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Implementing Technology-Enabled Human Resources Capabilities in the U.S. Air Force

Insight from the Private Sector and Military Services

KEY FINDINGS

- Implementing technology-enabled talent management could help the U.S. Air Force (USAF) replace its traditional human resources system with one that is driven by data, personnel needs, and business needs.

- To accomplish this complex transformation, the USAF would benefit from a set of best practices derived from similar organizations that have already made this switch.

- Top leaders' support is essential, and success stories enable buy-in.

- Project Objective Memorandum and funding justification should be based on business needs and mission readiness.

- A change management strategy is imperative for short- and long-term success.

The U.S. Air Force (USAF) is working to replace its traditional human resources (HR) system with a digital talent management system that is driven by data, personnel needs, and business needs. To accomplish this complex transformation, the USAF would benefit from a set of best practices derived from similar organizations that have already made this switch.

This report is one in a set aimed at helping the USAF understand the elements necessary for success.[1] The reports in this set examine, for example, best practices for implementation, strategies for securing sufficient resources for digital transformation,

and different ways that the USAF could use data to improve its talent management functions.

The research was conducted in response to General Charles Q. Brown, Jr., Chief of Staff of the Air Force (CSAF), issuing Action Orders in September 2020 to ensure that his strategic approach to USAF talent management, called Accelerate Change or Lose, would not become "overused, stale, and forgotten" (Brown, 2020, p. 2). CSAF Action Order A, Section 3.A.3.B, requires the USAF to "propose updates based on public and private-sector best practices" that leverage "modern information technology (IT) approaches to enhance and deliver talent management solutions to leaders and Airmen" (Brown, 2020, p. 5). Also, CSAF Action Order B states, "the USAF must change its decision processes in order to make analytically-informed and timely decisions, accepting anticipated ambiguity or uncertainty, to enable the USAF to outpace key competitors' decision cycles" (Brown, 2020, p. 7).

The USAF can comply with CSAF's action orders by implementing a technology-enabled talent management, or electronic human resources management (eHRM) system, which would enable the use of advanced technology (such as algorithms, machine learning, and automation) to inform decisionmaking throughout the talent management cycle (for example, recruitment, selection, and use of personnel) and improve delivery of HR services (such as employee self-service capabilities, increased automation, and mobile capabilities). Implementation can require undergoing a process of *digital transformation*, which involves investments in, for example, IT infrastructure and architecture and related support services, relevant data sets, or analytic software platforms.

Technological advances in data management, IT, and artificial intelligence (AI) have the potential to transform business practices by enabling decisionmakers at all levels of an organization to take analytically informed actions that are faster, more accurate, and cost-effective.[2] Technology-enabled talent management can revolutionize how organizations identify, acquire, develop, evaluate, and retain talent. For instance, recruiters can target promising individuals with tailored messages. Managers can assign jobs or tasks to employees in ways that amplify strengths or provide opportunities to improve weaknesses. Leaders can make analytically informed promotion decisions, such as using objective benchmarks rather than relying solely on subjective decisionmaking that can be based on implicit (or unconscious) biases (Highhouse, 2008). Furthermore, organizations can monitor for early warning signs of attrition and deploy targeted retention strategies for specific individuals or job types.

Despite the considerable potential of technology-enabled talent management, uptake has been slow. For instance, the 2020 McKinsey Global Survey found that one-half of respondents reported that their companies had adopted AI in at least one business function,[3] and the executives whose businesses had adopted new technologies reported increased revenue and reduced cost (McKinsey, 2020, p. 2). However, the survey also found that adoption rates varied across industrial sectors. High-tech and telecom organizations were more likely to adopt new technologies than organizations in other sectors. The most-likely areas for an organization to apply new technologies were service operations, products or service development, and marketing and sales. About 10 percent of survey respondents reported that their organizations had adopted new technologies for "optimization of talent management" (for example,

Abbreviations

AI	artificial intelligence
APS	Army People Strategy
COVID-19	coronavirus disease 2019
CSAF	Chief of Staff of the Air Force
DIMHRS	Defense Integrated Military Human Resource System
DoD	Department of Defense
eHRM	electronic human resources management
G-1	Deputy Chief of Staff of the Army for Personnel
HR	human resources
IPPS-A	Integrated Personnel and Pay System–Army
IT	information technology
MVP	minimum viable product
PPBE	Planning, Programming, Budgeting, and Execution
USAF	United States Air Force

recruiting and retention), and about 7 percent of respondents' organizations had applied the new technologies to "performance management" (McKinsey, 2020, p. 3).

As the USAF seeks to shift to technology-enabled talent management, it is important to understand the elements of successful implementations. For example, the USAF, like many organizations, has legacy IT systems that it must transition to a new system. How can the service maintain legacy capabilities while migrating data or infrastructure to new systems? How should constrained operational budgets be split among maintenance, operations, and transformation?

Benchmarking Against Similar Organizations Can Provide Insight About Implementing Technology-Enabled Talent Management

Collecting information about how other organizations have transformed their IT capabilities for talent management could help the USAF understand issues that must be addressed when implementing technology-enabled talent management. Useful information could include the types of HR capabilities that were facilitated by digital transformation; how much it cost to acquire, install, and maintain systems; or the challenges encountered during implementation. The process of collecting such information can also identify methods that other organizations use to collect benchmarking data.

Such benchmarking has two key requirements. First, an organization (for example, the USAF) must have insight into its own baseline—that is, its activities, resources, and requirements. This is needed to draw comparisons with what other organizations have done. Second, comparisons must be made with organizations that are sufficiently similar and that would be reasonable to compare. For example, the USAF is a long-standing institution with entrenched interests and systems. Because it is a government agency, it faces ongoing budget and resource constraints, and it is subject to various legal and regulatory obligations, such as required steps that must be

followed to acquire products or services. To draw useful insight, it may not make sense to compare the USAF with a new organization that lacks ingrained processes or with one that may have fewer resource constraints or reporting requirements.

Project Approach

We conducted a project to identify information that would assist the USAF in implementing technology-enabled talent management. Although we did not conduct a formal literature review, we did review select academic literature and USAF documents for relevant background (such as digital transformation strategies, technological and systems requirements, and planning budgets). We also interviewed subject-matter experts in the USAF, other U.S. military services, and the private sector. The intended outcome of these activities was to identify elements that have led to successful transformation of technology-enabled talent management capabilities, notably effective practices, relevant examples, and actionable insights specific to the USAF HR enterprise.

