UNITED STATES OFFICE OF PERSONNEL MANAGEMENT
Washington, DC 20415

The Director

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Memorandum For Chief Human Capital Officers

From: Kiran A. Ahuja
Director

Subject: **The AI in Government Act of 2020 –
Artificial Intelligence Competencies**

The U.S. Office of Personnel Management (OPM) in collaboration with the Office of Science and Technology Policy (OSTP) is issuing specific guidance pursuant to Public Law 116-260, The AI in Government Act of 2020 (the Act). In accordance with the Act, OPM is required to identify key skills and competencies needed for positions related to Artificial Intelligence (AI). OPM is releasing for agency use general and technical competencies to support agencies targeting AI skills needed to fill positions to expand AI capabilities governmentwide.

In support of this effort, OPM conducted an environmental scan of AI work, issued a governmentwide AI workforce survey, held focus groups with technical and human resources subject matter experts to identify Federal AI key skills and competencies governmentwide, and analyzed all results. OPM's study was also informed by data collected from academia, the private sector, Federal agencies, and other credible sources.

To help the Federal government recruit and train more AI talent, today, OPM is providing for immediate use the attached general and technical AI competencies. Agencies can use the AI competencies to select, assess, and train AI talent as confirmed by a job analyses. Agencies are responsible for conducting job analyses for work within their agency (5 CFR § 300.103). Similarly, agencies must determine the applicability of these competencies to positions within their agency.

Next steps for AI-related efforts will include issuing a validated AI competency model to support Federal agency talent acquisition efforts and developing AI interpretive classification policy guidance to meet the requirements of the Act. For now, agencies may use the provided competencies as supported by a job analysis for recruitment, selection, and hiring.

Thanks to all agency partners and for your continued support of this important project. If you have any questions regarding the competencies, please contact April Davis, Director of Classification and Assessment Policy at competency@opm.gov.

cc: Deputy CHCOs, Human Resources Directors, and CXO Councils

Artificial Intelligence Competencies

The following tables present the 43 general competencies and 14 technical competencies that have been identified through an environmental scan for Artificial Intelligence work. Agencies are responsible for conducting job analyses for work within their agency (5 CFR § 300.103). Similarly, agencies must determine the applicability of these competencies to positions within their agency. Please refer to OPM's Delegated Examining Operations Handbook for more information on conducting a job analysis. Definitions of the competencies follow the tables.

General Competencies

- Accountability
- Attention to Detail
- Computer Skills
- Conflict Management
- Contracting/Procurement
- Creativity and Innovation
- Customer Service
- Decisiveness
- Design
- Digital Collaboration
- Emotional Intelligence
- External Awareness
- Flexibility
- Influencing/Negotiating
- Information Management
- Integrity/Honesty
- Interpersonal Skills
- Learning
- Mathematical Reasoning
- Memory
- Mental Visualization
- Oral Communication
- Organizational Awareness
- Partnering
- Perceptual Speed
- Planning and Evaluating
- Political Savvy
- Problem Solving
- Project Management
- Reading
- Reading Comprehension
- Reasoning
- Resilience
- Self-Management
- Strategic Thinking
- Stress Tolerance
- Supporting Diversity
- Teaching Others
- Teamwork
- Technical Competence
- Technology Application
- Technology Awareness
- Written Communication

Technical Competencies

- Application Development
- Artificial Intelligence / Machine Learning
- Communicating Results
- Data Analysis
- Data Extraction and Transformation
- Data Visualization
- Mathematics and Statistics
- Modeling and Simulation
- Monitoring
- Sociotechnical Systems
- Software Engineering
- Systems Design
- Testing and Validation
- Values-driven Design

Definitions of General Competencies

Competency	Definition
Accountability	Holds self and others accountable for measurable high-quality, timely, equitable and cost-effective results. Determines objectives, sets priorities, and does and delegates' work. Accepts responsibility for mistakes. Complies with established control systems and rules.
Attention to Detail	Is thorough when performing work and conscientious about attending to detail and potential biases.
Computer Skills	Uses computers, software applications, databases, and automated systems to accomplish work.
Conflict Management	Encourages creative tension and differences of opinions. Anticipates and takes steps to prevent counter-productive confrontations. Manages and resolves conflicts and disagreements in a constructive manner. Escalates conflicts and disagreements when appropriate and constructive in order to get to resolution.
Contracting/ Procurement	Knowledge of various types of contracts, techniques, or requirements (for example, Federal Acquisitions Regulations) for contracting or procurement, and contract negotiation and administration.
Creativity and Innovation	Develops new insights into situations; questions conventional approaches; encourages new ideas and innovations; designs and implements new or cutting-edge programs/processes.
Customer Service	Anticipates and meets the needs of both internal and external customers. Seeks to obtain customer feedback through various channels to improve products and services. Delivers high-quality products and services; is committed to continuous improvement.
Decisiveness	Makes well-informed, effective, and timely decisions, balancing speed, and thoughtfulness; perceives the impact and implications of decisions and takes decisive and early steps to mitigate negative impacts.
Design	Knowledge of conceptualizing, developing, producing, understanding, and using plans, models, blueprints, and maps, including the use of tools and instruments to produce precision technical drawings, working prototypes, components, or systems.

