Request for Information to the Update of the National Artificial Intelligence Research and Development Strategic Plan: Responses

Society for Industrial and Organizational Psychology (SIOP)

DISCLAIMER: Please note that the RFI public responses received and posted do not represent the views or opinions of the U.S. Government or any entity within the U.S. Government. We bear no responsibility for the accuracy, legality, or content of the responses and external links included in this document.
Response to the Request for Information to the Update of the National Artificial Intelligence Research and Development Strategic Plan

The Society for Industrial and Organizational Psychology (SIOP) is submitting these comments in response to a request for information released on February 2, 2022, by the White House Office of Science and Technology Policy (OSTP) seeking input on a proposed revision of the National Artificial Intelligence Research and Development Strategic Plan.

Industrial and organizational (I-O) psychology is a dynamic and growing field that addresses workplace issues at the individual and organizational level. I-O psychologists apply research that improves the well-being and performance of people and the organizations that employ them. Collectively, I-O psychologists bring over a century of expertise in understanding and predicting workplace behavior. SIOP is the professional organization representing a community of over 10,000 scientists, academics, consultants, practitioners, and students of I-O psychology and working to promote evidence-based policy and practice of the science of the workplace. Many I-O psychologists specialize in topics related to education, development, and workforce training, as well as the emerging technology-enabled workforce. SIOP believes this expertise is well suited to address the issues at hand in the National Artificial Intelligence Research and Development Strategic Plan.

Bias, Fairness, and Standards in AI-Based Hiring Assessments

Decisions about whom to hire are made many thousands of times each day and many organizations, including federal agencies, are looking for ways to make these decisions more accurately and efficiently to remain competitive in a demanding marketplace. To this end, there has been a growing interest in the use of artificial intelligence (AI) for pre-employment screening of job candidates. AI in this context refers to a broad range of technologies and statistical techniques that have the potential to identify patterns in candidate information that are predictive of future job performance. At the same time, there have been increasing calls for scrutiny of AI-based assessments, reflecting concerns over privacy, fairness, lack of transparency, and the accuracy of their predictions.

To address these concerns, AI-based decision tools require the same level of scrutiny that traditional employment tests have been subjected to for decades. In fact, state and federal regulatory control specific to the use of AI in organizational decision making has already occurred in some places and seems imminent in others. To aid policy makers and employers looking for guidance on AI-based hiring tools, SIOP has published the Principles for the Validation and Use of Personnel Selection Procedures, which is updated regularly to reflect current scientific research and best practices in hiring and promotion. This document
summarizes the fundamental requirements for selection procedures that should guide the evaluation of assessments. Importantly, these professional guidelines are applicable to all selection procedures, including technology-based hiring and promotion procedures that incorporate AI, machine learning, and other novel assessment techniques (e.g., game-based assessments, evaluation of voice and facial characteristics).

Building on the guidelines published by SIOP, there are five key criteria for evaluating AI-based assessments:

1. AI-based assessments should produce scores that are considered fair and unbiased.
2. The content and scoring of AI-based assessments should be clearly related to the job.
3. AI-based assessments should produce scores that predict future job performance (or other relevant outcomes) accurately.
4. AI-based assessments should produce consistent scores that measure job-related characteristics (e.g., upon re-assessment).
5. All steps and decisions relating to the development and scoring of AI-based assessments should be documented for verification and auditing.

These five key criteria are intended to represent the minimal requirements necessary to justify the use of AI-based assessments for hiring and promotion decisions.

SIOP encourages OSTP to include a focus on research exploring bias and fairness in AI-based hiring and selection assessments in the next revision of the National Artificial Intelligence Research and Development Strategic Plan under “Strategy 3: Understand and address the ethical legal and societal implication of AI” to ensure this rapidly expanding topic does not exacerbate biases and can contribute to a strong workforce across the federal and private sectors. Additionally, SIOP encourages OSTP to include a focus on the development and implementation of metrics for fair and unbiased AI-based selection and hiring systems under “Strategy 6: Measure and evaluate AI technologies through standards and benchmarks.”

**AI and the Technology-Enabled Workforce**

As the rate of technological change continues to accelerate, understanding how these changes affect American workers has never been more critical. These changes impact not only the products that our workforce creates and sells but also the work environment itself, such as increased coworking with robots and AI. Federal agencies have done well to address this change as the current strategic plan notes in its 2019 update, highlighting opportunities from NSF, NOAA, NIH, and DOE.

AI and automation are transforming the production of goods and services. Workforce trends require employees to develop new routines, skills, and competencies to better work alongside automated systems. I-O psychologists have deep expertise in both preparing for this shift and understanding how current workers will react to it. Assessing job demands and developing responsive employee training programs using new technologies are necessary to inform future efforts to reskill employees. As jobs are transformed or replaced, it is also critical to
understand how American workers react and respond. Assessing, interpreting, and anticipating human reactions to automation and other new technologies is a core I-O competency. I-O psychologists also have expertise in effective strategies and processes to retrain workers, including identifying current skill needs and projecting the skills of importance for the future. Efficient job retraining can address the need for lifelong skills education, keep older workers in the workforce, and combat talent shortages in areas critical for societal well-being.

SIOP applauds current efforts focused on bolstering the AI-enabled workforce, including understanding the changing skills needs. We encourage OSTP to continue this focus under “Strategy 7: Better understand the national AI R&D workforce needs.” SIOP additionally encourages OSTP to expand the focus on workforce needs to include research on improving and disseminating strategies for effective upskilling and job training, particularly workplace-based training that allows employees to continue working while expanding job capabilities and skills. Finally, SIOP recommends that OSTP include a focus on anticipating and responding to worker reactions to the increased use of AI and other automation in the workplace to ensure that workers are willing to accept these new technologies and remain productive in the face of the challenges associated with their implementation.

Expert Contacts
SIOP welcomes the opportunity to submit these comments and further provide expertise and insight as OSTP seeks to update the National AI R&D Strategic Plan. Please reach out to the following SIOP issue experts with additional comments or questions:

Christopher Nye, Ph.D.
Associate Professor of I-O Psychology, Michigan State University
Expertise: Employee assessment and hiring; technology-based assessments; quantitative modeling and biases in the hiring process

Richard N. Landers, Ph.D.
John P. Campbell Distinguished Professor of I-O Psychology, University of Minnesota
Expertise: Application of technology in the workplace; job candidate assessment; employee learning and behavior; research methods

Joseph A. Allen, Ph.D.
Professor of I-O Psychology, University of Utah
Expertise: Education and training guidelines; workplace meetings; organizational community engagement; occupational safety and health