We sought to identify a set of candidate organizations for detailed data collection about successful implementations of digital transformations of HR systems.[4] Our selection criteria consisted of the following:

- size of the organization
- diversity (such as jobs, geography, and functions)
- organizational mission and function comparability
- legacy of the existing HR system
- feature set of the organization's future (end state) HR system
- importance of people to the organizational mission
- acquisition or regulatory constraints.

Who We Talked to and What We Asked About

Given the similar mandates, structures, and functions of the U.S. military services, we spoke to subject-matter experts in the Army, Navy, and Marine Corps. For these discussions, we reached

out to personnel who focused on HR, talent management, and the programs that aligned with HR processes to enable discussions about digital transformations in the services' HR areas. We also sought personnel responsible for budget planning, programming, and advocacy.

In the private sector, we contacted subject-matter experts from organizations that experienced a transformation and from other organizations that provided services to support the transformation. This translated into three types of companies:

- service providers or vendors of software platforms with HR products
- consultants on HR software implementation
- end customers who had implemented such software and met the selection criteria.[5]

Our engagement strategy for these organizations was to leverage existing networks, including introductions from our USAF sponsor. For private-sector organizations, we first reached out to software service providers, reasoning that they would be most receptive to conversations about their products and the implementation process (which they were). Ultimately, the large corporations that were customers and closest in size and diversity to the USAF were unwilling to speak with our team.[6] Instead, the end customers we interviewed were largely from within the Department of Defense (DoD) federally funded research and development center ecosystem. These customers share many of the USAF's acquisition and regulatory constraints, but not its size and occupational diversity. All had legacy systems they wished to replace; each had concluded that the legacy system could no longer support business goals.

In all of our interviews, we sought insights into

- the role of leadership before, during, and after the transformation
- key challenges and stumbling blocks, the strategies used to overcome them, and/or lessons learned that might apply to the USAF
- funding and resourcing processes
- metrics by which to measure return on investment.

When examining the sister services,[7] we probed particularly for lessons learned regarding the obsta-cles, processes, and opportunities at play in each service's Planning, Programming, Budgeting, and Execution (PPBE) cycle. When talking to private-sector vendors and consultants, we asked about their clients' experiences with deciding whether to invest in maintaining legacy tools, applications, and processes or to transition to new tools, applications, and processes. Few were comfortable offering a simple rule of thumb, but this question often led to enlightening discussions of the factors that should be considered when making investment decisions.

From those in the private sector who had recently transitioned to an eHRM system or were in the process of doing so, we first asked about their current digital capabilities and the organizational goals they had adopted for the transformation. These responses framed our inquiries into the process that was used for the transformation; those inquiries included soliciting lessons learned about potential stumbling blocks encountered during implementation.[8] In this iterative approach, as we learned about additional challenges, we mentioned them to subsequent interviewees and invited discussion about whether they had experienced similar challenges or additional ones. By the end of our interviews, the list of potential stumbling blocks that we asked about was as follows:

- articulating the business vision for new technology
- scoping out the work that needed to be done
- doing a gap analysis (that is, defining current capabilities and desired capabilities)
- mapping out a plan (that is, process changes, infrastructure changes, workforce changes) to close gaps
- identifying and documenting use cases for technological changes
- developing phases for the technology transformation
- securing budgeting for each phase of the project
- acquiring services from vendors to begin the technology migration process
- educating the workforce on changes
- measuring and tracking progress over time.

We completed the interview with a discussion regarding return on investment. Members of the

research team took notes during each interview and extracted what they saw as important themes. These themes were then aggregated to form key insights, discussed in the next section.

In total, we conducted 35 meetings with 52 subject matter experts. Table 1 shows the number of meetings and interviewees in the USAF, sister services, and private sector.

Three Key Insights

In discussions with the sister services, organizational challenges quickly rose to the forefront. These interviewees often discussed process and policy rather than technical requirements. Conversations with private-sector interviewees tended to focus on organizational goals and how prioritization of those goals affected the implementation roadmap. From these conversations and our document reviews, three key insights emerged:

- Top leaders' support is essential, and success stories enable buy-in.
- A Project Objective Memorandum or funding justification should be based on business needs and mission readiness (that is, focus on mission needs).[9]
- Active organizational change management strategy is imperative for short- and long-term success.

The rest of this report describes (1) the results of our effort to identify technical and organizational requirements for technology-enabled talent management and (2) elements of successful implementations. The following sections discuss each of the three key themes we identified, and then offer concluding thoughts.

Support from Top Leaders

Senior leadership support is critical to initiating digital transformation (Kotter, 1995). Multiple experts in both the private sector and the military services asserted in discussions with our team that leadership at the highest levels advocating for change was the key to obtaining initial approval and funding for digital transformation. It is less clear, however, that senior leadership support is needed to sustain transformation. For example, an interviewee with one of the private organizations said that their outfit had recently undergone digital transformation and lost its champion (that is, the person who was committed to effecting change) early in the process. This interviewee reported that having a network of dedicated midcareer professionals was the key to their successful transformation—the champion's departure, although regretted, did not thwart their efforts. Similarly, our military interviewees noted that civilian leadership and staff can successfully provide continuity after a military senior leader moves on. The finding that digital transformation in military organizations can weather the loss of an initial champion exists in some tension with academic literature implying that organizational transformation often fails in the absence of effective leadership (Gill, 2002; Gilley, Gilley, and McMillan, 2009).

In this section, we focus first on why having one or more senior leader champions is essential. We then relate key lessons regarding what works in persuading senior leaders to become champions and/or gatekeepers to authorize the resources needed for digital transformation.[10] These lessons in persuasion include providing success stories that leaders can relate to their organizations and linking digital transformation to talent management needs. Finally, we discuss two case studies—one from the U.S. Army and one

TABLE 1

Stakeholders Interviewed for This Study

Interaction	Sister Services			Private Sector		USAF
	Army	Navy	Marine Corps	Vendors	Customers	
Meetings	3	2	2	6	6	16
Subject-matter experts	6	4	2	10	8	22

NOTE: We did not include the U.S. Space Force with the sister services because it was not fully staffed at the time we interviewed stakeholders.

from the private sector—to illustrate the benefits that champions can bestow on the transformation process.[11] The subsequent sections on key insights follow a similar structure.

