one percent in 2021, the industry has since experience a steady increase in employment. These totals are projected to decrease, however. This sector encompasses a wide variety of occupations, so it is difficult to pinpoint the direct consequences of its projected decline.



The workforce of government-run establishments in Lackawanna, Luzerne, and Wayne counties is nearly balanced in terms of gender (51.4 percent and 48.6 percent, respectively). In terms of age, the workforce is also nearly evenly distributed between workers 45 years of age and over and those under the age of 45 years (50.2 percent and 49.8 percent, respectively). Reflecting the demographics of the entire region,

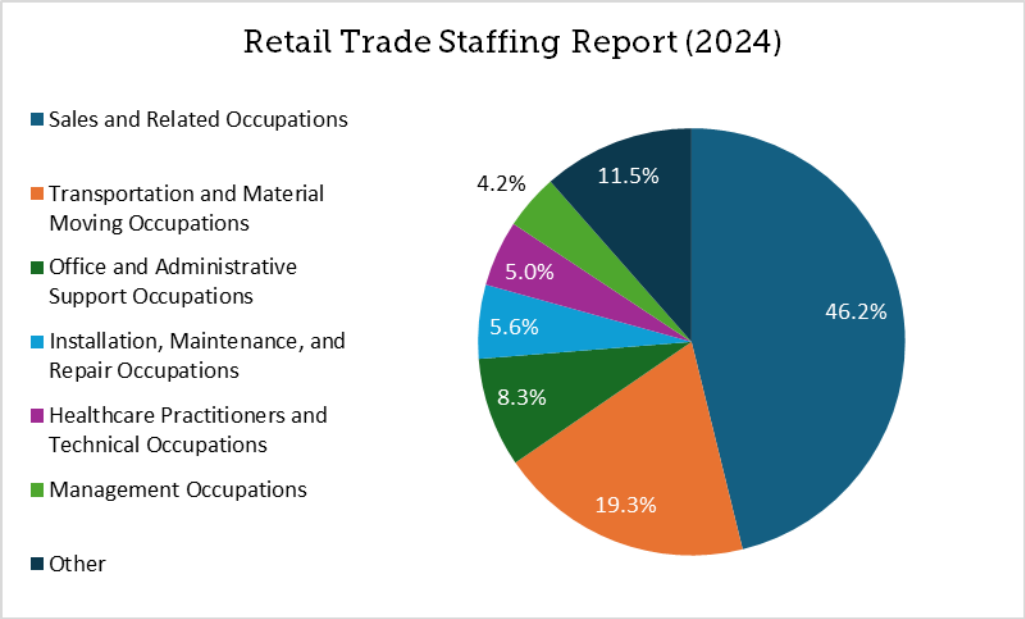
this workforce mostly consists of workers who identify as White (76.3 percent); however, residents who identify as Black or African American comprise only about five percent of the region's population but 12.3 percent of the workforce of government-run establishments.

Potential Function of AI in Government

As this sector encompasses a wide variety of occupations, it is difficult to pinpoint the potential use and impact of AI on its services. Using educational instruction and library occupations as an example, as they comprise a plurality of occupations in the government sector, the potential function of AI includes the tailoring of education to personal needs; offering greater support for educators by managing administrative tasks such as grading and lesson planning; making education more accessible by addressing barriers such as language and/or disability; and enhancing library services (e.g., cataloging, reference management, user interactions, etc.).[38] [39]

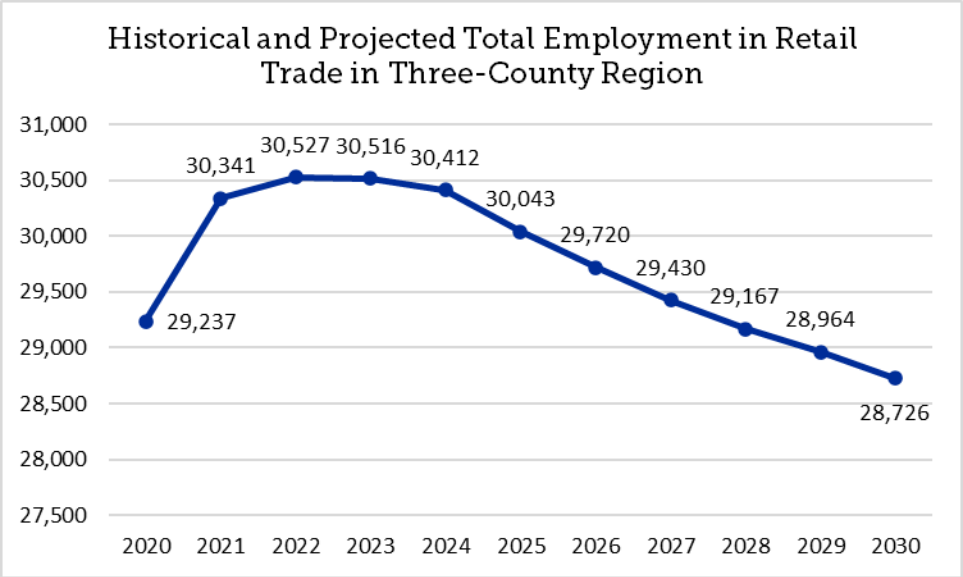
Retail Trade

The retail trade industry consists of establishments engaged in retailing merchandise and rendering services as part of its sales. As of 2024, the industry ranked third at the national level in terms of employment, providing support for millions of jobs and opportunities for career advancement. In the three-county region, the retail trade industry employed 30,412 workers as of 2024. Nearly half the industry's workforce consists of sales and related occupations. Moreover, the retail trade industry drives personal consumption, which accounts for about 10.0 percent of the nation's GDP. In Lackawanna, Luzerne, and Wayne counties specifically, its GRP ranks fifth and comprises about eight percent of the region's overall GRP.



