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A REPORT FROM THE DELOITTE CENTER FOR GOVERNMENT INSIGHTS

NASACT

2018 Deloitte-NASACT survey

State financial managers assess emerging technologies and the impact on their work

About the authors

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About the Deloitte Center for Government Insights

The Deloitte Center for Government Insights shares inspiring stories of government innovation, looking at what's behind the adoption of new technologies and management practices. We produce cutting edge research that guides public officials without burying them in jargon and minutiae, crystalizing essential insights in an easy-to-absorb format. Through research, forums, and immersive workshops, our goal is to provide public officials, policy professionals, and members of the media with fresh insights that advance an understanding of what is possible in government transformation.

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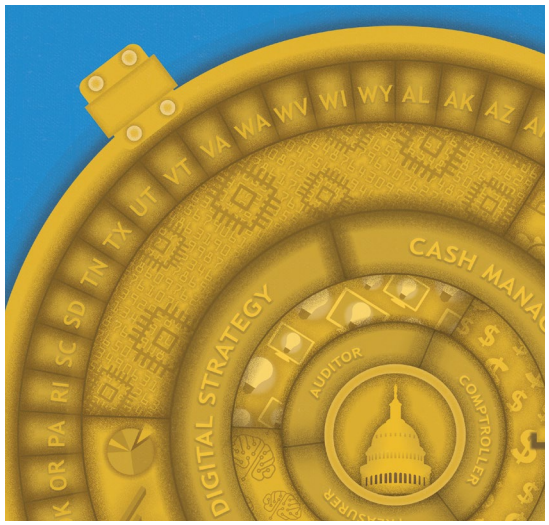


WE ARE VERY pleased to again work with our corporate associate, Deloitte, in presenting the *2018 Deloitte-NASACT survey*, which was last conducted in 2015. A total of 71 NASACT member offices, with diverse functional and organizational backgrounds, participated in this year's survey.

Findings from the 2018 survey reveal the state of digital transformation among NASACT member organizations through comparisons to findings from the 2015 survey. The survey explores how digital transformation is reshaping NASACT member organizations. It seeks to understand what strategies government organizations are using to navigate the digital road map and to identify the areas of greatest opportunity in adopting a digital-first strategy.

Among the biggest changes from the 2015 survey to the 2018 survey are:

- Digital spending appears to have increased.
- Digital dissatisfaction appears to have also increased.
- Lack of a digital strategy as a key barrier has almost doubled.

It is safe to say that progress has been made in several areas, but many challenges remain to fully utilize the capabilities of digital technologies.

NASACT members recognize that advanced digital technologies are having a significant impact on government processes, including their own internal processes. Cognitive technologies and artificial intelligence have seen tremendous development over the past few years. These technologies can perform tasks that previously only humans could complete. The 2018 survey results analyze how state financial management organizations are reacting to trends such as this one.

Staffing skills seem to be another significant concern. To advance more rapidly, NASACT members say they will be looking to upgrade staff skills needed to work with digital and cognitive technologies. Survey respondents expressed significant concern about a shortfall of technological capacity within their workforces. Almost half of the respondents believe their employees do not have sufficient skills to utilize automation and cognitive technologies.

These topics, and many more, are discussed in more detail in this report. I hope you find the results of the survey useful in your journey to digital transformation.

R. Kinney Poynter, CPA
Executive director, NASACT

Summary and introduction

DIGITAL PROCESSING AND cognitive technologies are disrupting the economy, as new ways of creating value are displacing traditional methods. This is true for government finance as well. Finance stands at the core of public administration, and technology is at the core of finance.

The purpose of this joint survey by NASACT and Deloitte is to understand how state financial leaders are preparing for a more automated, digital future. Digital and cognitive technologies are likely to have a tremendous impact in the years ahead as many auditors, comptrollers, and treasurers rethink how their organizations perform their work.

Tapping into the collective wisdom of public sector finance and audit leaders, the survey examines some important questions: What technologies do finance and audit leaders see as most critical in the years ahead? What areas are being targeted for investment dollars? How will data analytics and cybersecurity shape the future of public financial management? This survey tells the story of applied technology in government finance, from well-established approaches such as robotic process automation (RPA) to more sophisticated techniques including predictive analytics and artificial intelligence (AI).

Digital agility? A digital strategy matters.

Many NASACT members stressed the importance of having a strong digital strategy. While most (though not all) indicated their organization had a digital strategy, that strategy wasn't always as robust as respondents felt it could be. The survey showed that only 45 percent of NASACT respondents felt their organizations had a "clear and coherent" strategy. The survey responses also showed a clear link between a strong strategy and digital agility: Organizations with a clear digital strategy generally considered their digital capabilities to be comparable to or ahead of the private sector (57 percent), while in organizations without a strategy, 76 percent of respondents consider their digital capabilities to be *behind* the private sector.

This survey tells the story of applied technology in government finance, from well-established approaches such as robotic process automation to more sophisticated techniques including predictive analytics and artificial intelligence.

While most NASACT members acknowledged the importance of having a digital strategy, many felt they needed to do more on this front. In fact, there was a sharp drop in respondents' satisfaction with their organizations' response to digital trends—a solid 64 percent indicated satisfaction in 2015, but that figure dropped to only 35 percent in 2018.

Unlike the 2015 survey, NASACT respondents said their organizations generally had budgetary resources available for investing in digital capabilities. About half of respondents reported that this budget had increased in their organizations from the previous year, and only 41 percent of the respondents told us that "insufficient funding" is a barrier to digital transformation in 2018, which is a substantial drop from the 73 percent in 2015.

