Many state and local officials now see agile methodology as the fuel for making government run faster, better and more transparently.
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CONCLUSION
Public CIOs are under pressure to transform the digital experiences they provide to the public and the government workforce. Much of this push is influenced by what the best digital players in the commercial sector — think Amazon and Apple — offer to their customers. Citizens expect fast and convenient digital services to efficiently conduct their business with government. Government employees expect modern, user-friendly digital tools that boost productivity and enable them to devote more time to serving their missions. This is particularly important for state and local agencies as they seek to attract the next generation of talent into their workforce.

Meeting these evolving expectations requires alignment between business and IT, as well as a new approach to creating and refining digital services. Now more than ever, governments must adopt nimble processes that enable them to build better and more responsive services and continually improve them based on customer feedback and evolving needs.

A growing number of officials believe they’ve found a fundamental answer in agile methodology. Agile methodology was spawned nearly two decades ago by software developers, and now progressive agencies are investigating or actively applying it not only within the IT department but throughout their organizations, including in the procurement office.

Is your agency or department adopting or expanding its use of agile methodologies?

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Experts say they see agile extending beyond just the IT shop because it enables organizations to do things in a faster, more efficient and transparent way.

A new national survey of 219 state and local government executives conducted by the Center for Digital Government (CDG) for this report found overwhelming support for agile, with 84 percent of respondents reporting they’ve already adopted the methodology to some degree.

These efforts are fueled by a host of practical and interrelated goals. More than one-third of
What is pushing your agency or department to expand its use of agile?

- Need for better results and more value from IT applications and services: 36%
- Need to deliver new services faster: 28%
- Pressure or desire to provide a better user experience: 22%

the respondents use it to get more value from their IT investments, and one-fourth use agile methodologies to quickly roll out new services and improve the experiences of those who use them. Interviews with officials throughout the country revealed that agile practitioners are achieving these and other goals.

“I’m convinced agile is the right approach because of the reactions we see from employees and customers,” says Michael DeAngelo, deputy director of business and digital media services for the state of Washington’s Technology Solutions Department. “Agile helps business stakeholders drive the direction of projects and see exactly where projects stand along the way. In the end, they’re very happy with the results.”

However, the executives also acknowledge that agile isn’t easy. It requires a shift in entrenched attitudes about how people perform their jobs, how workgroups from different departments collaborate and how project performance is measured.

Because of agile’s technology heritage, CIOs either lead or play critical roles in making this shift. To succeed in these efforts, they must hone new skills, manage organizational change within their departments and forge relationships outside of IT. They also need to understand how agile impacts government security strategies and related technology initiatives, such as data sharing, system integration and adoption of cloud-based solutions. This report details these and other considerations and the best practices that agile veterans rely on to help ensure success.
DEFINING AGILE FOR GOVERNMENT
A
gile may be a catalyst for better outcomes and
greater project value, but it is also a great leap
of faith.

“To be honest, moving to agile was a little scary at first
because we weren’t sure it was really going to work,”
says Mark Walker, CIO and deputy tax commissioner
for the state of Ohio. “We realized that for it to take
hold, we would need some quick wins.”

The pressure was on the department in 2012 because
an ambitious project called Stars had struggled for
years to consolidate dozens of tax systems and
codes within a single, integrated platform. The outside
vendor contracted to develop the necessary software
produced such “a mess, the state considered suing
for breach of contract,” Walker says.

Before taking that step, state officials and the vendor
analyzed underlying problems and identified a primary
culprit. Since launching the project in 2008, the vendor
had followed a traditional waterfall development
process, where each step of a large project progresses
linearly from one phase to the next. End users typically
don’t see the results of the project until it is nearly
complete, which means mistakes and outdated
specifications remain hidden until they become an
unpleasant surprise at the end.

“To bring about quicker and higher-quality results,
we moved to an aggressive agile development
methodology,” Walker says.

This meant the business people who would use the
new system frequently met with developers to discuss
requirements, view small iterations of new code and
provide feedback about how well these chunks of
software addressed end users’ needs. Any problems
were quickly addressed.

The decision paid off.

“We almost immediately saw new code being
generated, and the product we were being presented
with was what we wanted,” Walker says. “When we
issued our first couple of releases into production,
everybody was on high alert for problems, but the
defects at that point were minimal.”

Since adopting agile methodology, the project teams
completed the original contract’s goal of implementing
about two dozen tax applications within an integrated
tax system and are slated to complete some added
requirements later this year.

Ohio’s agile effort highlights how the methodology
helps address end-user requirements and deliver
quality products as quickly as possible. Agile brings
together personnel from various departments into
teams that outline overall project requirements. To
facilitate closer collaboration, some organizations are
remodeling office spaces so key business stakeholders
and IT personnel work together in large rooms that
encourage frequent formal or informal interactions.

The agile methodology breaks up projects into
series of short iterations using a framework known
as Scrum. It calls for multiple sprints — or sit-down
meetings among team members — that usually occur
every few weeks. In software projects, for example,
developers use a sprint to demonstrate new code,
solicit reactions from stakeholders and identify any
necessary changes.

To bring about quicker and higher-quality results, we
moved to an aggressive agile development methodology.