Though the employment total of the retail trade industry has increased significantly since 2020, it has slightly declined since 2023. The employment total of the industry is projected to steadily decline in the next five years. The retail trade industry is one of the largest sectors of employment at the national level, offering entry-level and part-time employment opportunities for those entering the workforce for the

first time or reentering the workforce. A declining retail trade industry can lead to fewer entry-level and part-time job opportunities, slowing job mobility and weakening wage growth.[40] Moreover, empty retail spaces can contribute to blight, lowering property values and discouraging investment.



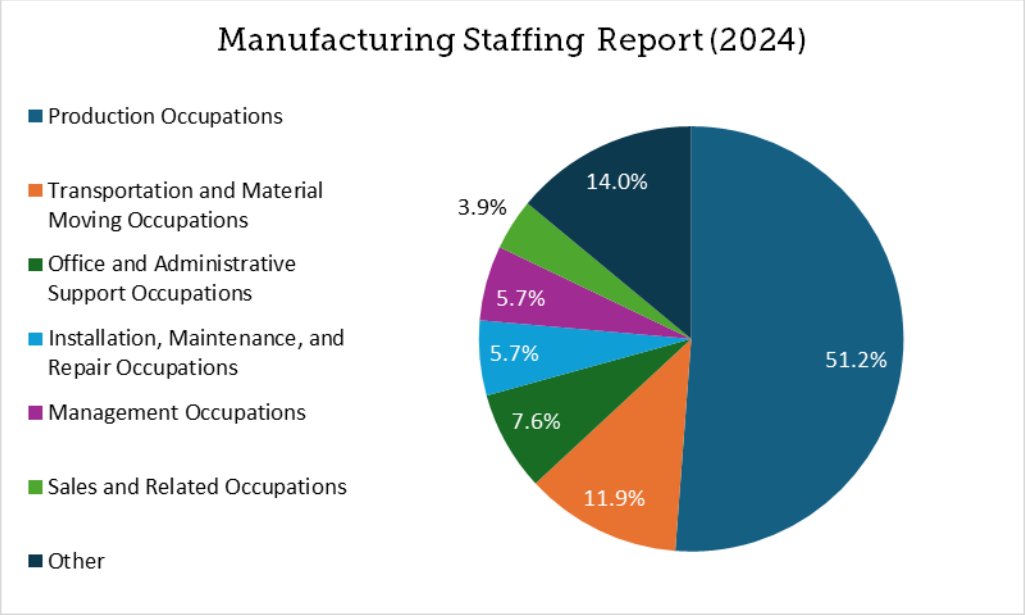
The regional retail trade workforce balanced in terms of gender, with significant diversity in terms of age. Reflecting the demographics of the entire region, this workforce primarily consists of workers who identify as White (79.8 percent).

Potential Function of AI in Retail Trade

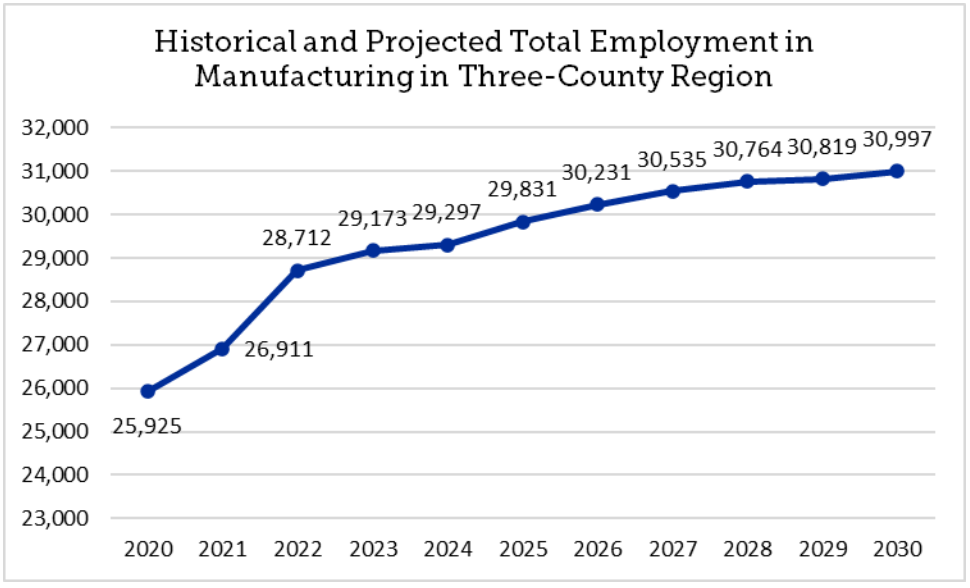
In the retail trade industry, AI is leveraged to personalize shopping experiences using customer data, perform repetitive administrative tasks such as inventory management, and enhance customer service through the implementation of chatbots. Additionally, AI in retail and e-commerce is used to perform supply chain analytics and optimize delivery routes and reduce transit times using complex algorithms and real-time data, increasing efficiency and reducing operational costs. Other examples of the function of AI in the retail trade sector include demand forecasting, price optimization, and assortment planning.[41]

Manufacturing

The manufacturing industry employs 29,297 workers in Lackawanna, Luzerne, and Wayne counties. The three-county region is considered a hotspot for talent related to the industry; the national average for an area this size is 21,340 employees. Top competing employers include Niagara Bottling, Lockheed Martin, and Cargill. Its GRP ranks first among two-digit NAICS industries in the region, comprising 12.0 percent of the region's overall GRP. Over half the industry's workforce consists of production occupations.



