

This is the third in a series of articles stemming from the National Academy of Public Administration's Standing Panel on Technology Leadership as part of its *Call to Action on Responsibly Using AI to Benefit Public Service at all Levels of Government*. The Standing Panel is grateful for the strong positive response to this call from numerous colleagues in governmental communities and welcome input from the larger community. To sign up for the "Call to Action". Click here:

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Making Government AI-Ready Begins with an AI-Ready Workforce

By Dr. Alan R. Shark

There has been much talk about having an AI-Ready Workforce, yet there seems to be more focus on the need than on how we can achieve this. We also know that AI is dramatically different from any other form of technology that has emerged since the advent of the open Internet. Given AI's speed of transactions, complexity, and potential for mistakes and bias, this nascent technology cannot be entirely left in the domain of science and technology. The National Academy of Public Administration identified "Make Government AI Ready" as one of its Grand Challenges in 2019. In addressing AI Ready Government, we recognize that government functionality still depends on humans and human systems. This means we must identify the main characteristics of an AI-Ready Workforce.

A broad definition of an AI-Ready Workforce might refer to a group of individuals who possess the necessary skills, knowledge, and mindset to effectively collaborate with and leverage artificial intelligence (AI) technologies in their work environments. To make our current workforce AI-ready, we need to create and implement required training and development for AI that could range from a simple online required course to a more comprehensive certification program.

We must also look at how schools of higher learning are adapting their curricula to include these newer skillsets aimed at addressing government needs. Changing or modifying the highly entrenched college curriculum is itself a monumental challenge. Teaching AI in college should provide students with a comprehensive understanding of artificial intelligence concepts, methodologies, and applications while equipping them with practical skills to work with AI technologies. Ideally this should be infused throughout existing curriculums and at all levels. Given the rapidly evolving nature of AI, the curriculum should be adaptable and updated regularly to incorporate new techniques, technologies, and best practices. Here are some examples of how AI can be taught:

Multidisciplinary Approach: AI is an interdisciplinary field, and its teaching should reflect that. It should integrate concepts from computer science, mathematics, statistics, engineering, cognitive science, public policy and administration, ethics, and more.

Fundamental Concepts: Begin with teaching the fundamental concepts of AI, including machine learning, neural networks, natural language processing, robotics, computer vision, and knowledge representation.

Hands-On Projects: Encourage practical learning through hands-on projects. Students should work on real-world AI problems, implement algorithms, and integrate problem-solving based on real-world problems through existing AI offerings to gain valuable and practical experience.

AI Ethics and Responsible AI: Emphasize the importance of ethical considerations in AI development. Teach students about potential biases, fairness, privacy, and accountability issues that can arise with AI applications.

Industry Collaboration and Internships: Foster partnerships with industry to provide students with opportunities for internships, real-world projects, and exposure to the practical applications of AI in different domains.

Collaborative Projects: Encourage group projects and team collaboration, as AI development often involves interdisciplinary teamwork.

Guest Lectures and Seminars: Invite AI experts from academia and industry to deliver guest lectures and seminars, giving students insights into cutting-edge research and industry trends.

Research Opportunities: Provide avenues for students interested in AI research to engage in research projects and contribute to the advancement of AI knowledge.

Practical Applications: Demonstrate real-world applications of AI across various domains, such as healthcare, finance, autonomous vehicles, and customer service, to showcase the potential impact of AI.

Explainable AI: Teach students about the importance of explainable AI methods to promote transparency and trust in AI systems.

AI and Society: Discuss the broader societal implications of AI, including its impact on the job market, privacy concerns, and potential for social good.

By incorporating these elements into the existing curriculum, colleges can provide students with a well-rounded education in AI that prepares them to contribute meaningfully to the field and adapt to the ever-changing landscape of AI technologies. This means courses in policy, public administration, the humanities, and organizational development are a few disciplines that should easily absorb and embrace AI.

In addition to infusing AI technologies into existing curriculums, colleges might consider interdisciplinary courses, programs, and degrees. An interdisciplinary approach acknowledges that AI often bridges different domains, and an AI-Ready workforce benefits from having diverse expertise and understanding across multiple disciplines.

Beyond those employees who are specifically trained or credentialed in AI, the rest of an AI-Ready Workforce, must be skilled to operate in an AI-augmented environment. These skills might include the following:

Digital Literacy: Employees should have a solid understanding of digital technologies and be comfortable using digital tools. This includes basic computer skills, familiarity with software applications, and an ability to adapt to new technologies quickly.

Data Literacy: AI relies heavily on data, so an AI-Ready workforce should be data literate. This means understanding how to gather, interpret, analyze, and draw insights from data.

Continuous Learning: AI technology is rapidly evolving, and an AI-Ready workforce must be committed to ongoing learning and skill development to keep up with the latest advancements.

Problem-Solving Skills: AI can be applied to various complex problems, but it's essential for employees to have strong problem-solving abilities to identify the right issues to address and to interpret AI-generated insights effectively.

Critical Thinking: With AI-generated outputs, it's crucial for the workforce to have critical thinking skills to assess the reliability and accuracy of AI results, avoiding blind reliance on AI-generated decisions.

Creativity: While AI can handle repetitive tasks, creativity remains a human skill that complements AI. Employees should be encouraged to think creatively and explore innovative solutions.

Ethics and Responsible AI Use: AI can raise ethical concerns, such as privacy, bias, and fairness. An AI-Ready workforce should be aware of these issues and apply AI responsibly in their decision-making.

Collaboration and Communication: AI projects often involve cross-functional teams, requiring effective communication and collaboration skills to work together efficiently.

Adaptability: AI implementation may lead to changes in workflows and processes. An AI-Ready workforce should be adaptable to embrace and integrate these changes.

Resilience to AI Disruption: AI can automate certain tasks, leading to job changes. An AI-Ready workforce should demonstrate resilience to adapt to these shifts in the job landscape.

In creating an AI-Ready workforce, organizations will need to invest in training and upskilling initiatives, promote a culture of continuous learning, and foster an environment that encourages experimentation and collaboration with AI technologies. Keep in mind that the field of AI is continually evolving, so the characteristics of an AI-Ready workforce will continue to evolve as well.

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