Leveraging Technology to Improve Federal Human Capital

September 2025

Highlights

The Merit Systems Protection Board's (MSPB) Office of Policy and Evaluation (OPE) conducted a comprehensive study on perceptions of the effectiveness and quality of human resources (HR) technology in the federal government, drawing on data from thousands of HR professionals. The findings reveal that while most HR Specialists believe technology supports agency-wide processes like communication and automation, fewer feel it helps manage individual timeliness, work quality, and productivity. Key challenges include system integration, automation gaps, inconsistent access, and limited information technology (IT) support. Leadership and staff perceptions diverge, with leaders consistently rating technology lower, possibly due to broader oversight of responsibilities and awareness of private-sector technology opportunities. This research brief emphasizes that modernization must align with Merit System Principles (MSPs) and avoid Prohibited Personnel Practices (PPPs). It recommends user-centered design processes, robust training, and continuous evaluation to ensure fairness, accessibility, and effectiveness in HR procedures and outcomes. Recent executive orders and OPM's modernization efforts provide a strategic opportunity to address these challenges and enhance federal HR systems. MSPB offers findings from our HR Workforce Survey to support merit-based HR technology reform.

MSPB's Vision: A highly qualified Federal workforce that is fairly and effectively managed, providing excellent service to the American people.

Excellent Service

Fairly & Effectively Managed

Highly Qualified Employees

Excellent service to the American people depends on merit-based hiring.

Executive Summary

The U.S. Merit Systems Protection Board, through its Office of Policy and Evaluation, conducted a study to assess HR Specialists' perceptions of federal HR technology and its implications for merit-based federal workforce management.

Why We Did This Study

HR professionals are central to maintaining the Merit System Principles that guide federal workforce management. They oversee the full employee lifecycle—from recruitment to retirement—and advise agency leadership on effective personnel practices while helping prevent Prohibited Personnel Practices. Despite their critical role, the Government Accountability Office has long identified Strategic Human Capital Management as a high-risk area due to persistent skill gaps across the federal workforce.[1]

In the HR domain, technology broadly refers to the suite of digital tools, systems, platforms, and automation processes used to support and enhance human resources functions. Technology offers a powerful opportunity to modernize HR functions, improve service delivery, enhance compliance, and provide better service to the American people. However, federal agencies have historically faced resource constraints that limit adoption of advanced systems. Executive Order 14170, Reforming the Federal Hiring Process and Restoring Merit to Government Service, calls for a new Federal Hiring Plan[2] that integrates modern technology across HR functions to improve the applicant experience through increased efficiency of the hiring process. If implemented effectively, such reforms could automate routine tasks and enable HR professionals to focus on strategic talent management—improving engagement, retention, and performance.

Yet, modernization must be prioritized carefully. Not all systems can be upgraded simultaneously, and without clear data on current system strengths and weaknesses, agencies risk investing in low-impact changes. To support informed decision-making, MSPB's HR Workforce Survey provides evidence-based insights into how HR professionals use and experience technology, offering a framework for reforms that uphold merit and avoid PPPs.

Our Research Questions:

1. How do HR Specialists perceive the effectiveness and quality of the technology and systems they use to do their jobs?

2. How may improvements to HR technology and systems enhance adherence to MSPs?

3. What potential pitfalls should be avoided in HR technology and systems modernization efforts to reduce PPPs?

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[1] U.S. Government Accountability Office. (2025). *Priority open recommendations: Office of Personnel Management,* (GAO-25-108081), Highlights

[2] U.S. Office of Personnel Management. (May 2025). *Merit hiring plan memorandum.* https://www.opm.gov/policy-data-oversight/latest-memos/merit-hiring-plan/

Methods

In 2023, MSPB surveyed all federal civilian HR Specialists (GS-0201) and HR Assistants (GS-0203) employed by 20 Chief Financial Officers Act agencies. Respondent participation was voluntary, and slightly more than 34,000 permanent HR employees were invited to complete the survey. After conducting data quality checks, our final analytic dataset included 9,799 individuals. Data quality checks included (but were not limited to) participant non-response bias analyses and item-level missing data analyses. Below we present HR Specialist perceptions of HR technology systems. HR Specialists represent 89% of the final analytic dataset respondents.

Key Findings

Technology Effectiveness: Most HR Specialists (73%) agreed that technology has had a positive effect on their job performance. HR Specialists mostly agreed that HR systems were effective at helping with system-level processes such as communicating with customers (78%), automating existing HR processes and procedures (75%), tracking HR work (75%), and redefining HR processes and procedures (70%). However, fewer HR Specialists agreed that HR systems effectively helped them manage their own productivity (65%), workload (65%), work quality (61%), and timeliness (60%). Of all the technology effectiveness items, HR Specialists were least likely to agree that technology effectively helped to manage the increased volume of work (55%).

Technology Quality: HR Specialists had more concerns about the quality of HR systems than the effectiveness of those systems. Most agreed that they can count on the information or data in their primary HR systems to be accurate most of the time (74%) and that the number of HR systems they are expected to understand and use for their job is manageable (70%). However, fewer HR Specialists agreed that they could access the data systems they needed quickly and easily (66%), that they had the technology tools to do their jobs (62%), that they can count on systems to be available and fully functional (60%), and that they have sufficient IT support to resolve technology issues (58%). Just under half of HR Specialists agreed that HR systems are well integrated with each other (49%).

Leadership vs. Staff Perceptions: Leaders consistently rated technology lower than non-leaders across all metrics, suggesting a broader awareness of systemic issues and a stronger desire for modernization[3].

Qualitative Insights: Open-ended responses highlighted frustrations with system integration, manual data entry, lack of automation, and inconsistent IT support. Some HR professionals reported using workarounds like Excel to compensate for system shortcomings.

Implications for Reform

Recent executive orders and OPM actions underscore the urgency of modernizing federal HR systems. This research brief outlines several strategic considerations for maintaining a merit-based workforce during and after HR technology reform. These include prioritizing reform efforts by allocating sufficient staff time and resources, designing technology with users in mind, investing in training and IT support, and incorporating evaluation and continuous improvement. MSPB offers findings below for the President, Congress, agency leadership, HR professionals, and IT professionals to consider in support merit-based HR technology reform.

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[3] "Leaders" are defined as supervisors, managers, and executives.

Modernizing HR technology is essential to achieving a high-performing, merit-based federal workforce. MSPB's findings provide evidence-based information that agencies can use to implement reforms that enhance efficiency, uphold fairness in accessible technology design and HR outcomes, and support strategic talent management. With thoughtful planning and sustained investment, technology can empower HR professionals to better serve the American public.

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Human Resources, Technology, and Merit

Merit System Principle #1:

"Recruitment should be from qualified individuals from appropriate sources in an endeavor to achieve a work force from all segments of society, and selection and advancement should be determined solely on the basis of relative ability, knowledge and skills, after fair and open competition which assures that all receive equal opportunity." (5 USC § 2301).

