



National Association of State Technology Directors

NOVEMBER 2022

State Government's IT Modernization Efforts: Status, Progress & Plans

Introduction

Asked to summarize state government legacy system modernization efforts, one state IT director gave a one-word answer: "Ongoing." These modernization efforts for legacy systems and applications are an on-going process that require effective partnerships between state central IT operations and the agencies they serve, using both in-house and private sector solutions.

Modernizing legacy systems improves cybersecurity, reduces costs and enhances customer and citizen services. As with other state IT projects, funding sources must be identified. In addition, staffing issues present a significant barrier for state efforts with experienced employees retiring or leaving for the private sector. Positions can remain open for months, forcing states to supplement their workforce with contractors or managed services.

What is a legacy system? In its 2008 survey findings, the National Association of State Chief Information Officers (NASCIO) defined a legacy system as follows:

A legacy system is not solely defined by the age of IT systems (e.g., 20 years) as there are many systems that were designed for continued upgrades, but the term also focuses on elements such as "supportability", "risk" and "agility", including the availability of software and hardware support, and the ability to acquire either internal or outsourced staffing, equipment or technical support for the system in question. The term may also describe the systems' inability to adequately support "line-of-business" requirements or meet expectations for the use of modern technologies, such as workflow, instant messaging and user interface.¹

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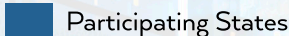
NASTD is a dynamic, member-driven association committed to advancing the effective use of information technology to achieve operational efficiency in state government.

For more information, visit www.nastd.org

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In 2022, NASTD's Executive Board charged its Research Committee with surveying its members regarding the status of their state's IT modernization efforts.

NASTD, with the assistance of the NASCIO, distributed an Internet survey to all 50 state central IT authorities in July 2022. Thirty-eight states submitted responses to the survey: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia and Wisconsin.

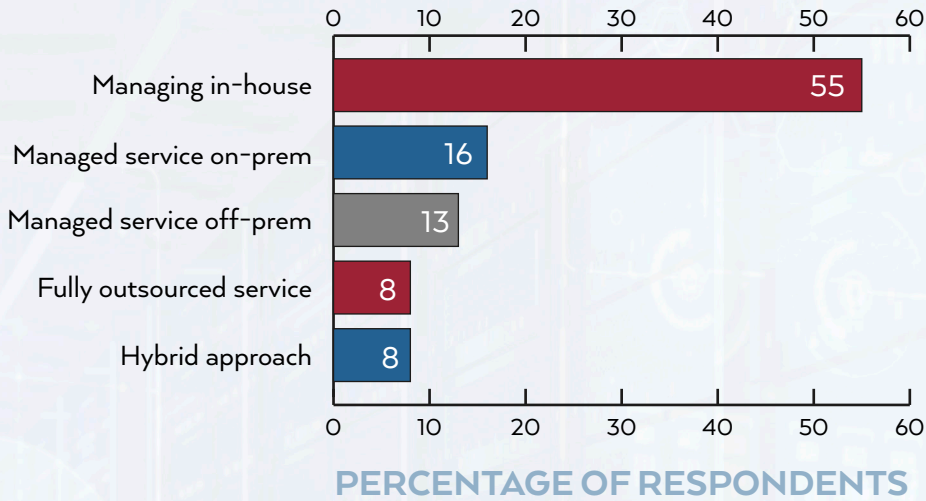


NASTD's Research Committee, comprised of state government information technology members, a member representative from the private sector and association staff, developed the survey questions. The survey questions generally corresponded to six areas around modernization efforts: mainframe, process, budget, pandemic effects, workforce and governance.

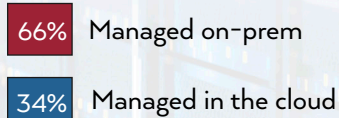
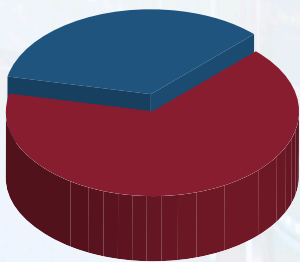
Survey Results

1. What is your state's current mainframe strategy?

CURRENT
MAINFRAME STRATEGY



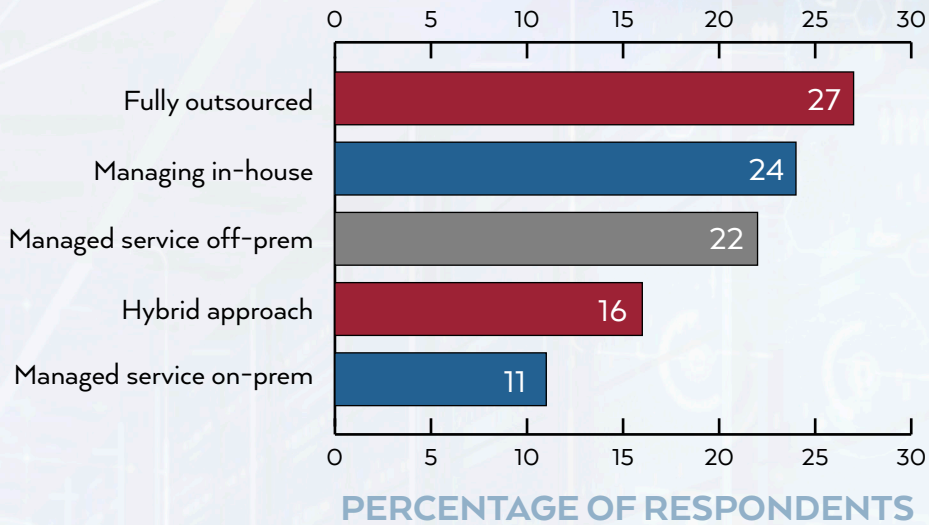
2. If your state's current mainframe strategy is a hybrid approach, where is your state on the hybrid scale? (Based on the total number of applications, estimate a percentage for each category.)