Support of Senior Leadership Enables Alignment Across the Organization

Both our private-sector and military interviewees said that the alignment of funding, priorities, and people were essential to a successful transformation, and reported that the support of senior leadership was invaluable in achieving that alignment. Both sets of interviewees emphasized the importance of having senior leader support from both the IT manager and HR manager (or their military equivalents). Also, because eHRM services usually include payroll (or are tightly integrated with it), the support of the finance manager also may be essential. Finally, interviewees mentioned that support from leaders of end user organizations of both legacy and new eHRM systems was critical. Resistance to change from any such organizations can sabotage the transformation (Gill, 2002). If any one of these managers is resistant, having a higher-level champion may be the only path to success.

As our case study of the U.S. Army will illustrate, having senior leadership on board and in full-throated support will help the service muscle

Success stories that emphasize mission achievement are essential tools in obtaining both the support of a senior champion and funding within DoD.

through change, particularly if there are institutional, process, or cultural roadblocks. Sustaining alignment throughout the transformation is more difficult, especially in the military where the turnover of uniformed personnel means that senior leaders may soon depart. In these cases, midlevel leaders and staff can simply wait out changes that are deemed useless or even wrong. Gaining the support of civilian staff and personnel across the institution can ensure that alignment of effort occurs across the organization. We will return to this theme in a later section when we discuss the need for a proactive change management process.

Within DoD, Senior Leadership Support Is Essential to the Procurement of Funding

Within the private companies, a senior champion may have the power to both approve and fund the transformation. However, DoD is less agile than private industry, and obtaining adequate funding or other resources through the DoD budgeting process can be extremely challenging. Although the Marine Corps is smaller than the other services and is not undergoing a comparable digital transformation, interviewees from that service provided insights regarding how to successfully negotiate the budgetary process. They noted that they have consistently been able to acquire levels of funding that support their digital HR programs and needs. They pointed to leadership support as the primary enabler of the alignment of priorities, funding, and programs.

Mission-Focused Success Stories Are Essential

Success stories that emphasize mission achievement are essential tools in obtaining both the support of a senior champion and funding within DoD. Interviewees generally noted that "show" is a better strategy than "tell": Using narrative, stories, mockups, or prototypes to demonstrate how a useful product or process has addressed another organization's critical need allows leaders to internalize the need for change and say, as one interviewee put it, "I want that." Lead-

ers, in essence, persuade themselves that the transformation is feasible and worth pursuing.

There was also general agreement that the examples should be comparative to DoD's mission. USAF subject-matter experts noted that a successful example from within DoD may be more persuasive than an example from industry. Finally, there was strong agreement that the criteria for success in these stories must be mission-focused. One reason for this is that DoD is a mission-focused organization, so mission-focused success stories are more likely to resonate with leadership. Another reason is that none of our interviewees in either private or military organizations could point to easily measurable outcomes from eHRM transformation, such as cost savings or a lower head count, making those stories less compelling. We discuss the topic of mission focus in depth later in this report, and a companion report elaborates on the need for a nuanced, mission-focused understanding of returns on investment.[12]

Case Study: An eHRM Champion in the Army

In January 2019, the Army began rolling out the Integrated Personnel and Pay System–Army (IPPS-A), its main HR system. The rollout was the first of four scheduled releases meant to incrementally and successfully push IPPS-A out to the entire force over approximately three years. Planning for IPPS-A began in 2015, after a previous effort, the Defense Integrated Military Human Resource System (DIMHRS), was canceled.[13] It took the Army time to get the requirements right, but Army interviewees said that the planning behind IPPS-A's development, rollout, and implementation benefited significantly from the existence of a senior leader champion.

GEN James C. McConville, the Army Chief of Staff, has understood the value of HR digital transformation since his days as the Deputy Chief of Staff of the Army for Personnel (G-1), who is responsible for developing, managing, and executing manpower and personnel plans, programs, and policies for the Army. As the G-1, McConville championed digital transformation efforts and prioritized IPPS-A's development. As Army Chief of Staff, his prioritization

and championship has continued. To understand why his support has been so impactful, consider this description of Army funding priorities by one of our interviewees: Three factors determine whether a project gets funding: the risk of people being injured or killed if funding is not allotted, pressure from senior leader champions, and a clear understanding that the project will save money.[14] As another Army interviewee noted,

> It's the whole process. At every Army bill-payer drill, it [funding] will be raised and it's called the Chief's pet rock. The proposed reduction will be pushed on by saying that if [funding is denied, those responsible] will have to deal with the Chief. Knowing they have to go to the Vice [Chief] for an update scares everyone from going for the money.[15]

That knowledge pushes compliance and prioritization up and down the entirety of the PPBE process, helping clear the path for successful support. Unfortunately, it may not always be possible for an institution to count on that kind of top-down support.

We will revisit this Army case study in later sections to note other potentially useful elements that the USAF could emulate, such as handpicking a team with significant in-house talent, establishing a solid track record of change to ensure that stakeholders see tangible outcomes, developing a strong communication strategy centered on how digital transformation can shape warfighting outcomes for the institution (for example, developing a customer-focused website with extensive coverage of IPPS-A and its rollout[16]), and developing talent.

Case Study: In the Private Sector, a Committee-Steered eHRM

In contrast to the Army case about a senior leader champion, one corporation used an executive steering committee to guide the eHRM transformation, according to our interviews with several subject-matter experts at the company. The company began transitioning its software on January 1, 2019, and deployed it on August 15, 2020. In this case, it was the vice president of people operations who had the strategy and vision for the transformation.[17] The

corporate chief information officer was also a strong supporter who helped bridge the operational seams of the organization. As reported to us, this senior-level support was "essential to program success."

The steering committee made an early decision to avoid "lift and shift"—that is, simply taking their processes and force-fitting them onto the new eHRM tools. Instead, members wanted to use the technology transition in a deliberate way to force a reexamination of how they were doing business. Their prioritized strategic outcomes for the transition were as follows:

- **A better understanding of the workforce and skills gaps:** This translated to a requirement on the delivered system to be able to capture existing skill sets and perform gap analyses.
- **The ability to attract and retain best-in-class employees:** This translated to requirements to be able to perform online performance reviews, provide insights into the security clearance pipelines, and monitor retirement eligibility.
- **Efficiency:** This became a digitization goal to reduce reliance on "approval signature chasing" and the need to maintain or retain hard copies of documents.