Merit System Principles (MSPs) guide all aspects of federal workforce management, and human resources (HR) professionals play a vital role in upholding these principles within agencies and across the federal government. HR professionals are involved throughout the employee lifecycle—recruiting, hiring, training, promoting, disciplining, compensating, and recognizing performance. They also advise agency leadership, managers, and supervisors on effective staff management and how to avoid Prohibited Personnel Practices (PPPs). Additionally, HR staff are responsible for identifying and addressing potential violations of merit principles. Despite the essential role of federal HR, the Government Accountability Office (GAO) has listed Strategic Human Capital Management as a high-risk area since 2001.[4] GAO continues to highlight significant skill gaps within HR and across the federal workforce. When HR professionals are unable to perform their duties effectively and efficiently, the merit system is compromised, and agencies struggle to hire and manage the talent needed to deliver high-quality services to the American public.

Technology is driving change in the HR field. Technology makes it possible to innovate and transform HR processes, service delivery, compliance, and analytics. However, resource limitations have historically presented barriers to federal adoption of state-of-the-art technologies. On January 20, 2025, the White House released Executive Order 14170, Reforming the Federal Hiring Process and Restoring Merit to Government Service. This executive order called for the development of a new Federal Hiring Plan[5], which includes the integration of modern technology to support government-wide recruitment and selection efforts. Similar efforts likewise are being taken to modify other HR processes such as performance management and retirement. These efforts to change HR technologies would require substantial time and resources. However, if successfully implemented, technology may automate some tasks and functions performed by HR professionals and expand the ability of HR to provide more strategic talent management. Research shows that a strategic approach to human resources can result in improved employee engagement, job satisfaction, retention, productivity, performance, innovation, and fiscal outcomes.[6] Efficient and effective use of the federal workforce is an essential element of the merit system, and technology innovations are critically important to achieving this goal.

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[4] U.S. Government Accountability Office. (2023). *High-Risk Series: Efforts made to achieve progress need to be maintained and expanded to fully address all areas* (GAO-23-106203).

[5] U.S. Office of Personnel Management. (May 2025). *Merit hiring plan memorandum.* https://www.opm.gov/policy-data-oversight/latest-memos/merit-hiring-plan/

[6] Silzer, R., & Church, A. (2017). Strategic talent management. In: *The SAGE encyclopedia of industrial and organizational psychology* (2nd edition., Vol. 4, pp. 1517-1523). SAGE Publications, Inc.

Although many systems may need upgrades, it is unlikely all HR systems could be changed everywhere all at once. Agency information technology (IT) modernization projects often compete for limited funding. Priorities need to be determined. Executive Order 14170 addresses the critical need for HR technology modernization, and OPM has collected data from agencies on their HR and IT costs in an effort to identify opportunities for efficiencies. However, without information on the strengths and weaknesses of current HR systems, agency leadership runs the risk of allocating resources into low-impact changes rather than implementing changes with the highest return on investment.

This research brief adds such insight to help drive technology adoption decisions by answering the following research questions:

1. How do HR Specialists perceive the effectiveness and quality of the technology and systems they use to do their jobs?

2. How may improvements to HR technology and systems enhance adherence to MSPs?

3. What potential pitfalls should be avoided in HR technology and systems modernization efforts to reduce PPPs?

Below, we present critical insights from prior literature and from the Human Resources Workforce Survey (HR Workforce Survey) to help agencies make these decisions in an informed manner while considering implications for MSPs and PPPs. The HR Workforce Survey collected data from HR professionals as the primary users of technology to support the federal workforce. These data were collected before the 2025 Executive Order, but their results are combined here to provide an evidence-driven lens for HR technology modernization.

Human Resources Workforce Survey

Merit System Principle #5:
"The Federal workforce should be used efficiently and effectively." (5 USC § 2301).

Methods

In 2023, MSPB conducted the HR Workforce Survey to address two topics in our Research Agenda: 1) HR Technologies, and 2) Preparing the HR Workforce for the Present and Future. This publication focuses on findings related to the first topic; additional publications will be released on the second topic.[7] MSPB surveyed all federal civilian HR Specialists (0201) and HR Assistants (0203) employed by 20 Chief Financial Officers Act agencies. Respondent participation was voluntary, and slightly more than 34,000 permanent HR employees were invited to complete the survey. Data was collected

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[7] The Research Agenda topic *Preparing the HR Workforce for the Present and Future* covers survey items such as training, career pathing, career intentions, and work satisfaction. It also covers special considerations for Hiring Specialists and Classifiers. Reports on these topics will be forthcoming.

between February 2023 and June 2023. After conducting data quality checks the response rate for this study was 29%. Both unit-level and item-level non-response bias were evaluated, and it was determined they did not significantly impact the data collected. Below we present HR Specialist perceptions of HR technology systems.[8]

To assess HR professionals' perspectives, we asked respondents in the HR Workforce Survey for their agreement or disagreement with the statement that "technology has been effective in helping my organization" in relation to conducting various tasks. Next, we asked them to provide agreement levels for different facets of technology effectiveness on important outcomes such as timeliness. We then asked for levels of agreement with various aspects of HR systems quality. For all of these items, we ran frequencies to assess quantitative results. Respondents were also provided an opportunity to share open-ended answers to the question: "What are the biggest technology issues that you face as an HR professional?" These qualitative responses were analyzed through structured coding, which included inter-rater reliability checks between two independent analysts. Direct quotes were selected to illustrate findings based on their representativeness of the theme. To assess implications of technology reforms for MSPs and PPPs, we conducted a review of relevant literature and policy documents to identify best practices for adoption of technology and system improvements.

Survey Respondent Characteristics

The survey data includes responses from multiple types of HR professionals. The majority of individuals who responded to the survey were HR Specialists (89%), who are the focus of this research brief. Most HR Specialists were in non-supervisory roles (81%)[9] and had at least 4 years of experience in federal HR (80%). The most common primary specialty listed was talent acquisition (41%). Most respondents (69%) had completed a college degree or earned an advanced degree. See the Appendix for full demographic information.

Technology Effectiveness

Most HR Specialists (73%) agreed[10] that technology has had a positive effect on their job performance. HR Specialists mostly agreed that HR systems were effective at helping with system-level processes such as communicating with customers (78%), automating existing HR processes and procedures (75%), tracking HR work (75%), and redefining HR processes and procedures (70%).

However, fewer HR Specialists agreed that HR systems effectively helped them manage their own productivity (65%), workload (65%), work quality (61%), and timeliness (60%). Of all the technology effectiveness items, HR Specialists were least likely to agree that technology effectively helped to manage the increased volume of work (55%). See Figure 1.

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[8] HR Specialists often have more responsibilities and focus on program management and strategy. They are also more knowledgeable of HR laws, policies, and procedures. Furthermore, they may oversee HR programs and typically work independently with less oversight. HR Assistants are more focused on administrative and support-related tasks.

