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Trend 3

I, Technologist:

Empowering innovators in the workforce

FEDERAL TECHNOLOGY VISION 2021

Accenture Federal Services

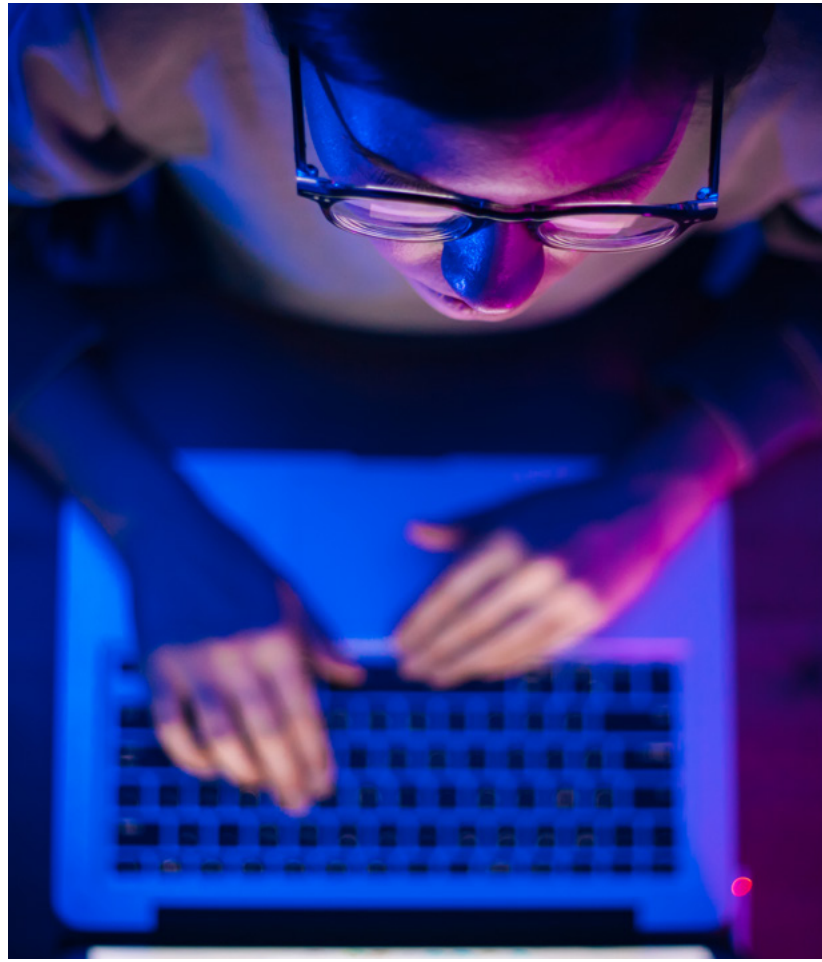
> As we learned all too well this past year, technology is vital to the mission. And this requires that technology be democratized and accessible across the agency. Democratized technology means that everyone—not just the IT department—must appreciate technology's vast potential and be empowered and proficient in deploying it to achieve new levels of capability to advance the government's varied missions and businesses.

This has already begun. We see federal employees of all stripes employing a wide variety of emerging, mostly cloud-based platforms and tools to create custom dashboards, run data analytics, launch low-code or no-code applications, and even introduce automation and AI into their workstreams. Going forward, these technologies will empower individual employees to determine their own individual requirements for fixing problems and improving processes, select the right technologies and tools, for the task, and then address those requirements as a self-service.

But this trend brings with it sweeping implications for agency leaders to think through. A big one is that the role and function of IT will have to adjust accordingly. No longer can IT be the gatekeeper for all things IT. Rather, it must shift to becoming more of an enabler, a governor, a collaborator, and an advisor to the mission and business sides of the agency as they assert greater autonomy in deploying technology. Increasingly, successful IT departments will need to make this shift core to their missions and strategies.

Another implication when technology is democratized is that, even as our day-to-day work platforms and tools get easier for everyone to use, there remains a great need for federal agencies to educate their workforces to be savvy users and consumers of the technologies available to them. Whether they are advancing the agency's mission out in the field or tending to the back-end business side of things, all employees will need a foundational level of technical and data literacy going forward.

In the longer term, expect "I, Technologist" to evolve the agency's culture. As employees grow more comfortable and competent with employing technology tools and re-engineering their work processes, they will foster a culture that is far more adaptable, nimble, and confident in meeting the challenges of the future.