The employment total of the manufacturing industry in Lackawanna, Luzerne, and Wayne counties has steadily increased since 2020, and is projected to continue to steadily increase through 2030. A robust manufacturing industry can boost regional output and productivity. Moreover, manufacturing stimulates other industries like retail trade and accommodation and food services.



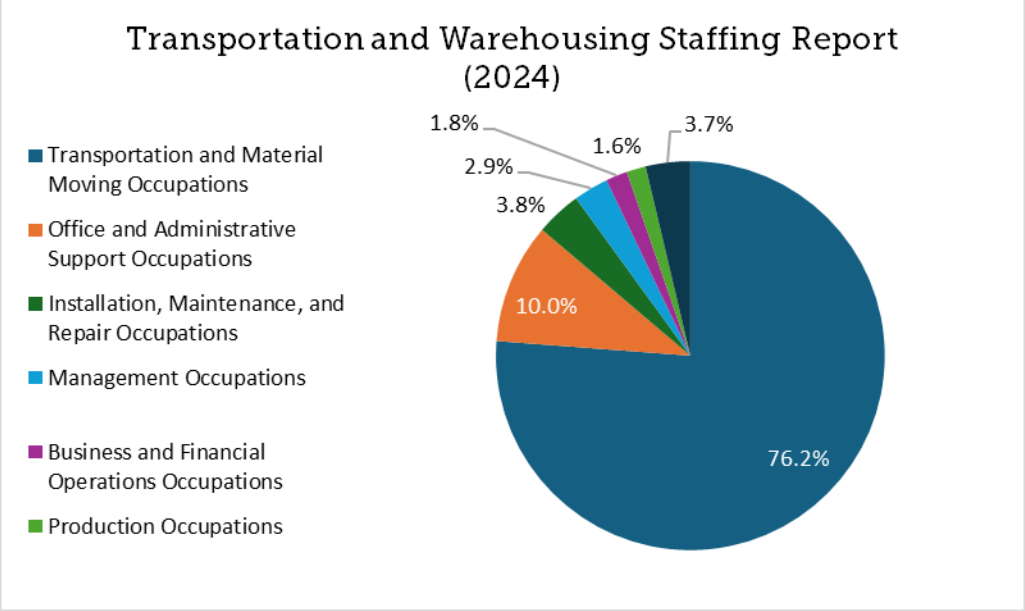
Over 70.0 of the industry workers in Lackawanna, Luzerne, and Wayne counties are male. In terms of age, there are more workers aged 55 years or older than the national average for geographic areas of similar size. Consequently, the retirement risk is high in the region. Racial diversity in the manufacturing industry is low, reflecting the demographics of the three counties.

Potential Function of AI in Manufacturing

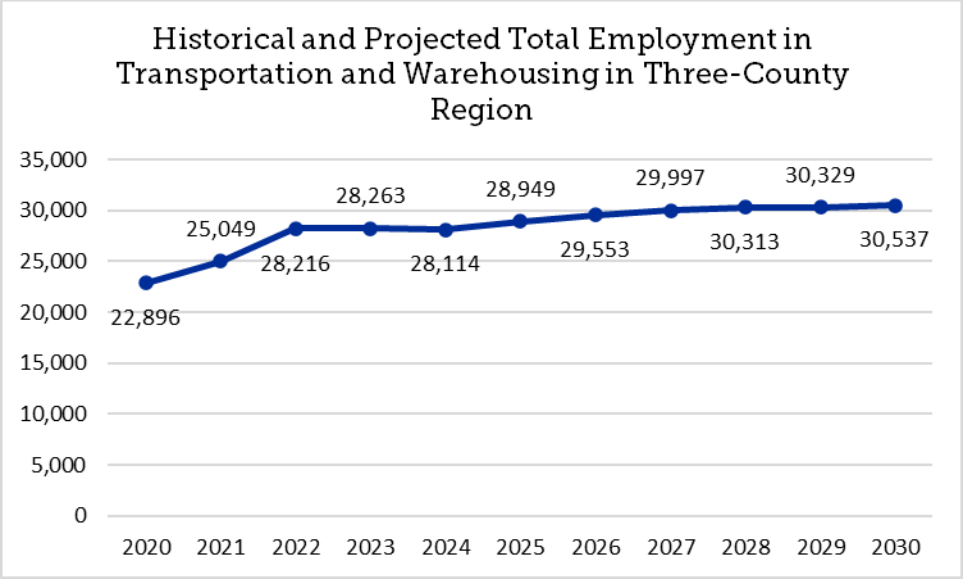
Through the implementation of AI into its operations, the manufacturing industry is undergoing an extensive transformation. Various manufacturing sectors are increasing their innovation, enhancing product quality, and optimizing energy efficiency and minimizing waste through AI solutions such as predictive maintenance and smart manufacturing. Predictive maintenance refers to the analysis of data from sensors on machinery to forecast mechanical failures before they occur. Smart manufacturing is a combination of connected technologies, real-time data analytics, and AI to create automated manufacturing systems, which maximizes productivity and reduces waste.[42] The goal of smart manufacturing is to drive efficiency by helping workers perform better. AI-powered collaborative robots (or cobots), for example, work alongside humans to perform repetitive or strenuous tasks while employees focus on more complex and creative work. In the automotive industry, cobots have already been employed to assist assembly line workers in constructing intricate components of manufactured items.[43]

Transportation and Warehousing

The transportation and warehousing industry employs 28,114 workers in Lackawanna, Luzerne, and Wayne counties. The three-county region is considered a hotspot for talent related to the industry; the national average for an area this size is 12,252 employees. This growth is consistent with the region's geography, situated adjacent to multiple major highways, such as Interstates 80 and 81 and the Pennsylvania Turnpike. Its top competing employers are Wegmans, Smith Transport, and Lineage Logistics, and its GRP comprises six percent of the region's overall GRP. Over three-quarters of the industry's occupations consist of transportation and material moving occupations. Examples of these types of occupations include those in warehousing and storage and general freight trucking.



