

## Legislative Science and Technology Note

### Artificial Intelligence, Economic Development, and West Virginia

July 2024

Artificial intelligence (AI) is an umbrella term for technologies which complete “human-like” tasks. This Science and Technology Note considers opportunities and challenges associated with the potential economic impacts of AI on West Virginia’s economic development and workforce. Generative AI (gen-AI) is a newer class of AI algorithms that can generate highly non-trivial content (text, videos, images, computer code, etc.) in response to user requests. Advances in generative AI’s capabilities could contribute to significant economic development and disruption, both through specific organizational applications and enhanced labor productivity.

#### West Virginia AI Economic Development Potential and Challenges

Applications of AI and gen-AI offer large potential economic and public health benefits for the state. AI is already being applied to tasks like [predictive road maintenance](#) and [new drug discovery in West Virginia](#). The \$5 million grant from the West Virginia Economic Development Authority will help health company [GATC West Virginia](#) complete an FDA application for a drug with the potential to treat opioid use disorder. AI has the potential to further assist in West Virginia’s [economic development](#) activities by anticipating company needs and the impact of investments, helping to

#### Research Highlights

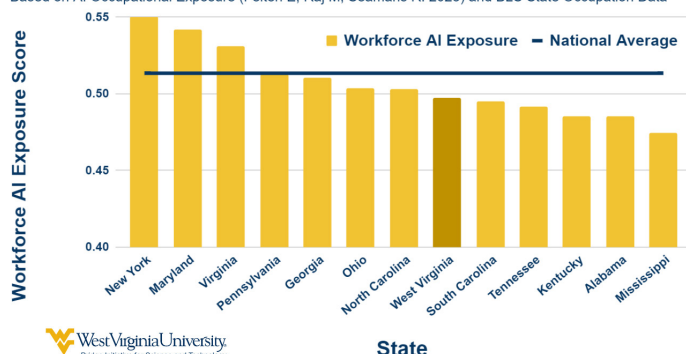
- Continuing advances in artificial intelligence (AI) and particularly generative AI have the potential to transform West Virginia’s economy and workforce.
- Research suggests generative AI (gen-AI) has the potential to improve the productivity of workers in software development, marketing, law, scientific research and more. Higher income professions are more exposed to generative AI. This could result in job replacement and productivity increases. West Virginia’s workforce is less exposed to gen-AI language applications than the national average.
- Wise applications of gen-AI have the potential to strengthen West Virginia’s middle-class, and improve tasks like drug discovery and business attraction. Additionally, increased demand for electric power for AI applications could benefit West Virginia’s energy sector.

attract businesses to the state. Successful adoption of generative AI by West Virginia firms has the potential to improve worker productivity in numerous occupations. Productivity increases from gen-AI have been demonstrated in [customer service](#), [professional writing](#), and [software development](#) fields. For software engineers, gen-AI tools [could be like](#) machine tools for assembly line workers, enabling vast efficiency increases and changing the nature of daily tasks.

Wise application of AI has the [potential to rebuild a large middle-class workforce](#), bringing economic and social benefits to West Virginia. But this is only one possible outcome. Access to quality data and a qualified workforce [may present challenges](#). A primary economic development challenge is concerns about job loss. One [2023 study](#) examined the potential impact of Chat GPT and estimated about 33% of occupations could be fully impacted, 37% partially impacted, and 31% unaffected.

#### Appalachian State Workforce AI Exposure Score

Based on AI Occupational Exposure (Felten E, Raj M, Seamans R. 2023) and BLS State Occupation Data



#### Gen-AI and West Virginia’s Labor Market

Many West Virginians have encountered simpler artificial intelligence technologies. For example, virtual assistants like Siri or Alexa can respond to simple verbal requests such as asking them to call a friend or answer

a question. Newer gen-AI, exemplified via chat-bots like OpenAI's ChatGPT, can answer complex questions in detail and perform tasks like generating computer code and images. This has [raised the prospect of "agentic AI" or AI copilots that could](#) "interpret complex instructions accurately, set and manage sub-goals autonomously, and make context-driven decisions. They are capable of efficiently navigating and executing multi-step processes, reacting to changes, and adapting their strategies accordingly." This progress is generating excitement and concerns about [job loss](#) as gen-AI undertake tasks commonly done by humans today. But are these the jobs largely held by West Virginians?