Now we're all developers

In July 2020, OpenAI asked for help exploring the capabilities of GPT-3, the third generation of the organization's deep learning language model which can generate human-like text.[1] Using a private beta version of the model, developers got to work, discovering and experimenting with its ability to write short stories, songs, guitar tabs, an article about itself, and even software code. Each new discovery and demonstration sent waves of excitement and awe across tech workers, reporters, and business leaders alike. When one developer testing the model was able to tweak it to produce code, demonstrating that he could create webpage layouts by giving the model written prompts like "the Google logo" or "a blue button that says Subscribe," many wondered if this was an opportunity to make programming more accessible.[2] With the help of a tool like GPT-3, could anyone become a developer?

They weren't far off. An undeniable shift is underway: Powerful technology capabilities are being put into people's hands, usable without highly specialized skills. It's not about a single tool or service, but the culmination of an array of democratizing technologies. Natural language processing, low-code platforms, and robotic process automation (RPA) are just a few of the capabilities and services making technology more accessible. They each have different and unique applications, but all are bringing the innovative power of machines into the hands of people with as little friction as possible.

Democratized technology lets people optimize their work or fix pain points on their own. Without needing to request major IT projects, people can create a custom dashboard for a group's finances, build an app to approve and automatically fulfill purchase orders, and much more. Suddenly, the power to create technology solutions is entering the hands of people across the enterprise.

This doesn't remove IT from the equation. IT will still lead big implementations, scaling successful programs, and refreshing technology used by the agency. But this does require a shift in the role of IT departments. More than ever, they will need to collaborate with business and mission teams to identify and integrate innovative new technologies and ensure they are using and developing new tools and platforms securely and efficiently.

This shift is every agency's opportunity to make their employees a core part of their digital transformation effort. But to do so successfully, leaders will need to extend the innovation imperative across every business unit. It's not just about giving people access to new tools; agencies must actively teach their people to think like technologists. This doesn't mean turning everyone into an engineer, but rather enabling them to solve problems with technology.

By empowering everyone, those closest to a problem can be the ones to create solutions, keeping the agency in lockstep with rapidly changing needs.

Democratized tech is a game-changer for federal agencies

Regardless of what your federal job title is, consider yourself a GS-2210! (That's an "IT specialist" for readers who are not federal employees.)

Technology is simply so pervasive and so fundamental to getting the government's work done that every federal employee may soon have technology in their job description. Take Alex Measure, for example. Measure is an economist at the Bureau of Labor Statistics whose job was to manually classify data to help statisticians figure out things such as what are the most dangerous occupations and what are the most common injuries in those occupations. Measure decided he could save countless hours of time by automating the analysis and classification of hundreds of thousands of Survey of Occupational Injuries and Illnesses filings annually—so with the approval and support of his managers he went ahead and did it!

"Well, I got started out of personal interest as a new economist," he shared on the Exploring AI in Government podcast.[3] "It was my job to review some of this data by hand and to classify it by hand and it's not the most glamorous thing to do. So that got me interested in machine learning and then that got me interested in learning about these techniques and applying these techniques. And so, it sort of went from there."

It helped that there was a pretty solid business case driving him to think like a technologist. "In the case of the survey of occupational injuries and illnesses, each year we're collecting 300,000 written descriptions. We have dozens of people around the country that are manually reading through each of these descriptions. And obviously that takes a lot of effort. We estimate it takes about 20,000 hours of labor. Each year is equivalent to about 10 full time employees working on nothing else. So, you know, clearly there was a very real resource cost there," he said.

Technology is simply so pervasive and so fundamental to getting the government's work done that every federal employee may soon have technology in their job description.

But what made the task of automating this part of his job *possible* was the ease of the available tools, he said. "The advances in the tools have been amazing over the last 10 years. And I think if you went back 15 to 20 years, it was actually very hard to implement these systems. And now you have libraries like the scikit-learn library and Google TensorFlow, AWS Pytorch, that make a lot of these things much easier to build and implement. So, one of the things I spend a lot of time on in my current role is actually teaching my colleagues how to implement these systems and many of them have gone on to implement various successful systems."

Not bad for an economist. But the power of Measure's story is that similar examples of grass-roots tech creation are happening all over and becoming the new norm. A tectonic shift is occurring today in the way enterprises develop and deploy applications that run the business, modernize operations, and serve customers. And this shift arises out of an unabated appetite for new software by people who are trying to keep pace with their growing mission and business demands by harnessing data analytics, AI, and automation tools. That appetite has now far outstripped the capacity of traditional code-based programming approaches. Traditional code-writing simply takes too long, is too expensive, requires qualified programmers that are in short supply, and yields products that too often fail to satisfy specific end users' needs. Conversely, low-code tools, robotic process automation (RPA), and other democratized technologies are proliferating rapidly, offer enterprises a more compelling option for building powerful capabilities than traditional software development because they solve the problems of scale, speed, equity, and customized requirements at the individual level.