Despite a slight decrease in 2024, the employment total of the transportation and warehousing industry has increased by about 23.0 percent since 2020. Industry employment is projected to steadily increase through 2030.



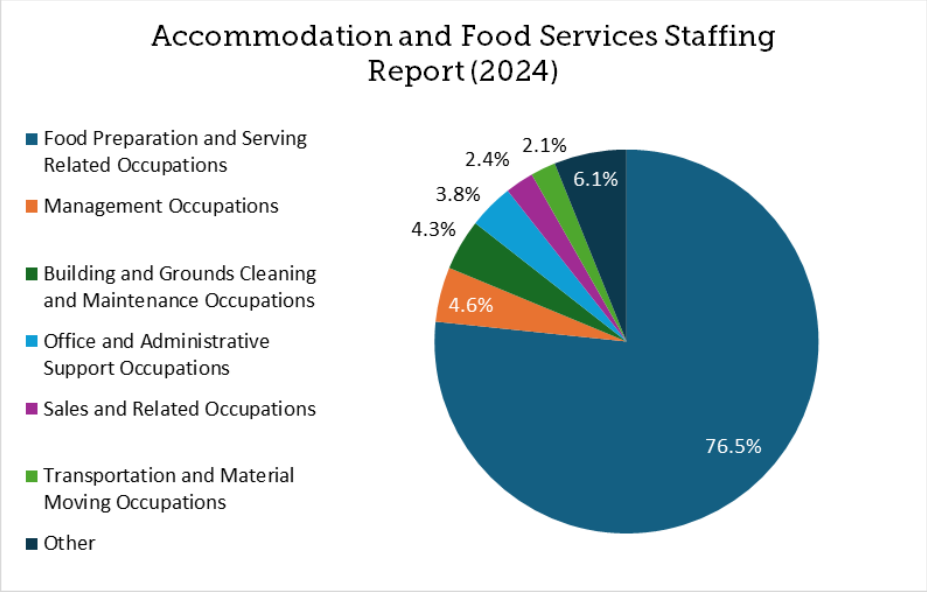
The gender diversity of the industry in Lackawanna, Luzerne, and Wayne counties is considered above average, with about 36.0 percent of workers being female and the remaining 64.0 percent being male. In terms of age, the transportation and warehousing industry in the three counties has more workers aged 55 years or older than the national average for geographic areas of similar size. Consequently, the retirement risk is high. Racial diversity in the industry is low in the sector, reflecting the demographics of the three counties.

Potential Function of AI in Transportation and Warehousing

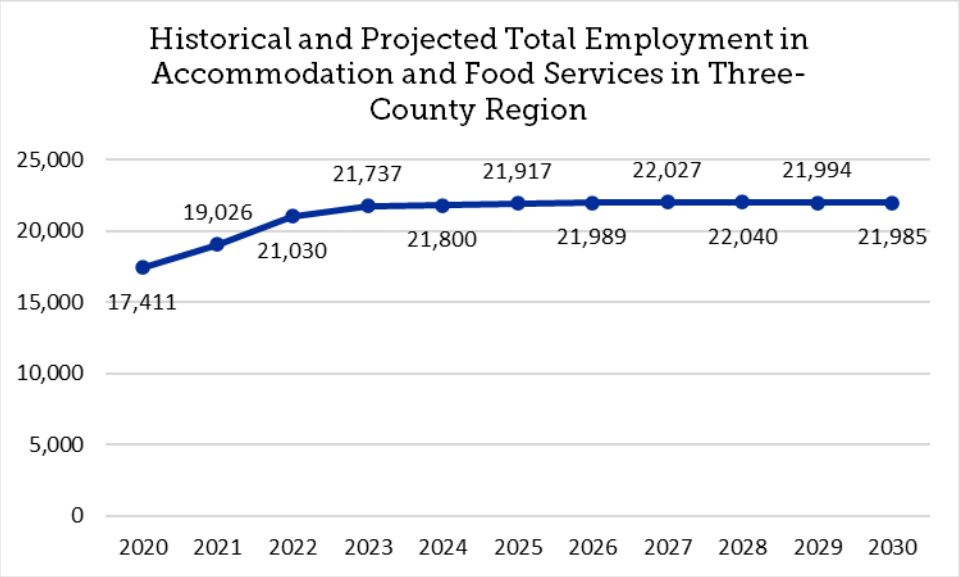
AI is used in a variety of ways in the transportation and warehousing industry. Regarding transportation, AI is being implemented through applications such as autonomous vehicles, traffic management, and logistics optimization.[44] As for warehousing services, AI is primarily used to manage inventory and fulfill orders. Other warehouse services that are being supplemented with AI include but are not limited to item organization, demand forecasting, and maintenance.[45]

Accommodation and Food Services

The accommodation and food services industry employs a total of 21,800 workers in Lackawanna, Luzerne, and Wayne counties. With the national average for a geographic area this size being 23,582 employees, the three-county region is considered about average for this kind of talent. The industry comprises about three percent of the region's overall GRP, and over three-quarters of its workforce consists of food preparation and serving related occupations.



Since 2020, the accommodation and food services industry of Lackawanna, Luzerne, and Wayne counties has seen a steady increase in employment. This workforce is projected to steadily grow through 2028 and then slightly decrease in 2029 and 2030. This particular industry plays an important role in regional employment, because it provides accessible employment for students, part-time workers, and those entering the workforce for the first time.



