

STATE IT WORKFORCE: HERE TODAY, GONE TOMORROW?

A National Survey of the States



Founded in 1969, the National Association of State Chief Information Officers (NASCIO) represents state chief information officers and information technology executives and managers from the states, territories, and the District of Columbia. The primary state members are senior officials from state government who have executive-level and statewide responsibility for information

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Pat Cummins, ESRI
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Please direct any questions or comments about *State IT Workforce: Here Today, Gone Tomorrow?* to Stephanie Jamison at sjamison@amrms.com or (859) 514-9148. For general inquiries regarding NASCIO's Corporate Leadership Council, or CLC Working Groups, please contact Shawn Karrick at skarrick@amrms.com or (859) 514-9156.

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BACKGROUND & APPROACH

The aging of the public sector workforce is a well-documented trend that may significantly impact the ways in which states deliver IT services in the future. According to research released by the International Public Management Association for Human Resources (IPMA-HR), conducted by EquaTerra, 69 percent of organizations report that between 1 and 25 percent of the workforce is currently eligible for retirement and 26 percent report that between 26 and 50 percent of the workforce is currently eligible. The EquaTerra survey included responses from the federal, state and local sectors and spanned a wide variety of departments within government. While these numbers are not solely reflective of state government, they indicate dire implications for the public workforce.

Additionally, recent research in the federal arena has revealed that:

- 60 percent of people in the federal workforce will be eligible to retire in the next 10 years, and 40 percent are likely to retire when they first become eligible.
- 90 percent of civilian senior government executives will be eligible to retire in the next 10 years.
- 18.5 percent of the government workforce — about 290,000 employees — will retire by the end of 2010.¹

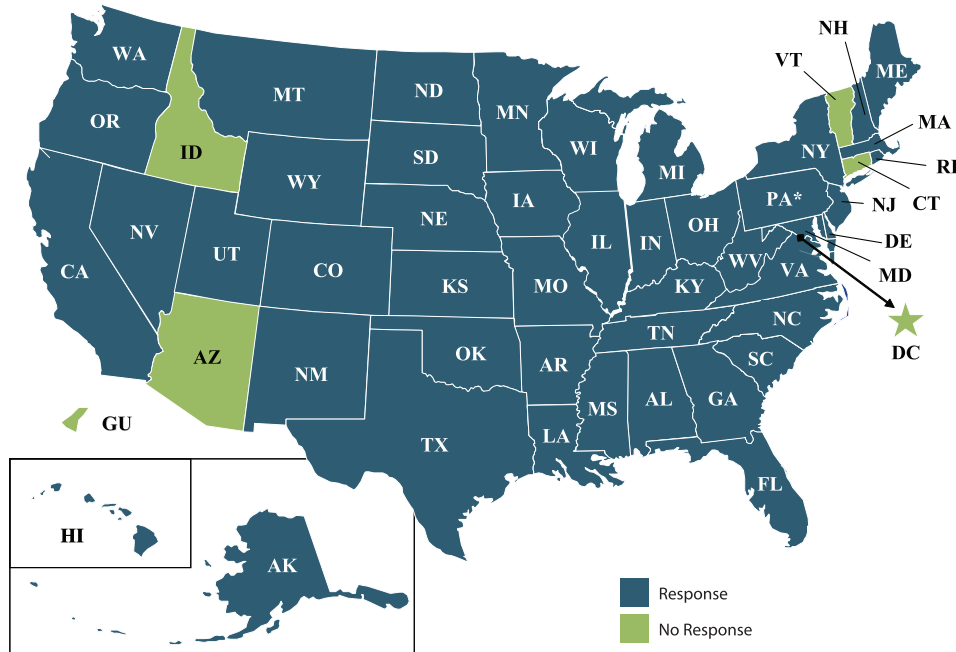
State IT Workforce: Here Today, Gone Tomorrow? was designed to gain insight into this issue at the state level and identify future IT workforce trends from the view of the state CIO. State CIOs had previously offered anecdotal evidence that states were beginning to face a potential shortage of government IT workers in the near future due to anticipated retirements of baby boomers and a waning interest in government IT employment from the younger generation.