Sensing the enormous appetite for grassroots tech, just about every major cloud and software vendor has obliged with new tools that are now ubiquitous: Microsoft Power Platform on Office 365 and Azure (even Windows 10 now includes Power Automate Desktop that can apply RPA to automate tasks), Amazon Honeycode on AWS, AppSheet on Google Cloud, Lightning on Salesforce, APEX on Oracle, and Appian are just a few. Many of these tools offer visual interfaces with a simplified drag-and-drop approach to building business application software instead of traditional computer programming. And, in most cases, all components of the software, such as frontend and backend code and configuration files, are generated automatically using industry best practices.

Grassroots tech creation—that is, encouraged and sanctioned by managers—is happening in greater abundance across the commercial sector. According to market research firm Gartner, 41 percent of non-IT employees customize or build IT solutions, with business buyers expected to represent more than half of low-code clients by 2025.[4] And as illustrated by the example of Alex Measure at the BLS, this trend is taking root in the federal market as well.

> **89%** of federal executives believe technology democratization is becoming critical in their ability to ignite innovation across their organization.

The considerable ripple effects of "I, Technologist"

Most things are in place for democratized tech development to become commonplace in government: the demand, the tools, the business cases. What's not yet in place, however—largely because this is moving so quickly—is the consistent leadership, planning, skilling, and governance needed for agencies to capitalize on it.

This is where agency leaders need to strike a careful balance. What's most attractive about democratized tech is that it enables the agency to dramatically improve productivity, mission performance, and business performance despite existing challenges around large-scale IT modernization and shortages of IT talent in the ranks. But there's a threatening aspect to this as well: agencies must ensure that all this grassroots activity is adequately secured, understood, and integrated into an enterprise framework set forth by the agency's IT leaders.

For agency leaders, there's urgency in figuring this out. Just as apps like Excel and SharePoint empowered employees to more effectively collaborate, track and manage data, and share and convey information, so too are today's development tools allowing them to automate, streamline, analyze, and accelerate their job tasks for improved performance and service delivery. There are valid and serious concerns that must be addressed, but simply saying no to grassroots tech is not really an option—employee expectations are shifting rapidly and people won't remain where they're not enabled to succeed.

Specifically, we see three big implications of "I, Technologist" that agency leaders will need to give careful thought to:

1. **Do-it-yourself IT** will accelerate as business and mission units become more comfortable with building their own applications.

2. **The role of IT** will shift as business and mission units assume more control over their own IT provisioning and development.

3. **Tech skilling** will take on higher importance so employees can be smarter about how they employ these new tools and capabilities.

Saying goodbye to shadow IT

Shadow IT—that is, hardware and software that is not sanctioned or provisioned formally by the agency—has long been a challenge to agency IT departments. Mission and business team members install shadow IT because it helps them meet specific work-related needs that their agency-sanctioned hardware and software does not. And IT departments understandably guard against shadow IT because it can pose significant cybersecurity and other risks to the enterprise.

So unsurprisingly, the concept of democratized technology poses big, vexing questions for agency IT shops: people now have an increasing temptation to circumvent their IT departments by downloading cloud-based, drag-and-drop tools that allow anyone to custom-build whatever business capability they might need, whether it's to analyze data, automate a process, or infuse artificial intelligence into a business task. Many agencies are still trying to understand what these new tools mean for them and have yet to formulate guidelines for their use.

If "I, Technologist" is managed well, agencies can minimize their shadow IT problems by enabling their business and mission teams to develop needed capabilities using agency-approved platforms and tools, all with the aid and support of their IT departments. To accomplish this, agencies leaders must balance and harmonize these two powerful and valid competing interests within their enterprises. IT departments must work more in tandem with their mission and business colleagues to ensure they have the tools and platforms they need to get their work done. And mission and business teams must work within the confines outlined by their IT departments.

For this to work, IT shops must work much more closely with their mission and business customers to understand their needs and be responsive in providing the capabilities to address those needs. Cloud-based natural language processing, low-code platforms, RPA and other accessible tools and platforms make this kind of relationship possible because they are so easy to use, scale, and configure to meet agency policies. Success will rely not on mission and business teams doing their own thing, but rather on IT departments and their mission and business customers developing a more constructive synergy so the legitimate needs of all parties are met.