Mark Walker, CIO and Deputy Tax Commissioner, State of Ohio

Between sprints, teams hold stand-ups, which are
short daily meetings where people remain standing
to keep everyone from getting comfortable enough
for discussions that are longer than necessary.
Participants discuss the previous day’s progress
and the next day’s goals. Agile teams also use
physical or digital versions of whiteboards that
display a running progress report showing which
project milestones have already been achieved and
which ones remain open. Known as Kanban boards,
these summaries are named after similar resources
developed decades ago by Toyota for just-in-time
manufacturing. The boards provide visibility into
the ongoing successes or problems within projects,
and make the information readily available to team
members. The overviews also keep everyone from
letting day-to-day details cloud their view of the
ultimate goal.
While formal agile methodology and nomenclature are building blocks for new ways of working, proponents warn it takes much more to achieve project success.

“Processes and tools like Scrum and Kanban don’t make you agile,” DeAngelo says. “We encounter teams all the time that use the methodologies, and they’re not agile. Agile must become a mindset for how we approach all of our work.”

The drive to agile is the culmination of many forces. The pressure to transform digital services based on citizens expectations isn’t the only factor. The fast pace of technological change requires government to not only modernize its IT infrastructures, but to engineer new ways to rapidly evolve as innovations arrive. Many people in and out of government also see agility as a characteristic of modern organizations, and a key way to attract younger talent who expect to use the latest digital tools for their jobs.

Agile seems to be working. Government organizations that have tried agile methodologies are pleased with the results. More than one-third (36%) describe it as highly beneficial, with another 49 percent saying they’ve seen some benefits. Only 4 percent dismiss it as being unhelpful.

A commonly cited positive change is overcoming disasters created by waterfall processes, which are known for their long, drawn-out production schedules and deliverables that fail to satisfy end users.

“With waterfall, people may take weeks to discuss requirements, and then wait years for the asset to be built. At that point, chances are the people who outlined the initial requirements won’t even be around.”

Mark Vogelgesang, Acting Branch Chief, Applications, Solutions and Development Division, U.S. General Services Administration

GSA personnel wanted to avoid this when the agency migrated hundreds of applications from a legacy collaboration platform to a new, cloud-based service. By using agile to update programs or develop modern replacements, they successfully consolidated 1,600 unique applications into 80 new programs.

“We saw very positive results from working in short iterations,” Vogelgesang says.

Which of the following statements best describes your experience with agile?

- Agile has been **HIGHLY BENEFICIAL** to our organization. 36%
- Agile has been **NEITHER BENEFICIAL NOR UNBENEFICIAL** to our organization. 12%
- Agile has been **SOMETHAT BENEFICIAL** to our organization. 49%
- Agile has been **NEITHER BENEFICIAL NOR UNBENEFICIAL** to our organization. 3%
- Agile has been **HIGHLY UNBENEFICIAL** to our organization 1%
Government agencies have had to transition from being purely service-based organizations to digital businesses with an increased focus on technology and security. Citizens expect the same level of convenience and expediency in the public sector that they get from private sector companies. Agencies must be agile, and not just in terms of system deployment, but also throughout every part of their organizations to be more responsive to the 21st-century needs of their constituents.

**How Citrix Can Help**
Citrix provides cloud and premise-based mobility, app and data security and next-generation delivery networks to help government agencies reduce costs, increase productivity, facilitate a mobile government workforce and secure their various apps and data — all of which are required for agencies to be more agile.

Agility starts with providing a workspace to address the needs of all users, regardless of where they are and what device they use. Through a secure digital workplace, we help public sector agencies address the changing nature of the services they provide while keeping applications and data secure. Part of the way we do this is by working with agencies as they start small to address larger, big picture problems — whether it’s implementing technology that improves the mobility of officers in a county sheriff’s office, providing better access to and security of public health systems, or improving the connectivity and enterprise app performance of an agency with multiple branch offices.

There are many problems government agencies need to solve, and the technology and consultative services Citrix provides can help them do it. But often, it’s best to start with an incremental approach. Agencies can still be agile even though the scope of the problem they’re tackling may be small. By working with defined, smaller components, agencies reduce their risk and exposure and have a greater chance of success — and that is something they can build on to eventually achieve a big win that meets citizens’ expectations.

For more information, visit: [www.citrix.com/solutions/government](http://www.citrix.com/solutions/government)
Many attribute positive results like this to closer engagement between project teams.

“We now have direct contact with customers, whereas in the past, we often communicated with their management because of the bureaucracy that was in place,” says Tim Nolan, senior applications manager for Collin County, Texas.

In addition to application development, Nolan’s department includes responsibility for the records management and geographic information services departments. Nolan’s group shifted to agile almost seven years ago.

To do that, he co-located development staff and business stakeholders so they can easily communicate about their work.

“That’s how creativity happens,” he says. “Developers can show off what they’re doing, either when an idea pops up or at the end of the sprint. We don’t need to wait for management to make decisions, we’re getting input directly at the user level.”

In San Diego County, agile played an important role in helping law enforcement personnel capitalize on mobile opportunities created by smartphones and tablets.