Competency	Definition
Digital Collaboration	Uses digital tools, technologies, or social media for communication, knowledge-sharing, and collaborative processes; works with others to construct and create resources and knowledge, or provide services, in a digital environment.
Emotional Intelligence	Ability to understand and manage feelings so that they are expressed appropriately and can monitor one's own and others' feelings and emotions, discriminate among the emotions and to use this information to manage situations, thinking and actions.
External Awareness	Understands and keeps up to date on local, national, and international policies and trends that affect the organization and shape stakeholders' views; is aware of the organization's impact on the external environment.
Flexibility	Is open to change and new information; rapidly adapts to new information, changing conditions, or unexpected obstacles.
Influencing/Negotiating	Persuades others; builds consensus through give and take; gains cooperation from others to obtain information and accomplish goals.
Information Management	Identifies a need for and knows where or how to gather information; organizes and maintains information or information management systems.
Integrity/Honesty	Behaves in an honest, fair, and ethical manner. Shows consistency in words and actions. Models' high standards of ethics.
Interpersonal Skills	Treats others with courtesy, sensitivity, and respect. Considers and responds appropriately to the needs and feelings of different people in different situations.
Learning	Uses efficient learning techniques to acquire and apply new knowledge and skills; uses training, feedback, or other opportunities for self-learning and development.
Mathematical Reasoning	Solves practical problems by choosing appropriately from a variety of mathematical and statistical techniques.
Memory	Recalls information that has been presented previously.
Mental Visualization	Sees things in the mind by mentally organizing and processing symbols, pictures, graphs, objects, or other information (for example, sees a building from a blueprint, or sees the flow of work activities from reading a work plan).

Competency	Definition
Oral Communication	Makes clear and convincing oral presentations. Listens effectively; clarifies information as needed. Effectively communicates technical information to non-technical audiences and stakeholders.
Organizational Awareness	Knows the organization's mission and functions, and how its social, political, and technological systems work and operates effectively within them; this includes the programs, policies, procedures, rules, and regulations of the organization.
Partnering	Develops networks and builds alliances; collaborates across boundaries to build strategic relationships and achieve common goals.
Perceptual Speed	Quickly and accurately sees detail in words, numbers, pictures, and graphs.
Planning and Evaluating	Organizes work, sets priorities, and determines resource requirements; determines short- or long-term goals and strategies to achieve them; coordinates with other organizations or parts of the organization to accomplish goals; monitors progress and evaluates outcomes. Sets reasonable expectations with leadership and stakeholders on project delivery.
Political Savvy	Identifies the internal and external politics that impact the work of the organization. Perceives organizational and political reality and acts accordingly.
Problem Solving	Identifies and analyzes problems; weighs relevance and accuracy of information; generates and evaluates alternative solutions; makes recommendations.
Project Management	Knowledge of the principles, methods, or tools for developing, scheduling, coordinating, and managing projects and resources, including monitoring, and inspecting costs, work, and contractor performance.
Reading	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations.
Reading Comprehension	Understands and interprets written material, including technical material, rules, regulations, instructions, reports, charts, graphs, or tables; applies what is learned from written material to specific situations.