The Department of Veterans Affairs is taking a novel approach by offering employees a wide array of easy-to-use applications that are pre-vetted for security and interoperability. "You have to give your customers options. If they don't feel like they're getting serviced properly from the central IT function, they'll go find their own way, because they've got a mission to execute," says Dominic Cussatt, the VA's principal deputy chief information officer.[5] Cussatt said the VA is creating portfolios of services that customers can shop from and utilizing a Systems-as-a-Service platform that will enable employees to access and shop for things like a customer relationship management tool or call center option, using their own funds to access them. Similarly, agencies can whitelist various low-code and no-code development tools and platforms for their agency business teams to use and experiment with.

In other words, agency IT departments will need to collaborate more with their business and mission end users, supporting and enabling them as they explore and experiment with tools available in the marketplace. IT shops can do this by ensuring those tools are sufficiently monitored, optimized, and secured, and then, as those tools and resulting applications prove their business value, they can help scale them across the agency enterprise as needed to benefit others. IT departments might even consider establishing centers of excellence within their agencies (several have) so business and mission teams can learn best practices, find inspiration, and adopt previously successful approaches.

If done well, there is no reason for there to be shadow IT—instead, the needed tools and platforms are properly integrated into the network ecosystem. This is far better, from an IT department's perspective, than not knowing what's being used at all.

Another important piece of this strategy is an acknowledgment that mission and business teams often know better than the IT department what they personally need. As with Measure at the BLS, the mission and business teams must be allowed to experiment—safely and securely—with available tools and platforms to fashion capabilities that are tailored to their specific needs.

Finally, the capabilities that are developed for business and mission use cases through this collaboration must be viewed as living systems that are continuously in need of monitoring, optimization, and advancement. This requires agile approaches both on the part of IT departments and the business and mission teams that create and use them.

Agency IT departments can take other steps to better address the challenge of shadow IT, such as:

- **Open more lines of communication with IT users.** Learn more about their business and mission needs and where existing IT capabilities fall short.
- **Educate IT users.** Agency employees need to better understand the risks involved with shadow IT and how IT may be able to meet their business needs. Also, teach business users what they need to know about building new applications, working with AI and machine learning, and making the most of modern development tools.
- **Balance risk with rewards.** Not all DIY tech poses the same threat, so assess and mitigate the risks appropriately.
- **Streamline governance.** Adopt an IT governance structure that facilitates innovation through the use of new technologies that are identified, vetted, available, and provisioned for IT users at a rapid pace.

Ultimately, the goal is to have the organization consider IT a trusted resource that can help achieve business and mission objectives quickly and innovatively, while saving money and protecting the company from risk.

The role of IT: What's left for IT departments to do?

Many agency IT departments have multiyear plans in place to modernize their infrastructures and processes, to streamline and automate and tear down silos, and, eventually, to become more agile and responsive. "I, Technologist" now allows IT's customers to avoid some of this wait and go it alone, using IT-sanctioned tools and platforms. It augurs a new era in which the business and mission customers of IT have the wherewithal to quickly spin up DIY tech solutions that address their specific needs and pain points.

Where does this leave IT? At its core, this challenge is about re-inventing how IT and non-IT employees work together to embrace secure, agile innovation at all levels that advances the mission and the business. This can happen, in part, if IT departments put guardrails in place to ensure a safe zone for the business and mission units to experiment and create. This will require some strategic stacking (see Trend 1), such as creating data lakes that people can access to extract insights that will help them succeed or secure enclaves where employees can experiment safely.

Other guardrails could include:

- Pre-vetted tools, technologies, and platforms that business units can use to design, build, test, and deploy prototypes. These should include open-source tools, DevSecOps platforms, and low-code/no-code solutions. Because these tools, technologies, and platforms are always advancing and changing, the task of vetting and approving is continuous.

- Responsive technical security assessments to ensure new products are compliant with security, ethical AI, and other policies. Authorities to Operate (ATOs) will need to be re-evaluated, streamlined, and accelerated, and we are seeing some progress with this in the Army, Air Force, National Geospatial-Intelligence Agency, the Intelligence Community, and the General Services Administration.[6]

- Concept-of-operations documents and other needed guidance and policies. This could include, for example, frameworks, best practices, reusable patterns, and qualifying criteria and training for people to create their own capabilities.

Because platforms and technologies are constantly changing, those guardrails will need to change at pace and be well communicated to maintain transparency with the technology user community.

Another way some agencies are promoting greater collaboration and alignment between IT and business teams is by shifting from a project-based mindset to more of a product-based mindset focused on product development and lifecycle management. The U.S. Patent and Trademark Office, for example, organizes its IT projects across four product lines—patents, trademarks, enterprise, and infrastructure—and they range from new software for internal use to products for patent and trademark applicants.[7] The way some organizations are doing this is by emphasizing different performance metrics for IT—for example, putting less focus on things like IT throughput and efficiency and more on business outcomes.