“Our goal is to focus on providing a flexible platform that can adjust to changing demand to best accommodate the agencies’ changing needs, so the last man standing isn’t taking the full burden of a fixed usage mainframe designed for multiple customers all on their shoulders.”

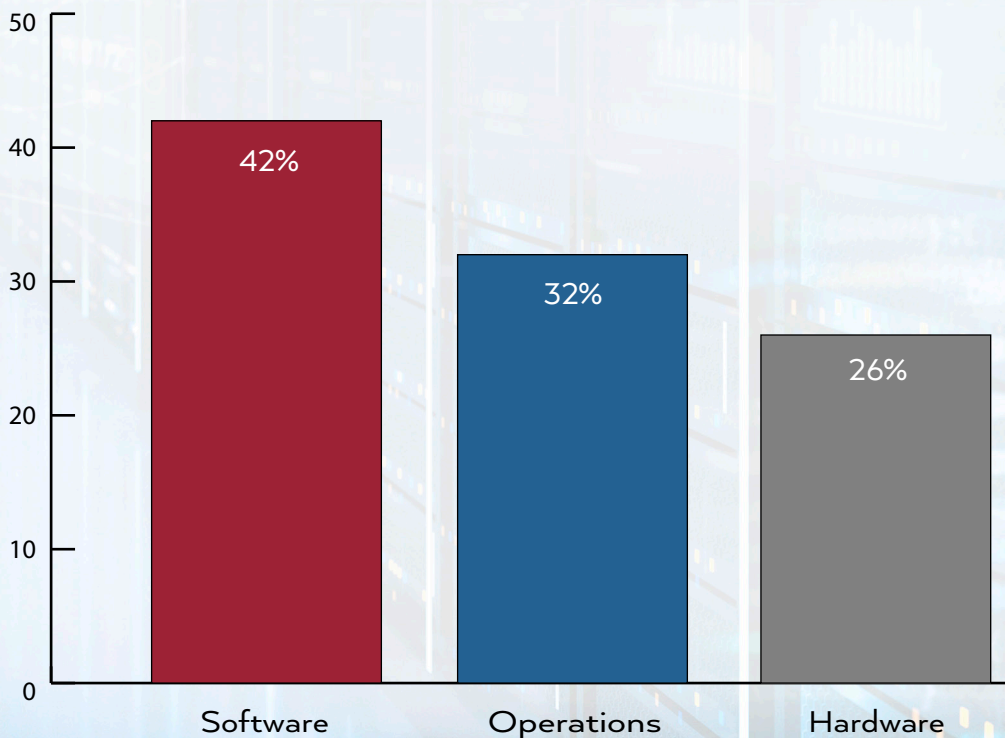
3. In which direction is your state's mainframe strategy moving?

DIRECTION OF
MAINFRAME STRATEGY



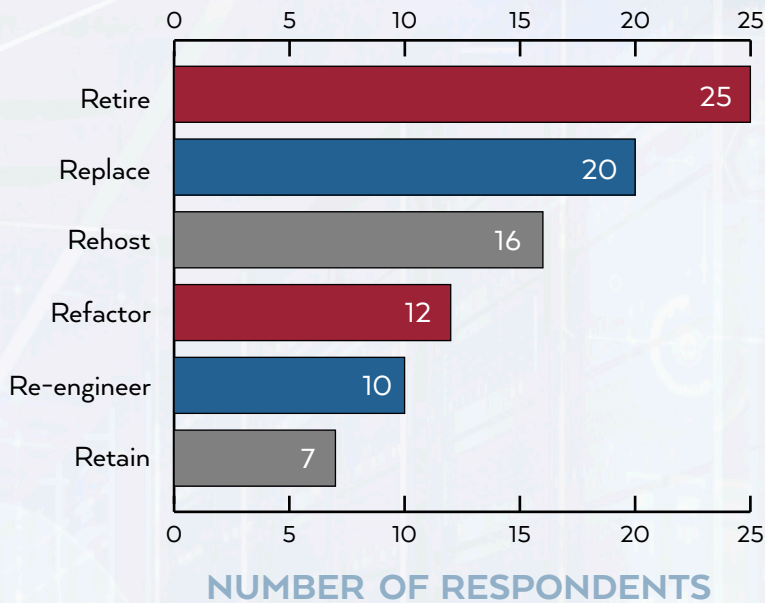
4. How would you estimate the current cost breakdown for your state mainframe/ data center/IT environment? (Please enter estimated percentage of expense.)