In one attempt to help predict the impact of new generative AI applications on various occupations, [researchers developed an AI Occupational Exposure \(AIOE\) index](#). This measure does not predict whether AI will replace or complement a particular job. By applying this measure to state-level occupation data, one finds a state gen-AI exposure score. The impact of gen-AI (specifically language applications) on West Virginia's workforce is below the national average (see figure). This is likely in part because the highest-earning jobs, such as legal and financial services, are the most exposed to generative AI's language modeling applications. Further, West Virginia's workforce has a high proportion of occupations like registered nurses and laborers, which are not very exposed to gen-AI's language applications.

## Current West Virginia AI Policies

The West Virginia AI Task Force on Artificial Intelligence ([HB 5690](#)), created in 2024, is composed of state executive branch agency heads, legislators, representatives from AI, cybersecurity, and health industries and a business association representative. They will be "[a]ssessing the use of artificial intelligence in the workforce and its effect on employment levels, types of employment, and the deployment of workers" among other AI impacts. The task force is required to submit a report with recommendations by July 1, 2025. The House of Delegates also created an AI Select Committee ([HR 3](#)) in 2024 which will consider AI issues for the remainder of the 86th legislature.

## Potential AI Economic Benefits

Gen-AI could contribute to economic development by improving efficiency and productivity of West Virginians in a number of ways. The Preston County Economic Development Authority highlights how AI tools are

[assisting with job applications](#), creating cover letters and resumes tailored for a position and enabling people to apply to greater numbers of jobs. In addition, gen-AI tools can help [overcome language barriers](#) for West Virginians and [increase accessibility for those with disabilities](#).

The regular training of AI models requires a lot of electric power. It is predicted US AI applications will require [seven times the annual electricity usage of New York City by 2030](#). This represents an opportunity for solar, wind, and natural gas producers in West Virginia. It is estimated that [natural gas will supply 60%](#) of the growth in demand from AI and data centers, with renewables meeting the remaining 40%. AI could also [increase economic inequality](#), meaning greater numbers of West Virginians may be dependent on state and federal services.

## Other State Policy Comparison

Thus far, state policies have been fairly limited regarding AI and economic development. Eleven states have [created AI Task Forces](#) in the past two years which will study the potential economic and workforce impacts and provide recommendations. In 2024 Utah sought to encourage innovation in AI with an "[Innovation in Artificial Intelligence Grant Pilot Program](#)." In 2023 Georgia appropriated \$5,000,000 in matching funds to support a [Federal AI in manufacturing program grant for the state](#). Maryland established an [Industry 4.0 Technology Grant Fund](#) in 2023 to support small- and medium-sized manufacturers in adopting advanced technologies. In [SB 2 \(2024\)](#), Connecticut addressed gen-AI workforce concerns by requiring their Chief Workforce Officer incorporate AI into workforce training programs, establish a "Connecticut Citizens AI Academy" and AI degree programs. In addition, SB 2 addresses economic development and AI-investment cost concerns by requiring the Department of Economic and Community Development to develop a plan to offer high-performance computing services essential to AI development and to hold a Connecticut AI Symposium.

## West Virginia Policy Options

West Virginia's AI task force is considering policy recommendations on a number of issues including workforce consequences and a definition of gen-AI.

Policy options for West Virginia include incorporating AI into workforce training programs and developing a plan to offer citizens access to high-performance computing like Connecticut, establishing a technology grant fund like Maryland, or awaiting further economic developments and the task force report to consider further actions.