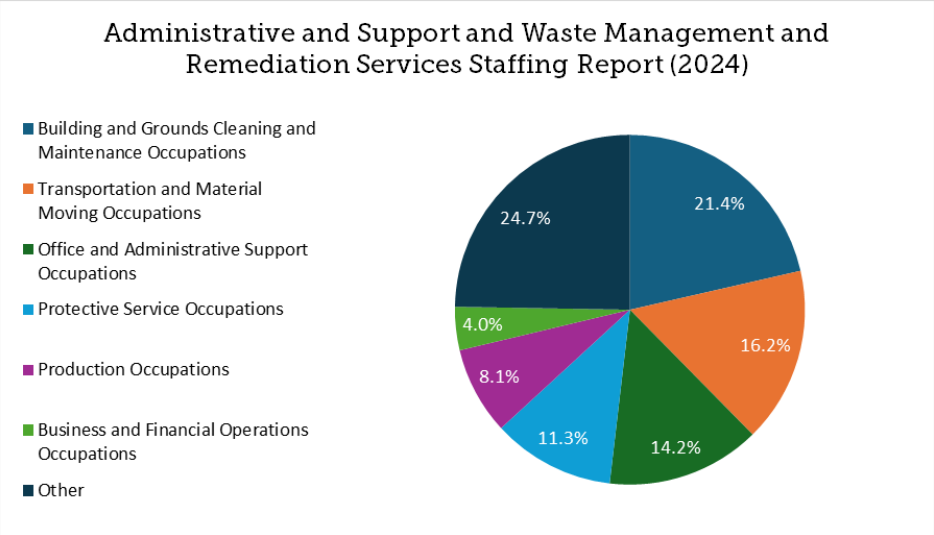
In the three counties, approximately 58.0 percent of workers in the accommodation and food services industry are female. In terms of age, the industry has more workers aged 55 years or older than the national average for geographic areas of similar size. Consequently, the retirement risk is high. Racial diversity is low, reflecting the demographics of the three counties.

Potential Function of AI in Accommodation and Food Services

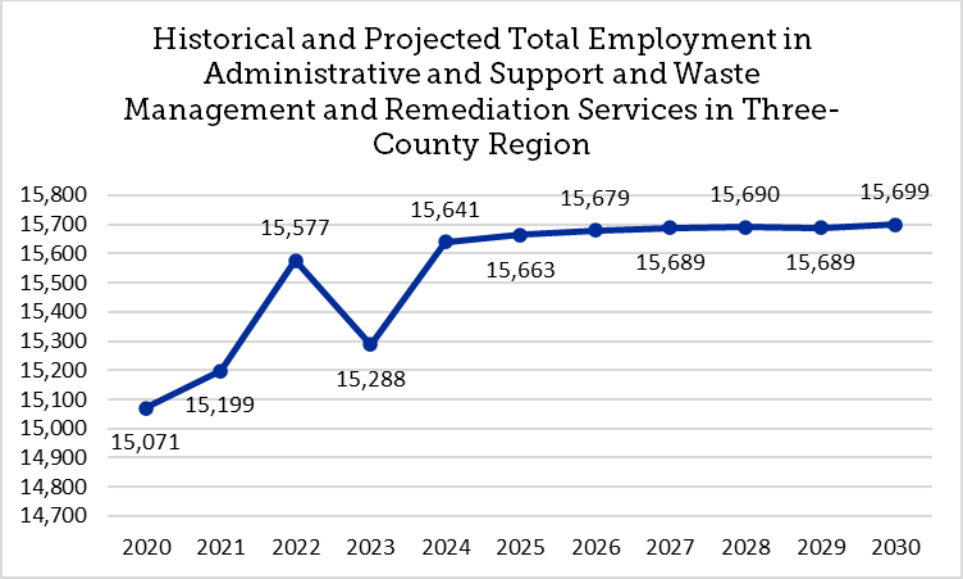
In the accommodation and food services industry, AI is employed to perform both guest-facing and operational functions.[46] Via AI-powered tools like chatbots and smart assistants, for example, accommodation services streamline the guest experience by having them handle bookings and check-ins. In terms of operations, AI optimizes housekeeping schedules and inventory management. Similarly, in food services, AI-powered kiosks, mobile apps, and chatbots streamline ordering and payment.[47] Furthermore, AI is used to take reservations and answer any inquiries that customers may have. Other common tasks performed by AI in accommodation and food services include predictive maintenance and dynamic pricing.

Administrative and Support and Waste Management and Remediation Services

The administrative and support and waste management and remediation services industry performs a variety of services, including office administration, clerical services, security and surveillance services, cleaning, and waste disposal services. In Lackawanna, Luzerne, and Wayne counties, the industry employs 15,641 workers. With this employment total, the region is considered average compared to similarly sized geographic areas. The GRP of the industry comprises about three percent of the region's overall GRP, and a plurality of its occupations are classified as building and grounds cleaning and maintenance occupations (21.4 percent).



The administrative and support and waste management and remediation services industry has seen an increase in employment since 2020. Employment projected to continue to increase through 2030. The health of this industry is vital for the economic success of the region, because it provides a variety of services that make the area an attractive place to conduct business (e.g., maintaining public health; contributing to the safety of workplaces, schools, and public spaces; and providing support services that allow businesses to focus on core activities). Moreover, it offers entry-level and transitional employment opportunities.



In Lackawanna, Luzerne, and Wayne counties, 53.0 percent of workers in the administrative and support and waste management and remediation services industry are male. Racial diversity is low, reflecting the larger demographics of the three counties.