Investment in automation and cognitive technologies

Another key issue is how available resources are being invested. Only 27 percent indicated that RPA was a possible area of investment in their organizations. RPA's ability to significantly reduce time spent on repetitive, routine tasks is well established. A 2017 Deloitte study on AI in government found automation and cognitive technologies could free between 4 and 30 percent of a state's total labor hours, depending on the degree of investment and adoption.[1]

RPA is a relatively simple form of process automation that does not require large-scale system implementation, and thus a good starting point for organizations looking to use digital technologies. So why aren't more organizations targeting it for greater investment? One reason could be a lack of awareness among respondents regarding RPA, since only 17 percent of survey respondents reported the use of RPA within their organization, which is much lower than the numbers observed in the private sector.[2]

In terms of more advanced technologies, only 11 percent of organizations reported broad use of automation and cognitive technologies. These numbers become important when we consider that public and private audits are likely to be substantially augmented by automation and cognitive technologies in the coming years. Automation and cognitive technologies can help auditors review larger samples or get to a point where the entire population of documents are reviewed, which can help significantly improve the quality of the audit.[3] This expectation of greater use of automation was borne out by survey results: A remarkable 88 percent of the respondents agreed that greater automated sampling was needed, while only 3 percent disagreed.

While these were broad trends in NASACT overall, there were some differences between the perceptions of auditors, comptrollers, and treasurers—these distinctions are explored in greater depth in the report.

Closing the digital skills gap

To advance more rapidly, most state organizations say they will be looking to upgrade the skills needed to work with digital and cognitive technologies. However, many survey respondents expressed significant concern about a shortfall of technological capacity within their workforces: Only 48 percent of respondents believe their employees have sufficient skills to execute digital strategy, and 43 percent believe that employees have the skills for automation and cognitive technologies.

So what steps are state organizations taking to plug the skills gap? Staff training is far and away the most common response, with 68 percent indicating it will be a focus in the years ahead. But a sizable percentage said they would be looking outside the organization to augment their tech talent, with 39 percent saying they would augment their staff with consultants and contractors.

We hope this survey provides insights that will help guide government finance professionals on their journey into a digital future.


John O'Leary


Bill Eggers


Christina Dorfhuber

Deloitte Center for Government Insights

Digital dissatisfaction is high

THERE WAS A sharp decline in the percentage of respondents who were satisfied with their organization's reaction to digital trends. In 2015, 64 percent of respondents expressed satisfaction, but in the 2018 survey, only 35 percent said they were satisfied.

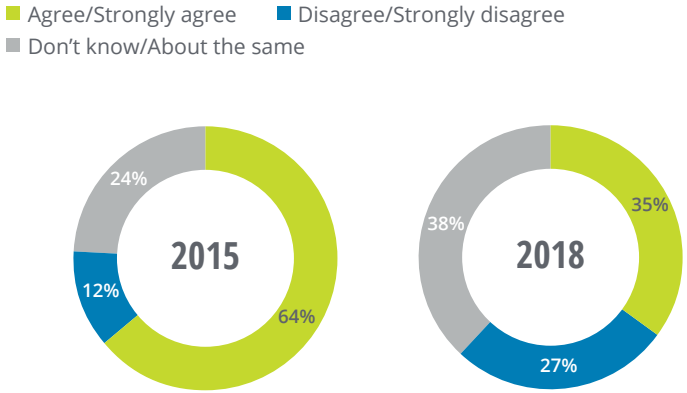
The flip side of the coin told a similar story, with twice as many respondents dissatisfied today (27 percent) as compared to 2015 (just 12 percent).

Much of this dissatisfaction may be related to respondents comparing themselves with their private sector counterparts. A whopping 77 percent of comptrollers felt they are behind the private sector in terms of digital capabilities. The corresponding number for auditors was about 42 percent.

FIGURE 1

Since 2015, digital satisfaction has dropped significantly

I am satisfied with my organization's current reaction to digital trends.

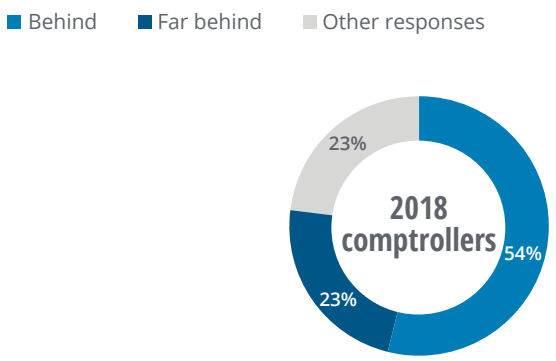


Source: Deloitte analysis of NASACT survey responses.

FIGURE 2

More than three out of four comptrollers feel they lag behind the private sector in terms of digital capabilities

How do you think your organization's digital capabilities compare with the private sector?



Source: Deloitte analysis of NASACT survey responses.

Having a digital strategy matters

MOST, BUT NOT all, NASACT members reported having a digital strategy—but that strategy isn't always as robust as respondents felt it could be.

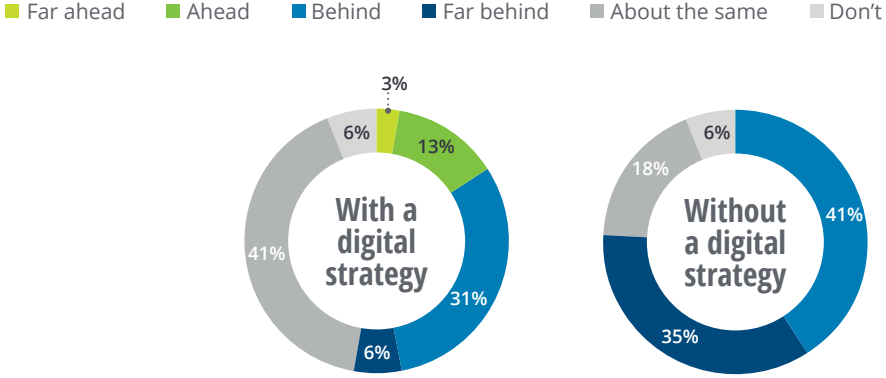
The 2018 survey showed that only 45 percent of NASACT respondents felt their organizations had a "clear and coherent" strategy. Some 23 percent of respondents stated that they either do not have a digital strategy (11 percent) or lack a *clear and coherent strategy* (12 percent).

Having a digital strategy shows itself to be of high importance. The survey found that organizations with a clear digital strategy generally considered their digital capabilities to be comparable to or ahead of the private sector (57 percent). On the other hand, in organizations without a strategy, most respondents (76 percent) consider their digital capabilities to be *behind* the private sector. This makes sense. It is only when these technologies are integrated into an organization's processes that businesses are transformed.[4]

FIGURE 3

Organizations with a digital strategy report higher digital satisfaction

How do you think your organization's digital capabilities compare with the private sector?