PERCENTAGE OF EXPENSE

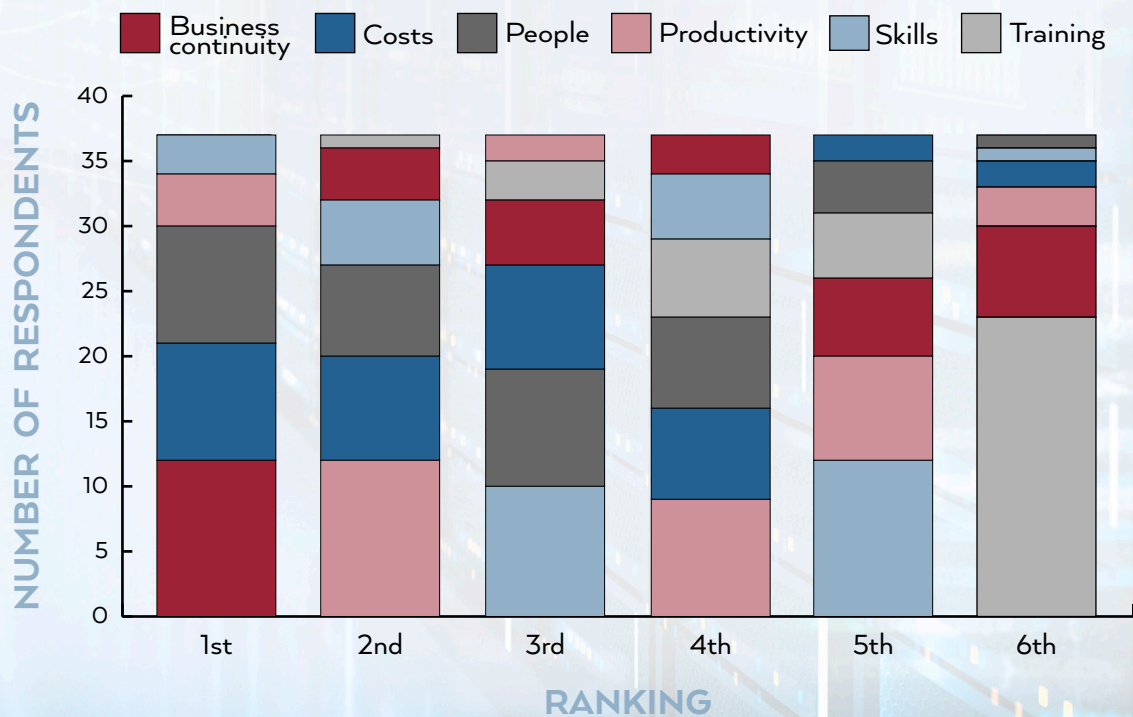


5. What alternatives do you foresee for your state's mainframe operations? (Select all that apply.)

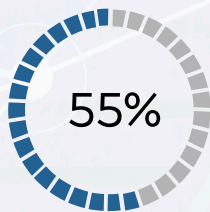
ALTERNATIVES TO CURRENT
MAINFRAME OPERATIONS



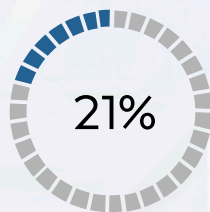
6. How would your state rank its mainframe modernization priorities?



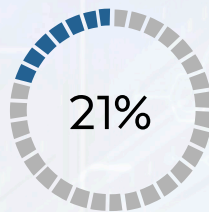
7. In executing your modernization efforts, did you use formal or intentional organizational change management (OCM) processes?



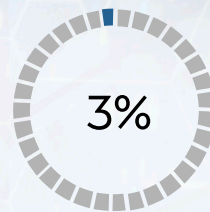
Formal



Informal

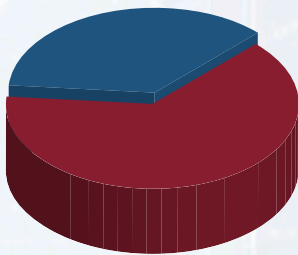


Ad hoc



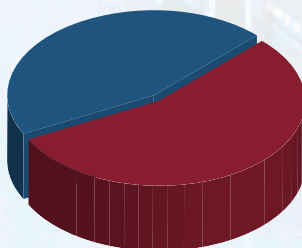
Intentional

8. Did you collect citizen feedback on changes made to the engagement layer of your services?



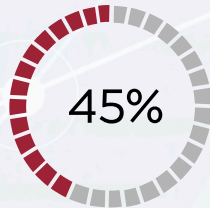
64% No
36% Yes

9. If you collected citizen feedback on changes made to the engagement layer of your services, what best describes the method used to collect data feedback?

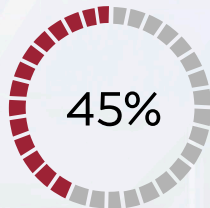


55% Informal feedback
45% Citizen surveys

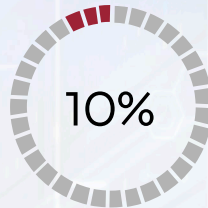
10. Did you measure efficiencies gained as a result of your modernization efforts?