[9] The findings below focus on those responses from HR Specialists in supervisory and non-supervisory roles.

[10] For the purposes of reporting survey results, "Agree" and "Strongly Agree" responses were combined.

Figure 1: HR Specialists Agree More that Technology Enhances Organizational Processes More than Individual-Level Tasks

Percent who agree that "technology has been effective in helping my organization..."

Category	Percent
Communicate with customers	78%
Automate existing HR processes and procedures	75%
Track HR work	75%
Redefine HR processes and procedures	70%
Improve productivity	65%
Measure and report on my workload	65%
Improve quality of work	61%
Improve timeliness of work	60%
Manage the increased volume of work	55%

Technology Quality

By the Numbers

HR Specialists had more concerns about the quality of HR systems than the effectiveness of those systems. Most agreed that they can count on the information or data in their primary HR systems to be accurate most of the time (74%) and that the number of HR systems they are expected to understand and use for their job is manageable (70%). However, fewer HR Specialists agreed that they could access the data systems they needed quickly and easily (66%), that they had had the technology tools to do their jobs (62%), that they can count on systems to be available and fully functional (60%), and that they have sufficient IT support to resolve technology issues (58%). Less than half of HR Specialists agreed that HR systems are well integrated with each other (49%). See Figure 2.

Figure 2: HR Specialists Report Need for Greater Systems Integration and IT Support

Percent who agree with the following statements regarding HR systems in your organization

Statement	Percent
I can count on the information or data in my primary HR systems to be accurate most of the time	74%
The number of HR systems I am expected to understand and use for my job is manageable	70%
I can access the data systems I need to do my job quickly and with ease	66%
I have the appropriate suite of up-to-date HR technology tools to do my job	62%
When I need to access critical HR systems to complete tasks, they are available and functioning as they should	60%
When HR systems have technical issues in my agency, I have sufficient IT support to resolve issues	58%
My primary HR systems are well integrated/connected and update without human intervention	49%

0% — 100%

Qualitative Responses

When asked to respond to the open-ended question, "What are the biggest technology issues that you face as an HR professional?", responses were most likely to focus on issues related to integration, automation, and having reliable access to functioning HR systems. Consistent access was the most common issue, expressed by almost half of all HR Specialists who responded to the question (47%). Responses covered a range of access issues, but the result of these were similar: When access is lost to key HR systems, work stops.

Limited automation and integration slow down work even when HR Specialists have full access to their systems. Over 70% of HR Specialists reported regularly using more than five (5) systems to do their work and 18% of HR Specialists who answered the open-ended question cited either integration or automation as a critical issue. Most responses suggested they lack an integrated system, and multiple problems were associated with this. Using multiple systems that are not connected is inefficient because it creates duplication of tasks. Even when systems are connected, they may not be effectively integrated. For example, HR Specialists noted that there are systems that are connected and information flows, but there is a time lag and information duplicated in multiple systems is not synchronized and thus does not always match.

> *"Our automated tools are useful. However, they require too much manual data entry to be truly useful. If they could be automated to pull the same data it would save at least 1 hour per employee per day allowing over 30-40 hours per day to be used on [other] work which in turn would alleviate some of the excessive workload we have experienced for years." – Manager, has worked in federal HR between 12 - 19 years*

Another cited problem with integration also highlights the need for robust IT support because when one system goes down, it brings connected systems down with it. These problems lead to more time spent conducting quality control checks, slowing down work processes. HR Specialists described having to check multiple systems to identify which contains the most up-to-date information or creating their own additional workaround such as using an Excel worksheet to track information.

Data quality was mentioned as an issue by only 6% of survey respondents, which supports prior quantitative findings that indicated most HR Specialists could count on their systems to be accurate most of the time. However, some respondents did mention data quality issues such as inaccurate or out-of-date information, and data being difficult to retrieve for reporting.

> *"...it is difficult to rely on OPM's EHRI data because agencies do not properly report the data they are required to do. Therefore, we must request agency data with 'data call' requests. Such limitations require extra work and delays in reporting. Additionally, without a centralized survey tool for collecting needed or ad hoc data requires additional hours to compile, format, and manipulate the data into usable format." – Non-Supervisor, has worked in federal HR 20 years or more*

The importance of learning how to use the necessary HR systems and the need for greater training and IT support were also mentioned by a few survey respondents. Seven percent of responses referred to learning how to use the HR systems or having training as a critical issue. Some noted that even with training, additional support was needed to fully use systems to their maximum potential. Five percent of responses mentioned IT support as a critical issue. HR Specialists noted a lack of timely IT support, including submitting an IT ticket multiple times, or a support request closed without issues resolved.

> *"Lack of IT Support seriously hampers ability to function and do my job." – Supervisor, has worked in federal HR between 12-19 years*

> *"Tech support comes from different places based on which program or system. A lot of time is spent going from one tech support team to another" - Non-Supervisor, has worked in federal HR between 4-11 years*

A final issue noted by a few HR Specialists was related to system design. Five percent of respondents mentioned that the system does not fit their needs or the requirements of HR task work. Responses included general observations that the system does not align with the needs of the agency or its front-line HR staff, or that the system is not designed with end users in mind. Some HR Specialists also noted that they lacked suitable technology for specific HR processes, such as retirement applications, centralized hiring, mass hiring, employee and labor relations work, managing senior executives' pay for performance, tracking workload, on-boarding, workforce planning, curriculum development, and/or assessment options.[11] Sometimes systems were used on tasks for which they were not designed, which also causes issues.

> *"HQ [Management] choosing systems that best help them track data, but not best systems to help me do my job accurately and productively." – Supervisor, has worked in federal HR 20 years or more*

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[11] Following the administration of this survey, OPM implemented initiatives to enhance the functionality of shared technology platforms like USAJOBS, improve mass hiring capabilities between agencies, and increase the use of automated assessments.

Differences in Leadership and Staff Perceptions

To understand better how HR technology meets management needs as well as individual workload needs, we also compared perceptions of leaders (supervisors, managers, and executives) with those who have no formal supervisory or management duties.[12] A consistent trend emerged across both perceptions of effectiveness and quality. On every single item, leaders responded less positively about technology than their staff. For instance, leaders were less likely to agree that technology had a positive effect on their job performance overall (66% vs. 74%). This difference in perceptions does not seem to be due to differences in the amount of technology used, as leaders and staff reported using similar numbers of systems in a typical work week. See Figures 3, 4, and 5 below.

One interpretation of this trend is that HR leadership and staff have different needs, and current technology is meeting the needs of staff to a greater extent. However, that does not explain the difference in reporting because both HR leadership and staff rated the same items highest and lowest. Both groups perceive technology systems to be most effective at supporting customer communication, automating processes, and tracking work. Both groups perceive technology as least effective in managing the increased volume of HR work.