From this anecdotal evidence, NASCIO's Corporate Leadership Council (CLC) Public Private Partnership Working Group determined that there was no baseline of data from the states that gauged the scope and impact of this looming issue. The Working Group decided to issue a survey to the states and garner factual evidence on what states are currently facing and what challenges they are anticipating with future IT workforce trends. The Working Group developed survey questions in the spring of 2007, in conjunction with NASCIO staff.

Beginning in June 2007, NASCIO asked states to participate in a web-based survey to assess the landscape of the state IT workforce, primarily focusing on the pending wave of upcoming retirements. The results of that survey are listed in aggregate here. These aggregated results of this survey are available to NASCIO members as a tool to assist in identifying and addressing state IT workforce trends.

The online survey was completed by the state CIO or other senior official of the state IT organization. States were given over three months to respond, in order to allow for maximum state participation. Forty-six states responded to the survey, making it one of NASCIO's highest response rates for a nationwide survey. Sheer participation numbers alone indicate that this challenge is one of which states are keenly aware and seeking to counteract.

Figure 1: Survey Respondents



SURVEY PARTICIPANTS

Forty-six states responded to the survey through September 10, 2007. With nearly every state in the country responding, participation included a wide distribution in geography, population, and budget.

The following states responded (*listed alphabetically*):

- Alabama
- Alaska
- Arkansas
- California
- Colorado
- Delaware
- Florida
- Georgia
- Hawaii
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts

- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Jersey
- New Mexico
- New Hampshire
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Virginia
- Washington
- West Virginia
- Wisconsin
- Wyoming

EXECUTIVE SUMMARY OF KEY SURVEY FINDINGS

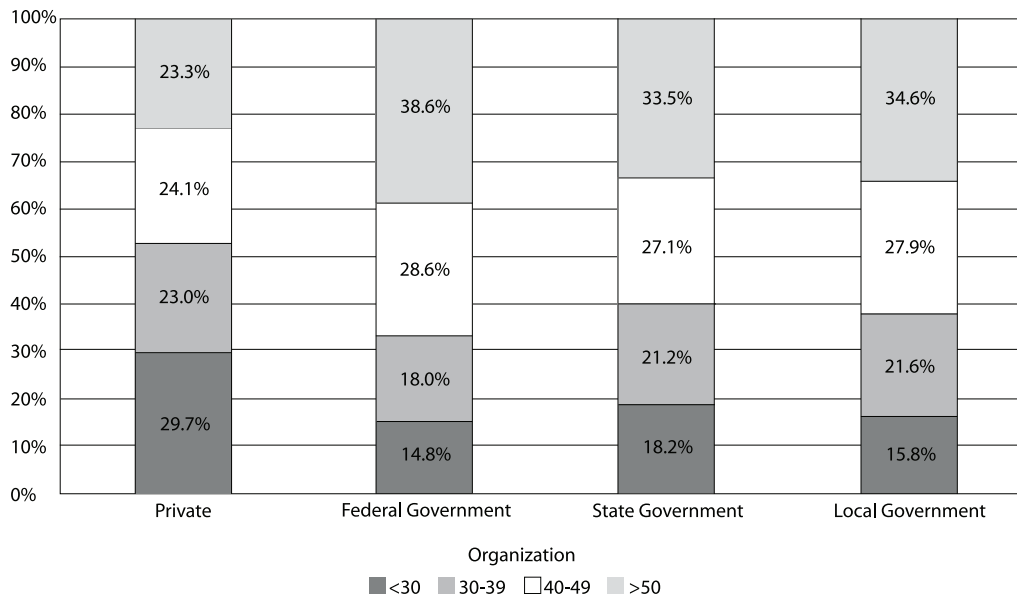
States are facing considerable challenges when it comes to the changing state IT workforce. A large number of senior state IT employees are becoming eligible for retirement and states are wary, at best, of their ability to fill their shoes. Survey results indicate that, nationwide, the average of anticipated retirements for state government IT employees within the next five years is 27 percent. While state IT departments do not indicate that they are currently having trouble achieving their IT strategic goals, most are cautious about their future ability to achieve these goals with the decline in applicants for state jobs and the widespread difficulty in recruiting new employees to fill vacant IT positions.