The interviewees we spoke to specifically noted they had a difficult time gaining support for eHRM-enabled transformation using a business case based solely on improving efficiency. It was not until they focused on such features as a "skills cloud" that would allow them to use machine learning techniques to analyze workforce data for planning purposes that they had "really gotten traction."[18]

The transformation team used the agile system engineering concept of defining a minimum viable product (MVP) to scope the initial delivery.[19] The steering committee chose talent management as the MVP, with other features to come later.[20] At the time of our interview, they noted that although it was still too early to see a return on investment in talent management, they could see a culture shift occurring and reported that the People Operations team was happy with the eHRM transition thus far. They said that employees felt more empowered to take charge of their own careers and described the eHRM system

as enabling a more resilient and flexible way to deal with changes to their workforce related to coronavirus disease 2019 (COVID-19).

According to our interviewees, the steering committee not only provided guidance and prioritization of needs but also was integral to keeping key executive personnel informed about the changes being made and making those individuals a key element of the change management process. By giving executives a voice in the transition, buy-in was achieved. Providing executives with detailed insight about progress allowed those executives to confidently lead change discussions within their own departments or areas of expertise.

Focus on Mission Needs

One important takeaway from our research is the need to establish a solid foundation of business need before considering any specific technological upgrades. Although new software products and solutions may offer attractive new features, these benefits can easily be nullified if they either do not align with the primary needs of the organization or if the organization is not prepared to adapt its processes and procedures to use these capabilities at their full potential. These difficulties can be avoided in two ways.

First, organizations can use product discovery techniques to understand the most-promising ways to employ technology to improve their overall productivity. One example of this is the "Working Backwards" method, pioneered by Amazon (Knee, 2021). This method begins with figuring out which individuals the technology is intended to help and developing a deep understanding of those individuals' needs. The next step is to explore the greatest difficulties and challenges those individuals face in the job as it is performed. Consideration of specific ways that technology could be leveraged to address problems and create a better end-user experience occurs only after establishing this foundational knowledge. The exercise ends with a fictional letter from an end user describing how the product's introduction has improved their life and why they value it. Ultimately, a variety of product discovery techniques exist that can help organizations derive the most value from the technological solutions

they consider, and all of these methods focus on creating empathy for the intended users of the product and their day-to-day reality.

Second, several of our private-sector interviewees agreed with previous comments made by CEOs (Bender, Henke, and Lamarre, 2018) that organizations must reengineer their business processes and procedures to ensure that they align with major technological upgrades. This idea is not new, having appeared previously as an approach called Business Process Engineering (O'Neill and Sohal, 1999). However, organizational resistance to shoehorning work processes into predefined software has led more recently to iterative (for example, "agile") approaches that incorporate stakeholder feedback into technology development and integration (Campanelli and Parreiras, 2015). New technologies often have the potential to support transformational improvements in how organizations accomplish their day-to-day tasks. Without determined leadership, however, this potential for a larger transformation is undermined all too often by a resistance to change and a preference for preserving the policies and practices to which the organization has become accustomed (Gill, 2002). As a result, these organizations do not take advantage of the efficiencies offered by the new technology, which leads to users operating significantly less efficiently as they attempt to perform their assigned tasks with tools that were designed for a very different workflow. Although individuals may successfully adapt new tools to old processes, the organization may miss out on an opportunity to improve overall productivity.

Uniqueness of the Military Context

As the USAF considers how technology can support its personnel needs, it should take its uniqueness as an organization into account. Although private sector companies have created a variety of AI applications to enhance their HR activities, not all of these tools and approaches will directly translate to the USAF equivalent of those activities. IBM has broken down the use cases for how AI can improve private-sector HR functions into seven major categories: Attract, Hire, Engage, Retain, Develop, Grow, and Serve. Table 2 breaks down these functions and describes how the private sector leverages new technologies to enhance the employee experience in each (Guenole and Feinzig, 2018).

Each of the categories has some applicability to the USAF, but some are more relevant than others. For example, private-sector companies typically attract and hire new talent for specific open positions. Ideal job candidates often have experience or an educational background that has already prepared

TABLE 2

Modern Technology–Enabled Talent Management Functions

HR Function	Use Case
Attract	Chatbots that use natural language processing to answer job seekers' frequently asked questions about the company and to recommend relevant position openings
Hire	Algorithms that match applicant résumés to job requirements and predict future job performance
Engage	Automated audits and alerts that nudge managers to act when appropriate (For example, a system might alert a manager that an employee has acquired the skills and experience necessary to be promoted.)
Retain	Algorithms that suggest competitive compensation packages based on employee data and economic conditions
Develop	Algorithms that tag and index content in large corporate learning management systems and track individual needs to personalize the training that is delivered
Grow	An AI assistant that interacts with employees to shape their career trajectories (Career coaching has traditionally been costly and time-intensive, so it has historically been reserved for a limited number of people.)
Serve	Intelligent assistants that guide employees through benefit enrollment decisions, performance management tools, or even help employees navigate their organization by simply identifying the right point of contact for an inquiry

SOURCE: RAND analysis of Guenole and Feinzig, 2018.

them for their new role, and they can begin work after a short orientation. In contrast, the military services rarely hire midcareer employees to become uniformed personnel. Airmen who are recruited typically meet a minimum set of standards and then receive training from the USAF that imparts specialized skills or knowledge that they will need for their military assignment. Thus, algorithms designed to scan résumés to match people to open positions may have less value to the USAF compared with tools that can recommend the most-promising leads or recruiting approaches to military recruiters.[21]

In contrast, leveraging eHRM tools to identify the Airmen best suited to learning critical skills to meet emerging needs could help the USAF better match its workforce to its evolving missions. For example, all of the military services have struggled to fill positions in emerging fields of employment, such as data science or cyber operations. For such positions, the USAF might benefit from focusing on such HR functions as developing, growing, and retaining personnel with these skills and experiences. Although the private sector can just replace personnel when the need to realign the workforce with the mission arises, the USAF may not have that luxury when adversaries change tactics or strategies. Additionally, improving the matching and recommendations process could improve workforce morale and reduce attrition for Airmen seeking a new career path or simply a new challenge.