Source: Deloitte analysis of NASACT survey responses.

RESPONDENTS FROM ORGANIZATIONS WITH A DIGITAL STRATEGY ARE:

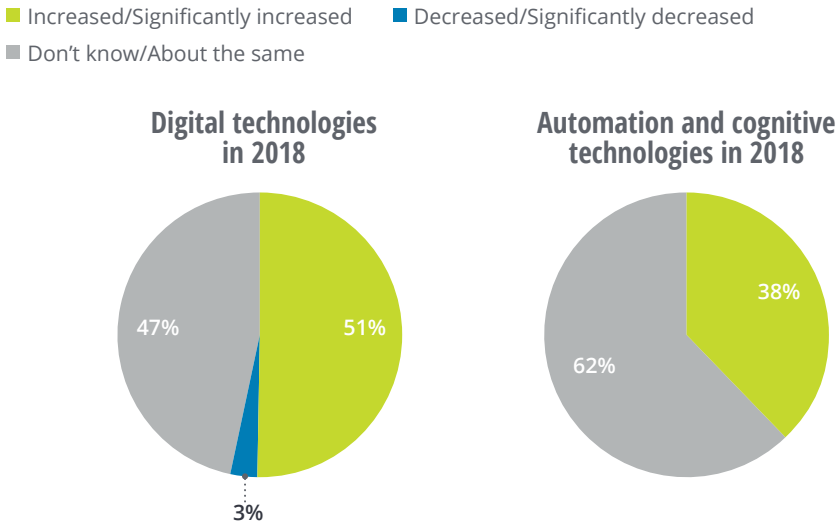
- More satisfied with their organization's reaction to digital trends (54 vs. 18 percent);
- Confident in their organization's readiness to respond to digital trends (60 vs. 29 percent); and
- Confident in their leadership's understanding of digital trends (87 vs. 30 percent).

Digital investment dollars are available

FIGURE 4

Investments in digital, automation, and cognitive technologies have increased from the previous year

How have your organization's investments in digital initiatives, automation, and cognitive technologies changed this fiscal year compared with last fiscal year?



Note: Percentages may not total 100 percent due to rounding.
Source: Deloitte analysis of NASACT survey responses.

ABOUT 51 PERCENT of respondents reported that investments in digital initiatives have increased compared to last year. The corresponding number for automation and cognitive technologies is 38 percent. Part of this can be explained by the increase in tax revenues collected by states. In 2018 Q1, states collected about $245.7 billion in tax revenues. This is a significant increase since 2015 Q1, when $219.8 billion was collected by states.[5]

While funding is always constrained, it appears that most state organizations have budgets available for investing in digital technologies. Only 41 percent of the respondents told us that "insufficient funding" is a barrier to digital transformation in 2018, as compared to 73 percent in 2015. Used wisely, this investment in digital technology should help free up staff time from routine bookkeeping or other repetitive tasks and potentially generate cost savings.

Clearly, increasing investments show that adoption of digital, automation, and cognitive technologies is a priority for state organizations. However, looking at the persisting dissatisfaction among members, organizations may wish to revisit their investment choices.

Investment choices: Where are tech dollars going?

WE HAVE SEEN that many NASACT respondents believe that budgets for technology have loosened a bit. But what are these organizations looking to invest in?

When asked about their organizations' investments over the next two to three years, 56 percent of respondents indicated interest in predictive analytics and 54 percent of respondents said advanced visualizations and dashboards. The need to analyze and visualize data is clearly considered a top priority.

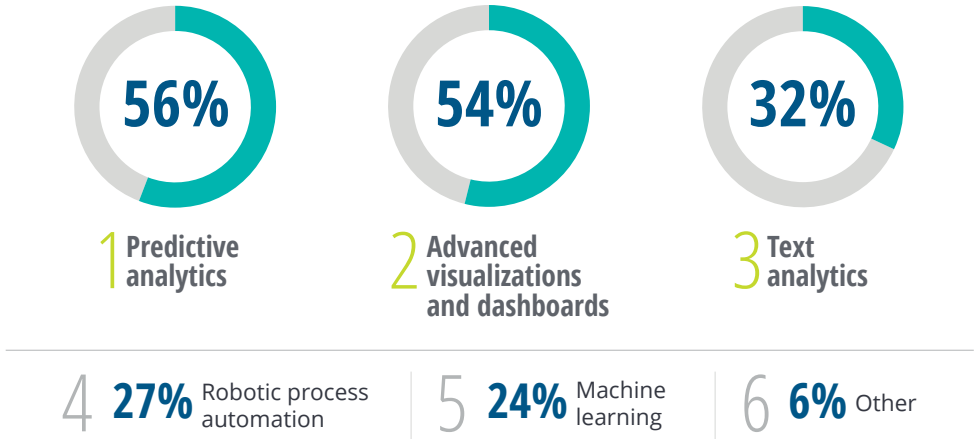
Only 27 percent indicated RPA and just 24 percent chose machine learning as possible investment choices. RPA's ability to significantly reduce time spent on repetitive, routine tasks is well established. A 2017 Deloitte study on AI in government found digital labor could free between 4 and 30 percent of a state's total labor hours, depending on the degree of investment and adoption.[6]

Given the potential short-term benefits of RPA and the longer-term potential of machine learning to dramatically enhance financial functions, these low response rates may indicate a lack of awareness among respondents.

FIGURE 5

RPA and machine learning are surprisingly low on organizations' lists of investment priorities

Over the next two to three years, what are the top three cognitive technologies in which your organization could invest?



Note: Thirty-four percent of the respondents chose "Don't know" in their top three cognitive technologies.
Source: Deloitte analysis of NASACT survey responses.

Emerging automation technologies may be underutilized

ACCORDING TO SURVEY results, the uptake of next-generation automation and cognitive technologies in state organizations is low compared to the significant opportunity that exists to transform operations by embracing emerging technologies such as RPA, machine learning, and predictive analytics.