The benefits package continues to be a primary driver behind enticing new employees to work for the state. While this is a fairly predictable response, location and workplace flexibility are also leading contenders that states cited as attracting workers to state employment. Although just a slim majority of states indicated that their state's civil service system affected their ability to acquire skilled IT personnel, an overwhelming majority cited their state's salary rates and pay grade structure as presenting a challenge in the recruitment and retention of IT talent.

This national survey, the first to specifically assess state government IT workforce challenges from the state CIO perspective, addresses a lingering issue of which state governments have been aware, but slow to respond. While states clearly indicated through their results that they are aware of future challenges facing public IT departments, most did not indicate that they had a contingency plan in place to counteract this trend. Many states that indicated that they have a plan also indicated that those plans were still in the abstract or planning phases, rather than a fully developed and implemented plan.

The management of human capital in state governments continues to be problematic. States have had several failed attempts for change, and only a handful have had success stories in changing the traditional structure. The upcoming drop-off in qualified IT employees to replace outgoing senior management and technical expertise appears to be certain and imminent. State CIOs who begin to address this issue, and develop plans for knowledge management and IT employee retention, will be ahead of the curve on a challenge that is quickly coming around the bend.

Figure 2: Age Distribution of Workers in Government & Private Sector, 2005



Source: Bureau of Census, Current Population Survey (CPS), Annual Demographic File, March 2005

DETAILED SURVEY RESULTS

Survey results are presented in the same order as the survey instrument (see Appendix III). This section highlights particular areas of interest from the survey results, as well as observations on those results and their implications for NASCIO members.

SURVEY SECTION I. Assessment of Anticipated State Employee Retirements

1. What percentage of your state’s IT employees will be eligible for retirement within the next five years?

Of the 46 states that responded to the survey, 42 answered this question. One state omitted an answer, and three others stated that the information was unknown. Of the numbers given, some respondents indicated that the numbers may be estimates. When all responses were averaged, the percentage of state IT employees that will be eligible for retirement within the next five years nationwide was **27 percent**. This number was somewhat surprising, given that it is lower than expected according to anecdotal evidence.

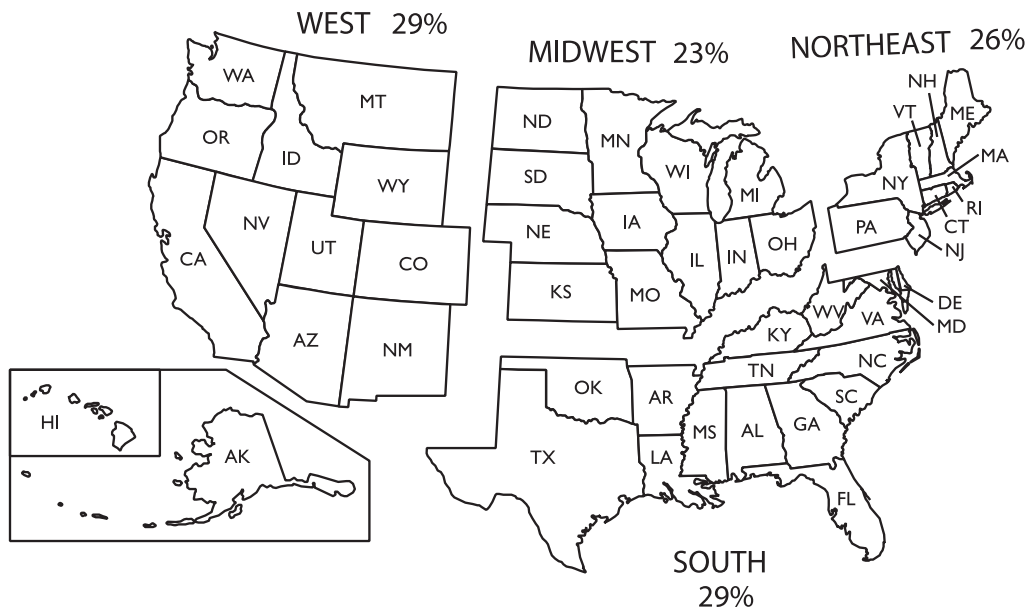
- Average: **27%**
- Median: **25%**
- Data Set Outliers: **10%** (Lowest), **60%** (Highest)