Other important new roles that IT departments will need to play going forward include:

- Scaling solutions that work across the enterprise so others can benefit from them
- Educating business and mission units to be more tech and data literate
- Staying ahead of technology so they can serve as effective consultants to business and mission units as tools, processes, and platforms continue to evolve

This new era of democratized tech will raise important questions about how IT departments can best support their agencies. But it's important to understand that, while the role and function of IT departments may shift, these organizations can become even more critical to the success of the agency.

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Training: A new urgency for digital fluency across the enterprise

Here's a helpful way to think about "I, Technologist": There's long been a divide between the business and mission parts of an agency and IT simply because IT is so specialized and technical. As technology becomes more synonymous with the business and the mission, it is critical to close that divide. In short, there are two ways to bring people and IT together into a productive working relationship. The first way is to make technology accessible to all employees via user-friendly tools. The second way is to skill people up to work with these technologies and establish a closer working relationship between that business unit and IT. Most of the progress bringing us to "I, Technologist" falls in the former category. But there's still a big need for the latter.

While we can mask some of the complexity associated with creating applications, an understanding of the underlying basics is still needed to apply these tools effectively and do so securely. For example, we still need to know how to think about the data we're working with so we get to our desired outcomes. In short, we can't just be technologists because the tools are easier to use, we also need to *think* more like technologists.

So, what do federal employees need to learn? In short, they need to know enough about what current technology is capable of so they can formulate clear ideas about how to improve their business. Whether it's a smartphone, edge computing, RPA, AI, or something else, people can't conceive of how the latest technologies can help them until they understand them sufficiently. And that understanding must exist at all levels—leadership, managers, supervisors, and employees—for true innovation to take root across the enterprise.

We call this digital fluency. Digital fluency encompasses a wide range of skills and knowledge, to include:[8]

- **Digital foundations:** A conversational understanding of core digital technologies and concepts, including cybersecurity, cloud computing, automation, AI and ML
- **Cloud value optimization:** The ability to establish a business case for cloud value realization, evaluate progress, and ensure ROI
- **Cross-functional collaboration:** Being able to orchestrate across functions to drive common business priorities
- **Data-driven leadership:** The ability to use data to accelerate decisions and respond in real time to dynamic situations
- **Customer centricity:** Understanding customer value and how to delight customers with world-class experience
- **Innovation culture:** Being able to foster continuous learning, creativity, and strategic risk-taking

A few federal agencies are offering digital fluency training to their employees. Perhaps the most fully formed example of this is at the U.S. Air Force, which launched the Digital University in 2020 to advance the service's Digital Air Force initiative.[9] The program offers more than 12,000 courses from Udemy, Pluralsight, and Udacity at no-cost to all Air Force and Space Force professionals.[10]

Another example is the U.S. Department of Agriculture. The agency's CXO Dashboard program integrates data from systems spanning 29 agencies and staff offices into a comprehensive suite of self-service dashboards spanning seven administrative functions.[11] However, providing managers with sufficient data literacy is critical to making best use of this powerful tool. The agency's acting Chief Data Officer for Rural Development, Jim Barham, launched an effort to enhances the digital fluency of his staff, working to identify current skill gaps and developing targeted training to best leverage this platform.

All federal agencies are struggling to hire people with digital and data literacy, which makes the task of reskilling and upskilling existing employees so critical. And the escalating pace of technological change means that demands for skilling will only grow.

89% of federal executives agree that for tools of technology democratization, organizations need to ensure that training strategies include a focus on security and data governance.

Explore further

Fortify:

Bypass the skills gap

For years, many government agencies have had great ambitions for their digital transformations, but they've struggled to recruit and keep the highly technical workers needed to bring those plans to life. Seven in 10 IT leaders surveyed from the federal government and industry say that continuing IT skills gaps have a high or medium impact on their agencies' ability to execute missions, one recent report found.[12] Among the skills that survey respondents said were most needed over the next two to three years: cloud application development (53 percent) artificial intelligence (49 percent), and data analysis (47 percent), software development (32 percent), and RPA (22 percent). The demand for rapid digitization in response to the COVID-19 pandemic threatens to push those numbers even higher.

The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

Many government agencies and companies may have been looking at this problem too narrowly. Even as specialized technical skills remain in high demand, enterprises can increasingly lean on technology democratization to circumvent the skills gap in many areas, including all of the skill areas mentioned above. It's a parallel strategy that will further close the disconnect between workforces and the technologies needed to deliver the most creative solutions in today's market.