Overall, the findings suggest that leaders and staff may be using the same systems and agree on what these systems do well and what needs improvement, but that leaders see the need for improvement more urgently than staff. Qualitative findings suggest this may be because leaders have a broad view of the problems multiple staff face across HR functions. In addition, leaders are responsible for hiring HR staff who may have experience with more modern technology systems in private industry. Moreover, HR leadership themselves may be more familiar with industry technology advancements that are not available in the federal government, thus leading to greater frustration with what they do have.

> *"Outdated tools and technology when compared to industry. While we have tools some are not available to all employees and are lower in quality than ones available in industry meaning we are less efficient/effective than we could be. Feels like we have to settle for less. Makes it very difficult to attract next gen talent when our tools are sub-par to what they have access to in industry." – Supervisor, has worked in Federal HR 20 years or more*

> *"When someone is hired into HR it takes months to get them access to the systems. There is not a streamlined system. We have to send emails and then forms and then another email and then an additional form. In some cases the system never works correctly and no one knows why. We have to figure out a work around in the office to just get by. It is frustrating and unnecessary. It cannot really be this hard. We hire people. When they are keyed in for the job, give them the access. Then send them to the trainings prior to putting them in the position. Here we put you in the position and three years later send you to training ...maybe." – Manager, has worked in federal HR between 4 - 11 years*
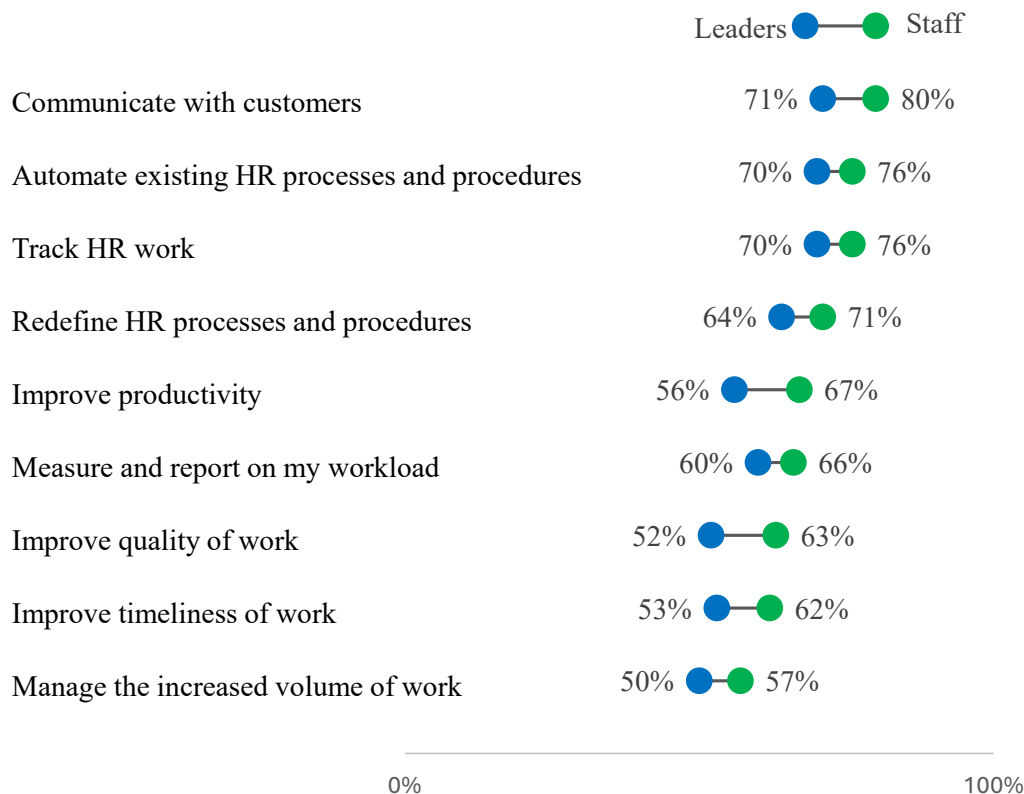
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[12] This group does not include non-supervisory Team Leaders.

Another interpretation is that perceptions of technology may be one symptom of a broader trend in disparities between leaders and their staff. A 2025 research report by Gallup indicates that leaders across industries have recently experienced declines in engagement.[13] The same factors leading to leadership frustration in the workplace generally may also lead to frustration with technology in particular.

Figure 3: HR Leaders Perceive Technology as Less Effective

Percent who agree that "technology has been effective in helping my organization…"

Leaders ●——● Staff

	Leaders	Staff
Communicate with customers	71%	80%
Automate existing HR processes and procedures	70%	76%
Track HR work	70%	76%
Redefine HR processes and procedures	64%	71%
Improve productivity	56%	67%
Measure and report on my workload	60%	66%
Improve quality of work	52%	63%
Improve timeliness of work	53%	62%
Manage the increased volume of work	50%	57%

0%   100%

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[13] Gallup. (2025). *State of the global workplace: Understanding employees, informing leaders*. Gallup Press.