In most state governments, the baby boom generation—typically characterized as those born between 1946 and 1964—represent the largest percentage of the workforce. Census data for 2005 indicates that 60.6 percent of the state government workforce is age 40 or over. This is significantly higher than the states’ private sector counterparts, which average a 47.4 percent employee population that is age 40 or over.² (See Figure 2)

According to research released by the International Public Management Association for Human Resources, conducted by EquaTerra, 69 percent of organizations report that between 1 and 25 percent of the workforce is currently eligible for retirement and 26 percent report that between 26 and 50 percent of the workforce is currently eligible. The EquaTerra survey included federal, state and local sectors and spanned a wide variety of departments within government. While these numbers are not solely reflective of state government, they show dire implications for the public workforce, and states will not be immune to this.

While this survey’s results were on the lower end of anticipated results, the indicated average of 27 percent of state IT employees that are expected to retire within five years reveals what is ahead—with large numbers of public employees expected to retire throughout state government, there will be key implications for the states and state CIOs as they begin to address this looming challenge.

Figure 3: Regions



With nearly every state in the nation responding to this NASCIO survey, the results reflect a wide variety of regional, socio-economic and demographic diversity. It also includes the state which has the highest public employment population in the nation—California—to the lowest public employment population—Wyoming. These numbers are based on data provided by the National Association of State Personnel Executives (NASPE) to the Council of State Governments for the *2007 Book of the States* and are the Full-Time Equivalent (FTE) number of employees in state government, excluding higher education and quasi-state agencies. States that did not respond to this survey, or that did not provide this data to NASPE, are not included in these lists. The top ten states with the most public employees as of February 2007³, and their respective numbers, are as follows:

- 1) California—185,606
- 2) Texas—142,621
- 3) New York—134,900
- 4) Florida—83,714
- 5) North Carolina—69,922
- 6) New Jersey—61,709
- 7) Michigan—55,752
- 8) Pennsylvania—54,809
- 9) Virginia—53,073
- 10) Washington—52,012

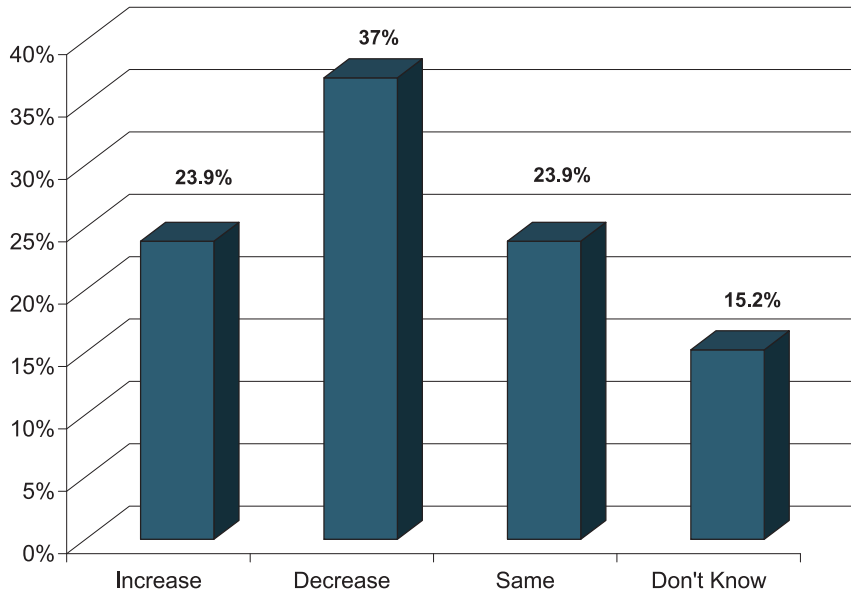
When the responses to Question 1 regarding the percentage of eligible retirements within the next five years of these largest public employee population states are averaged together, the average percentage is **27.11 percent**—exactly mirroring the national trend. Actual workforce retirement estimates for each state are not shown due to requests by the states not to release the data.