Yes

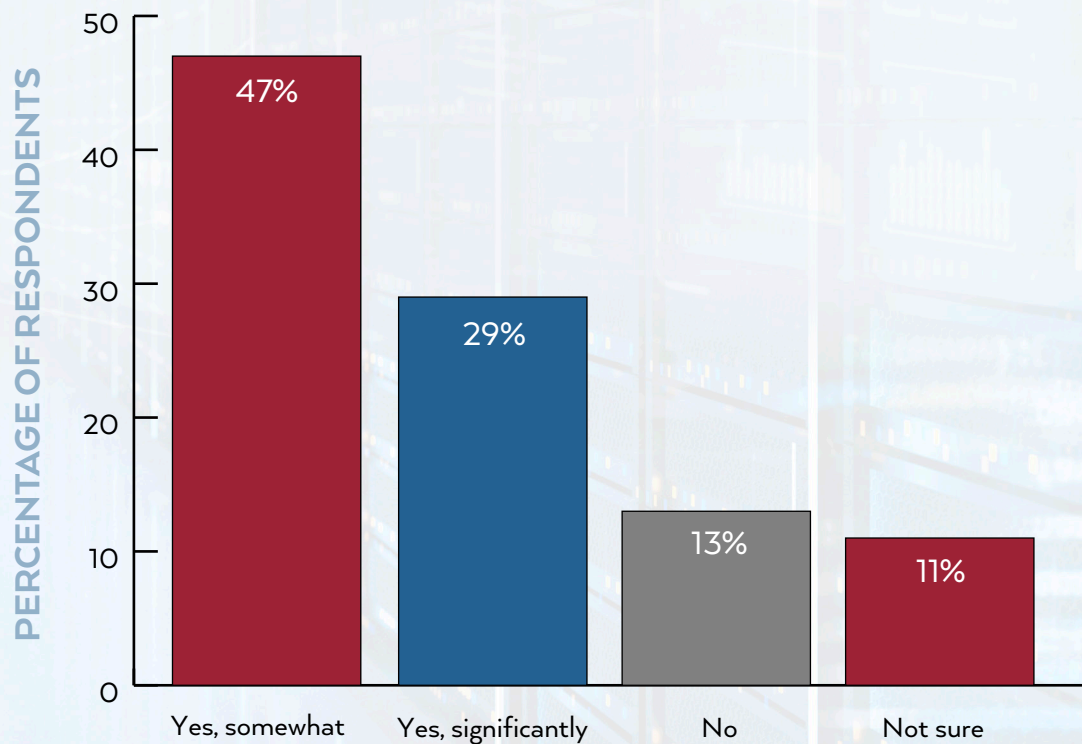


No, but plan to
in the future

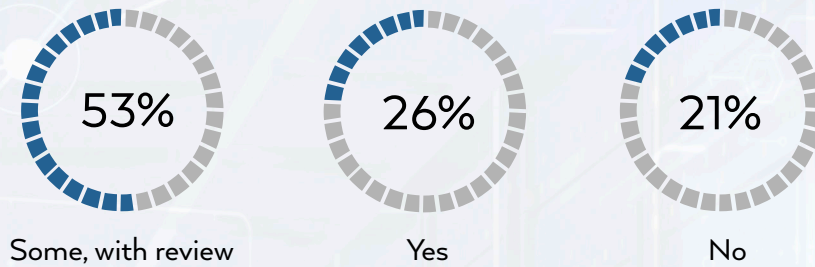


No, and no current
plans to measure

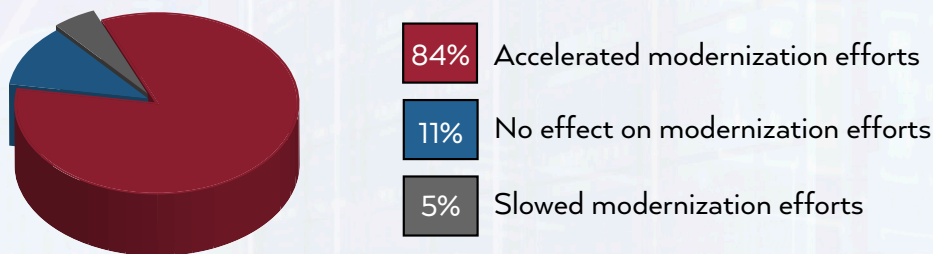
11. Have your state's modernization efforts helped you to accelerate time to market for new services?



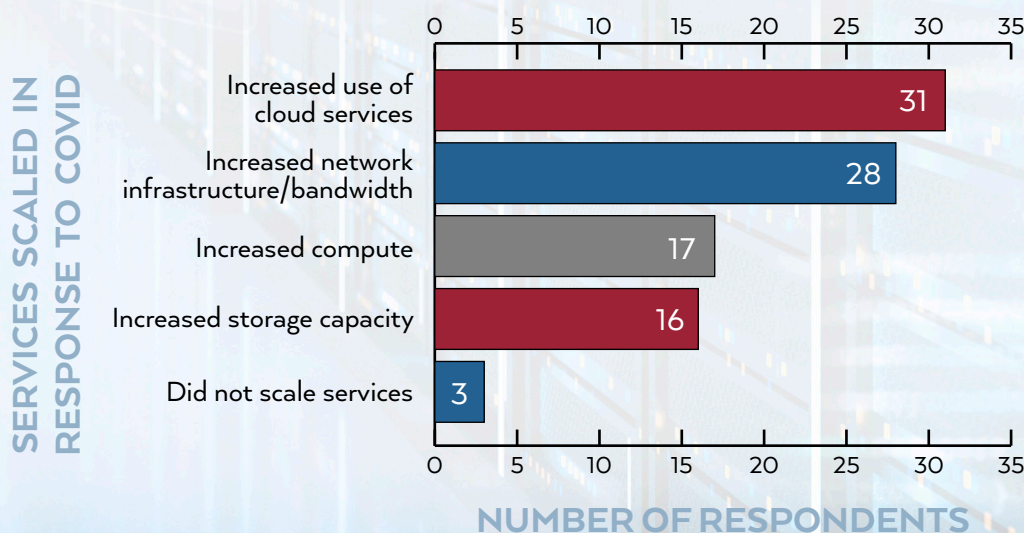
12. Are cybersecurity funds providing support for state modernization efforts or are they focused solely on cybersecurity tools such as endpoint detection and response, anti-virus, etc.?



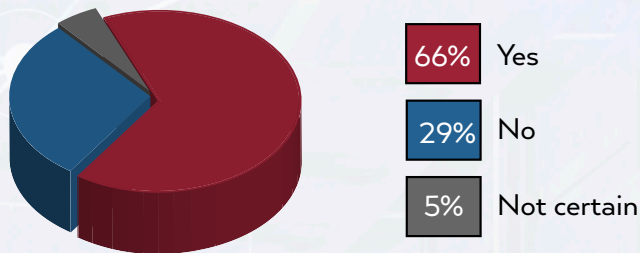
13. How has the COVID-19 pandemic affected your state's IT modernization efforts?