Justifying Technology Investments

It can be difficult for HR departments to justify investments in new technology when they are competing with other organizational priorities. This may be particularly true in the military, which must prioritize warfighting over cost efficiency. Corporate departments can make a business case by showing that the costs of a new software tool are exceeded by the projected savings that the tool can generate, through a combination of reduced maintenance costs for old software, a reduced headcount in the HR department, or other savings. However, even private sector interviewees said that it is imperative to justify the investment based on larger corporate interests

and to frame the investment within the corporation's mission.[22]

A more promising approach, therefore, could be to demonstrate how investing in eHRM technologies can improve the USAF's ability to execute its global missions. This can take two approaches. First, for every office in the USAF to accomplish its mission, those offices need to be staffed by the right people with the right skillsets. Even small improvements in skills alignment or in the distribution of individuals with needed skills to the right billets can have a measurable impact on the USAF's ability to accomplish its mission (for example, addressing shortages of data scientists and personnel with cyber skills). Military personnel departments have a range of opportunities to tie technology upgrades to improvements in job fit, career development, retention of skilled personnel, and other mission-oriented outcomes. Second, technology improvements can shrink the number of labor hours that people throughout the USAF spend inputting information into HR systems and working through HR-required tasks. As systems become more automated and interoperable, and as users have a greater ability to quickly answer their HR-related questions, warfighters will have more time to focus on their operational responsibilities. Well-crafted, nontechnical user stories can help decisionmakers throughout the USAF understand the concrete benefits from proposed technology upgrades and help to generate a strong business case that will receive sustained buy-in from USAF leadership.

Deliberately Designing and Planning for an Incremental Approach

One theme emphasized by interviewees in the other services was the benefit of taking an incremental, deliberate approach to executing technological upgrades. This has several advantages, such as providing early wins, synchronizing the work with program funding, and phasing out legacy programs gradually.

First, taking an incremental approach allows the improvement project to deliver tangible benefits from the earlier portions of the transition plan (Kotter, 1995). These accomplishments can help persuade service leadership to continue investing

in a program that has a proven track record until the end state is achieved. In contrast, attempting more-comprehensive or far-reaching upgrades often requires leadership to continue to invest for many years before any major milestone with concrete achievements is reached.

Second, taking an incremental approach can allow time to synchronize the transition plan with a regular schedule of programmed funding. Although it can be tempting for departments to attempt to make immediate progress by drawing from execution funding on an ad hoc basis, this approach can easily backfire. If it succeeds, leadership will often conclude that there is no need to provide sustained funding to transformation efforts because everything is going so well. If it fails, legacy systems will have fallen even further behind on their maintenance backlog without having any modern systems successfully implemented to begin replacing their functions.

Case Study: Using AI to Expand the Potential Talent Pool

One way the USAF can justify investments in HR technology is to demonstrate practical benefits that extend beyond the manpower and personnel organizations and improve the USAF as a whole. One example of how this could be done would be to enhance the USAF's process of matching uniformed personnel to their next career assignments. This process differs from the private sector in two important ways. First, the USAF rarely hires midcareer workers to join its uniformed personnel; consequently, new types of positions, such as the commander of a cyber unit or a data scientist, are most typically filled from within its talent pool. Second, USAF personnel frequently rotate out of one position and into a different position in the organization. Continuously rematching jobs to available employees requires a significant investment of time by both job seekers and commanding officers to consider all the available options and provide input about the best alignment between requirements and skills. Many opportunities exist for new technical tools to improve this process.

Modern advancements in AI could have particular impact on the process of matching job seekers to open positions. A previous technological generation of HR tools designed for private-sector corporations relied on candidate résumés and written job descriptions when attempting to understand the hiring process. Typically, these tools would attempt to search for keywords found in both documents to determine the quality of a match. For example, an opening for a software engineer might list the specific job title (such as "senior software engineer"), and the hiring manager might prefer an applicant with experience in specific technologies (for example, "javascript" or "object-oriented design"). Résumés that contained these keywords would be considered a higher match, but qualified job seekers who omitted the wrong keyword in their search might have to hunt extensively to find a desirable position.

Unfortunately, each of these data sources suffers from significant flaws, often forcing job hunters to sift through hundreds or thousands of open positions with similar titles and descriptions in an attempt to find their perfect job. This can also make things more difficult for the hiring manager. Different candidates might interpret the requirements for a position in different ways; for example, studies have shown that women often believe they need to meet all of the requirements specified by a job description while men would frequently apply if they met as few as 60 percent of the listed requirements

One way the USAF can justify investments in HR technology is to demonstrate practical benefits that extend beyond the manpower and personnel organizations and improve the USAF as a whole.

(Clark, 2014). Similarly, job descriptions may poorly convey the actual skills required to succeed in the job. Ultimately, qualified job seekers apply for the best job they can find through their job search, not necessarily for the job in which they have the greatest potential to succeed. As a result, organizations of all sizes may have difficulty managing their pool of potential employees and finding matches for their open positions.

One new approach is to use AI-based algorithms in an attempt to find better matches for open positions. Training these AI algorithms requires first inputting data that describe both the job profiles and the employees who have succeeded in those jobs in the past. From these data, the algorithms then extract the skills required to do those jobs successfully. Matching that information with analysis of employees' profiles and histories can be used to create capabilities matrixes that predict which jobs a given employee would be successful in or could learn to do. Thus, candidates could then be presented with an algorithm-curated list of open positions.[23] In the private sector, companies relying on these software applications use them to tap new talent pools for job types that are in high demand. For example, nearly every large company needs data scientists, but the pool of individuals with prior experience is limited because it is a relatively new discipline. AI algorithms can suggest individuals who do not have data science experience but seem to have a strong potential to learn the job. When this approach is successful, it can increase the supply of labor and give those individuals an opportunity for a lucrative new career.

For the USAF, this approach could improve the process of finding the next assignment for uniformed personnel, or it could help with staffing difficult-to-fill positions, such as data scientists or cyber specialists. Additionally, presenting a high-quality list of potential matches between rotating personnel and available assignments could substantially reduce the time required to place personnel in their next assignments, freeing up time for personnel throughout the USAF to focus on their primary responsibilities. Adopting this approach requires gathering large amounts of high-quality data, which can be challenging but could provide new capabilities for the USAF.

