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Harnessing the Power of AI to Transform Government Training



Table of Contents

01

Introduction 3

02

The AI reskilling opportunity 4

03

Using AI to enhance government learning and training 6

04

Conclusion 8

05

Endnotes 9

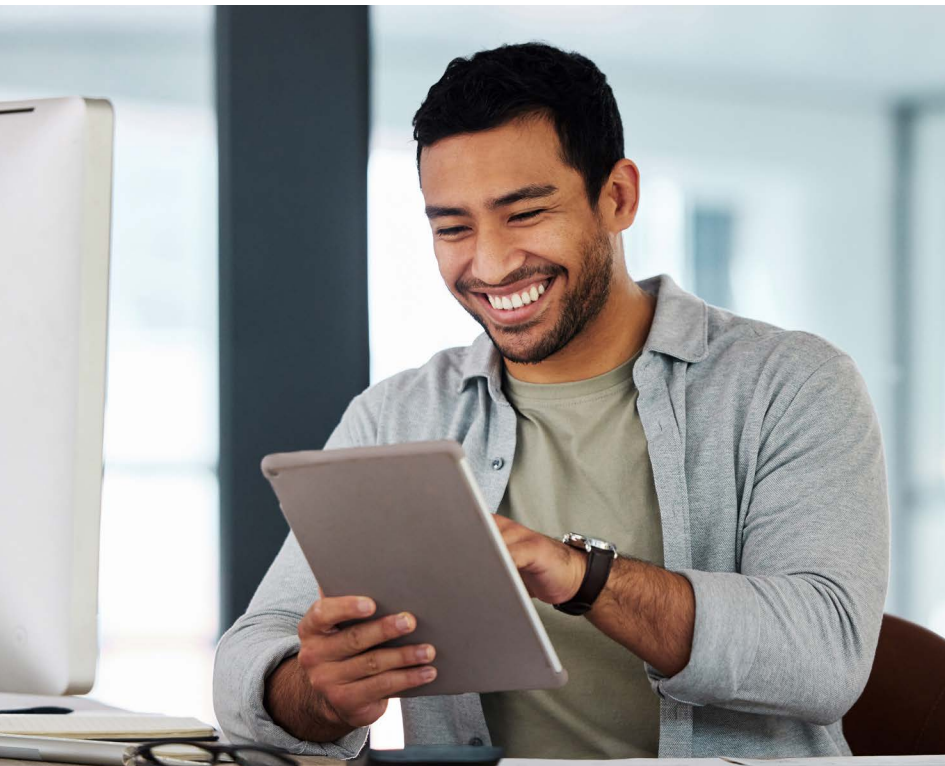
Introduction

Artificial intelligence (AI), especially generative AI (GenAI), is poised to deliver significant economic value, potentially unlocking \$2.6 trillion to \$4.4 trillion¹ annually in productivity gains.

This transformation extends to the government sector, where AI is set to make public service delivery faster and more efficient. In particular, AI can help agencies develop more effective training programs and learning experiences to upskill and reskill employees.

The rise of GenAI also reinforces the need for workforce training in order to close skill gaps. About 61% of workers² will need retraining by 2027 because of the automation of 60% to 70% of existing work tasks.³

As a public sector leader, you are at the forefront of this transformation. This white paper, developed together by Coursera and Govloop, explores the importance of AI skills training and how AI can enhance your organization's learning experiences, deliver content efficiently, and drive mission success.



Takeaways

Jobs of the Future Survey: AI & the Future of Work⁴

This report explores the importance of AI skills training. Below are some key findings.

58%

of workers feel they need to gain new skills because of AI

58%

of workers are open to AI learning opportunities at work

29%

of workers are concerned about AI taking away their job

66%

of Gen Z and millennial workers feel they need to upgrade their skills because of AI

24%

of workers express a desire to upgrade their skills to secure a raise or promotion at work, according to the Pew Research Center⁵

The AI reskilling opportunity

AI integration across systems and processes necessitates a basic understanding of AI for all government employees. For instance, they must understand how AI models are created, how they change over time, and how to use them to make services better and more efficient for the people they serve.

Research from Randstad's Workmonitor Pulse⁶ highlights a 2,000% increase in job postings requiring AI skills across the U.S. workforce between March and September 2023. Interestingly, more than half of the 7,100 workers surveyed expressed a keen interest in acquiring AI skills.

Coursera data confirms that learners are urgently seeking opportunities to learn AI skills relevant to their roles. Users searched for GenAI content on Coursera four times more⁷ in 2023 than in 2022. The leap was even greater – 475% year-over-year – among Coursera for Government learners.