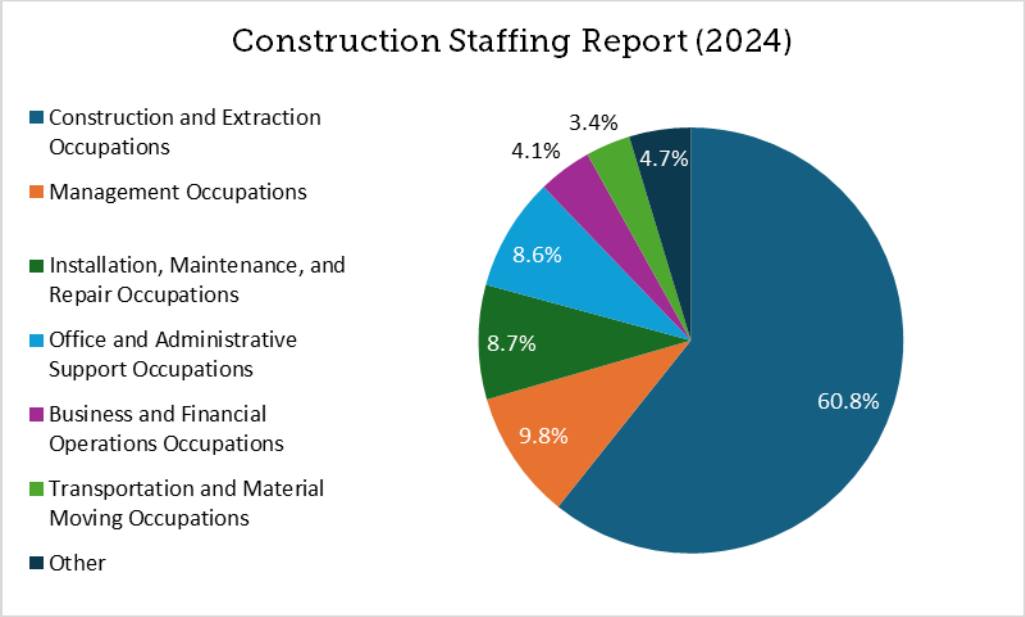
Potential Function of AI in Administrative and Support and Waste Management and Remediation Services

As the administrative and support and waste management and remediation services industry encompasses a wide variety of occupations, AI has been implemented in a number of ways. Regarding building and grounds cleaning and maintenance occupations, which are responsible for services such as building exterior and ventilation duct cleaning, for example, AI performs functions related to customer service and predictive maintenance.[48]

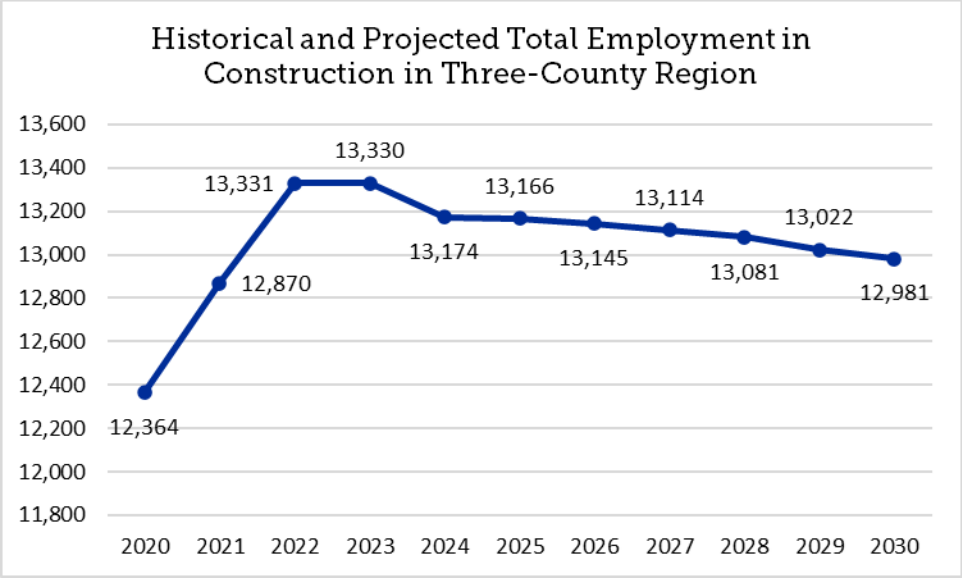
Construction

The construction industry is crucial for infrastructure development. Roads, bridges, schools, homes, and hospitals are built and maintained by the construction sector, enabling other industries to function and communities to thrive. Its services also play a key role in producing new and revitalizing old infrastructure.

In Lackawanna, Luzerne, and Wayne counties, the construction sector employs the eighth largest number of workers, at 13,174. With this employment total, the region is not considered a hotspot for construction-related talent; similarly sized geographic areas have a total of 16,464 employees in the industry on average. Its GRP, however, comprises 4.3 percent of the region's overall GRP, which is higher than both the accommodation and food services industry and the administrative and support and waste management and remediation services industry (three percent and 3.3 percent, respectively). In terms of its occupational breakdown, nearly 61.0 percent of its occupations are classified as construction and extraction occupations.



The construction industry saw an increase in employment between 2020 and 2023, but the total decreased about one percent in 2024. Employment is projected to continue to steadily decrease through 2030, which could compound the challenge of aging infrastructure and limited residential development in the region.



As of 2024, the gender diversity of the construction industry's workforce in Lackawanna, Luzerne, and Wayne counties was considered low, with only 11.0 percent of the workers being female. In terms of age, the industry has more workers aged 55 years or older than the national average for geographic areas of

similar size. Consequently, the retirement risk is high. Racial diversity is low, reflecting the demographics of the three counties.