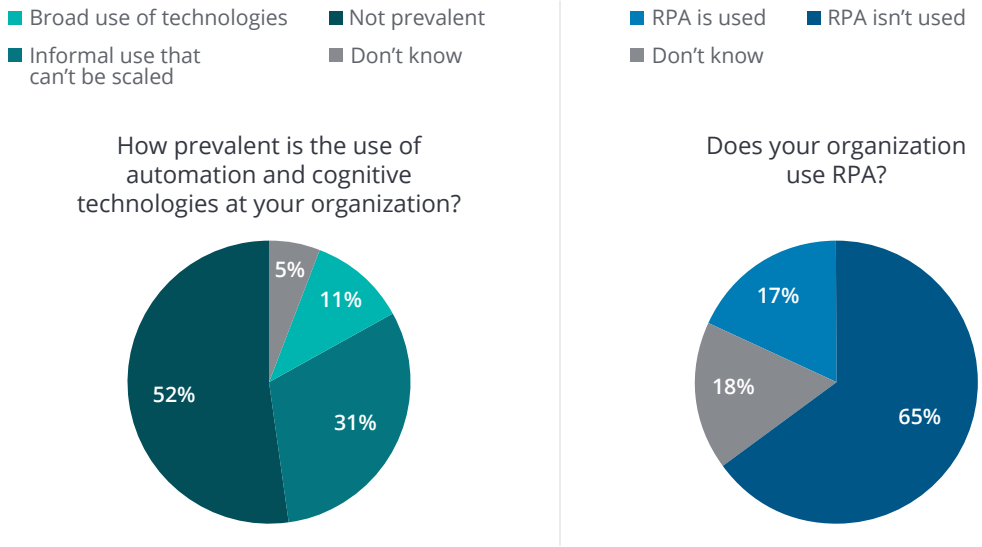
RPA is a relatively simple form of process automation that helps to automate repetitive, rule-based tasks such as invoice processing and claims settlement. Unlike some technologies, RPA typically does not require large-scale system implementation yet can help organizations improve their processes and services.[7] Only 17 percent of survey respondents reported the use of RPA within their organization—which is much lower than what we see in the private sector.[8] For example, in a 2017 Deloitte global survey on the use of RPA across industries, 53 percent of respondents said they had already embarked on the RPA journey and another 19 percent said they plan to adopt it in the next two years.[9] For those state organizations that are deploying RPA, the main reasons are to free labor hours and speed up internal processes.

The 2018 NASACT survey shows that even more advanced automation and cognitive technologies—which may include elements of AI, automated character recognition, and the like—are not yet penetrating state financial organizations to any great extent. Only 11 percent of respondents reported broad use of automation and cognitive technologies. Fully 83 percent indicated these technologies are not prevalent in their organizations or they are used in a limited manner that cannot be scaled.

The growing track record of success of these tools suggests that state organizations can realize significant improvements by increasing the use of cognitive technologies. Auditors, for example, can analyze all items in a population and not just sample them—as has been done historically.[10]

FIGURE 6

Advanced technologies are possibly not being used enough in NASACT organizations



Note: Percentages may not total 100 percent due to rounding.
Source: Deloitte analysis of NASACT survey responses.

Closing the skills gap

TO ADVANCE MORE rapidly, state organizations say they will be looking to upgrade the skills needed to work with digital and cognitive technologies, both by training the existing workforce and by going outside the organization to augment existing staff. However, survey respondents expressed significant concern about a shortfall of technological capacity within their workforces, even if it is not viewed as the top barrier to tech advancement.

NASACT Executive Director Kinney Poynter points out: "In today's tight labor market with very low unemployment rates, NASACT members are having a tough time recruiting and retaining workers with advanced IT skills. State organizations want to use tools and techniques like robotic process automation and artificial intelligence, but are generally having to outsource these types of skills."

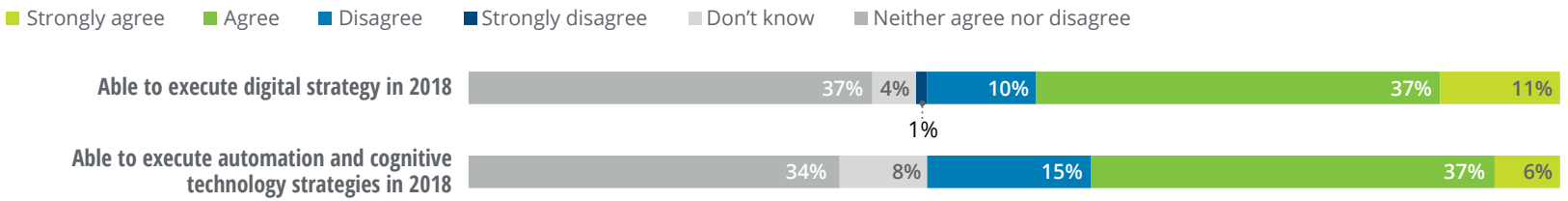
NASACT is not alone in its struggle to search for skilled workers. Data shows that across industries, it is a challenge to hire and retain the right employees.[11] Poynter noted, however, that staff retention in the public finance and audit areas can be even tougher since public sector salaries have not always kept up with the private sector.

When asked about the barriers to executing a digital strategy, only 21 percent cited "insufficient technical skills"—a marginal increase from 2015 when 15 percent of respondents cited it as a barrier. But that doesn't mean respondents see their organizations as fully tech ready. Only 48 percent of respondents believe their employees have sufficient skills to execute a digital strategy and 43 percent believe that employees have the skills for automation and cognitive technologies.

FIGURE 7

Are employees prepared to execute tech strategy?

Our employees have sufficient skills to execute our organization's digital, automation, and cognitive technology strategies.



Source: Deloitte analysis of NASACT survey responses.