RPA, for instance, allows people with different types of skill sets to automate repetitive tasks. Instead of having a team of software developers writing software packages to automate particular business functions, NASA is using easy-to-use RPA tools to automate hundreds of business tasks across the agency through a shared services center. As of November 2018, NASA had more than 300 automation projects in the pipeline—mostly in human resources, procurement, financial management, enterprise services, and agency business services—and more than 10 projects were operational, according to Kenneth Newton, director of service delivery at NASA's Shared Services Center. What's important is that these projects were all suggested by the employees performing those functions, Newton said.[13]

These democratized technologies may be new ground for many organizations, but there's good news on that front too. With the shift to cloud underway, you're headed in the right direction, and may even have access to these tools already. Existing cloud solutions offer a stepping stone into these spaces. Amazon's Honeycode, for instance, is an AWS service that lets people build mobile and web apps without writing a single line of code.[14] Salesforce's Lightning App Builder is a point-and-click tool for creating custom pages on the Salesforce app.[15] For the many organizations migrating their people to Microsoft Teams, Power Apps can be directly embedded.[16] These tools, and many others, offer an incredible opportunity to bridge the gap between complex technology and workers at every level of the organization.

Even as specialized technical skills remain in high demand, enterprises can increasingly lean on technology democratization to circumvent the skills gap in many areas.

81% of federal executives agree their organization must train their people to think like technologists—to use and customize technology solutions at the individual level, but without highly technical skills.

It's easy to see these examples as a story of speed and efficiency alone. But there is a far more profound message underneath. When access to powerful technology capabilities reaches throughout an organization, every employee can be an active and vital part of the digital transformation effort. People can pick and choose for themselves what to automate, allowing them to focus on the things they do—and like doing—best. They can create solutions for their own work processes and for their customers right at the point of need. They can help to improve both the customer and the employee experience—not by gathering feedback to send to a team of tech experts for consideration, but by putting technology to work themselves.

The fact is, even though many agencies struggle with shortages in IT skills, they have plenty of employees anxious to solve problems and meet their business needs through technology. With the right technologies, in many cases you have the people you need. From startups hoping to quickly establish themselves among more seasoned competitors to legacy organizations working to complete their digital transformations, enterprises can use democratized technology to reduce the impact of their skills gaps. Leaders in the future will be the ones who rethink their approach to meeting their skills needs. It's no longer just "who can I hire?" but "how can I empower?"

51% of federal executives report creating scalability and resilience as a benefit their organization derives from tools of technology democratization, while

49% of federal executives report accelerating solution implementation and interconnectivity as a benefit.

Extend:

Activate grassroots transformation

Agencies and businesses are already using the tools of democratization to speed up and automate work processes and enable greater agility in one-off or limited instances. But it's not enough simply to have the tools and the training in place. To truly capitalize on today's capabilities for technology democratization, agencies also need to build a culture of innovation and collaboration so their people feel encouraged to put their tools and digital fluency into practice. Federal agencies, as a group, have had mixed success with this.

> "Innovation takes time and energy for an organization, but when leaders provide their employees the space to experiment, they can often tap into their employees' passions for their work and the product."
>
> ***Brian Fox***
> *Former Systems Development Branch Chief at the U.S. Geological Survey's National Geospatial Technical Operations Center (NGTOC)*

No two agencies are alike, so tactics and strategies will vary and approaches that work well in one agency may not work at another. Things like rewards, incentives, gamification, competitions, and dedicated innovation time during the work week, can all play a role. But what's most important is that employees feel safe and encouraged to experiment, fail, and try again. To do this, agency leaders need to create safe zones for experimentation, risk-taking, creativity, and, yes, failure. Creating agency-wide forums and venues of collaboration are also critical so your people don't feel alone in taking risks and experimenting and can share their experiences and learn from each other.

"Innovation takes time and energy for an organization, but when leaders provide their employees the space to experiment, they can often tap into their employees' passions for their work and the product," Brian Fox wrote in a blog when he was the Systems Development Branch Chief at the U.S. Geological Survey's National Geospatial Technical Operations Center (NGTOC).

Fox, currently a strategist with the 18F digital services delivery team at the General Services Administration, emphasizes that experimentation is an essential ingredient of innovation: "Most innovations aren't planned, and companies like 3M know this, allowing substantial time for their employees to experiment on their own (15% of their time!). The 3M Post-It notes that are probably on your desk as you read this are a great example of this 'freedom to experiment'—a 3M engineer determined on his own that an adhesive that failed in its initial development could be used on the back of paper to create a great way to tag and keep small notes.[17]

Another critical piece of innovation is collaboration, not only within the agency but also with other agencies, industry partners, non-profits, or academia. For example, there are many federal organizations that regularly assist agencies with their innovation efforts, including:

- GSA's 18F, Centers of Excellence, and Technology Transformation Services
- The federal RPA Community of Practice
- The Defense Department's Defense Innovation Unit
- The Census Bureau's xD Program
- The Commerce Department's Opportunity Project

Some additional tips that will be helpful for any agency striving to promote grassroots innovation include:

Articulate and promote an overarching innovation vision. Each agency will need to think of what innovation means in the context of their set of missions and business. It is important to define what that will look like so all employees understand where they are heading and why it's important. And that vision should have linkages to every employee so they understand how they fit into that picture and what is expected of them.