“We needed to advance beyond just the emails and calendars available from the days of BlackBerrys,” recalls Ashish Kakkad, CIO at the San Diego County Sheriff’s Department. “The ultimate goal was to achieve operational efficiencies for law enforcement activities in the field.”

To further that strategy and assess the viability of agile, the IT department launched a pilot project to create new mobile apps and solicit feedback from officers on the effectiveness of the software.

“We let our users tell us what needed to be done to be fully beneficial,” he says. “This helped us quickly see when something that sounded like a great idea in a brainstorming session wasn’t going to be feasible.”

Encouraged by the results of the pilot, the department expanded its use of agile to develop additional applications for the approximately 2,000 devices used by law enforcement today. This includes programs that enable officers to call up vehicle registrations and outstanding warrants for individuals they encounter in the field. But the agile evaluation also convinced Kakkad that the approach is not right for all projects, including when developing software for dispatching first responders.

“We have to be very cognizant of any risks we may be taking, and we must be certain that anything that’s released into production won’t fail our users when they’re responding to emergencies,” he says.

This realization helped others in his department warm up to the new way of doing things.

“There was a bit of culture shock for people who were used to a more traditional, measured approach than agile,” Kakkad says. “But once we showed those individuals that agile is not a hammer and we are not going to treat everything like a nail, they felt a lot more comfortable with it.”

CORE TENETS OF AGILE

Agile’s core principles were first outlined in 2001, when 17 software developers met at a ski lodge in Utah to find ways to improve programming practices. Known as the Agile Manifesto, the resulting document defined as the group’s highest priority: satisfying customers through “early and continuous delivery of valuable software.”

In addition, the founders listed four other fundamental values:

1. Individuals and interactions over processes and tools
2. Working software over comprehensive documentation
3. Customer collaboration over contract negotiation
4. Responding to change over following a plan
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Ins within software development departments make compelling cases for using agile. That is leading many state and local government leaders to ask an obvious question: Can we successfully adopt the methodology outside of IT to manage other types of large, complex projects?

Skeptics reason that agile is something developed by and for software developers and thus doesn’t fit with how other departments work.

“After having used agile successfully for about seven years in our area, we still have not had another department — or even others within IT — express interest to us in agile,” Nolan says. “If some other department were to adopt agile, then suddenly the approach would matter to others. But having an IT guy tell you how you should work turns into a kind of turf battle.”

But these entrenched views are changing, and procurement is one area outside of IT where government officials are focusing agile efforts. The state of Washington is using agile to modernize the process of crafting RFPs, soliciting vendor contracts and managing projects. Scott Smith, IT contract manager for the state, is a certified Scrum master, as are some other members of his staff. He’s a former IT project manager who became frustrated by traditional contracting and procurement processes that took so long, the value of the project was lost or the original goal was no longer valid once the initiative reached the implementation stage.

“I saw agile as a way to streamline processes so that organizations could realize value quicker,” he says. He also views agile as a practical approach to guide large, complex procurement engagements.

“Procurement requires a wide range of skillsets, and it’s untenable for one individual to be good at everything from developing stakeholder requirements and writing vendor negotiation to writing contracts,” Smith says. “One of the benefits agile brings to procurement is the ability to work on projects as a team rather than having one individual be responsible for all the soup-to-nuts aspects of a standard procurement.”

Agile not only changes the roles and responsibilities of procurement professionals, it also influences the contracts the state creates, including what some are calling “extreme contracting.” For example, one vehicle is designed to make it easier for vendors — particularly smaller companies — to become involved with state contracts. It provides an online, click-through document that enables a vendor to succinctly describe all the categories of services it offers, the company’s competitive differentiators, its business identification number with the state and other essential information. In many cases, the submission can be completed within about 15 minutes.

Agile methods also help government address the unpredictability of service demands from citizens and other departments.

“One of the benefits agile brings to procurement is the ability to work on projects as a team rather than having one individual be responsible for all the soup-to-nuts aspects of a standard procurement.”

Scott Smith, IT Contract Manager, State of Washington

“Our records group gets a large volume of requests, but they have no way of knowing when those requests will be coming in,” Nolan says. “We introduced them to agile techniques so that when that phone call comes in with a request that they weren’t expecting, they can fit it into their workflow. And that’s worked out well.”

Agile is also making inroads into call centers. Managers in a help desk associated with Ohio’s taxpayer services area use daily stand-ups to discuss the day’s goals and any ongoing issues, Walker says.

“If you consider agile to be a mindset and a communications mechanism that brings people together, it has the power to solve problems and bring about positive change,” he adds.
UNDERSTANDING AND OVERCOMING AGILE CHALLENGES
Despite agile successes in and out of the IT department, veteran users of the methodology say they faced numerous obstacles and describe adoption as a long-term and sometimes difficult journey.

“Agile within IT and throughout government is something we and our peers across the industry have been defining, working through, implementing and struggling with,” Kakkad says.

Officials in Oakland County, Mich., tried agile, “but it never fully took hold here,” says Phil Bertolini, CIO and deputy county executive. “We found it to be very difficult to put large enterprise projects into the agile mold.”