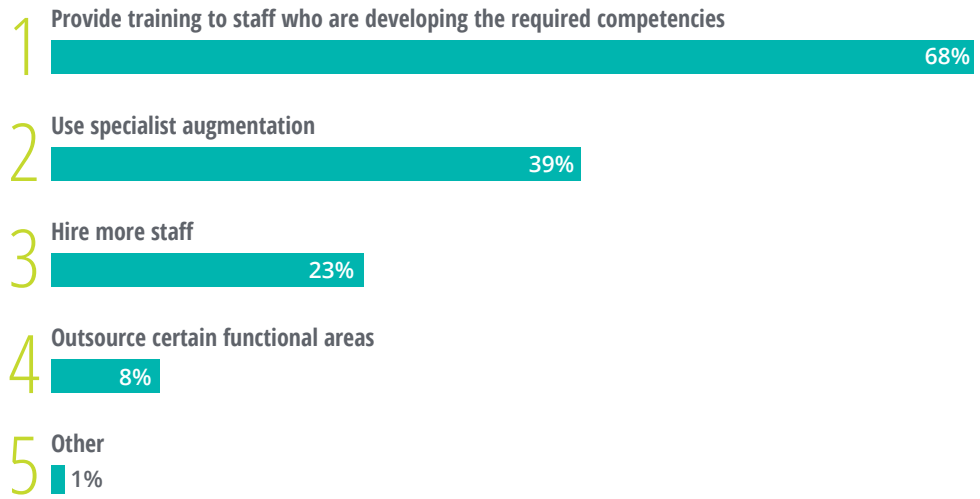
A tech-savvy workforce is integral for organizations looking to advance digital, automation, and cognitive technologies. So what steps are state organizations taking to plug the skills gap? Staff training is far and away the most common response, with 68 percent indicating it will be a focus in the years ahead. But a sizable percentage said they would be looking outside the organization to augment their tech talent, with 39 percent saying they would augment their staff with consultants and contractors.

To develop a tech-savvy workforce, organizations may need to consider new approaches to employee upskilling.

FIGURE 8

Organizations plan to focus primarily on training to ensure their workforce is sufficiently skilled

In the next three to five years, how does your organization plan to address your talent needs in digital, automation, and cognitive technologies?



Note: Thirty percent of the respondents chose "Don't know."
Source: Deloitte analysis of NASACT survey responses.

Audits should be more automated in the future

AUDITORS STRONGLY INDICATED that they should be using more automation and cognitive technologies to audit a greater number of sample transactions. A remarkable 88 percent of the respondents agreed that greater automated sampling was needed, while only 3 percent disagreed.

Automation and cognitive technologies can help auditors review larger samples or get to a point where the entire population of documents are reviewed, which can help improve the quality of the audit significantly.[12] With 80 percent of enterprise data today estimated to be unstructured[13], machine learning and text analytics technologies can speed up the entire cycle of accumulating relevant information, evaluating it, and finally making decisions based on the evaluation. Thus, it is likely that public and private audits could be substantially augmented by automation and cognitive technologies in the coming years.

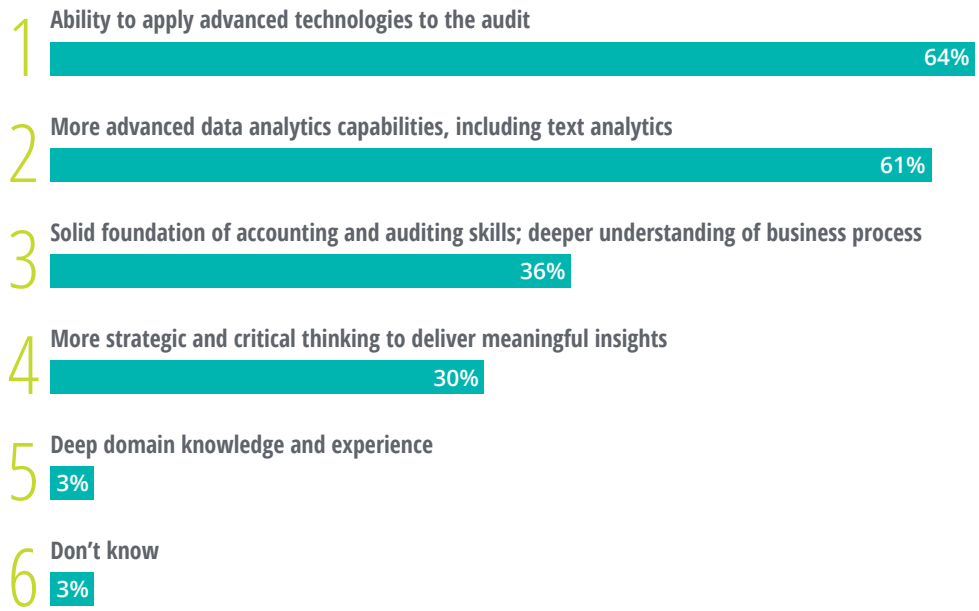
As automation and cognitive technologies liberate auditors from repetitive tasks, they can focus more on risky areas.

In a related finding, a majority of auditors believe that in the future, the skills of most value will be advanced technical and analytical skills, as opposed to deep domain knowledge and auditing skills. As automation and cognitive technologies liberate auditors from repetitive tasks, they can focus more on risky areas.[14]

FIGURE 9

Advanced automation capabilities rank high on the list of qualities of an "auditor of the future"

What are the top two capabilities you think could be needed for an auditor of the future?



Source: Deloitte analysis of NASACT survey responses.

Data-driven decisions seen as important, but some organizations struggle to execute