Make sure agency leaders are visible throughout. Government workspaces have historically not embraced concepts such as experimentation, creativity, and acceptance of failure. But these are all important to establishing a culture of innovation, so it's important that people see their leaders as actively encouraging this by attending and speaking at innovation events and promotions.

Dedicate time for innovation and training. Government employees don't have a lot of free time in their workday. So, agencies may need to carve out dedicated time during the work week for training and innovation so employees feel safe including that time in their schedule.

Include innovation in everyone's job description and performance expectations. Innovation doesn't happen when an organization creates a chief innovation officer responsible for making innovation happen. It happens only when everyone understand that innovation is embedded as part of their job and they will be held accountable for it.

Reinvent:

Power your new innovation engine

The value of technology democratization and wide-scale technology training will only grow over time. Leaders in this area are unlocking more freedom and exploration for employees. Consider, for example, the impact that just one segment of democratized technology—RPA—is having at agencies across government. A low- to no-code commercial-off-the-shelf (COTS) technology, RPA can automate repetitive, rules-based, low-value tasks, such as data entry, data reconciliation, pre-populated responses to customer inquiries, scheduled communications, spreadsheet manipulation, automated data reporting, and analytics, to name a few.

"Nearly two years after the first Robotic Process Automation (RPA) application was deployed in the federal government, RPA has become a widespread process automation tool," said the November 2020 *State of Federal RPA* report, published by the Federal RPA Community of Practice (CoP).[18] The report found that overall RPA program maturity increased significantly in fiscal 2020 and that RPA programs have reported strong demand for automation solutions within agencies. A use case inventory posted on the RPA CoP website documents more than 300 RPA use cases—mostly in resource management, administrative, and business areas such as logistics, human resources, financial management, IT, and procurement. The use cases cut across the federal government, including the Defense Department, Treasury Department, Veterans Affairs Department, the Centers for Medicaid and Medicare Services, the Food & Drug Administration, and many other agencies.[19]

Just in the period between 2019 and 2020, the number of automations deployed at federal agencies increased from 219 to 460, a 110 percent gain. The impact of these initiatives are far more impressive: annualized hours saved by automations increased from 285,651 to 848,336, a 197 percent increase. Moreover, the average hours of annualized capacity created per automation increased from 1,335 hours per automation to 1,708 hours.[20]

At the National Science Foundation, for example, an employee had an idea to save time: a bot that automates so-called nag notes, which are notes that remind people of upcoming public meetings. Because the agency plans thousands of meetings a year, the agency estimates the bot will save 25,000 hours a year in administrative staff time. The NSF's CIO, Dorothy Aronson, said in an interview that she was delighted to see how an NSF employee who didn't have much prior technical training was able to employ a technology-enabled solution that ultimately benefited the whole agency. "By working as a partner with the IT shop, she learned a lot about how IT people think, so that partnership was really important in her personal growth," Aronson said.[21]

The pace of transformation will no longer be limited to how quickly IT teams can roll out new solutions, nor will the scope of transformation be limited by non-IT workers' expertise with tech capabilities. Enterprises equipping their people with democratized technology are building the foundation for greater agility and ability to scale now and in the future.

Without taking steps to empower your people in this way, you'll be holding back your own digital transformation. Government agencies and industries are adapting and transforming around you, and your employees' and customers' expectations are evolving accordingly; your organization must evolve in kind.

Decision points

Fortify: Is your enterprise poised to take advantage of technology's growing democratization?

- Pick one area of the enterprise to begin experimenting with technology democratizing solutions. For instance, give your resource management functions the tools needed to design their own apps and automate workflows.
- Evaluate your existing access to democratized technology. Many cloud providers are beginning to include RPA or low-code solutions as part of their services. Identify what tools the enterprise may already have access to, or what additional investments need to be made, to power grassroots innovation.

Extend: How are you training your workforce to think like technologists?

- Establish skilling programs that help workforces become digitally fluent so they understand the basics of cybersecurity, data literacy, cloud value optimization, and more. The more they understand these concepts, the more they will be able to use democratized technologies to their full potential.
- Ensure plans to adopt democratized technologies are accompanied by checks and balances that allow for easy identification of risks in low-code software, Office 365, RPA, and other tools.