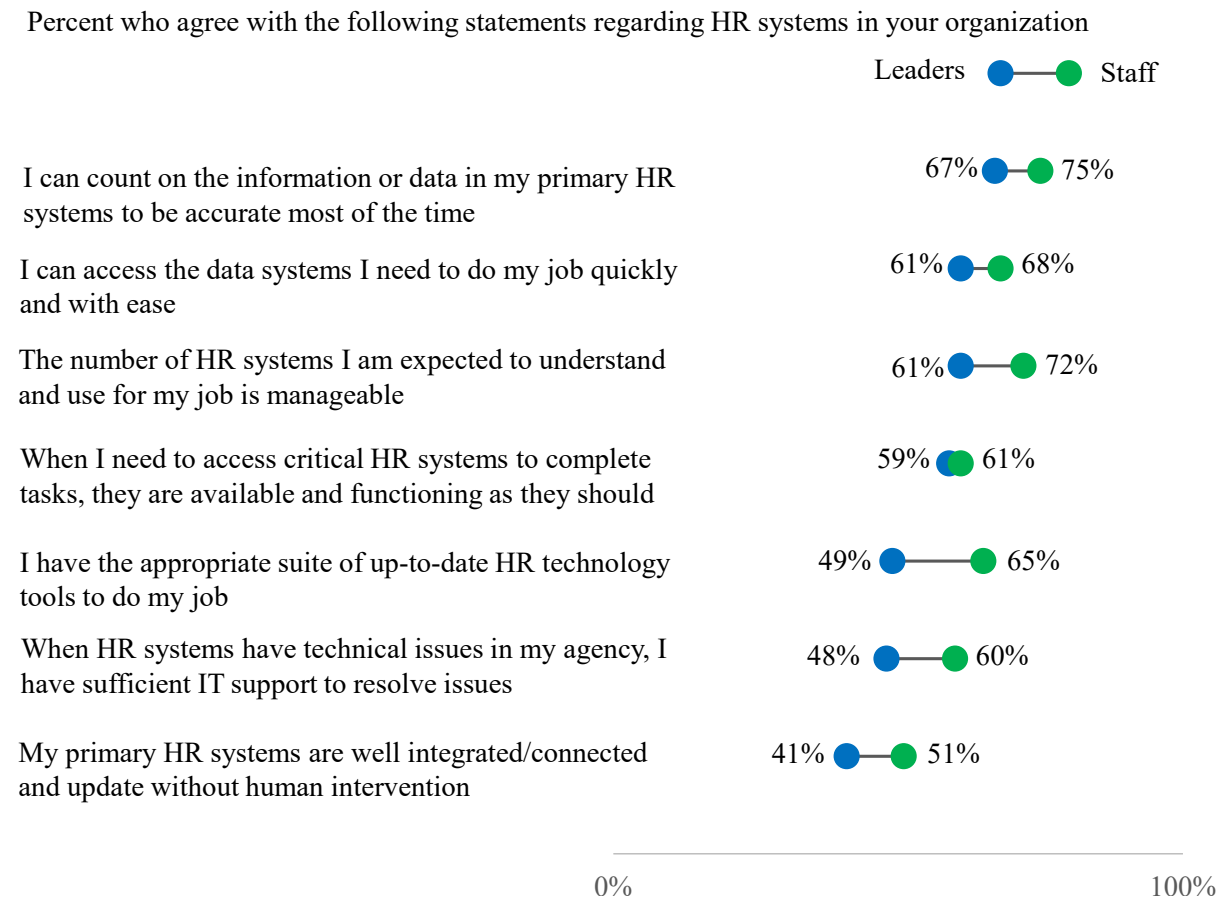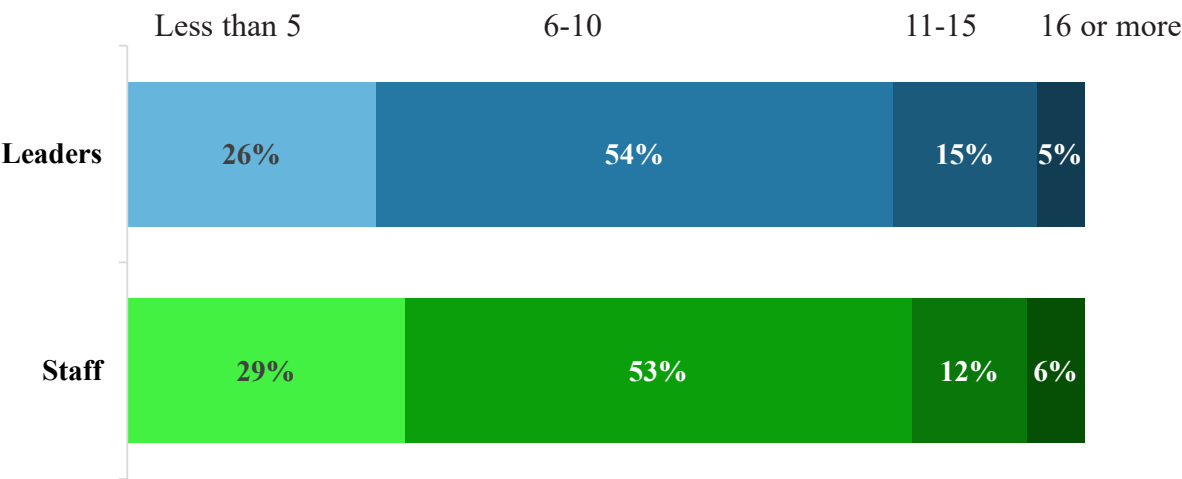**Figure 4: HR Leaders Perceive Technology as Lower Quality**

Percent who agree with the following statements regarding HR systems in your organization

Leaders ●━━● Staff

I can count on the information or data in my primary HR systems to be accurate most of the time — 67% ●━● 75%

I can access the data systems I need to do my job quickly and with ease — 61% ●━● 68%

The number of HR systems I am expected to understand and use for my job is manageable — 61% ●━━● 72%

When I need to access critical HR systems to complete tasks, they are available and functioning as they should — 59% ●● 61%

I have the appropriate suite of up-to-date HR technology tools to do my job — 49% ●━━━● 65%

When HR systems have technical issues in my agency, I have sufficient IT support to resolve issues — 48% ●━━● 60%

My primary HR systems are well integrated/connected and update without human intervention — 41% ●━━● 51%

0%   100%

Figure 5: HR Leadership and Staff Use Approximately the Same Number of Systems[14]

	Less than 5	6-10	11-15	16 or more
Leaders	26%	54%	15%	5%
Staff	29%	53%	12%	6%

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[14] Survey item: "How many HR systems do you use in a given work week?"

Keeping Merit in Mind

Our study results highlight the need for improvements to HR technology quality and effectiveness. However, changes must be made in line with Merit System Principles and avoid Prohibited Personnel Practices. Below we present research-based findings on implementing technology modernization with merit in mind.

Enhancing Merit

Merit System Principle #2:

"All employees and applicants for employment should receive fair and equitable treatment in all aspects of personnel management without regard to political affiliation, race, color, religion, national origin, sex, marital status, age, or handicapping condition, and with proper regard for their privacy and constitutional rights." (5USC § 2301).

The use of data analytics and digital platforms can enhance merit-based hiring by improving objectivity and consistency and increase the reach of recruitment efforts. If implemented correctly data-driven job-related assessments can minimize subjective biases that may arise from hiring solely based on resumes or interviews. In June 2020, President Donald J. Trump signed Executive Order 13932, Modernizing and Reforming the Assessment and Hiring of Federal Job Candidates. Among other things, this executive order reminded agencies of their obligation to use valid, competency-based assessments when hiring federal employees. More recently, Executive Order 14170, Reforming the Federal Hiring Process and Restoring Merit to Government Service, also called for agencies to "implement, to the greatest extent possible, technical and alternative assessments."[15] The call for greater use of technical assessments is in line with research on effective hiring strategies.[16,17] For many years, MSPB and OPM have urged agencies to use valid assessments to ensure that federal employees are selected based on their ability to perform the job and not on other non-merit factors and have offered research-based tips for agencies on how to effectively approach the assessment process.[18,19] HR Specialists in our study agreed with the need to use more robust technology solutions, using assessment as an example of a key area that could benefit from modernization.

> *"[Our agency lacks] state of the art assessment options to evaluate applicant competencies."*
> *– Supervisor, has worked in federal HR 20 years or more*

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[15] 90 Fed. Reg. 8621 (January 20, 2025).