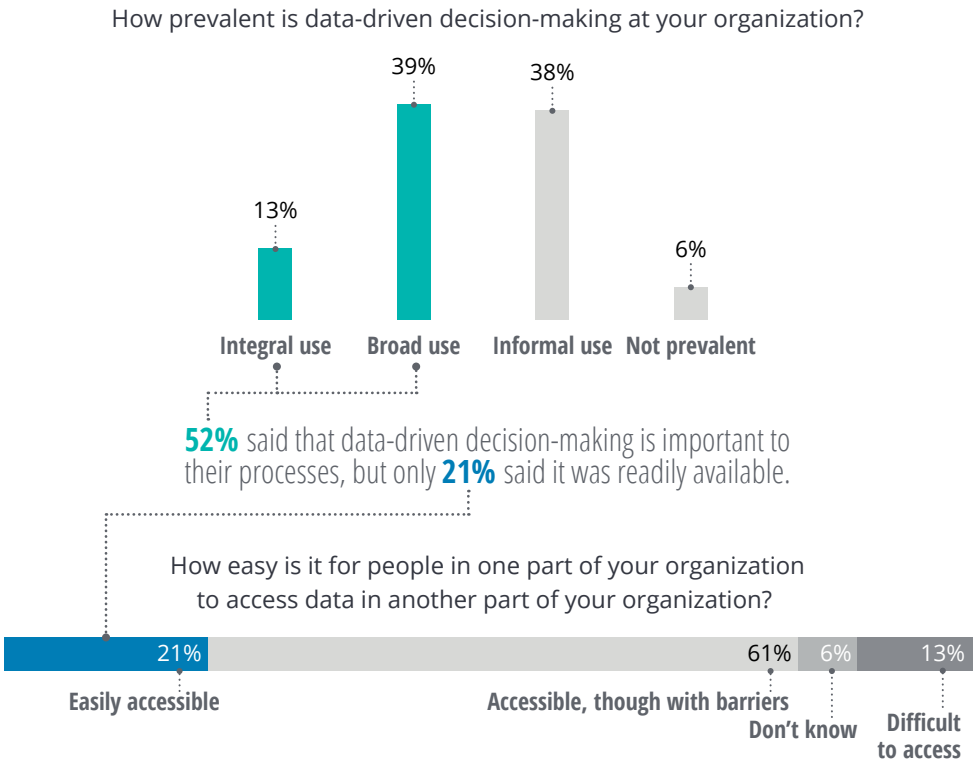
EVIDENCE-BASED DECISION-MAKING HAS made solid inroads in state organizations. About 52 percent of respondents said that data-driven decision-making is important to their processes, with the practice being either an integral part of day-to-day operations or in broad use in their organizations. Just 6 percent indicated that data-driven decision-making was not prevalent.

Despite the reliance on data, many NASACT members indicated that their organizations struggled making data widely available. Only 21 percent told us that data "is easily accessible" to support analytics. Most respondents, about 61 percent, reported experiencing organizational or technical barriers in performing analytics, while 13 percent reported that "data is generally difficult to access."

NASACT members are not unique in experiencing this challenge, which is sometimes a consequence of legislative or other outside constraints. Historically, data has been managed in silos for use by specific government agencies. Data is the lifeblood of financial functions, and these responses show a clear opportunity for state organizations to enhance their ability to make data readily accessible to better enable analytics and support data-driven decision-making.

FIGURE 10

Decisions are made using available data, but the availability can be improved



Note: Four percent of the respondents chose "Don't know" for data-driven decision-making in organizations.
Source: Deloitte analysis of NASACT survey responses.

Perception of data transparency declines

THE SURVEY FOUND that most NASACT respondents felt that their organization's transparency with citizens has declined in the last few years. In 2018, only half of the respondents agreed that their organization has significantly opened access to financial data for the public. This is a decline from 2015, when 78 percent had agreed to the statement.

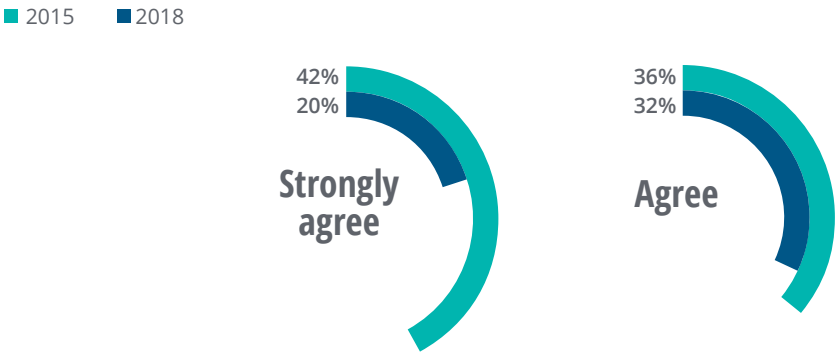
NASACT Executive Director Kinney Poynter believes that this shift in perception may be just that—a shift in perception—and not reflective of an actual decline in transparency. "In my view, open access to financial data for the public has not declined from 2015 to 2018. On the contrary, I think more information is available now than ever before," says Poynter.

He suggests two reasons why there may be a shift in perception. He notes that when this survey was taken in 2015, quarterly reporting of grant information under the American Recovery and Reinvestment Act was still fresh in everyone's mind. In addition, back in 2015, transparency was more novel, whereas now it is a more established practice. As Poynter notes, "In 2015, this was a major priority for governments. Three years later, it's more routine and therefore, less exciting."

FIGURE 11

Overall, the percentage of respondents who feel their organization has made data accessible to the public has decreased

To what extent do you agree with the following statement: Our organization has significantly opened up access to financial data for the public.



Source: Deloitte analysis of NASACT survey responses.

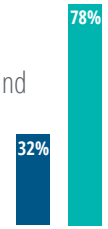
The impact of digital technologies varies across NASACT financial management roles

FIGURE 12

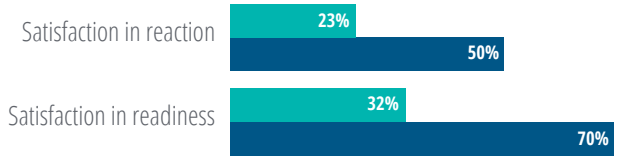
The impact of digital technologies varies by role

Comptrollers Auditors

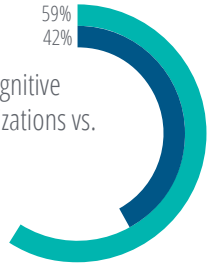
1 **78% of comptrollers** feel they are behind the private sector in terms of digital capabilities vs. only **32% of auditors**.



2 **Auditors** are twice as satisfied as **comptrollers** with their organizations' reaction and readiness to respond to digital trends.

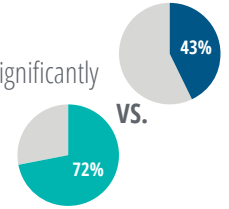


3 **42% of auditors** reported that AI and cognitive technologies are not present at their organizations vs. **59% of comptrollers**.



4 **95% of comptrollers** stated they are using data to some extent to drive their decisions vs. **84% of auditors**.

5 **43% of auditors** believed they have significantly opened access to data for the public vs. **72% of comptrollers**.



Note: Insufficient responses were received from the treasury function to evaluate with confidence.
Source: Deloitte analysis of NASACT survey responses.