**14. How did you scale your state's network services in response to the pandemic?
(Select all that apply.)**

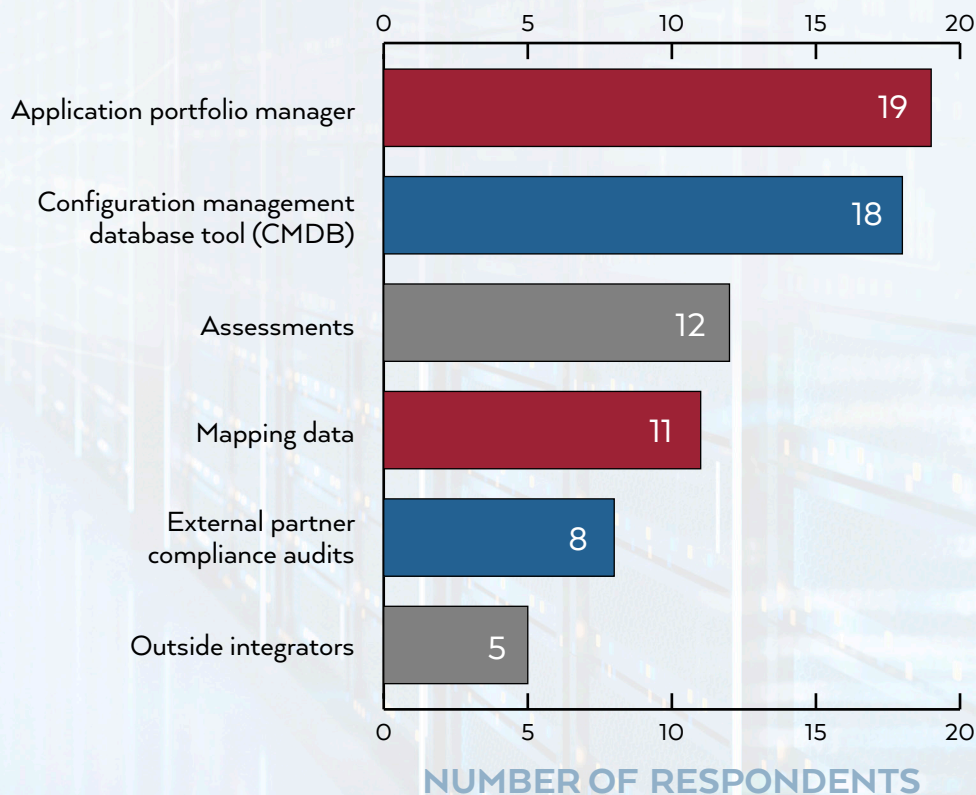


15. Does your state have a process for ongoing tracking though tools such as an application portfolio manager?

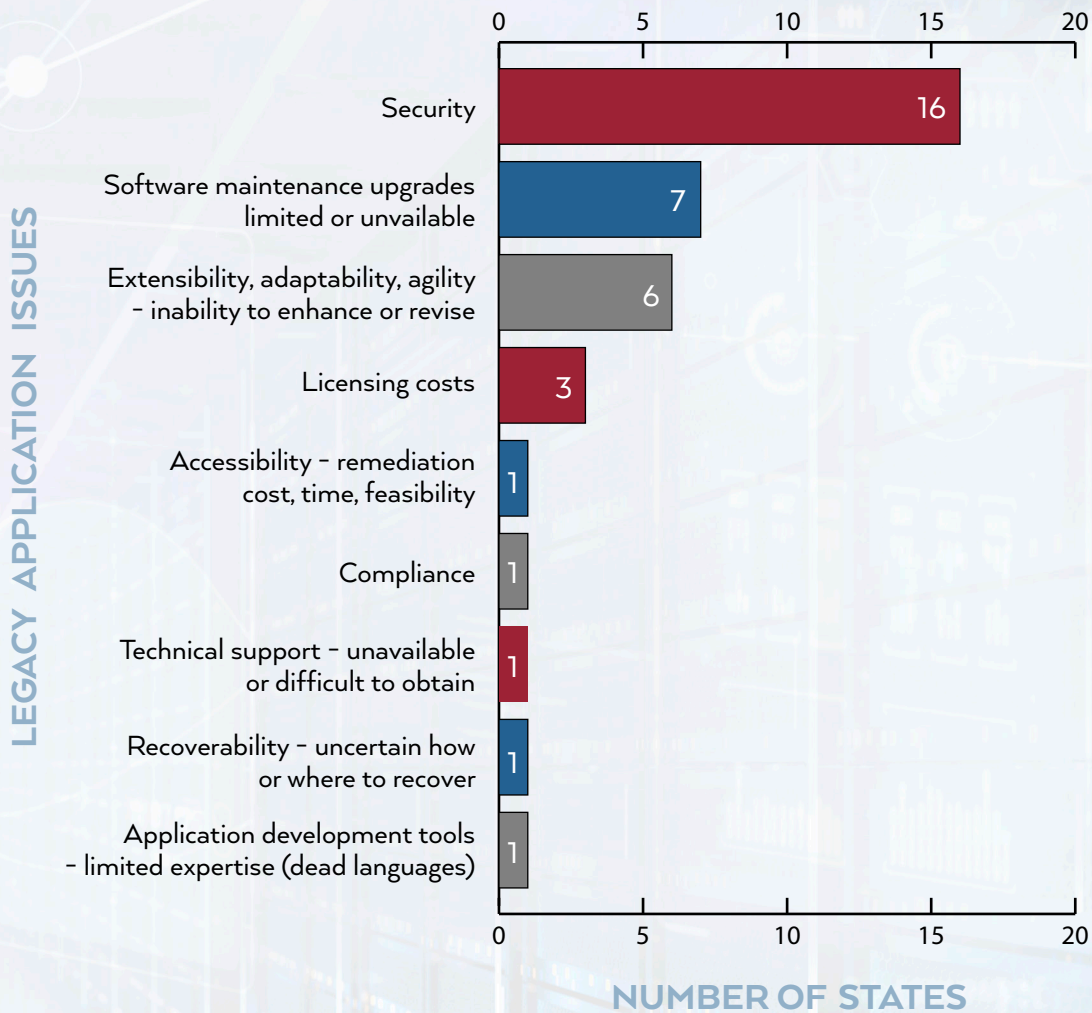


16. If your state does have a process for ongoing tracking though tools such as an application portfolio manager, what specific tools has your state utilized? (Select all that apply.)