The ten states with the least amount of FTE state employees, and their respective numbers, are as follows:

- 1) Wyoming—7,919
- 2) Delaware—11,920
- 3) Montana—13,546
- 4) Nebraska—14,321
- 5) Nevada—15,345
- 6) Georgia—15,000
- 7) Utah—16,411
- 8) Arkansas—24,654
- 9) Mississippi—25,730
- 10) Kansas—26,239

When the responses to Question 1 regarding the percentage of eligible retirements within the next five years of these smallest public employee population states are averaged, the percentage is **28.97 percent**—nearly 2 percentage points higher than the national average. This would suggest that states with an already small workforce may be facing one that is even smaller in the near future.

Figure 4: Percentage Increase in IT Applicants Within Past Five Years



When state responses were broken down by region—Midwest, South, Northeast and West, as determined by the U.S. Department of Commerce—and compared to the nationwide average of 27 percent, the Southern and Western regions appear to have the highest rates of anticipated retirements. Both regions had an overall anticipated average of 29 percent regarding upcoming retirements within the next five years, two percentage points above the national average. The Midwestern region had the smallest number of all of the regions, with a 23 percent anticipated retirement rate, while the Northeast region had a 26 percent anticipated retirement rate. (See Figure 3)

2. Has there been a change in the number of applicants for state IT positions within the past five years?

States were asked to indicate the status of their state’s number of applications for state IT positions as either having Increased, Decreased, Same or Don’t Know. While there was no overwhelming majority, most states indicated a decrease in the number of applications. However, the same number of responses—23.9 percent—was given for both Increase and Same.

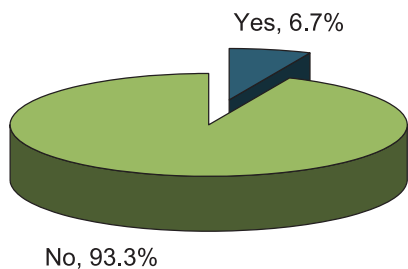
These responses seem to indicate that the challenge of finding qualified IT workers to replace upcoming retirements is more of a looming problem in the future, rather than the continuation of a trend that has been evolving over recent years. However, it is important to differentiate between simply the number of applicants for state IT positions and the number of those applicants who will actually be deemed as qualified to fill the shoes vacated by older, experienced workers. (See Figure 4)

3. Is your state offering any incentives to IT employees who postpone retirement?

Despite the indication that states are seeing a decrease in the number of applicants for state IT positions, a large majority of states have indicated that they are not offering incentives to IT employees who postpone retirement.

This high number response is not surprising given the states’ inability to feasibly offer incentives to state employees—there are likely to be statutory or policy prohibitions against most types of incentives that could be offered. With the exception of providing retention bonuses, offering more interesting assignments, and informally asking employees to stay, states’ hands are primarily tied in this regard. (See Figure 5)

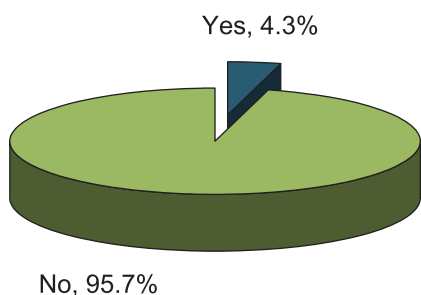
Figure 5: Does State Offer Incentives to Postpone Retirement?



4. Is your state offering any incentives to IT employees who retire early?

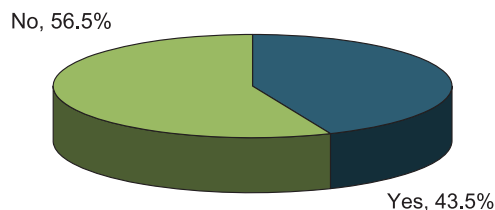
When asked if states were offering any incentives to IT employees who retire early, states again indicated by an overwhelming majority that they are not offering such incentives. As previously stated, this number is very likely based on the lack of the states' ability to provide such incentives. States may offer buy-outs and allow employees to pay a certain amount of money in exchange for extra "years" of employment, which will allow them to retire early, but this is a benefit that states have had for several years and is not likely to be correlated with the trend of changing workforce dynamics. (See Figure 6)

Figure 6: Does State Offer Incentives to Retire Early?