[16] Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, 124(2), 262–274. https://doi.org/10.1037/0033-2909.124.2.262

[17] U.S. Merit Systems Protection Board. (2018). *Improving federal hiring through better assessment.* (Research Brief) Improving Federal Hiring Through Better Assessment

[18] U.S. Merit Systems Protection Board. (2023, January) *Help wanted for applicant assessments: Modernizing the applicant assessment process is still a work in progress.* Issues_of_Merit_January_2023_1992828.pdf

[19] U.S. Office of Personnel Management (n.d.) *Individual Assessment: Assessments for selection, promotion, and career development.* https://www.opm.gov/services-for-agencies/assessment-evaluation/individual-assessment/

Currently, not all agencies have the resources to develop and administer high-quality assessments. With modern analytic tools such as artificial intelligence (AI), agencies can more easily deploy technical assessments tailored to individual job position descriptions and requirements. HR Specialists and subject matter experts will need to apply their expertise to developing and testing valid and reliable assessments but using state-of-the-art tools could help address workflow concerns noted in our survey responses. Technology modernization efforts may also be able to streamline HR Specialist work processes such as application reviews, benefits management, and many other tasks across the career lifecycle.

> *"We are given [hiring timeline targets] but cannot keep this requirement when our systems… are constantly going down or running slow." – Non-Supervisor, has worked in federal HR between 12 to 19 years*

Finally, advanced HR technology can support HR Specialists in their consultative roles. In addition to supporting the administration of personnel actions, HR Specialists provide advice and guidance to hiring managers, supervisors, and agency leadership. They also support individuals who may be interested in joining the federal workforce. Technology modernization can free up time for HR Specialists to focus more energy on these consultative activities. For example, MSPB has provided best practices in designing recruitment strategies that are most likely to meet Merit Principle #1.[20] However, a robust recruitment plan takes time and resources, which agencies may lack. Advances in AI and other technologies to streamline processes could allow HR Specialists to spend more time engaging directly with potential applicants through a variety of online platforms. Better use of technology provides opportunities to help agencies tap into a variety of highly qualified talent pools.

This also aligns with Executive Order 14170, which states the Federal Hiring Plan should "improve communication with candidates to provide greater clarity regarding application status, timelines, and feedback, including regular updates on the progress of applications and explanations of hiring decisions where appropriate." This type of enhanced communication between HR Specialists and applicants would be burdensome without enhanced technological support.

Potential Pitfalls

HR professionals from across agencies have told us that it takes vision, planning, expertise, and resources to use an automated hiring system successfully. Whether automated hiring systems contribute positively to the federal workforce does not solely depend on the technology itself. It depends on how federal agencies use that technology, and whether the leaders of federal agencies make investments in recruitment, assessment tools, and train people to use the technology effectively. As the National Academy of Public Administration has stated, "Merit System Principles remain the essential keystone of the way our government operates…The problem, at its core, is finding the right balance between fairness, efficiency, effectiveness, and responsiveness."[21] MSPB has previously

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[20] U.S. Merit Systems Protection Board (2004) *Managing Federal Recruitment: Issues, Insights, and Illustrations*
[21] National Academy of Public Administration. (2018). *No time to wait, part 2: Building a public service for the 21st century.* No Time to Wait, Part 2

published recommendations based on our prior research to assist leaders in guiding development of technology-based hiring practices.[22]

An effective hiring process requires managers and HR professionals who understand and can perform their roles in that process. People must still determine what attributes automated hiring systems will measure, determine how these systems will measure those attributes, monitor the operation of these systems, make corrections when needed, and make selection decisions. To produce valid and reliable results, these decisions should be based on best practices. For example, HR Specialists, in coordination with hiring managers, should conduct a thorough job analysis to inform decisions on how to use technology to support the hiring process.[23]

In addition, both GAO[24] and the National Institute of Standards and Technology[25] have developed guidelines for managing AI risk during design, development, use, and evaluation of products, services, and systems. One major concern is the potential for inaccurate judgments and unintended consequences that may disadvantage certain applicants.[26] MSPs clearly indicate that it is critical that automated tools and data-driven hiring systems be designed to avoid discrimination based on protected characteristics, obstruction of fair competition, and violations of veterans' preference and other hiring regulations. AI-driven tools are only as good as the data they are trained on and the machine learning process they use.[27] HR Specialists with relevant expertise have an essential role to play by conducting fairness reviews and validation studies on all AI and data analytics tools to identify and correct these biases. For example, HR Specialists can provide guidance on how to integrate new technology into the hiring process to accommodate all candidates, including those with disabilities. If the technology is not user-friendly or accessible, qualified individuals may be unfairly excluded.[28]

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[22] U.S. Merit Systems Protection Board. (2004) *Identifying talent through technology automated hiring systems in federal agencies.* Identifying Talent through Technology -- Automated Hiring Systems in Federal Agencies

[23] U.S. Merit Systems Protection Board. (2015). *The impact of recruitment strategy on fair and open competition for federal jobs.* The Impact of Recruitment Strategy On Fair and Open Competition For Federal Jobs

[24] U.S. Government Accountability Office. (2021). *Artificial intelligence: An accountability framework for federal agencies and other entities.* (GAO-21-519SP). https://www.gao.gov/products/gao-21-519sp

[25] National Institute of Standards and Technology, U.S. Department of Commerce. (n.d.). *AI risk management framework.* AI RMF - AIRC

[26] U.S. Equal Employment Opportunity Commission (October 28, 2021). *EEOC Launches initiative on artificial intelligence and algorithmic fairness.* https://www.eeoc.gov/newsroom/eeoc-launches-initiative-artificial-intelligence-and-algorithmic-fairness.

[27] Richardson, S. (2022). Exposing the many biases in machine learning. *Business Information Review*, 39(3), 82-89. https://doi.org/10.1177/02663821221121024

[28] Information School, University of Washington. (n.d.). *Neurodiversity @ Work Playbook, Federal Edition: Finding talent and creating meaningful career opportunities for neurodistinct people.* Neurodiversity@Work Federal Edition

Conclusions

Human Resources, Merit, and Performance

Agency leaders are responsible for achieving high agency performance within a merit system context. Merit System Principles and Prohibited Personnel Practices form a series of practical guardrails for government to promote a highly qualified federal workforce that is fairly and effectively managed, providing excellent service to the American people. The merit system is meant to both provide support for federal employees and to increase agency performance. Our own research has also shown that employees are more likely to stay engaged and less likely to leave agencies when they perceive MSPs are high and PPPs are low in their workplaces.[29] To put it simply: merit matters.

Over the past year, the hiring process for the federal workforce is being redesigned. Through that, agency leadership has to rely on HR Specialists and other staff more than ever to support reorganization efforts. HR Specialists in turn rely heavily on technology to complete their work. And government as a whole relies on HR to function efficiently and effectively to stay within the merit system guardrails. Every HR responsibility, from recruitment to retirement, is critical to achieving this vision of high-quality, high-performing federal workforce.

Prioritizing HR System Reform

Our findings show that most HR Specialists believe that technology is effective in helping them do their work. However, our findings also indicate areas for improvement, most notably the integration of multiple technological systems with each other and using technology to manage increased workloads.