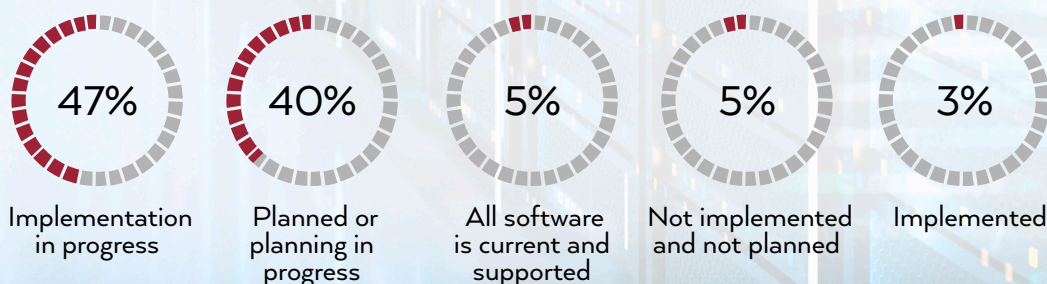
TRACKING TOOLS



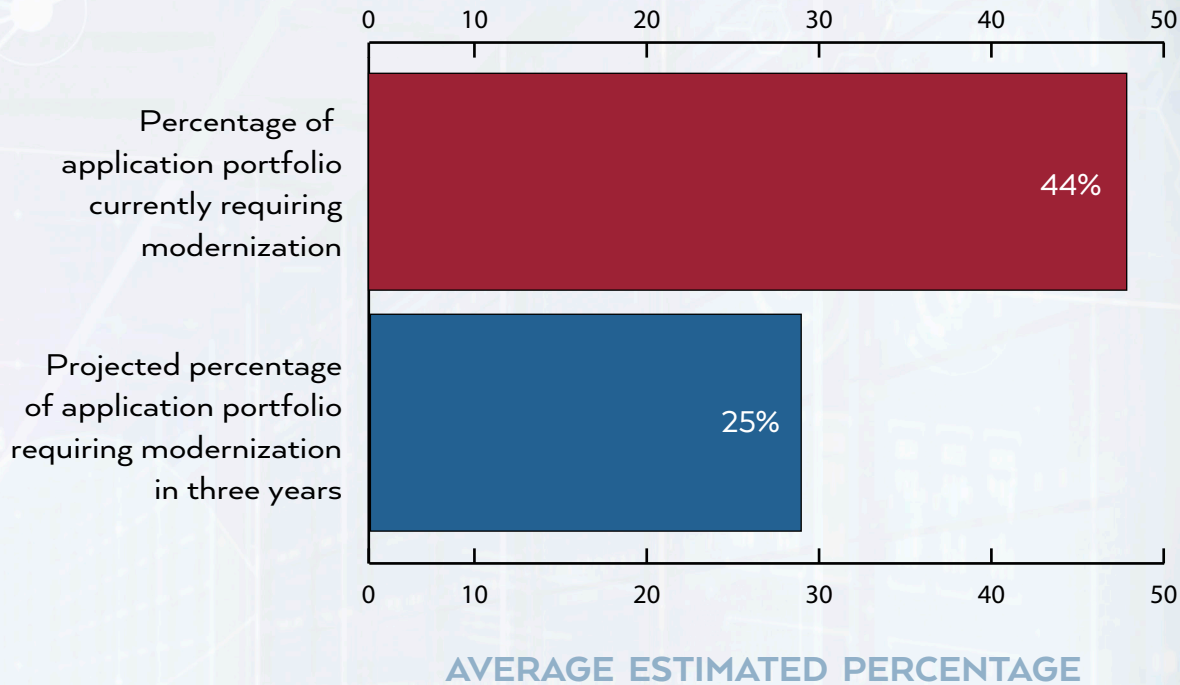
17. What are the main legacy applications issues facing your state? (Of thirteen issues listed, the following were ranked the highest.)



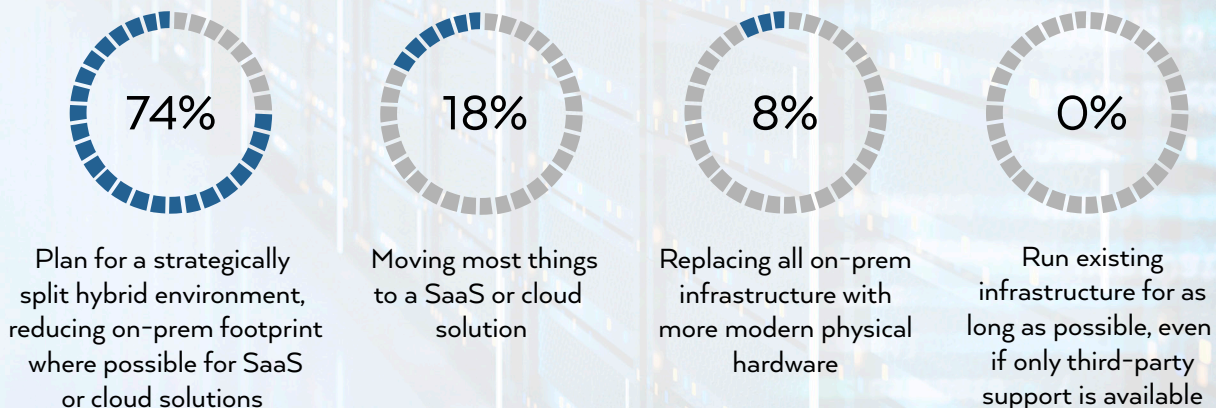
18. What is the status of your state's plan to remediate unsupported software for state agencies?



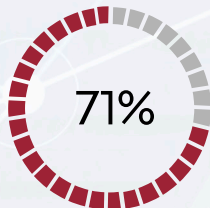
19. Approximately what percentage of your state's overall application portfolio do you believe requires modernization today, and what do you anticipate that percentage to be three years from now?