Competency	Definition
Reasoning	Identifies rules, principles, or relationships that explain facts, data, or other information; analyzes information and makes correct inferences or draws accurate conclusions.
Resilience	Deals effectively with pressure; remains optimistic and persistent, even under adversity. Recovers quickly from setbacks.
Self-Management	Sets well-defined and realistic personal goals; displays a high level of initiative, effort, and commitment towards completing assignments in a timely manner; works with minimal supervision; is motivated to achieve; demonstrates responsible behavior.
Strategic Thinking	Formulates objectives and priorities and implements plans consistent with the long-term interests of the organization in a global environment. Capitalizes on opportunities and mitigates risks.
Stress Tolerance	Deals calmly and effectively with high stress situations (for example, tight deadlines, hostile individuals, emergency situations, dangerous situations).
Supporting Diversity	Maintains an open mind regarding different ideas, opinions, values, and beliefs; recognizes own worldview and understands its influence on interactions with others; incorporates a variety of viewpoints to help accomplish work goals; contributes to an inclusive work environment with equitable treatment of individuals across all demographics (e.g., race, gender) and social (e.g., culture) groups.
Teaching Others	Helps others learn through formal or informal methods; identifies training needs; provides constructive feedback; coaches others on how to perform tasks; acts as a mentor.
Teamwork	Encourages and facilitates cooperation, pride, trust, and group identity; fosters commitment and team spirit; works with others to achieve goals.
Technical Competence	Uses knowledge that is acquired through formal training or extensive on-the-job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues.
Technology Application	Uses machines, tools, instruments, or equipment effectively; uses computers and computer applications to analyze and communicate information in the appropriate

Competency	Definition
	format.
Technology Awareness	Knowledge of developments and new applications of information technology (hardware, software, telecommunications), emerging technologies and their applications to business processes, how emerging technologies can impact people's rights and safety, and applications and implementation of information systems to meet organizational requirements.
Written Communication	Writes in a clear, concise, organized, and convincing manner for the intended audience. Effectively communicates technical information to non-technical audiences and stakeholders.

Definitions of Technical Competencies

Competency	Definition
Application Development	Uses programming languages to script and automate tasks; applies programming languages and skills across multiple platforms or frameworks.
Artificial Intelligence / Machine Learning	Knowledge of the principles, methods, and tools used to design systems that perform and apply human-like intelligence functions such as neural networks, deep learning, natural language processing, robotics, and image recognition.
Communicating Results	Translates technical concepts, data findings, uncertainty, and/or limitations (including potential bias) from data sets into concise, plain language and supporting diagrams and media.
Data Analysis	Manipulates and exploits internal and external, structured, and unstructured data sources to accomplish organizational goals.
Data Extraction and Transformation	Retrieves and ingests disparate types of data from a variety of unstructured and structured sources, and then organizes, cleans, and transforms data sets for easy access, analysis, and optimization.
Data Visualization	Utilizes tools, techniques, and software to generate reports or visualizations that convey data analyses, findings, and limitations.
Mathematics & Statistics	Utilizes an understanding of mathematical and statistical techniques and/or software tools to apply appropriate statistical or mathematical methodology to datasets in order derive meaning, determine significance, or to produce metrics.
Modeling and Simulation	Applies tools, techniques, and procedures to develop functional, physical, or prototype models and simulations for training, testing and evaluation, to predict behavior and phenomena, to evaluate design alternatives, to support operational preparation, and to visually communicate concepts and/or validate requirements.

Competency	Definition
Monitoring	Designs, executes, and analyzes studies to assess the potential and actual effects of AI systems on different stakeholders over time, using quantitative and qualitative methods including user studies, rapid equity assessments, impact assessments, usability studies, algorithmic audits, and sociotechnical analysis.
Sociotechnical Systems	Knowledge of the social structures, roles, and interactions to inform the design of systems that involve people and technology. Examples of STSs include emails, blogs, and social media sites such as Facebook and Twitter.
Software Engineering	Designs software utilizing the software life cycle process; develops, deploys, updates, maintains, and tests software using methodologies and tools; designs to leverage software reusability; and establishes and utilizes software engineering theory and techniques.
Systems Design	Designs and evaluates software and hardware and develops enterprise and solution architectures that meet user needs and requirements (e.g., security and privacy) and optimize performance, using applicable principles, methods, and tools.
Testing and Validation	Works closely with AI system design, engineering, implementation, and system stakeholders to develop appropriate methods for testing and validation to ensure that systems comport with goals and values, and potential sources of bias are uncovered, considered, and mitigated.
Values-driven design	Systematically applies principles and techniques from relevant subject matter domains to all aspects of design, development, maintenance, and deployment to protect the rights and safety of stakeholders and the public, ensuring equity, security, privacy, autonomy, accessibility, justice, beneficence, and nonmaleficence. Creatively combines technical and policy approaches to protect and support these core values. Ensures that values inform the design, deployment, testing, and oversight of AI systems, and that

Competency	Definition
	important value-related design choices are communicated to end users.