Nevertheless, the experiment yielded some valuable insights, including a new hybrid approach to development projects. Oakland County officials now combine traditional waterfall techniques with some agile concepts, such as stand-up meetings and iterative releases of some types of code.

Professional development and organizational issues are other top agile challenges. Respondents to the CDG survey named the need to refresh skill sets as the most common hang-up, followed closely by cultural problems.

Agile promises and often delivers a wide range of benefits for government, but the method’s new ways of addressing projects, roles and responsibilities, and inter-departmental relationships come with a host of organizational and cultural issues.
“Agile represents quite a bit of change for people who have been used to sitting in their cubicles, doing the job that was expected of them,” Walker says.

For example, agile proponents say agencies should expect resistance to change by people in both business and IT departments who feel their already substantial workloads make them too busy to learn a new way of doing their jobs.

“People say things like, ‘I’ve got so much work to do, I don’t have time to work on this sprint stuff,’” Nolan says. “What managers have to make clear is that the job now is this sprint stuff. There is no segregation of duties, but it takes a while to get into that groove.”

This highlights a source of friction common in the public sector — the sometimes restrictive way that government job descriptions are written.

“On an agile environment, we are a bit handicapped by strict guidelines when it comes to position descriptions,” Walker says. “There has to be more flexibility. We expect our people to be fluid about their jobs and responsibilities. Folks must be ready to expand and branch out and be willing to do a little bit more than what their formal description might say.”

Veterans also acknowledge that advocates are not entirely correct when they say agile offers an antidote for scope creep in large projects. Product owners may believe the fluid, change-friendly nature of sprints allows them to make unlimited adjustments throughout the life of a project. Theoretically that’s possible, but practically that can inflate schedules and costs because of additional staff time and testing activities.

“Agile isn’t a magic wand that lets people do anything they want to do up until the very end,” Walker says. “Projects can reach a point where changes in scope or direction will become problems in agile, too.”

Part of the answer lies in ensuring product owners are engaged enough at the beginning of a project to minimize scope-related changes and free up stakeholders to focus on the iterative improvements that agile excels at.

Other change management challenges stem from the false sense of security that stakeholders have with traditional project components, such as detailed schedules outlining the life cycle of projects.

“With agile, organizations can determine what will happen in a short time period, but not over long periods,” says Vogelgesang. “Government generally runs by laying out these long plans for people to meet, so to accept the ambiguity of seeing projects in small chunks shocks some people. My response is that managing for the short term is the more accurate way of doing things. Long-term schedules and other traditional management tools may give the appearance of control, but I have yet to see them actually do that.”

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Tim Nolan, Senior Applications Manager, Collin County, Texas

Customer engagement and the requirement to consistently devote two or three hours a week to a project are other sources of problems.

“It’s easy for us to sit in a room at the beginning of a project and have everyone agree to provide all the necessary resources on a timely basis,” Bertolini explains. “Then reality hits, and it’s the year-end for your financial people so they’re not available when the project needs them.”

DeAngelo says it is also essential to assess whether the right people are at the table.

“Projects run into trouble when there is a bunch of people in the room, but it is not clear what real authority individuals have and what they are accountable for,” he explains. “People may voice opinions even when they do not actually have any authority or accountability on the topic. Clarity about roles and authority is key.”
As state and local governments transform their organizations, one theme predominates: the use of hybrid IT — where data is stored, processed and transferred across on-premises infrastructure and private and public clouds — to reduce costs, accelerate service delivery and alleviate IT staffing burdens.

According to a NASCIO study, 54 percent of states own or operate multiple data centers; 69 percent outsource some IT infrastructure operations; 74 percent use an IT shared services model and 79 percent outsource some applications.1 To ensure the success of hybrid strategies, IT leaders need a data-centric approach to quickly and easily store, process, transfer, integrate and protect data across the hybrid IT environment.

**Next-Generation Capabilities for Next-Generation Challenges**

A next-generation hyperconverged infrastructure (HCI) from NetApp can help. Like traditional HCI, it virtualizes layers of storage, compute and networking to provide flexible building blocks to integrate with or extend IT infrastructure, cut costs and improve operational efficiencies. Then it goes several steps further.

Designed for enterprise-scale operations, the NetApp next-generation HCI solution provides the visibility, scalability, agility and performance that less-advanced HCI solutions lack. Key advantages include independent scaling of storage and compute resources, guaranteed performance for mixed workloads, and data visibility and portability across the extended hybrid ecosystem.

**Simplifying the Future**

Using these capabilities, state and local governments can accelerate service delivery, optimize the allocation of storage and compute resources, and choose the most secure and cost-effective IT environment for any given situation. In doing so, organizations not only simplify hybrid IT deployments, but also create a flexible bridge to move forward with new technologies.

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AGILE REQUIRES A NEW APPROACH TO PROCUREMENT
As government adopts agile methodologies, officials must sort through one particularly thorny issue: its impact on procurement. The underlying processes for buying goods and services in the public sector are controlled by volumes of regulations and years of honing contracts, all designed to ensure suppliers satisfy government requirements, deliver on time, avoid cost overruns and provide value for taxpayer dollars. But when it comes to complex projects, where goods and services are delivered over time, traditional procurement requirements reflect more of a waterfall than agile mindset.