Auditors

There is a gradual shift in the role of auditors from assessing issues of the past to focusing on risks of the future. Auditors today are expected to provide transformational insights that businesses can use to enhance performance.[15] This shift is reflected in the survey findings from auditors at NASACT. While 48 percent of auditors are still engaged in traditional financial audits, there is a significant presence of performance audits. About 24 percent of auditors said they are mostly engaged in performance audits now.

The latest analytics tools and technologies like RPA and natural language processing (NLP) can assist auditors in delivering deeper insights by freeing them from routine tasks to focus on activities that require more human judgment. Auditors, however, indicate security and privacy concerns as the most important barrier impeding them from taking advantage of digital trends. They also cite a lack of understanding of technology among the top two barriers to adopting automation and cognitive technologies.

FIGURE 13

Performance audits represent a significant part of the audit function

What is the mix of traditional financial audits and performance audits conducted by your organization?

Not shown: Other (3 percent).

Note: Percentages may not total 100 percent due to rounding.

Source: Deloitte analysis of NASACT survey responses.

Comptrollers

The use of automation and cognitive technologies is very low among NASACT comptrollers, with only 4 percent reporting broad use of these technologies. Sixty-two percent of comptrollers said these technologies are not prevalent in their organization at all.

Of all the priority tasks performed by comptrollers—such as financial reporting, procurement, payments processing, and anti-fraud—financial reporting has been most impacted by automation and cognitive technologies. Comptrollers report that they often use financial automation tools and spreadsheets to prepare the comprehensive annual financial report (CAFR), which is a detailed presentation of a state's financial condition.

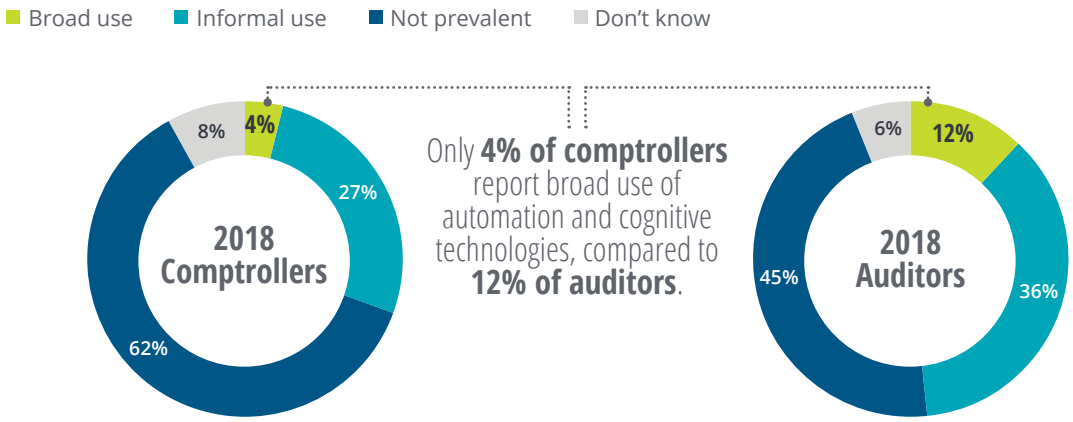
Predictive models can help comptrollers flag fraudulent returns with greater accuracy (see sidebar); however, surprisingly, comptrollers report anti-fraud sensing and monitoring as the least impacted activity by cognitive technologies.

For their accounting systems, comptrollers reported that most use spreadsheets (77 percent) and reconciliation applications (50 percent). The use of newer technologies like cloud computing and blockchain is not generally prevalent.

FIGURE 14

The use of automation and cognitive technologies is low, especially among comptrollers

How prevalent is the use of automation and cognitive technologies at your organization?



Note: Percentages may not total 100 percent due to rounding.
Source: Deloitte analysis of NASACT survey responses.

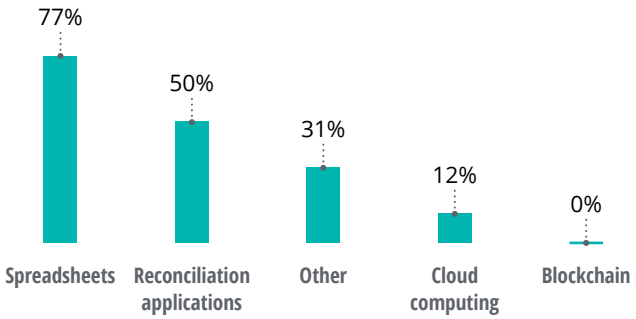
CASE STUDY: MARYLAND USES ANALYTICS TO TARGET RISKY TAX RETURNS

The Maryland comptroller of the treasury's office changed the way it looks for tax fraud, increasing the use of data analytics and predictive modeling. The impact has been significant. Prior to the new approach, about 90 percent of the returns that were flagged as potentially fraudulent were "false positives," and this consumed a great deal of tax reviewers' efforts. As the state has adopted more sophisticated data algorithms, the accuracy rate has been boosted to between 65 and 70 percent, helping to stop $30 million in suspect returns. The new system "scores" returns so that cases can be prioritized based on the likelihood of fraud. This helps Maryland clear false positives faster for responsible filers and has allowed workers to focus on areas of higher impact.[16]

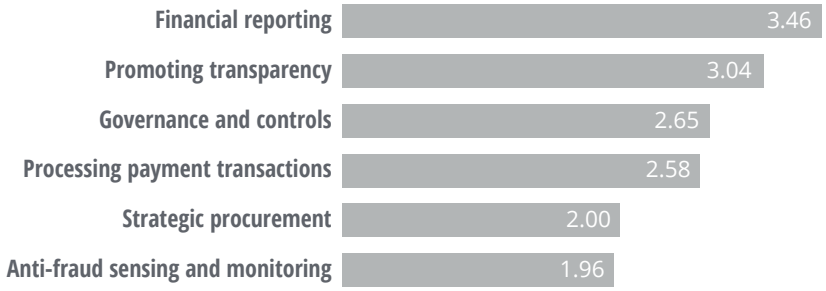
FIGURE 15

Comptrollers still use older tools for their accounting systems

What technologies does your organization use for your accounting systems?