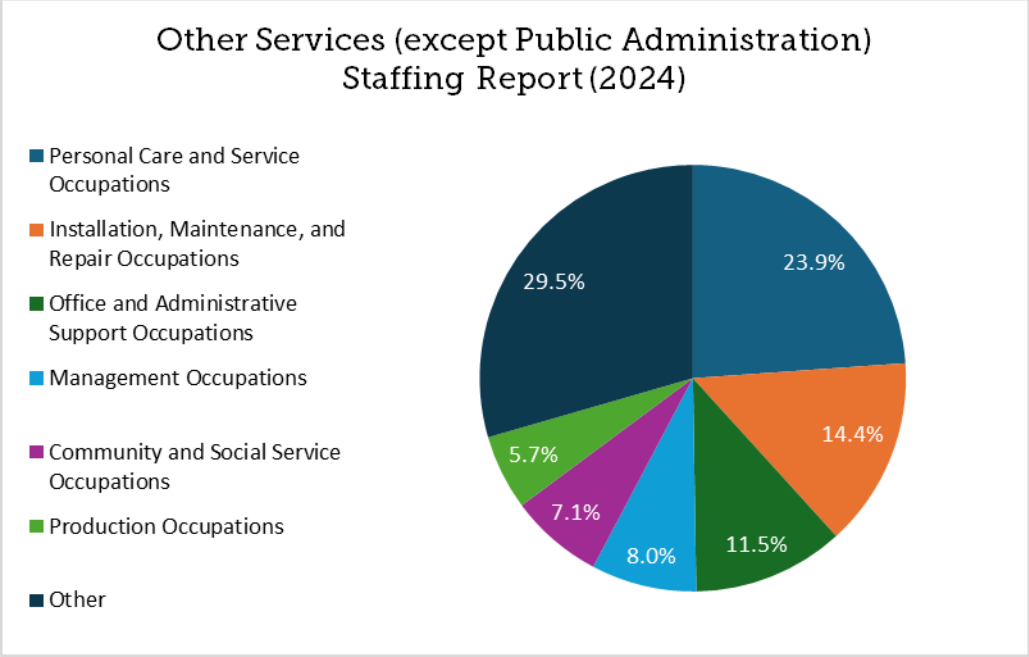
Potential Function of AI in Construction

AI serves a variety of functions in construction services,. One of these functions is to supplement the project planning phases of projects with data to identify potential risks and delays.[49] Project schedules and budgets are also monitored with AI, preventing overruns and maintaining efficiency. Additionally, by monitoring construction sites and identifying safety hazards, AI enhances on-site safety. Other applications of AI in the construction industry include resource allocation, predictive maintenance, and quality control.

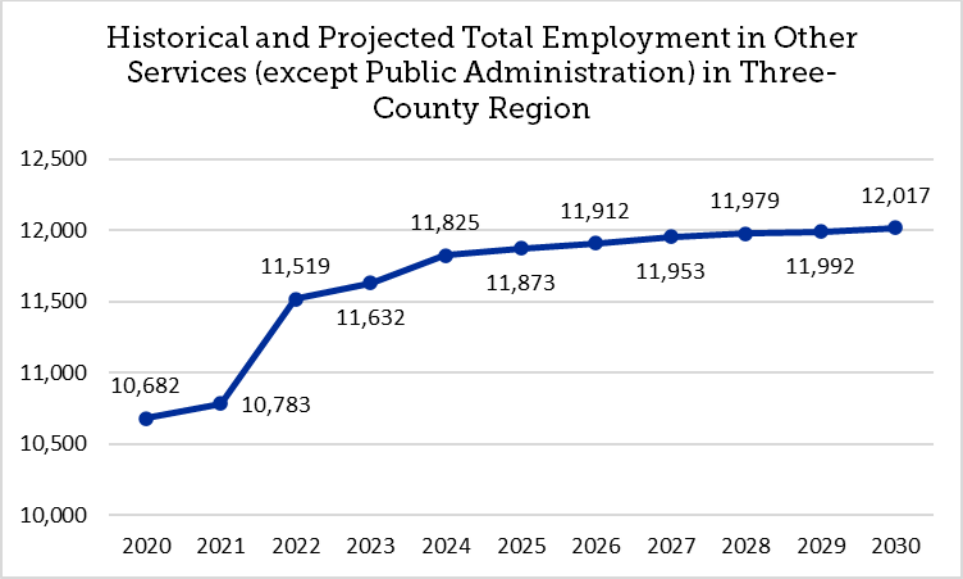
Other Services (except Public Administration)

The other services (except public administration) sector encompasses establishments engaged in service provision not specifically categorized elsewhere in NAICS. Establishments in this sector are engaged in a variety of activities, including but not limited to equipment and machinery repairing, promoting or administering religious activities, grantmaking, advocacy, and pet care services.[50]

In Lackawanna, Luzerne, and Wayne counties, this sector employs 11,825 workers. With this employment total, the region is not considered a hotspot for sector-related talent; similarly sized geographic areas have a total of 14,111 employees in the industry on average. The GRP of this sector comprises about two percent of the region's overall GRP, and a plurality of its occupations are classified as personal care and service occupations (23.9 percent).



This sector has seen a steady increase in employment between 2020 and 2024, and it is projected to continue to steadily increase through 2030.



Fifty-four percent of the workers in this sector are female. In terms of age, the industry has more workers aged 55 years or older than the national average for geographic areas of similar size. Consequently, the retirement risk is high. Racial diversity is low, reflecting the demographics of the three counties.