State and local officials see procurement as a potential non-starter for agile. In a NASCIO survey conducted last year, 70 percent of state CIOs and agency leaders said procurement can’t support agile methods.

In a 2017 NASCIO survey, **70 percent** of state CIOs and agency leaders said procurement can’t support agile methods.

One fundamental challenge is that contracts traditionally focus on time, resources and requirements, with any variations occurring with time and resources. With agile, while time and resources are still fixed, requirements can change.

Understanding the funding pipeline is another problem area. Government agencies are used to providing a specific amount of money for a product, service or project that will be delivered on a certain date. With agile, stakeholders quantify spending requirements, but because of the methodology’s focus on continuous change, leave the ultimate design and delivery date of the final product up in the air.
THE PROOF IS IN THE CODING

Agile does not necessarily protect government agencies from a contractor whose skills look good on paper but come up short once a project is launched. However, public sector officials are discovering innovative ways to lessen this risk.

“Traditionally, people have gotten very good at writing proposals to submit to the federal government,” says Vogelgesang. “Even when we receive a stellar proposal, we still don’t know if a vendor can actually do the work.”

For this reason, he advises agile stakeholders to downplay proposals in favor of vendor demos, and cites one $1.5 billion project he helped oversee for the GSA that was launched with a concise two-page proposal backed by a four-hour drill. When the vendor candidate arrived for the meeting, GSA gave it a sample assignment built around writing a new application. With the aid of a product owner and other GSA stakeholders, the vendor was told to get as far along in the application development process as it could in the allotted time. The exercise gave GSA decision-makers valuable information.

“We saw how they worked with a product owner, and because we had access to the code they developed, our software subject matter experts could evaluate the software in detail,” Vogelgesang says.

When the agency finally awarded the contract, it felt confident about the company’s technical prowess and agile expertise, he says.
In a normal procurement, we’d have a proposal that would outline from a highly technical perspective what the vendor needs to provide,” Washington State’s Smith says. “With agile, the description is more about how we and the vendor are going to do business together, how we’re going to negotiate the value of the services and what is the vendor’s track record for these types of projects.”

A major success factor is having good quality user stories — essentially vignettes that describe problems and desired solutions — before you go out to procure, Smith adds. “Having a business analyst who really understands agile and how to create user stories is critical to the success of the project overall,” he says.

If at any point during the discussions it becomes clear the vendor can’t meet the resource requirements or if it reveals a fundamental lack of agile expertise, government officials should consider an alternative candidate, Smith says.

California’s Health and Human Services Agency is applying agile techniques to smooth a replacement for its Child Welfare Services case management system. When this effort highlighted the need to rethink procurement within an agile context, HHS officials turned to 18F, an office within GSA. 18F representatives brought together attorneys and other specialists to review regulations relevant to the upgrade’s procurement efforts. Their conclusion: Nothing from a legal standpoint stood in the way of procurement if stakeholders used agile methods for the project.

As negotiations continue, agile stakeholders often develop a resource plan that lays out what resources the team needs to be successful and the anticipated cadence of sprints. Formal contracts for agile projects also require a new approach.

“Contracting is about risk mitigation, and with agile, the risks become less outcome based and more process based,” Smith says. “If you deliver the value quicker, we’ll pay you this much; if you’re late, we’ll pay you this much less.” There’s still strong risk mitigation with agile, but it is defined in a different way.”

Vendor reactions vary when presented with these new ways of procuring goods and services. Contractors steeped in agile may be relieved to find procurement professionals who are on the same page. But not all vendors have attained this level of agile maturity.

“A tremendous number of software vendors say they do things in an agile way, but don’t really understand the practice,” Smith says.

Contracting is about risk mitigation, and with agile, the risks become less outcome based and more process based. ‘If you deliver the value quicker, we’ll pay you this much; if you’re late, we’ll pay you this much less.’

Scott Smith, IT Contract Manager, State of Washington

Agencies must also rewrite contracts with agile in mind. Experts advise officials to develop agile-appropriate contracts that define compliance according to how well vendors collaborate with government project stakeholders.

With the right contract framework in place, procurement professionals may find benefits in the iterative, incremental nature of agile projects. This makes it easier for the acquisitions staff to use multiple vendors and switch out those vendors who underperform at one of the intermediate stages of a project. This lessens the risk of becoming locked into a single vendor that can’t be dismissed without significant disruption once a project is well underway. However, iterative projects require procurement representatives to stay in close touch with product owners throughout project life cycles, just as product owners and IT staffs must forge more collaborative teams.
BEST PRACTICES FOR ADOPTING AGILE
The good news is that lessons learned by early adopters, in and out of IT, are helping smooth the way to nimble and continuously evolving government services. Agile veterans focus on five key areas.

1. Capitalize on a variety of tools to cultivate collaboration.

Officials have a range of options to turn the vision of collaborative agile workgroups into a reality. Start by downgrading some traditional forms of communications, such as emails, which can stand in the way of bringing stakeholders closer together. A better option: face-to-face meetings.

“We encourage people to get off their duffs and talk directly with others to overcome a problem that’s blocking forward progress,” Walker says.