Common use cases for AI in government

While many government use cases focus on unique functions (e.g., drug analysis, traffic management), here are some of the cross-cutting applications agencies envision:

Fraud Detection: Sifting through large volumes of financial transactions to detect abnormalities that should be followed up

Cybersecurity: Automating everything from threat detection and incident response to threat hunting

Forms Processing: Capturing data from paper or digital forms, validating it, flagging potential problems, and forwarding for additional review as needed

Constituent Services: Using bots to summarize key information, providing answers to common questions or guiding constituents through common processes

Top GenAI courses among government learners*

- [Prompt Engineering for ChatGPT](#) by Vanderbilt University
- [Introduction to Generative AI](#) by Google Cloud
- [Generative AI with Large Language Models](#) by DeepLearning.AI & AWS
- [Generative AI for Everyone](#) by DeepLearning.AI
- [ChatGPT Advanced Data Analysis](#) by Vanderbilt University

*Based on enrollments on Coursera in 2023



Essential generative AI skills for your agency, curated by Andrew Ng

For learning leaders, an effective training strategy starts with being clear about the skills your organization needs.

Based on Coursera skills data and an expert review by Coursera founder Andrew Ng, here are the GenAI skills that public-sector employees should prioritize developing:

- **Prompt Engineering:** crafting effective input instructions for GenAI models to understand and respond to
- **Generative AI Project Life Cycle:** the stages involved in developing and managing GenAI projects
- **Natural Language Processing (NLP):** a field of AI focused on enabling computers to understand, interpret and generate human language
- **Deep Learning:** a subset of machine learning (ML) that uses neural networks with multiple layers to represent complex patterns and features in data
- **Transformer Networks:** a type of deep learning architecture that has become widely used in NLP, computer vision, audio and multimodal processing
- **Vision Transformers:** a specific application of transformer networks designed for computer vision tasks, allowing them to process and analyze visual data, such as images and videos
- **Pre-Training and Fine-Tuning:** the practice of pre-training models on large datasets and then fine-tuning them on specific tasks to improve their performance and adaptability
- **Diffusion Models:** a class of generative models for tasks such as denoising and generating images
- **Reinforcement Learning, Including Reinforcement Learning from Human Feedback:** an ML paradigm wherein implementing rewards or punishments improves learning efficiency
- **AI Strategy:** achieving specific organizational goals by developing a comprehensive plan for integrating and leveraging AI
- **Responsible AI:** ensuring that AI systems are developed and used ethically, fairly and transparently

The need for AI training extends beyond just understanding the technology. It's about enabling employees to use AI to enhance their productivity and job performance. The focus should be on fostering a creative mindset toward using these tools and identifying the best use cases for their specific roles.

“There is going to be a need for basic AI literacy for all. Everybody should know something about how this works so that they can use it to enhance their jobs and productivity. You want them thinking creatively about how to use these tools,” said Nicole Amaral, Principal, Skills Transformation at Coursera.

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GenAI training on Coursera

Coursera's GenAI Academy is designed to equip senior leaders and their employees with the skills they need to thrive in an AI-driven workplace. GenAI Academy offers a unique blend of foundational literacy and executive education programs from top research universities and companies at the forefront of AI, including Microsoft, Stanford Online, Vanderbilt University, DeepLearning.AI, Fractal Analytics, Google Cloud and AWS.

Upskill your workforce with critical GenAI skills.

[Learn More](#)

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Nicole Amaral
Principal of Skills
Transformation, Coursera

Using AI to enhance government learning and training

Across government agencies, learning and development teams, as well as IT leaders, can use AI to transform the employee learning experience. Agencies are seeking to recruit and retain top talent and to reskill existing workers in support of evolving mission sets. In each of these areas, AI offers avenues for improvement.

Creating personalized learning experiences

Engagement is key to an effective learning journey. AI can enhance this by delivering personalized training experiences tailored to individual learning styles and career paths. According to Amaral, “whatever the role, AI increasingly makes it possible to meet people at the level that they’re at. Personalization has always been a challenge, but GenAI will increase our ability to dynamically recommend content, evaluate learning, and help people grow from their baseline, wherever that is.”

AI’s capacity to analyze past performance and deliver tailored content ensures a deeper connection between the learner and the learning materials, leading to improved learning outcomes. For example, an employee who has demonstrated a preference for visual learning might receive training in video format, whereas others might benefit from hands-on training.

Additionally, AI enables learners to receive in-the-moment coaching, enhancing their comprehension of learning materials. This real-time feedback can also provide valuable insights to human educators about learners’ grasp of the material and areas of difficulty. Based on this information, “an AI coach can also provide valuable data to help the trainer adjust their approach in order to connect effectively with the largest group of learners,” Amaral said.