Case Study: The Army Links Talent Development to Mission Success

In a previous case study, we examined how the Army Chief of Staff's understanding the value of modernizing the Army's HR systems helped IPPS-A gain the support and resources to ensure a successful transformation. Similarly, in this case study, the Army's recent efforts to focus on talent management and people in general creates the opportunity for synergy between work done to transform Army talent management and work done to modernize HR systems via IPPS-A. Because the services and the private sector have very different ways of focusing on the bottom line, identifying and effectively communicating links between digital HR transformation and the Army's talent management efforts and strategy has emerged as an important part of driving the Army's digital transformation.[24]

The Army released its Army People Strategy (APS) in 2019, noting that the Army's central strength arises from the talents, skills, and resilience of its people (APS, undated). The APS definitively links the recruitment, development, promotion, and retention of Army personnel to mission success, stating: "The Army People Strategy is foundational to the readiness, modernization, and reform efforts described in the Army Strategy."[25] Additionally, as noted in the APS, the Army, like its sister services, is in competition for talented people across the country. Given the need to attract talent, the APS represents a significant shift toward investing in Army personnel.

Building from efforts to develop and publish the APS, the Army argued that attracting, recruiting, developing, and retaining talented personnel would require a state-of-the-art HR management system: IPPS-A. Although Army interviewees did not explore these connections substantively in our discussions, USAF and Navy interviewees pointed out the challenge in attracting and retaining talented people if the institution cannot swiftly and consistently get them paid, promoted, and supported administratively. The synergy of the rollout of the APS and the phased development and release stages of IPPS-A created an opportunity for Army leadership to align and communicate efforts throughout the institution,

particularly between the PPBE process and manpower development and assignment processes.

It can be difficult to make a financial business case for digital transformation in the military services. Building a strategy that clearly identifies a critical strength of the service and directly links digital transformation to that critical strength has been one factor in the Army's successful support for IPPS-A in recent years. Although the USAF differs in many ways from the Army, the USAF similarly has directed its attention toward talent management and personnel needs. It may be that replicating relevant elements of the APS and IPPS-A communication—such as the need to pay people on time; to answer and solve administrative issues in effective, customer-centric ways; and to develop a more user-friendly HR management system—can help the USAF craft a strategic narrative based on mission needs.

Active Organizational Change Management

A third theme that emerged from our discussions is the need for active organizational change management to align digital transformation with short-, mid-, and long-term goals. Navy and Army interviewees noted the importance of such an approach to overcoming bureaucratic friction, resistance, and any internal service culture that may slow or redirect change efforts. The Navy interviewees emphasized that government institutions, and especially DoD, are organized to move conservatively, making it extremely difficult to accomplish transformation without demonstrated alignment to the organization's goals. That alignment can be achieved through organizational change management.

We also heard this theme from our private-sector interviewees. Their companies had hired organizational change management specialists to help them navigate the transformation. The interviewees generally agreed that investing in organizational change management was perhaps their wisest decision and that they regretted not using this resource earlier and/or more widely.[26] More than one interviewee noted that the cultural shift was the real return on investment, and that the COVID-19 pandemic had

It can be difficult to make a financial business case for digital transformation in the military services.

demonstrated the value of resilient and adaptable HR and IT processes. Finally, interviewees generally agreed that communication was the key. This communication must do the following:

- **Prepare the entire organization for transformation.** This means involving not just HR personnel and users of the legacy system but also potential users of the new digital platform and anyone who will interface with the envisioned HR processes—that is to say, all USAF personnel and their dependent**s.**
- **Be tailored to the audience.** The executive and HR teams will need to learn a bit about IT, and the IT teams will need to learn a bit about HR, so focus on how to teach each what they need to know without drowning them in details.
- **Be designed to solicit the values of the leadership team and the workforce more generally.** More than one interviewee said they had underestimated how strongly users felt about retaining features of their older, more-customized HR implementations.
- **Be designed as a tool to obtain information that can be used as real data to drive the transformation.** Several interviewees noted this was essential not just to drive better decisionmaking but also to engage the workforce in the transformation process and generate buy-in.

In addition to these lessons about communication, we offer three broad suggestions for effective organizational change management for eHRM trans-

formation: effective use of teams, stakeholder identification, and feedback solicitation.

Create Teams with the Appropriate Mix of Skills to Guide Transformation

Multiple teams may be needed to provide the appropriate set of skills that can guide the transformation. For example, an advisory board and a team tasked with determining how to implement HR transformation may be needed in addition to the teams that actually implement the transformation. Multiple interviewees mentioned the need for an architectural team to make the tough decisions about how much of the information and data in legacy systems need to be migrated to the new system.[27]

The advisory board should be mission focused and include representatives with technical acumen—notably experts in IT, HR, finance (for example, PPBE), and organizational change management. Our interviewees pointed out specific instances in which an imbalance in the skills or influence among these specialties adversely affected the success of their transformation efforts. The HR transformation, or business process implementation team, would create the new workflows and align the business processes to the organizational goals and mission. When necessary, they would work with the advisory board to draft policy changes as necessary to allow for the reimagined processes and workflows.

As military service interviews demonstrated, creating multiple teams or structures may not always be practical given resource constraints. In these situations, talent management needs are significant. By designing a team, however large, to plan and execute the mission and by handpicking members according to needed skill sets, organizations can better position themselves for success. Interviewees from most of the services noted that being able to handpick and shape

a team designed to effectively drive transformation was one of the most important elements of any change management strategy. Institutions can effectively drive change even in a resource-constrained environment by finding champions and other change agents among civilian and uniformed personnel and developing change agents among key leaders and staff, bringing them in through various means, and building a team that can accomplish what needs to be done for successful transformation. The lone service that had to function primarily with the personnel and skill sets assigned to them and was not able to completely build a selective team noted that having the in-house knowledge and skills to modernize was critical for success. In that example, the service sought a subset of civilians with requisite knowledge and developed new team members as best they could on the job.

In discussing the Army's approach, interviewees emphasized the value of continuity. IPPS-A development and rollout is run by a hand-selected team of skilled personnel with little to no turnover. This kind of arrangement is unusual for the military, but the team lead noted that because this is a top Army priority, he was given a mandate to build a team that could remain longer than a normal tour to ensure consistency and experience that would inform the IPPS-A process. The team lead credited the success that the Army has had so far in funding and rolling out the different IPPS-A releases to the selection and development of that team and the experience that its members had been able to build with little turnover. A Navy interviewee pointed to that service's struggles to develop a broad, skilled team as one of the key issues it has grappled with in trying to transform digital HR systems. These struggles amplified the lack of a clearly communicated early change management strategy with senior leader champions.

Multiple teams may be needed to provide the appropriate set of skills that can guide the transformation.