To further integrate team members, consider breaking down physical boundaries. Some agile-oriented organizations are co-locating IT and business groups within open, common areas. Ohio appointed these areas with picnic tables topped with computers to enable product owners, IT staff, tax experts and testers to quickly assemble into informal groups without moving furniture around. Top department managers also work in the area to be ready to facilitate the progress of projects.

Organizations should enhance these fundamental moves with technology designed for communications and collaboration. The value of these technology platforms was a lesson Kakkad learned only after his organization’s initial foray into agile practices.

“In retrospect, it was a mistake not to use these technologies sooner,” he says. “Now that we have gone through a few iterations of agile projects, tools for communication and collaboration have become front and center for us.”

Noting that some commercial communications platforms can be expensive, agile veterans suggest first scouring what may be available internally to see if purchasing a new product or service is necessary. By doing this, organizations may discover adequate chat and document sharing features in office automation suites or even high-end but unused collaboration software already available for agile workgroups to tap into as part of an existing enterprise software license with a commercial vendor.

### KANBAN BOARDS: PHYSICAL OR VIRTUAL?

Agile workgroups do not require sophisticated technology for Kanban boards used to continuously update and display the progress of projects. Many organizations still prefer the simplicity of physical whiteboards installed at central locations accessible to team members and managers.

“I know that there are digital technologies out there that are alternatives to traditional whiteboards, but we purposely stayed away from them,” says Walker. “We prefer the collaborative nature and the opportunities for face-to-face communications that the physical boards offer.”

Nevertheless, digital options are available, and some others prefer them to traditional whiteboards. The reason: Online tools enable team members to stay up to date when traveling or when it is not otherwise convenient to lay eyes on physical boards.

In Washington state, agile team members track their work on personal digital boards, which are shared with all other team members, and in some cases with the public. Individual boards are also synced to group boards so people can see where their work fits in and what the group as a whole is doing.

“These tools help us be transparent about the work that is happening here,” says DeAngelo. “The technology is an enabler for adopting an agile mindset.”
“One application was there, but nobody was using it until we figured out that we could take advantage of it,” Nolan says.

2 Achieve agility with a modern IT infrastructure.
As agile veterans frequently point out, agile methodologies are not the end game. The ultimate goal is making government more agile in a fast-moving world of new demands and innovation. In this context, IT leaders should look to the latest digital tools that deliver the combined payoff of supporting agile practices and modernizing government services.

The government executives participating in the CDG survey had clear ideas about which technologies offer the most potential for supporting agile efforts. More than a quarter said cloud-based solutions are attracting the most interest, with hybrid clouds — combinations of onsite and public cloud services — also ranking in the top three responses.

The reasons are clear. The right combinations of public and private clouds give government organizations the most options for flexibility and continuous change. They enable IT departments to essentially turn on new computing and storage capabilities without the lead times of procuring and installing on-premises hardware and software. What’s more, IT departments may use SaaS applications to layer modern capabilities onto existing infrastructure investments to quickly meet the requests of the business staff.

3 Embed security within agile processes.
Cybersecurity is an important question for officials evaluating agile’s potential. After all, does an iterative, fail-fast philosophy disrupt established agency security practices or does breaking components into smaller pieces create new opportunities for bolstering defenses? The CDG survey generated mixed reactions, although few executives considered agile a threat to security. Nearly a third of the respondents (31%) saw no impact, while 42 percent said agile enhances security for agencies.

One reason why agile has the potential to improve defenses lies in helping stakeholders embed security practices at the beginning and throughout projects.

“Understanding the cybersecurity posture and the amount of risk you’re willing to accept, and then building that into development and implementation stages early on — that’s a huge win,” Bertolini says. “You can save a significant amount of time and money versus addressing security at the end.”

But like product owners and IT staff who must collaborate early and often, the cybersecurity staff must be active participants throughout the agile life cycle.

“Security personnel need to be at the table at the earliest possible point in any project,” Walker says.

Security experts should be consulted as code is being tested during each sprint. Unfortunately, while security department engagement helps ensure safer code at each release, this may impact timelines.

Which of the following technologies are now of greater interest to your agency as a result of adopting an agile environment?

- Cloud-based solutions: 26%
- Agile-oriented development platforms: 21%
- Hybrid cloud: 14%
- Modular offerings: 12%
- Lightweight solutions: 11%
- Open source solutions: 11%
Effective modernization requires not only a willingness to change, but a commitment by all parties to adopt agile methodologies.

For L.A. County, that meant taking a bottom-up approach to a complex, manual process that was holding it back.

L.A. County’s Department of Human Resources (DHR) Appeals Unit is tasked with providing independent review of 21 different types of appeals, including application rejection, employment tests, preemployment medical and background screening, non-appointment and other personnel matters. All told, DHR must track, maintain and process appeals stemming from more than 250,000 annual applicants and 108,000 employees across 35 county departments.

Traditionally, DHR received all appeals either in person, via mail or by fax, which resulted in a large volume of paper. Manual processes also caused considerable delays in the disposition of appeals. Challenges around information sharing, coupled with a significant volume of inquiries from appellants, further exacerbated the process.