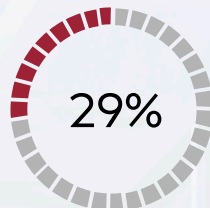
20. For applications not currently hosted in a vendor SaaS environment or in your state's cloud environment, what infrastructure plans are in place?



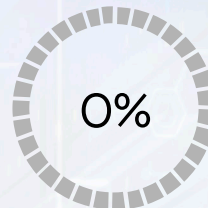
21. Does your state have an individual or team focused on IT modernization and/or digital transformation?



Yes

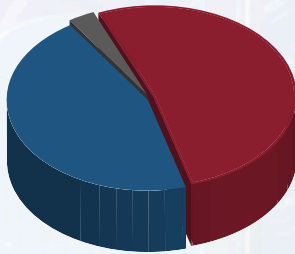


No



Not certain

22. Have workforce recruitment and employee retention challenges changed the way your state looks at modernization?



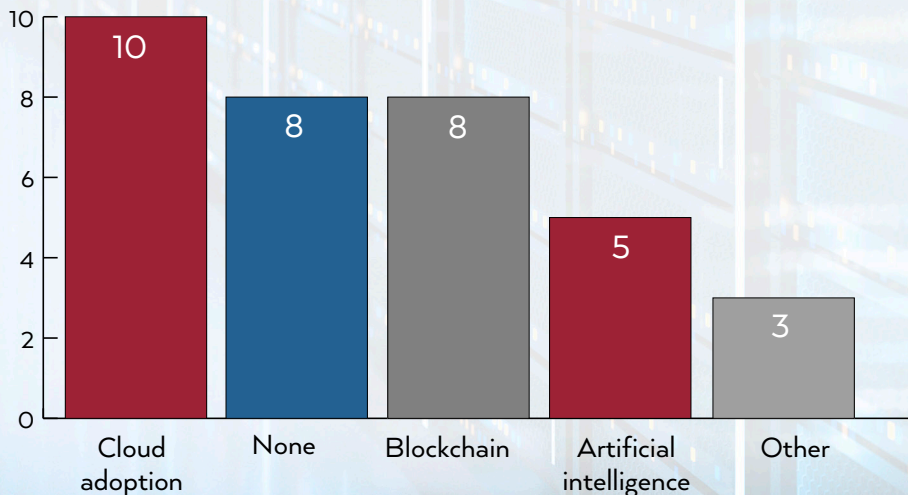
52% Yes - not getting employees with required modern skill sets, looking at more contractors and/or managed services

45% Maybe - trying to find creative ways to staff for the legacy and new skill sets on an individual basis

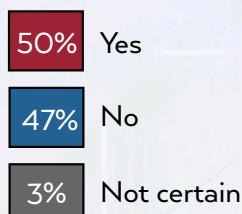
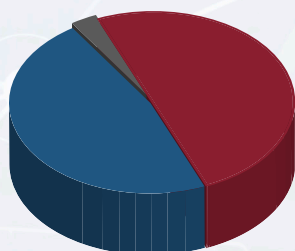
3% No - our workforce is adequate for our modernization efforts

23. Has your state legislature included statutes which drive cloud adoption or other innovations such as blockchain or artificial intelligence? (Select all that apply.)

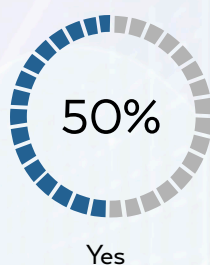
NUMBER OF RESPONDENTS



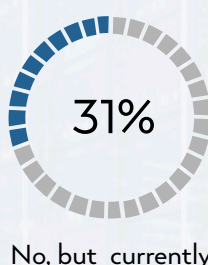
24. Does your state have a budget mechanism established specifically for IT modernization?



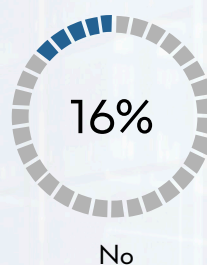
25. Has your state established a governance framework around its modernization efforts?



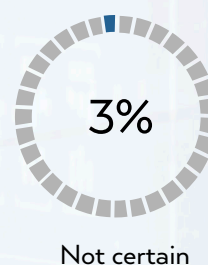
Yes



No, but currently working on one



No



Not certain

Summary

Mainframe

State mainframes remain a primary focus for legacy system modernization. Currently, 55% of survey respondents are managing their state's mainframe in-house with 16% utilizing a managed service on-prem strategy and 13% doing managed service off-prem. Only 8% of respondents have fully outsourced their mainframes management. Of the 8% of respondents pursuing a hybrid strategy, 66% of mainframe applications are managed on-prem with 34% of applications managed in the cloud.

However, states anticipate changes to their mainframe management on the horizon with 27% anticipating a fully outsourced approach and only 24% expecting to continue managing their mainframes in-house. Of the other state respondents, 22% predict managed service off-prem, 16% expect a hybrid approach and 11% are moving towards managed service on-prem.

One survey respondent said, "For many applications, an in-house infrastructure is still a viable solution and may prove more cost effective than cloud." Another respondent says the state's efforts are "underway with multiple efforts with the main focus on cloud."

The average state estimates for mainframe, data center and IT resource expenses, broken down by category are: 42% for software, 32% for operations and 26% for hardware.

Survey respondents are pursuing a combination of mainframe operations alternatives with retiring systems as the most selected option at 66%. Other strategies chosen: 53% replace, 42% rehost, 32% refactor, 26% re-engineer and 18% retain.

Asked to rank their state's mainframe modernization priorities, average weighted responses indicated no clear leader. Business continuity, cost reduction, people and productivity all resulted in a 42% to 47% top two ranking. Training was the lowest priority with 60% of respondents ranking it last.