Reinvent: How can democratized technologies make IT groups more effective—and vice versa?

- Establish teams to support and guide the use of democratized technologies across your organization. Update IT policies to give employees flexibility to explore the use of new technologies, but have IT play a role in establishing guardrails.
- Bridge the gap. IT will still be leaned on to scale and iterate on innovative solutions. Try using technologies like low-code and RPA to bridge the gap between the business and technical sides of your organization during prototyping and design stages. Also, try aligning IT efforts more with business objectives—such as through shared KPIs—to improve productivity and business outcomes.

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Exploring Tech Vision

For over twenty years, the Accenture Technology Vision has identified the most important emerging technology trends impacting businesses, governments, and society over the next three years. What sets it apart is its focus on the underlying forces behind each trend as well as the frank advice it offers on how enterprises should respond. The Accenture Technology Vision is produced by Accenture Labs and Accenture Research with input from over one hundred Accenture leaders and more than two dozen external experts. It also incorporates the findings of a global survey of over 6,000 enterprise leaders.

This year's global report, Leaders Wanted, examines how the world responded to the unprecedented stresses and challenges created by the COVID-19 pandemic. What we learned is that many enterprises are far more agile than they thought. Their challenge going forward is accelerating their digital transformation to meet the new expectations left in the pandemic's wake.

The Accenture Federal Technology Vision 2021 applies these trends to the unique demands and challenges facing the U.S. federal government. It builds upon insight from more than 50 Accenture Federal Services experts as well as survey data from two hundred federal program, business and IT leaders.

Readers can assess the accuracy and relevancy of our predictions for the federal government by reviewing last year's report. Key trends in the Accenture Federal Technology Vision 2020 included the I in Experience, AI and Me, the Dilemma of Smart Things, Robots in the Wild, and Innovation DNA.

References

1 https://www.technologyreview.com/2020/07/20/1005454/openai-machine-learning-language-generator-gpt-3-nlp/

2 https://www.businessinsider.com/developer-sharif-shameem-openai-gpt-3-debuild-2020-9

3 https://www.accenture.com/us-en/insights/us-federal-government/explore-ai-podcast

4 https://www.gartner.com/en/newsroom/press-releases/2021-02-15-gartner-forecasts-worldwide-low-code-development-technologies-market-to-grow-23-percent-in-2021

5 https://www.fedscoop.com/va-combatting-shadow-options-readily-available/

6 https://federalnewsnetwork.com/reporters-notebook-jason-miller/2018/08/gsa-nga-shrink-time-to-cyber-approve-systems-from-year-to-month/

https://18f.gsa.gov/2018/07/19/taking-the-ato-process-from-6-months-to-30-days/

https://www.nextgov.com/cybersecurity/2019/03/air-forces-new-fast-track-process-can-grant-cybersecurity-authorizations-one-week/155860/

https://www.army.mil/article/210104/network_modernization_innovation_in_a_time_of_unprecedented_opportunity

https://www.youtube.com/watch?v=jesHFUOn5_w

7 https://www.fedscoop.com/uspto-cio-product-teams/

8 https://www.accenture.com/us-en/insights/consulting/honing-digital-edge

9 https://www.af.mil/Portals/1/documents/2019%20SAF%20story%20attachments/USAF%20White%20Paper_Digital%20Air%20Force_Final.pdf?ver=2019-07-09-181813-390&timestamp=1562710801965

10 https://www.af.mil/News/Article-Display/Article/2422799/building-digital-literacy-through-digital-university/

11 https://www.usda.gov/media/blog/2018/08/02/usda-becoming-more-data-driven-customer-focused-organization

12 https://workscoop.com/assets/federal-workforce-reskill-IT-demands-report.pdf

13 https://www.youtube.com/watch?v=SVTXpPhVndw

14 https://aws.amazon.com/blogs/aws/introducing-amazon-honeycode-build-web-mobile-apps-without-writing-code/

15 https://www.zdnet.com/article/salesforce-rolls-out-new-low-code-features-for-lightning-app-builder/

16 https://docs.microsoft.com/en-us/powerapps/user/open-app-embedded-in-teams

17 https://www.inc.com/tim-donnelly/brilliant-failures/9-inventions-made-by-mistake.html

18 https://digital.gov/pdf/state-of-federal-rpa.pdf

19 https://digital.gov/guides/rpa/rpa-use-case-inventory/

20 https://digital.gov/pdf/state-of-federal-rpa.pdf

21 https://www.nextgov.com/emerging-tech/2021/04/one-bot-saves-nsf-staff-roughly-25000-hours-year-cio-says/173580/

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