DHR leaders were ready for a change. After searching for a partner with outstanding case management strategy, methodology and experience to assist them, the county selected OpenText. Together, the county and OpenText committed to develop and implement a new Electronic Appeals Management System (eAppeals) to replace DHR’s manual case management processes. The new system would include an online appeals submission interface and tools to improve work queue management, communication with appellants, management visibility of the appeals work process and interdepartmental collaboration.

eAppeals went live in June 2016, equipping DHR departments, appellants and other stakeholders with the electronic tools they need to process and complete appeals in a more timely and efficient manner. With eAppeals, L.A. County left manual processes behind and modernized. As a result, the county now has a more transparent and reliable way of receiving, processing and completing HR appeals.

For more information, visit: www.opentext.com
“Agile teams may have code ready to deploy more frequently, but lead times associated with security testing can add days or even weeks to the process,” warns Vogelgesang.

To keep timelines as short as practical, he advises developers to produce documentation that clearly spells out the specific elements that have changed in a new release, so security teams can pinpoint their reviews to areas that matter most.

Vogelgesang adds that programming teams should sharpen their own security skills.

“It is difficult to be fully productive if the team is constantly having to push security-related questions over to the cyber group,” he says. “In-house expertise can help streamline the process leading up to when the security department is asked to do its review.”

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Phil Bertolini, CIO and Deputy County Executive, Oakland County, Michigan

4 Attract and develop modern leaders.

When asked if agile requires new leadership skills, such as flexibility or delegation, that are different or more demanding than traditional leadership skill sets, the respondents to CDG’s survey were clear: 81 percent said yes.

Experienced agile leaders are already taking action.

“We do not have managers in my division. It’s a completely self-managed division,” says DeAngelo. Instead of a traditional, hierarchical structure, the division uses a framework known as holacracy, which encourages individuals to quickly form teams to address problems, customer needs or any organizational gaps.

“Based on the work that needs to be done, individuals determine what roles will be needed, who can best perform them and then determine the accountabilities for those roles,” DeAngelo says.

Senior leaders also have a vital role in promoting agile success. Agile veterans say that buy-in — or the lack of it — among top executives can make or break an agile project.
Deploy Projects Faster with All-Flash Storage

Forget the marathon: Government IT today is a sprint, and IT leaders need speed, agility and flexibility to shift on the fly.

Pure Storage answers that call with FlashArray™, all flash storage built for the cloud era. FlashArray is a high-performance storage platform that allocates resources with optimal efficiency, delivers better performance with low latency and high throughput, and ultimately speeds project time to completion.

Centralized all-flash storage leverages agile storage capabilities to simplify and streamline software development and project deployment. At the same time, FlashArray applies cutting-edge analytics to log data to further speed the development cycle.

Government organizations can easily push all-flash storage to the public, private or hybrid cloud. Being cloud-ready means the storage solutions effectively lighten the IT load, tapping into the assets of the cloud without any added engineering complexity. IT employees own the processes they need and relegate time-consuming, non-critical tasks to the cloud.

With FlashArray, users get secure connectivity with a variety of high-bandwidth options. Cloud-native storage is always on and always fast, with proven 99.9999% availability over two years and 100% performance through maintenance, failures and even generational upgrades. As a self-managing, plug-and-play resource, such a solution can be up and running in less than an hour.

Whether it’s accelerating a single database, powering virtual machines and desktops, or creating the foundation of an all-flash cloud, the rich data services and effortless operations of FlashArray makes enterprise storage something government IT departments simply don’t worry about anymore.
If the director didn’t receive agile training, I would have been fired the first time he walked into our work area and saw what appeared to be total chaos. Fortunately, he understood the method to the madness.

Mark Walker, CIO and Deputy Tax Commissioner, State of Ohio

Vogelgesang saw this early in his agile training when he was chief of the Applied Technology Division at U.S. Citizenship and Immigration Services (USCIS). The CIO there circulated a memo calling for the IT staff to follow agile methods, such as collaborating more with end users and delivering code in iterative releases. Although the memo demonstrated solid backing for agile initiatives, it seemed out of place.

“I was very much in the agile mindset of everyone collaborating to bring about change and getting together to sing Kumbaya,” he recalls. “I thought it was a little heavy handed to send out a memo to mandate adoption.”

The lesson, he realized, was that leaders must blend new principles with the existing culture, and for USCIS at the time, that meant acknowledging a hierarchical structure was still in place and that it could be used to promote agile practices. The mashing of cultures paid off.

“People started to take more ownership and control of what they were doing,” Vogelgesang says.

As agile evolved at USCIS, leaders made other changes. Traditionally, each program manager had been responsible for an individual application area and as a result didn’t pay much attention to areas outside their purview. This changed to a portfolio management approach that required program managers to understand the overall business value of all USCIS applications.

“Teams are now managing in a much more holistic way across portfolios,” Vogelgesang says. “This helps us determine whether new resources should be applied to Program X instead of Program Y, and then make the necessary reallocations to get the work done.”

“Don’t just throw people into this environment,” Walker warns.

When Ohio started its agile journey, officials brought in a contractor to train project stakeholders in agile techniques. Even people who didn’t have day-to-day involvement in projects, such as senior departmental directors, were asked to understand how agile worked, which bolstered Walker’s job security.