In May 2025, the Office of Personnel Management released a request for proposals titled "Modernization of Human Capital Management System" describing the purpose and objective as:

> *"The purpose of this acquisition is to modernize [OPM's] Human Capital Management infrastructure through the acquisition and implementation of a secure, cloud-based Software-as-a-Service… [Human Capital Management] platform… OPM's current [Human Capital Management] environment is fragmented, relying on outdated and siloed legacy systems that impede efficient HR operations, limit data accuracy, and increase operational risk. These legacy platforms lack modern data governance, auditability, integration, and user experience capabilities, and they require extensive manual workarounds to meet basic compliance and business requirements… Furthermore, these systems impede OPM's ability to respond to pressing government-wide imperatives, including improving customer experience, meeting new workforce reporting standards, and supporting emerging policy and legal mandates (e.g., workforce equity, remote work, expanded leave flexibilities)…*

> *The objective of this acquisition is to deploy an integrated, enterprise-wide Core HR platform… that consolidates key human capital functions, including personnel management, time and attendance, leave, benefits administration, learning and performance management,*

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[29] U.S. Merit Systems Protection Board. (2023). *Perceptions of prohibited personnel practices: an update*. https://www.mspb.gov/studies/studies/Perceptions_of_Prohibited_Personnel_Practices_An_Update_2007022.pdf

and workforce analytics. The platform must enable seamless interoperability with critical external systems… and eliminate the data and process gaps currently affecting onboarding, pay accuracy, personnel action sequencing, leave eligibility, and audit reporting."[30]

The detailed requirements in OPM's request for proposals align with our findings that HR Specialists see the need for greater integration, automation, data quality controls, training, and IT support to improve the quality and effectiveness of their workflows. While OPM's request for proposals is specific to its internal HR systems, it could be a model for other agencies to follow if successfully implemented.

In June 2025, OPM also released its Federal Hiring Plan in response to Executive Order 14170.[31] In part, the plan lays out the need for multiple technology-driven modernization efforts including:

"Agencies should use OPM's Talent Acquisition solutions (USAJOBS and USA Staffing) to improve hiring transparency, the user experience for job seekers, and Federal hiring data. This will give agencies access to a robust data and reporting capability.

OPM will also expand its data analytics capabilities. It will add dashboards, reports, and other data systems to enable agencies to track agency compliance with merit reform efforts through clear performance metrics (e.g., time to hire, assessment usage, candidate and hiring manager satisfaction, conversion rates, headcount target vs. actual). (pg. 6)

…[OPM] will also lead efforts to maximally consolidate and coordinate Federal HR services and Federal HR IT platforms governmentwide to create efficiencies, enhance quality, and reduce redundancies. (pg. 8)

… To improve communication with candidates throughout the hiring process, OPM will require automatic generation of USAJOBS and USA Staffing notifications for applicants at key stages of the hiring process, instead of relying on agency HR professionals to send notifications. And OPM will merge USAJOBS and USA Staffing to create a more streamlined applicant experience and reduce duplication and redundant requirements.

…In addition, expanding system integrations between OPM's Talent Acquisition solutions and other systems with a role in the pre-employment process will improve consistency and efficiency." (pg. 11)

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[30] U.S. Office of Personnel Management, Office of the Chief Human Capital Officer (2025). *Statement of Objectives: Modernization of Human Capital Management System,* p. 3. 052325_OPM-HCM-Statement-of-Objectives-may-2025. pdf

[31] U.S. Office of Personnel Management. (May 2025). *Merit hiring plan memorandum.* https://www.opm.gov/policy-data-oversight/latest-memos/merit-hiring-plan/

Part of this plan includes greater use of the platform USAJOBS by agencies, which may indeed improve applicant experience given the customer-focused changes OPM has made in response to feedback.[32] Similarly, OPM's leadership and provision of technology tools should be supported so that there is greater consistency in platforms utilized by agencies and similar hiring data available across government. Services like USA Staffing and USA Hire have great potential to provide agencies with modern platforms and assessment tools, but access to these services can be cost prohibitive for small agencies—which likely have the most to gain from their adoption.[33]

HR leadership acknowledges the need for technological improvement even more than their staff according to our data, but agency leaders must also balance multiple agency needs with available resources. Currently, agency leaders are navigating reductions in staff (who may be needed to work on modernization efforts) and funding (which is needed to pay for extensive technological upgrades). The technology-driven hiring plans cited above are ambitious and likely costly in terms of staff time and money. Since technology modernization is a priority for the Trump Administration's stated government efficiency goals, agencies will need sufficient support to enact such sweeping reforms and to maintain their investments.

Designing and Implementing Reforms

Process Improvement

Modernizing HR technology is not just about adopting new tools; it's about transforming the entire approach to human capital management. By implementing data analytics thoughtfully and aligning with MSPs, organizations can ensure merit-based practices that are both fair and result in an effective workforce delivering exceptional service to the American people.[34]

The features that HR Specialists believe need the most improvement are integration, automation, data quality control, IT support, and training. And these features should be incorporated into agency modernization efforts. But as these upgrades are made, agencies should consider the implications of our findings on the perceived effectiveness of HR technology. HR Specialists were most likely to agree that HR systems were effective at helping with agency-level processes such as communicating with customers and least likely to agree that technology effectively helped to manage their volume of work. Increasing the quality of HR technology features is likely to help with managing workload, but agencies may achieve the most benefit from using technology to rethink aspects of the workflow process itself, such as which steps can be automated, how many steps are needed, who should be involved at each step, and how the steps should be completed.

[32] U.S. Government Accountability Office. (October 13, 2020). *USAJOBS website: OPM has taken actions to assess and enhance the user experience.* (GAO-21-31). USAJOBS Website: OPM Has Taken Actions to Assess and Enhance the User Experience | U.S. GAO

[33] U.S. Government Accountability Office. (2024). *Federal hiring: USA staffing system supports hiring needs, but actions are needed to strengthen training and program management.* (GAO-24-105738) Federal Hiring: USA Staffing System Supports Hiring Needs, but Actions Are Needed to Strengthen Training and Program Management | U.S. GAO

[34] U.S. Merit Systems Protection Board. (2020). *The merit systems principles: keys to managing the federal workforce.* The Merit System Principles: Keys to Managing the Federal Workforce

Design Decisions

Our survey findings highlight the differences between HR technology users. Most notably, HR leaders viewed all aspects of technology more poorly than non-leaders. To build high-quality, effective HR systems, all users need a seat at the design table. Perceptions of technology effectiveness and quality may also vary depending on HR Specialist role, tenure, and other characteristics.

Although we did not include applicants in our survey, this is also a key user population that should have a voice in design and testing new HR technology. As described above, MSPs require that hiring be conducted in a way that ensures fairness for all applicants. How applicants interact with HR technology can have serious implications for final hiring decisions. The same is true for federal employees and retirees as they continue to interact with HR systems throughout their careers. Individuals who may be highly qualified for specific roles may not receive appropriate consideration if they cannot understand or use HR systems to submit applications or complete assessments. Once hired, federal employees may not be able to fully access their learning management systems, employee benefits, or navigate complex processes such as retirement. This includes (but is not limited to) segments of the American public without access to reliable high-speed internet, with disabilities, or with neurodiversity considerations.