In the private sector, some interviewees reported bringing in a sizable contingent of newcomers to provide fresh perspectives on the challenge. Others reported assigning thought leaders to the transformation team on a part- or full-time basis. Notably, these interviewees expressed some regrets about their approach, suggesting that there is no right way to do this and that getting the team composition and accountabilities right is a balancing act.

Identify and Engage Stakeholders

An eHRM transformation affects everyone who creates, curates, enters, and uses HR data today and those who will do so after the transformation. Several interviewees mentioned some variation of the sentiment that eHRM transformation was "about more than just HR and IT." One private-sector interviewee described how, in the old HR system, employee transfers involved a paper-based and administrative assistant–facilitated process (that is, the administrative assistants walked the paperwork around to get the various pieces of information that the form required). The new digital process requires the originator of the transfer paperwork to fill in all the needed information before it is accepted into the system. Complaints about the rules governing the process and the amount of information required to originate a transfer skyrocketed. The rules and information required had not changed, but they had been made more visible to the originators.

Digital transformation will not be universally welcomed by all stakeholders. To some degree, resistance to change should be expected and accounted for in the overall planning of stakeholder engagement. These engagements should be designed to find the attributes of the legacy system that are particularly valued and that will engender the largest pushback from users if they are not properly handled. Interviewees described this as "[identify] the big rocks early," "find what is sacrosanct," and "find your blind spots."

The Army offers an example of early, effective stakeholder engagement. Although the Army spent approximately five years after the cancellation of DIMHRS developing and negotiating requirements, moving an acquisition program into place, and

hiring integrators, it eventually set in motion a schedule for incremental releases of change. By successfully rolling out releases 1 and 2, the Army was able to present a track record to stakeholders that could resonate with corporate leadership of the Army and could reassure all parties that the Army had learned from the DIMHRS experience and was on solid and purposeful ground with IPPS-A. This helped stakeholders point to real outcomes and strengthened faith in the transformation process.

Communicate Change and Solicit Feedback: Enable Successful Strategic Communication Focused on Digital Transformation.

Strategic communication is a critical part of identifying the business case for transformation and articulating a change management strategy. To borrow from a definition published by DoD, strategic communication is a focused effort "to understand and engage key audiences to create, strengthen, or preserve conditions favorable for the advancement" of specific "interests, policies, and objectives through the use of coordinated programs, plans, themes, messages, and products synchronized with" actions of an organization (DoD, 2009, p. B-10). Interviewees from the military services highlighted the need for strategic communication that flows both from the top down and across an organization. Strategic communication directed by senior leaders can be focused internally to ensure alignment both throughout an organization and externally, such as to Congress. By engaging personnel throughout the service, strategic communication that is designed as part of a change management strategy can engage change agents throughout the institution and help develop the broader support and prioritization needed.

Army and Navy interviewees emphasized the need to communicate and develop support for digital transformation across the organization as well. Navy interviewees noted that the turnover of uniformed service members in billets across the services means that the civilian leadership and staff provide continuity. Gaining their acceptance and understanding is necessary because they not only add significant value

and institutional knowledge but also can simply wait out changes that are deemed useless, or even wrong, and can suffer from "change burnout." Gaining the support of civilian staff and personnel along with uniformed members across the institution can ensure that digital transformation efforts are synchronized and communicated effectively and efficiently to all personnel, including those who provide continuity. This coordination of communication and implementation efforts aligns with our provided definition of strategic communication and can help create the conditions favorable to bring about change.

Case Study: Talent Management in the U.S. Army

The Army's efforts to build a large, diverse, skilled team to shape the full launch process of IPPS-A over time illustrates how the purposeful development of a team with the right experiences and skill sets can positively influence efforts for digital transformation. The work that the Army had previously completed toward the development of DIMHRS in the late 2000s had prepared it to build a substantive enterprise resource planning project to centralize and synchronize HR processes. After spending approximately five years refining requirements, setting an acquisition program in motion, hiring an integrator, and starting to build the system, the Army empowered a hand-selected team to lead the effort to launch IPPS-A in four releases. Team members are able to commit themselves to developing and launching IPPS-A for years, not months, and have been selected and developed accordingly.

Because IPPS-A had the support of the G-1 and the Army Chief of Staff, leaders were empowered to recruit talent and build a team that could do the work required to launch IPPS-A effectively. Discussions with participants in this process provided us with a general sense for how team leadership sought proactive, energetic individuals who understood not just HR and finance but also data, systems, analytics, business development, congressional cycles, and the Project Objective Memorandum process. The leaders created cross-functional teams that could build and meet priorities in the context of the Army

bureaucracy. Team members deeply understand the value of what they are building and leading, and have been able to communicate that value and deliver that message across the Army effectively via strategic messaging, senior leader engagement, and the use of the IPPS-A website and associated communication. Team members ensure that messaging throughout the Army is coherent and supported by full and accurate information from their office, and they ensure that it flows from senior leaders down through the ranks. The IPPS-A leadership considers the talent management that they were able to do and the members that they were able to bring in as major factors in the success of the first phases of the IPPS-A rollout. When asked what they saw as the primary factors determining success in the IPPS-A rollout, one team member stated that, although having the Army Chief of Staff as a champion was important, having the right talent was critical to success. The team leaders also emphasized the full-time, all-in nature of their work; a purposeful structure to prevent turnover; and the bandwidth to focus completely on the job at hand as critically important enablers of success. One team member noted, "My functional team is 50-plus people and this is their job. There's no other job for them . . . . I don't know how you transform going forward without that kind of dedicated focus."

Concluding Thoughts

We examined effective practices from comparable organizations to understand how the USAF might implement technology-enabled talent management solutions. By reviewing USAF documents and holding conversations with multiple subject-matter experts, we identified several takeaways and examples of what may be effective. Rather than a narrow focus just on technology requirements, our research suggests that implementation of technology-enabled talent management should more broadly consider organizational processes and requirements relating to leadership, business strategy, and change management. Support from top leadership is essential, which can be gained by using success stories as examples. Justifications of technology investment should be based on mission needs that benefit the entire orga-

It is critical to ensure alignment across the organization about the need for digital transformation and how it is to be implemented, such as by developing a change management strategy.

nization. Finally, it is critical to ensure alignment across the organization about the need for digital transformation and how it is to be implemented, such as by developing a change management strategy.