Process

In guiding their state modernization efforts, 55% used formal organizational change management processes. 42% of state respondents used informal or ad hoc approaches. Thirty-six percent of the states collected citizen feedback on changes made to the engagement layer of their services. Of that 36%, 55% used informal methods to collect feedback while 45% employed citizen surveys. Cited collection methods included citizen journey mapping, surveys, focus groups, design sessions and field product testing.

Forty-four percent of the states measured efficiencies resulting from modernization efforts. A matching 44% have not done so, but plan to in the future. Twelve percent have not measured efficiencies and have no plans to measure.

State IT modernization efforts accelerate time-to-market for new services as 76% of the states responded that their efforts had either significantly or somewhat caused acceleration. Only 13% responded that efforts had not accelerated time-to-market.

Sixty-six percent of states utilize tools for ongoing tracking of application modernization efforts. Of those 66%, a majority utilize an application portfolio manager (70%) or configuration management database tool (67%). Smaller percentages utilize tools such as assessments (44%), data mapping (41%), external audits (30%) and outside integrators (19%).

Given a list of 13 legacy application issues facing the states, the weighted average responses indicated security as the biggest concern with 54% of the states identifying it in their top three choices.

Concerning remediation efforts for unsupported software for state agencies, 47% of respondents have implementations in progress while 39% are planning implementations. Survey respondents estimated that 44% of current state application portfolios require modernization. Asked to project the same estimate in three years, the estimated average was 25%.

For applications not hosted in a vendor software as a service (SaaS) environment or in a state's cloud environment, 74% of the states are planning a split hybrid environment, reducing the on-prem

footprint whenever possible for SaaS or cloud solutions. Eighteen percent are moving most applications to a SaaS or cloud solution.

Even after one state completed a major modernization project, one of its IT directors said the state will “continue to strive to improve customer service and cost efficiencies”. Another state is currently assessing the lifecycle of its services and is “looking for technologies that either enhance our level of service and/or reduce cost.” A third state believes the solution is “less focus on technology and more focus on business outcomes.”

Budget

Twenty-six percent of the states use cybersecurity funds for supporting state modernization efforts, while 53% do so with review. Twenty-one percent use cybersecurity funds solely for cybersecurity tools such as anti-virus and endpoint detection and response.

There is nearly an even split on established state budget mechanisms for specifically addressing IT modernization with 50% having a mechanism in place while 47% do not.

Pandemic

The COVID-19 pandemic overwhelmingly accelerated state modernization efforts with 84% of state respondents indicating so and only 16% stating that the pandemic had no effect on or slowed their modernization efforts. One respondent said, “The pandemic has provided us, and others, with an opportunity to enhance or accelerate our modernization efforts and we plan to make the most efficient foundational changes we can to move our IT organization forward.”

State IT authorities worked quickly to scale network services in response to the pandemic: 84% increased cloud services, 76% increased network infrastructure/bandwidth, 46% increased compute and 43% increased storage capacity as solutions. Only eight percent of the states did not require scaling network services in response to the pandemic.

Workforce

Seventy-one percent of respondents currently have staff dedicated to their modernization efforts. However, workforce recruitment and employee retention challenges are as ongoing as modernization efforts. Fifty-three percent of the states are not getting employees with modern skill sets and are exploring contractors and managed services as a solution while 45% are trying to find creative ways to staff for the legacy and new skill sets.

Governance

State respondents indicated that their legislatures have begun to pass legislation driving cloud adoption (42%), blockchain (33%) and artificial intelligence solutions (21%).

Finally, 50% of the states have an established governance framework guiding their modernization efforts while 32% are currently working on one. The remaining 18% do not have one in place.

Outlook

Depending on how a state's IT office is structured, the amount of control over the modernization process varies. States with consolidated IT operations have more control. In one state, an IT director said, "IT is centralized and working across all agencies to address legacy applications and develop new solutions that can be utilized by multiple agencies rather than developing internal solutions."

States that have not consolidated their IT operations provide guidance to state agencies as they determine their modernization paths. "We have a federated structure, so the agencies manage the software component", said one survey respondent, adding, "Our goal is to focus on providing a flexible platform that can adjust to changing demand to best accommodate the agencies' changing needs." Another state director responded, "IT application modernization is driven at the agency level" with no state legislation forcing agencies to consolidate infrastructure and applications.

As with other IT initiatives, funding can be challenging, but states are making progress. One respondent indicated, "We're at the beginning, but with tremendous backing and funding." Another said the state is "attempting to develop a legacy modernization fund and program to provide agencies a funding mechanism outside of the biennial budget process to accelerate legacy system modernization."

Research Committee Chair Victoria Wallis, strategic project manager for the Iowa Communications Network summarizes, "The results illustrate perfectly that state government understands IT modernization is not a "once and done" activity. As soon as the current legacy items are addressed, new ones will take their place in the priority list. What is most surprising is the multitude of differing issues, as well as priorities and strategies, being utilized by government to address their specific IT modernization challenges."

About NASTD

The National Association of State Technology Directors - Technology Professionals Serving State Government, is a member-driven organization whose purpose is to advance and promote the effective use of information technology and services to improve the operation of state government.

State members provide and manage state government technology services and facilities for state agencies and other public entities, often including hospitals, prisons, colleges and universities. These members also play a strategic role in planning and shaping state government information technology infrastructures and policies. Corporate members provide information technology services and equipment to state government.

NASTD was founded in 1978 and has been an affiliate of The Council of State Governments (CSG) since 1980. For more information about NASTD, visit www.nastd.org.

¹Digital States at Risk! Modernizing Legacy Systems, NASCIO :
<https://www.nascio.org/resource-center/resources/digital-states-at-risk-modernizing-legacy-systems/>

Acknowledgements

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