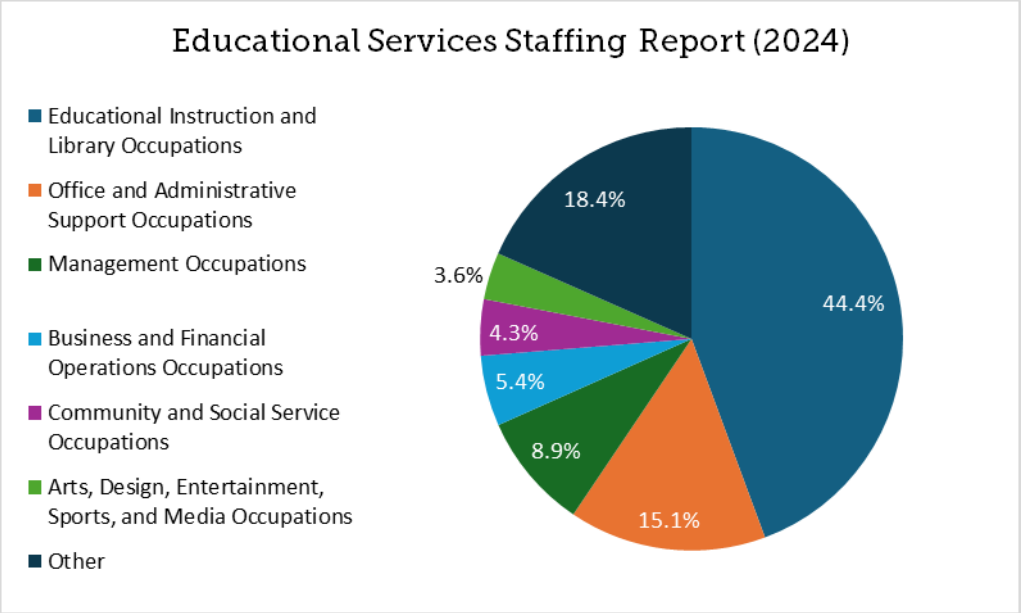
Potential Function of AI in Other Services (except Public Administration)

As this sector encompasses a wide variety of occupations, there are many potential uses and impacts of AI on its services. Considering personal care and service occupations (which involve attending to clients' beauty, fitness, and other needs[51]), for example, application of AI involves personalized services and automated administrative tasks.

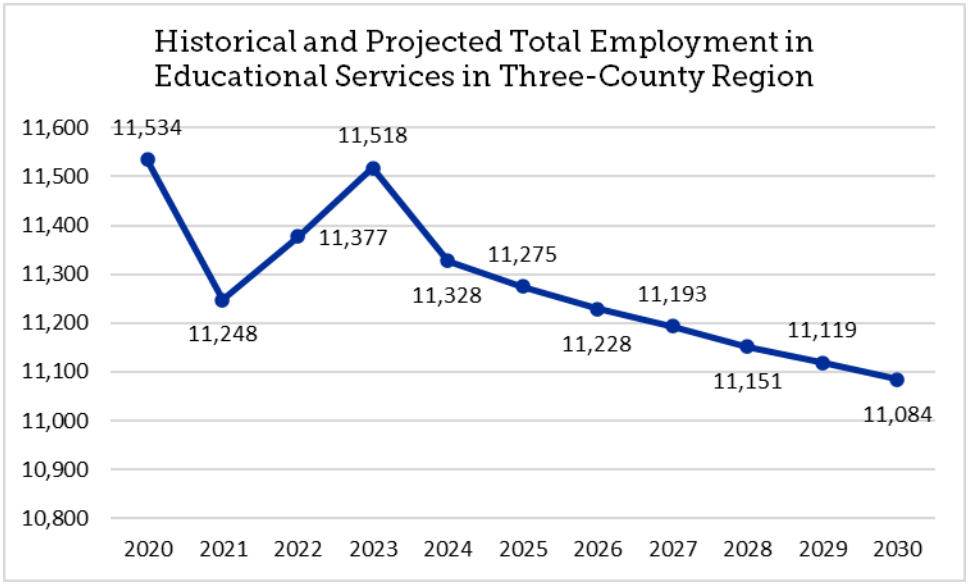
Educational Services

The educational services industry includes specialized establishments that provide instruction and training, such as schools, colleges, universities, and training centers. These establishments may be privately owned and operated for profit or not for profit, or they may be publicly owned and operated.[52] In Lackawanna, Luzerne, and Wayne counties, there are 24 public school districts, four career and technical schools (CTC), three charter schools, and 18 post-secondary education institutions.

The educational services industry employed 11,328 workers as of 2024. With this employment total, the region is considered a hotspot industry-related talent. The national average for geographic areas of similar size is 7,227 employees. The GRP of the educational services industry in Lackawanna, Luzerne, and Wayne counties comprises about two percent of the region's overall GRP. A plurality of occupations in the industry are classified as educational instruction and library occupations (44.4 percent).



The educational services industry experienced an employment decrease of about two percent in 2021, but the total but increased over the next two years. Since 2023, however, the industry has seen a decrease in employment and it is projected to decrease steadily through 2030. Employment in education highlights potential strain associated with student-teacher ratios, as well as workforce needs and challenges. Similar to other industries, the education sector grapples with a significant shortage of professionals.



The gender diversity of the educational services industry is about average for a geographic area of this size. The national average for an area similar in size to Lackawanna, Luzerne, and Wayne counties is

7,219 female employees, and there are 6,955 in the region. In terms of age, the industry has more workers aged 55 years or older than the national average for geographic areas of similar size. Consequently, the retirement risk is high. Racial diversity is low, reflecting the demographics of the three counties.

Potential Function of AI in Educational Services

In educational services, AI is being used in a variety of ways. Some of the more common applications of AI in educational services involve personalized curricula and enhanced classroom support via adaptive learning systems and chatbots, respectively; content tailored to the individual learner via AI-powered tools; and automated administrative tasks (e.g., grading, lesson planning, etc.). Although there are many perceived advantages of AI in the classroom, there are also perceived disadvantages, including an over-reliance on technology, lack of human interaction, data security, and resource constraints.[53]

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