How have the following activities in your organization been impacted by automation and cognitive technologies? (1 indicates least impacted and 5 indicates most impacted.)



Source: Deloitte analysis of NASACT survey responses.

Treasurers

Insufficient responses were received from treasurers to evaluate with confidence how digital, automation, and cognitive technologies are impacting their activities. However, from the small number of responses received, there seems to be some penetration of these technologies in treasury activities.

The responses indicate that like comptrollers, many treasurers at NASACT are also automating their reporting process. Most of the respondents said that their reporting process is automated from a moderate to large extent. They also reported that cash management tends to be the activity most impacted by automation and cognitive technologies.

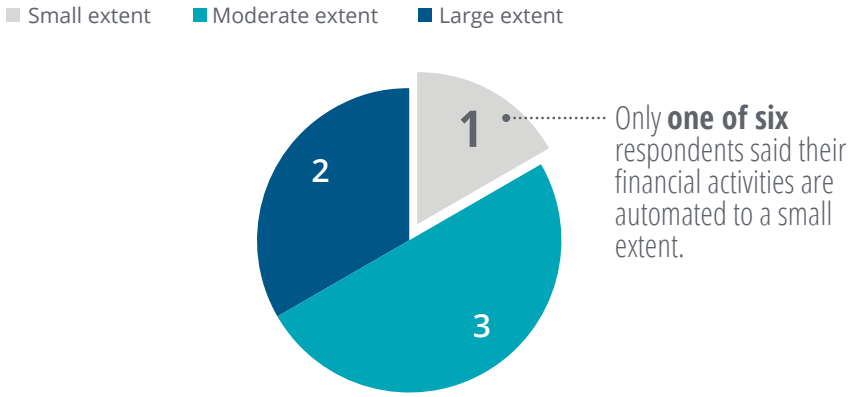
Treasury management system (TMS)—a software used to automate, record, and control many core treasury functions—is being used by all respondents. However, the reported usage of TMS across different functional areas varies between responses. Most treasurers are using TMS for bank automation capabilities, automating payments and communicating with banks, and providing cash updates in real time. Additionally, about half are using TMS for integration into other agency systems and for an integrated treasury approval process with the rest of the agencies.

Digital transformation is as important to treasurers as it is to auditors and comptrollers, according to Poynter. "For treasurers, the key obstacles to this transformation include cybersecurity and data privacy," stated Poynter.

FIGURE 16

Automation of the treasury process appears to vary

To what extent are reporting of financial activities under treasury processes automated?



Source: Deloitte analysis of NASACT survey responses.

Recommendations and conclusion

DIGITAL AND COGNITIVE TECHNOLOGIES are reshaping how work is performed in numerous organizations. In public finance, various forms of automation can reduce backlogs, cut costs, and free workers from routine tasks, all while improving accuracy. Thanks to AI and data analytics, it is now possible for technology to perform tasks which were not feasible for human workers, such as quickly sifting through millions of documents for relevant content.[17]

These technologies offer many potential benefits for state organizations, but to realize these enhancements requires significant preparation. Public finance and audit leaders looking to capitalize on emerging technologies should evaluate their current processes, recognize areas of opportunities, and devise a road map for the integration of these technologies into day-to-day operations.

NASACT members could consider the following approaches to accelerate adoption and successfully implement digital and cognitive technologies:

1. **Have a clear and coherent strategy.** Some state organizations already have a strong digital strategy, but many others do not. Our survey found a link between a clear and coherent technology strategy and digital success. A clear strategy provides a vision for the future and typically works to reduce barriers that can hinder the adoption of key technologies.

2. **Revisit investment choices.** Technologies such as RPA and machine learning have the potential to produce significant value. As finance leaders weigh their investment options, decisions that promote the adoption of a variety of technology approaches should be considered. Every day, computer science is advancing the use of machines to process unstructured data, employ image recognition, and learn adaptively. NASACT members should balance investment in both established and emerging technologies within their organizations.

3. **Prepare the workforce.** Our survey revealed that many financial leaders have concerns about their workforces' ability to effectively handle newer technologies. State organizations can build technological capacity by focusing on enhancing these skills for their employees. Proactively providing training can help public finance leaders minimize the disruption caused to its workers. In addition, external expertise in the form of consultants and contractors can be used to augment an organization's technical capabilities.

4. **Enhance data accessibility.** Data is a powerful resource, and its thoughtful use can help organizations enhance transparency, monitor performance, and achieve greater operating efficiency. Our survey shows that NASACT members recognize that the ability to draw insights from financial data could be key to future success. Where appropriate, public data transparency websites may be helpful, and some state governments have seen greater efficiency through data transparency.[18]

5. **Embrace the future.** Too often, an excessive focus on the potential disruption of new technologies prevents leaders from seeing the future potential. As digital technologies mature, their application to public finance and audit should enable leaders to more effectively fulfill their mission as stewards of public budget expenditures and operations. Organizations that leverage technologies under the wise guidance of experienced finance professionals should be well positioned to successfully meet this mission.

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About the National Association of State Auditors, Comptrollers and Treasurers

The National Association of State Auditors, Comptrollers and Treasurers (NASACT) is an organization for state officials tasked with the financial management of state government. NASACT's membership comprises officials who have been elected or appointed to the offices of state auditor, state comptroller, or state treasurer in the 50 states, the District of Columbia, and the US territories. NASACT has a headquarters office in Lexington, Kentucky, and a second office in Washington, D.C. The Association:

- Plans and manages training and technical assistance programs and handles numerous requests for information each year from state auditors, comptrollers, treasurers, and other government officials, as well as the private sector.
- Monitors and responds to federal legislation and agency developments that have an impact on state government and acts as a liaison to federal regulatory bodies and congressional committees on issues of interest to members.
- Uses its expertise to respond to technical standards-setting bodies, helping to ensure the highest levels of government transparency, accountability, and integrity.

About the survey

The 2018 Deloitte-NASACT survey was jointly conducted by NASACT and Deloitte in May 2018. We received responses from 41 states. Out of a total of 71 responses, 33 were from auditors, 26 from comptrollers, 6 from treasurers, and 6 from other functional areas.

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