AI-powered tools such as Coursera Coach provide real-time, personalized answers to questions, explain concepts in simpler ways, and summarize content to ease studying, referencing, and recall.



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Coursera Coach

Coursera Coach is a prime example of AI in action. By integrating GenAI, learners access an AI-powered learning assistant that can offer real-time responses and contextual feedback. This dynamic interaction augments the learning experience, amplifying engagement and understanding.

 This feature is in beta release.

For employees who are not comfortable with data or unsure about how to analyze it for future planning, AI can be particularly helpful. It can create personalized learning paths, catering to each individual's level of comfort and understanding of data. This allows for data upskilling at different levels, ensuring that all employees, regardless of their current expertise, can effectively work with data.

“With AI, you can create personalized learning pathways,” said Dr. Alexandra Urban, Learning Science Research Lead at Coursera. “For some, that might be an understanding of statistics. For others, it may be learning how to manage data in [Microsoft] Excel or program in a new language.”

Developing engaging content faster and at scale

While there are numerous commercial offerings for government training materials, curating these resources to match your agency's unique objectives can be complex and time-consuming.

AI can help by processing large amounts of data to identify the most appropriate learning resources. “AI can sort through what's available and help to identify the most appropriate resources, which training experts can use for initial guidance and then evaluate their options to create their own learning programs,” Amaral said, adding that this saves trainers from having to re-create existing training resources from scratch. “AI can be really useful in helping them to understand the landscape of learning resources and to tame the content chaos that's out there.”

Additional prompting can help trainers curate a list of books, websites, articles and other resources that can be used to further build the curriculum on a given topic. It can even outline a lesson plan structure and generate a variety of assessment types, including multiple-choice, short answers, essay, problem-solving questions and hands-on tasks or projects.

“Content curation is an expensive and time-consuming undertaking for any government organization to get right,” Urban said. “Matching the needed skill areas and levels to your varied job roles cannot easily be curated by hand.”

Automate time-consuming tasks

Public administration is increasingly a data-driven enterprise; agencies need knowledge workers who have the expertise and creativity to make sense of vast amounts of data and leverage new applications to put it to work. To that end, “people can be leveraging AI in support of efficiency gains,” Amaral said.

Take for example authoring lengthy reports, a common activity for many analysts and program managers. “AI can be trained to do much of that work. If you can automate the creation of that first draft, or large parts of it, that's time that those knowledge workers can be devoting to higher-level tasks,” she said.

As uses of AI proliferate, it will be important to train administrative, technical and professional government employers on how to use these tools to improve efficiencies and productivity.

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Course Builder

Coursera Course Builder is an AI-assisted authoring tool that empowers you to upskill your workforce by strategically embedding world-class expertise into your custom courses. The tool gives your learning team the flexibility to create and tailor content for all career levels and job roles, while also providing organizational context.

[Learn More](#)

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Dr. Alexandra Urban
Learning Science Research
Lead, Coursera

Conclusion

The U.S. is experiencing a “lagging early-career talent pipeline” and low retention rates, according to a White House memo⁸ on strengthening the federal workforce. With many baby boomers nearing or at retirement age, there’s a shortage of workers in general across all government agencies. To help fill that gap, governments need to drive productivity gains and scope more effective ways to help employees develop new skills like GenAI.

By leveraging the power of AI, agencies can scale training efforts using existing resources, helping employees develop in-demand skills and keeping mission-critical programs on track.

“We can see a future where employees are spending a lot less of their time on routine, administrative tasks,” Urban said. “Instead, we can empower them to provide the more innovative and meaningful services that government is for.”

About GovLoop

GovLoop’s mission is to inspire public sector professionals by serving as the knowledge network for government. GovLoop connects more than 300,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to the public sector.

For more information about this report, please reach out to info@govloop.com.

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Endnotes

1. [The economic potential of generative AI: The next productivity frontier](#), McKinsey & Company, June 2023
2. [The Future of Jobs Report 2023](#), World Economic Forum, April 2023
3. [The economic potential of generative AI: The next productivity frontier](#), McKinsey & Company, June 2023
4. [Artificial intelligence & the Future of Work Survey](#), Jobs for the Future, June 2023
5. [Lifelong Learning and Technology](#), Pew Research Center, March 2016
6. [AI threatening jobs? Most workers say technology is an accelerant for career growth](#), Randstad, September 2023
7. [What the world learned on Coursera in 2023 and next year's must-know skills](#), Coursera, December 2023
8. [Strengthening the Federal Workforce](#), The White House, March 2022

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