System Use

Although not a top complaint, our findings do highlight the importance of maintaining consistent access to full system functionality and providing sufficient training for users to maximally benefit from full functionality. Access considerations are both technical and experiential. HR Specialists noted that when systems go down, work stops. Having sufficient IT support to ensure systems work when and as expected with users who have different types of needs, skills, and abilities is critical. Training for HR professionals should also include considerations for using technology with different populations and in ways that align with all MSPs and PPPs.

Evaluation and Continuous Improvement

Ensuring that HR systems are accurate, accessible, reliable, integrated, and well-supported can improve overall operational efficiency and effectiveness. But only if modernized HR systems work as intended. Technology modernization takes a large investment in agency time, funding, and human resources and should be pilot tested to ensure that various types of users are satisfied with its implementation. However, it is unrealistic to expect that large-scale complex projects are completed perfectly, and agencies should also include financial and staff support for on-going performance monitoring and improvements. Even if technology is implemented well, the speed of change almost ensures that additional modifications will be required to maintain efficiency and effectiveness in the future. Regular updates and feedback mechanisms can help ensure that tools continue to meet user needs. In addition, IT staff will need to have sufficient resources to implement proactive maintenance and support strategies to prevent issues from arising. Preventing system downtime prevents work stoppages.

A final key consideration is the need to evaluate and continuously monitor and improve how HR systems and technology contribute to HR outcomes related to MSPs and PPPs. Technology has the potential to strengthen merit-based hiring and performance management through data-driven insights, but only if tools are validated and free from bias. PPPs must be proactively avoided through

transparency, auditability, and human oversight of automated systems. To achieve this, agencies should conduct fairness reviews and validation studies for the technology and processes they are used in.

Appendix: Full HR Workforce Survey Results

Demographics – Job Series

Job Series	%
HR Specialist (GS-0201)	89%
HR Assistant (GS-0203)	11%
Total	100%

Demographics – Role

Role	%
Non-supervisor - You do not supervise others	69%
Team leader - You provide employees with day-to-day guidance on work projects, but do not have supervisory responsibilities or conduct performance appraisals	12%
Supervisor - You assign work, evaluate employee performance, and approve or disapprove leave requests, but you don't supervise other supervisors	12%
Manager - You are in a management position and you supervise other supervisors	6%
Executive - You are in the Senior Executive Service or equivalent and you supervise managers or other executives	1%
Total	100%

Demographics – Education Level

Education Level	%
Some College or Below	31%
College Graduate	36%
Master's Degree	30%
Doctorate or Professional Degree	3%
Total	100%

Demographics – Federal Human Resources Tenure

Years in Federal HR	%
Less than 4 years	20%
4 to 11 years	30%
12 to 19 years	27%
20 years or more	23%
Total	100%

Demographics – Age

Age	%
39 and Under	19%
40 to 49	30%
50 to 59	37%
60 and Over	14%
Total	100%

Demographics – Human Resources Specialty

Area of HR	%
Talent Acquisition	41%
Labor or Employee Relations	15%
Pay and Benefits	12%
Talent Management	10%
Executive Services	1%
HR Systems and Data	4%
HR Managers	10%
Miscellaneous	7%
Total	100%

Overall Table – Item responses from all 201s (HR Specialists)

Note: Totals may not equal 100% due to rounding

	Agree	Neither	Disagree
I have the resources to do my job well	72%	13%	16%
I am satisfied with the extent my organization invests in the HR workforce	51%	19%	30%
Technology has had a positive effect on my job performance	73%	16%	11%
Technology has been effective in helping my organization:			
Automate existing HR processes and procedures	75%	14%	11%
Redefine HR processes and procedures	70%	19%	12%
Track HR work	75%	14%	11%
Manage the increased volume of work	55%	21%	23%
Improve timeliness of work	60%	21%	19%
Improve quality of work	61%	22%	17%
Improve productivity	65%	20%	16%
Communicate with customers	78%	13%	10%
Measure and report on my workload	65%	20%	15%
Indicate level of agreement with the following statements regarding HR systems in your organization:			
I can count on the information or data in my primary HR systems to be accurate most of the time	74%	13%	13%
I can access the data systems I need to do my job quickly and with ease	66%	16%	18%
When I need to access critical HR systems to complete tasks, they are available and functioning as they should	60%	21%	19%
My primary HR systems are well integrated/ connected and update without human intervention	49%	24%	28%
When HR systems have technical issues in my agency, I have sufficient IT support to resolve issues	58%	21%	21%

	Agree	Neither	Disagree
The number of HR systems I am expected to understand and use for my job is manageable	70%	17%	14%
I have the appropriate suite of up-to-date HR technology tools to do my job	62%	20%	18%

Leader vs. Non-leader Item Responses from all 201s (HR Specialists)

Question	Leaders			Non-Leaders		
	Agree	Neither	Dis-agree	Agree	Neither	Dis-agree
I have the resources to do my job well	61%	13%	26%	74%	13%	13%
I am satisfied with the extent my organization invests in the HR workforce	44%	17%	39%	53%	20%	28%
Technology has had a positive effect on my job performance	66%	17%	17%	74%	16%	10%
Technology has been effective in helping my organization:						
Automate existing HR processes and procedures	70%	13%	17%	76%	14%	10%
Redefine HR processes and procedures	64%	18%	18%	71%	19%	10%
Track HR work	70%	13%	18%	76%	14%	10%
Manage the increased volume of work	50%	19%	32%	57%	22%	21%
Improve timeliness of work	53%	21%	27%	62%	22%	17%
Improve quality of work	52%	21%	26%	63%	23%	15%
Improve productivity	56%	19%	24%	67%	20%	14%
Communicate with customers	71%	13%	16%	80%	12%	8%
Measure and report on my workload	60%	18%	22%	66%	21%	14%

Indicate level of agreement with the following statements regarding HR systems in your organization:						
I can count on the information or data in my primary HR systems to be accurate most of the time	67%	13%	21%	75%	13%	12%
I can access the data systems I need to do my job quickly and with ease	61%	16%	24%	68%	16%	17%
When I need to access critical HR systems to complete tasks, they are available and functioning as they should	59%	21%	20%	61%	21%	18%
My primary HR systems are well integrated/connected and update without human intervention	41%	21%	39%	51%	24%	25%
When HR systems have technical issues in my agency, I have sufficient IT support to resolve issues	48%	21%	32%	60%	21%	19%
The number of HR systems I am expected to understand and use for my job is manageable	61%	17%	21%	72%	16%	12%
I have the appropriate suite of up-to-date HR technology tools to do my job	49%	20%	31%	65%	21%	15%

Office of Policy and Evaluation

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U.S. Merit Systems Protection Board Studies

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The U.S. Merit Systems Protection Board has the statutory responsibility to conduct objective, non-partisan studies that evaluate Federal merit system policies, operations, and practices. See 5 U.S.C. § 1204(a)(3).