

Missouri Economy Indicators

The Growing Impact of AI on the Workforce

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Since the release of ChatGPT and similar large language models less than two years ago, artificial intelligence (AI) has sparked optimism about a technological revolution that could rival the internet in its impact on businesses. However, large-scale technological advances also bring concerns, including potential job losses due to AI's ability to increase productivity at the expense of workers. Recent business surveys and job advertisement analyses show that AI's influence on the workforce is modest but growing. While massive disruptions in the labor market due to AI are years away, Missouri's fastest-growing jobs will likely use AI as a tool to complement worker, rather than replace them, in the coming years.

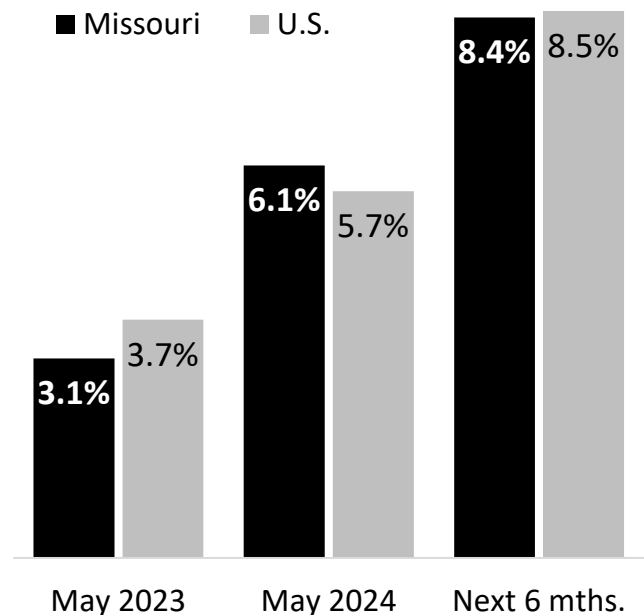
Business Use of Artificial Intelligence (AI) is Small but Growing

In a May 2024 survey, 89% of Missouri businesses reported not using AI, 5% were unsure and 6.1% used AI, slightly more than the U.S. average (5.7%). While the percentage of firms using AI is small, this level is nearly double the share of Missouri businesses that reported using AI a year earlier (3.1%).

Looking ahead, 8.4% of Missouri firms expect to adopt AI within the next 6 months, indicating a slow but steady belief that AI adoption will increase.

The top uses of AI for both Missouri and U.S. businesses include marketing automation, chatbot assistance, natural language processing and data analytics.

Businesses That Use AI or Believe They Will in the Next Six Months



Source: MU Extension graphic using Census Business Trends and Outlook Survey.

Online job advertisements for AI-related positions provide another lens for tracking business adoption of this technology. From March to August 2024, Missouri businesses posted 5,632 unique job advertisements seeking AI skills, according to Lightcast data. That represented 1.5% of all job postings, a modest amount and below the U.S. average (2.1%). A year earlier, AI-related job postings in Missouri accounted for 0.8% of total listings. Computer and math science jobs made up 44% of Missouri's AI-related job postings, mainly for software developers and data scientists. Management-related roles accounted for 10%, followed by business and financial operations specialists (9%) and engineers (7%). Leading Missouri employers included Washington University, the University of Missouri, Boeing, Mastercard, Mercy Health, and World Wide Technology.

Jobs Impacted by AI

Currently, jobs requiring AI skills are concentrated in software development, data and security roles within computer and math science occupations. However, over time, recent AI research (see notes below) suggests that jobs with repetitive tasks, such as customer service representatives and technical support, may be vulnerable to AI disruption. On the other hand, jobs that rely heavily on interpersonal relationships, critical thinking, creativity and adaptability will likely see AI as a tool to complement their work in the coming decade. Occupations in health care, social work, skilled trades and education are examples of fields where AI will improve efficiency but is unlikely to replace workers.

The table below highlights Missouri’s fastest-growing jobs through 2032, with at least 500 annual job openings. The color indicators show that most of these jobs require high levels of critical thinking, creativity and interpersonal skills that would be difficult for AI to replace. However, some of the fastest-growing occupations, such as cooks and machinery mechanics, may be more susceptible to AI disruptions.

Fastest-Growing Jobs in Missouri, 2022-32

and Typical Skill Needs by Low (●), Medium (●), and High (●) Levels Related to AI Disruption

Title	2022-32		Computers Skills	Critical Thinking Skills	Creativity Skills	Adaptability Skills	Interpersonal Skills
	% Job Change	Annual Job Openings					
Nurse Practitioners	42%	718	●	●	●	●	●
Medical & Health Svs. Managers	31%	1,106	●	●	●	●	●
Software Developers	26%	1,686	●	●	●	●	●
Personal Financial Advisors	24%	536	●	●	●	●	●
Restaurant Cooks	23%	6,070	●	●	●	●	●
Postsec. Health Spec. Teachers	19%	573	●	●	●	●	●
Financial Managers	18%	1,167	●	●	●	●	●
Health Counselors	18%	663	●	●	●	●	●
Computer & Info. Sys. Managers	17%	758	●	●	●	●	●
Industrial Machinery Mechanics	16%	587	●	●	●	●	●

Sources: MU Extension graphic using MERIC occupational projections with at least 500 annual job openings in Missouri. BLS selected skills data with percentile rankings of importance by occupation. Low is 32% or less, Medium is 33%-66%, and High is 67% or more in this analysis.

Additional Notes and Resources

- Several research papers and reports provide additional details on the implications of AI in the workforce: [Artificial Intelligence Index Report 2024](#), [AI’s impact on income inequality in the US](#), [The Simple Macroeconomics of AI](#), and [Will generative AI be good for US workers?](#)
- MERIC [occupational projections](#) provide details on the jobs openings expected in Missouri and nine workforce regions in the coming years.

All Missouri Economy Indicators briefs in this series are available at <http://muext.us/MissouriEconomyIndicators>

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