“If the director didn’t receive agile training, I would have been fired the first time he walked into our work area and saw what appeared to be total chaos,” Walker says. “Fortunately, he understood the method to the madness.”

Veterans suggest that training should be ongoing, so people continuously reinforce their training and new skills.

But even when given a solid foundation, some employees may never accept the fundamental changes brought about by agile practices. One of Collin County’s star developers balked at the idea, particularly the agile tenet calling for paired programming, which essentially follows the logic that two heads are better than one. But the all-star coder saw this as a threat. He’d have to share the spotlight for any stellar software that emerged, and he felt that a lesser programmer would just slow him down.

“My response was that once the co-worker was brought up to speed, the two could produce even better work,” Nolan says.

Unconvinced, the all-star resigned.

“Don’t just throw people into this environment,” Walker warns.

Hire and train internal staff with new skillsets. Moving to agile without adequate training can doom the effort.
Today, cities across America face several challenges in creating sustainable, vibrant and safe communities where citizens can thrive. Whether it’s updating aging infrastructure, better managing disasters, improving public safety or providing social services, city leaders must make critical decisions every day — often with very tight resources.

But technology can help them deploy their resources more efficiently and effectively.

Verizon uses agile concepts to help cities access better technology, delivering solutions to transform these municipalities into smart cities.

Our Smart Cities solutions are built on the nation’s largest 4G LTE mobile network, providing reliable connectivity and access to leading security, cloud, M2M, data management and professional services to help communities better serve their citizens.

Cities need modern technology — including fiber networks, advanced wireless, Internet of Things-connected devices and the cloud — to tackle public safety issues such as intelligent lighting and traffic management, parking and interoperable mobile communications.

An agile approach to development, project management and deployment is key to execute these initiatives, and enables government agencies to drive much more value from these innovative projects.

- We’ve helped the city of Palo Alto implement smart lighting and motion and video sensors that give officials actionable data they can use to curb traffic management issues.

- In Boston, we’ve used IoT technology and fiber networks to update parts of the city’s communications and traffic infrastructure.

- We’re partnering with the city of Sacramento to launch initiatives like installing digital kiosks, providing free WiFi in public parks, facilitating 5G connectivity throughout the area and implementing smart technology to improve traffic congestion and public transit.

We’re helping cities create more connected communities, but it’s not just about the specific capabilities we deliver — it’s how we deliver them based on each customer’s unique needs. And that ultimately will reshape the way cities tackle their biggest challenges, and make their communities even better places to live for the citizens they serve.

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CONCLUSION
As much a mindset as a methodology, agile helps state and local government adjust to new and shifting demands from citizens, and supports mandates to streamline and modernize internal processes. Proponents say it is one of the most effective tools to help new projects move faster and deliver mission value. Done right, it fosters closer collaboration among business stakeholders and the IT department, and increases transparency so legislators and the public have a clearer understanding of how taxpayer dollars are being spent.

But agile also represents a shift in organizational culture, how government works and how the public sector procures products and services. With fundamental change comes risk, and the threat that agile initiatives may fail and leave agencies struggling with cost overruns, missed deadlines and disappointing returns on their investments.

Fortunately, veterans of agile engagements say government can mitigate these risks by following emerging best practices built around strong leadership, staff training and modern IT infrastructures. The chances of success are high enough that the potential stumbling blocks should not discourage action. After all, agile methods encourage organizations to continuously adapt and improve over time. Agencies should address problems as they crop up and embrace experimentation to find better ways of working — and then build on successes.

“When someone asks me if they should move to agile, I tell them to just try it in one small area,” Nolan says. “Do not try to change everything overnight. Pick one group, set up a Kanban board and see if you can manage the workload more effectively.”

He also warns them that failures will likely outnumber successes, at least initially.

“Your first sprint may be horrible, but that’s okay,” Nolan says. “Just try to make each subsequent sprint a little better than the one that preceded it. You’ll never achieve perfection but striving for perfection keeps us improving all the time.”

AGILE RESOURCES

As agile makes inroads into the public sector, new guidelines are becoming available to help state and local officials adopt the methodology. Here are some highlights.

“Agile Government Handbook”

This comprehensive website provides tips and case studies from the Agile Government Leadership. [https://www.agilegovleaders.org/handbook/](https://www.agilegovleaders.org/handbook/)

18F

Created by an office within the U.S. General Services Administration, the 18F website offers blogs discussing acquisition practices and links to an agile blanket purchase agreement that can be used for agile acquisitions. [https://agile-bpa.18f.gov/](https://agile-bpa.18f.gov/)

Digital Services Playbook

Created by the U.S. Digital Service, the playbook guides agencies in using iterative development processes, with an emphasis on agile software development. The site includes an agile solicitation builder and an agile team estimator. [https://playbook.cio.gov/](https://playbook.cio.gov/)
The Center for Digital Government, a division of e.Republic, is a national research and advisory institute on information technology policies and best practices in state and local government. The Center conducts e.Republic’s annual Digital Cities and Counties Surveys; the biennial Digital States Survey; and a wide range of custom research projects. www.centerdigitalgov.com