These conclusions, however, are based mainly on what people told us or what has been reported elsewhere and can provide insight only into how some organizations have done this. Several constraints suggest that generalizability may be limited. For one, our results do not comprehensively draw from a representative sample of organizations that have implemented digital transformation, and even a representative sample could be subject to selection bias in the type of organization that would be interested in digital transformation. Furthermore, we did not independently verify or analyze the impact of these activities or investments in morale or workforce outcomes, partly because organizations (particularly in the private sector) are reluctant to share organizational data that they consider sensitive or proprietary. Thus, these results are not broadly generalizable to what other organizations beyond the USAF may need to consider when implementing digital transformation.

Future work could look to academic literature on such topics as technology strategy, change management, talent management, and organizational design, and to additional sectors for comparable organizations that might provide useful insight for the USAF. These could be, for example, public agencies (such as city or county governments) and some federal government agencies that may have implemented digital transformation on a budget. Other candidates could come from health IT organizations (such as those involved in digitizing health records) or smaller vendors of AI for talent management.

Notes

[1] The other reports in this set are Snyder, 2022; and Schulker et al., 2022.

[2] AI can be defined in many ways. For this report, we focus on its uses for organizational talent management, which can involve the use of algorithms or other means of automated problem-solving or decisionmaking tasks.

[3] A sample of 2,395 organizations participated in this online survey in 2020 (McKinsey, 2020, p. 13).

[4] Throughout this report, we use the term *organization* in different ways, referring both to entire companies or government agencies and to units or departments within an organization. Because our interviewees came from these different entities, we purposely left this terminology nonspecific.

[5] We included vendors and consultants who had provided services to candidate organizations as a way of obtaining indirect information about the organizations of interest (those that had undergone digital transformation).

[6] Although the RAND Corporation typically engages a wide variety of corporations in research, we found that talent management appeared to be a sensitive topic in this case.

[7] We did not include the U.S. Space Force among the sister services because it was not fully staffed at the time we interviewed stakeholders.

[8] A stumbling block, as used here, refers to an activity that if done poorly (or not at all) would hinder a successful transition. All private-sector interviewees suggested items they regretted not doing or doing poorly.

[9] All organizations stated that the return on investment they saw involved business needs and mission readiness, not a direct financial return. Private-sector subject-matter experts mentioned short-term financial losses.

[10] Note that in the military, the champion may have no direct ability to allocate funds. Therefore, the champion needs to persuade the gatekeepers to release resources for the transformation. In the private sector, champions are more likely to have the ability to allocate funds. In these cases, the tools and techniques discussed here are used by change advocates to recruit champions.

[11] These case studies were identified using information derived from the interviews.

[12] See Snyder, 2022.

[13] DIMHRS was an attempt to bring the military services under one automated HR system. It was canceled in 2010 after more than a decade of work and resourcing (Philpott, 2010).

[14] Paraphrased from an Army personnel interview with the authors, March 2021.

[15] Quote from an Army personnel interview with the authors, March 2021.

[16] See IPPS-A, homepage, undated.

[17] The term *people operations* is often used to describe a organizational function similar to HR that seeks to emphasize management of people (as opposed to focusing on, for example, organizational compliance).

[18] Private-sector subject-matter expert interview with the authors, April 13, 2021.

[19] An MVP is an initial stand-alone set of features that can deliver value to stakeholders. Defining an MVP requires teams to make value judgments and the MVP process is closely tied to organizational change management strategy. Some teams will choose a simple set of features to enable early wins. Others choose a more difficult set of features in hopes of mitigating risks early, giving themselves ample time to adjust their overall transformation planning in the event those risks are realized.

[20] Although this company's original goal was to transform all of its HR processing, including both payroll and timekeeping, it ran into a variety of roadblocks both internally and externally regarding payroll. Eventually, the company made the determination to separate timekeeping and payroll. Although this involved significant effort to write custom adapters from the eHRM to the existing payroll system, company leaders believed that this was the right decision for the particular circumstance.

[21] This is not to suggest that the USAF is simply looking for blank slates to change. They are often recruiting for specific aptitudes, but tools that identify an affinity to grow in a career field are more highly leveraged than simply matching skills to open positions.

[22] Furthermore, these interviewees told us repeatedly that although the technical fragility of their legacy tools and the associated maintenance costs were often the primary reason they began to examine the need to transition to an eHRM, the primary benefits of transformation were not IT or even direct HR cost savings. They noted that IT and HR administration costs could increase: eHRM tools shift where and what work is performed; they do not necessarily eliminate work.

[23] In addition, this list could be further curated by a human being involved in the process.

[24] We did not specifically quantify this opportunity for synergy, which would be beyond the scope of this report. The information in this case study was developed from a series of interviews with Army personnel working on IPPS-A and with personnel from the other services who had occasion to observe Army efforts in this area.

[25] See the leading paragraph under "Managing Our Most Important Asset" on the APS website (undated).

[26] Typical statements were "we didn't fully appreciate the tentacles of change," "we thought we had done a good job but needed more," and "it aids with the lack of imagination and gets people to see the art of the possible."

[27] The general consensus among interviewees about the amount of necessary data migration seemed to be "less than you might think." They warned that data to be migrated will need to be cleaned, which is not a trivial undertaking. Some advocated for moving the minimum amount while fielding a large "strike team" to quickly move additional data after each release. Others advocated for "discovery" sessions or focus groups to discover what data are actually used in day-to-day operations. All emphasized that they could not count on written processes to determine what data were being used, or how they were used, across their organization.

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About This Report

This report describes the findings of a study intended to assist the United States Air Force (USAF) understand elements of successful implementations of technology-enabled talent management. The intended audience for this report is USAF stakeholders or talent management professionals interested in understanding how organizations can move to technology-enabled talent management.

This report is one in a set of reports aimed at helping the USAF understand the elements necessary for technology-enabled talent management. The other reports are

- Don Snyder, *Funding Technology-Related Business Initiatives in the Department of the Air Force*, RR-A1198-3, 2022
- David Schulker, Matthew Walsh, Nelson Lim, and Ajay K. Kochhar, *How the U.S. Air Force Can Incorporate New Data Technologies into Its Talent Management System: Framework and Use Cases for Technology-Enabled Talent Management*, RR-A1198-2, 2022.

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This report documents work originally shared with the DAF on April 29, 2021. The draft report, issued on August 30, 2021, was reviewed by formal peer reviewers and DAF subject-matter experts.

Acknowledgments

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