5. Has the number of retirements or expected retirements caused your state to reconsider the way in which it delivers IT support and services? (See Figure 7)

Figure 7: Has Number of Retirements Caused State to Reconsider Services?



5.1. If yes, in what ways?

States were asked if the number of retirements, or anticipated retirements, has caused them to reconsider the way in which they deliver IT support and services. Of the 43.5 percent of respondents that indicated that these anticipated retirements had caused reconsiderations, responses included ways such as exploring more cross-boundary collaboration opportunities, including public-private partnerships, and combining and consolidating certain services.

Increasing the use of contract employees, outsourcing services, upgrading old legacy systems and moving away from older applications and services were frequently cited among state responses. Also included in state responses was the re-hiring of former employees to perform certain tasks on a contractual basis due to their unique knowledge of systems and applications that is not widely available in today's marketplace.

States Respond

Arkansas: "We are doing our best to make sure we effectively cross-train for these skill sets. Also, as the work force approaches retirement, we are finding the technologies supported by this work force are also nearing the time for full replacement by newer systems and services."

Delaware: "We have focused more on employee development and 'growing our own resources.'"

Wyoming: "Temporary help on-board, Contractor/vendor assistance via contracts."

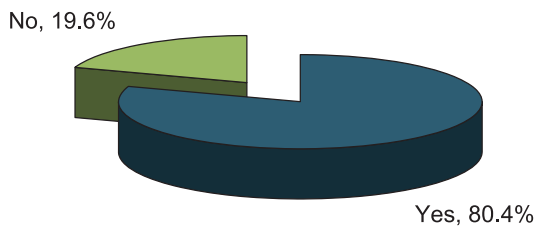
SURVEY SECTION II. State IT Recruitment and Retention

6. Is your state having any difficulty recruiting new employees to fill vacant IT positions?

When states were asked if they were having difficulty recruiting new employees to fill vacant IT positions, an overwhelming majority indicated that they were experiencing difficulty. 80.4 percent of respondents responded 'yes' while only 19.6 percent responded that they were not. These numbers reflect a trend that many have suspected to be true.

While only a slim majority of states in Question 2 answered that their states have seen a decline in applicants for state IT positions, these results demonstrate that states are clearly facing challenges in actually obtaining qualified personnel to replace those who are retiring, or otherwise transitioning out of state government. The applications may still be coming in on a steady basis, but the challenge lies in finding those employees who are able and willing to step into the shoes of senior employees with years of institutional knowledge. (See Figure 8)

Figure 8: Is State Having Difficulty Recruiting New Employees?



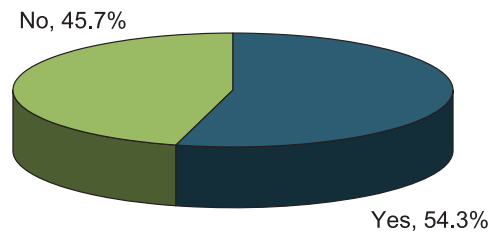
7. Is a shortage of qualified candidates for state IT positions hindering your state's ability to achieve its strategic IT initiatives?

This question garnered a mixed reaction from the states. When asked if a shortage of qualified candidates for state IT positions was hindering their state's ability to achieve its strategic IT initiatives,

states were almost evenly split in their responses. Only a slim majority indicated that this shortage was hindering their ability to achieve these initiatives, even though states overwhelmingly indicated in the previous question that they are experiencing difficulty in the recruitment of new employees to fill current vacancies.

Judging solely from the responses, it would appear that the overall impact of a qualified candidate shortage thus far is proving to be minimal to nearly half of the states regarding their ability to achieve strategic IT initiatives. However, given the nature of the question and the number of variables involved in achieving strategic goals, it may be difficult to attribute the shortage of available, qualified candidates to such a broadly constructed question. (See Figure 9)

Figure 9: Is Shortage of Candidates Hindering Strategic IT Initiatives?

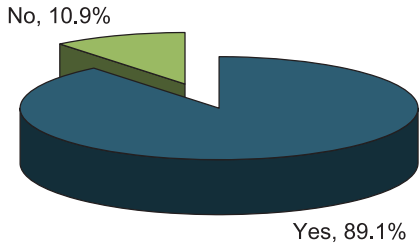


8. Does your state consider IT certifications in the application and hiring process?

A vast majority of states do consider IT certifications in the application and hiring process of incoming employees, as indicated by the large response rate of states answering that they do consider these certifications. Only 5 states indicated that they do not consider IT certifications in the application and hiring process.

This overwhelming response in favor of IT certification consideration is a clear indication of a widespread and growing trend in state governments. This is a definite change that has been observed in recent years. (See Figure 10)

Figure 10: Does State Consider IT Certifications in Hiring Process?



9. What is the education level currently required for most entry-level state IT positions?

A bachelor's degree has become the most common threshold for entry-level state IT positions, according to survey responses. Over half of state responses indicated that this is the minimum requirement for incoming entry-level workers. The 57 percent response rate is higher than state responses of high school diploma and associates degree combined.

This is a clear marketplace indicator of what is expected from entry-level IT workers across sectors. The rise of education levels that are required is reflective of a growing trend, as a college education becomes more accessible to a larger demographic

majority, and more people obtain four-year college degrees. (See Figure 11)

However, this growing trend is particularly evident in government work, as compared to the private sector. According to 2005 census data, over half of state government workers (25.3 percent) had at least a bachelor's degree, as compared with their private sector counterparts, which averaged 20 percent of workers with a bachelor's degree. (See Figure 12)

10. Is your state confident that it will be able to promote qualified staff to replace those retiring?

When states were asked if they were confident that they will be able to promote qualified staff to replace anticipated retirements, the majority said they were not. Over half of state respondents indicated that they were not confident in their ability to promote qualified staff into positions currently occupied by those approaching retirement.

This is a broad indication of a growing skills gap between outgoing senior employees and remaining personnel. This is a clear problem area that will have to be addressed by state CIOs. Steps to addressing this issue may lie in expanding knowledge management efforts and moving toward an

Figure 11: Education Level Required for Entry-Level State IT Positions

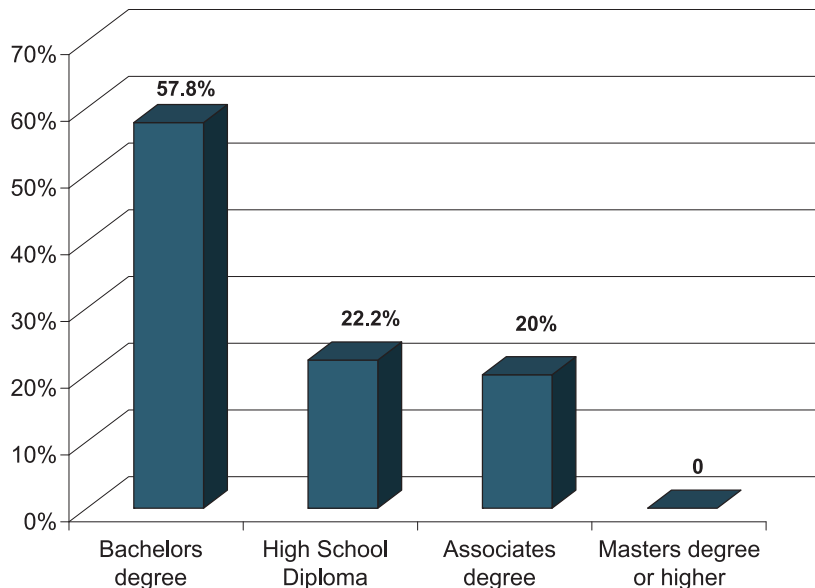
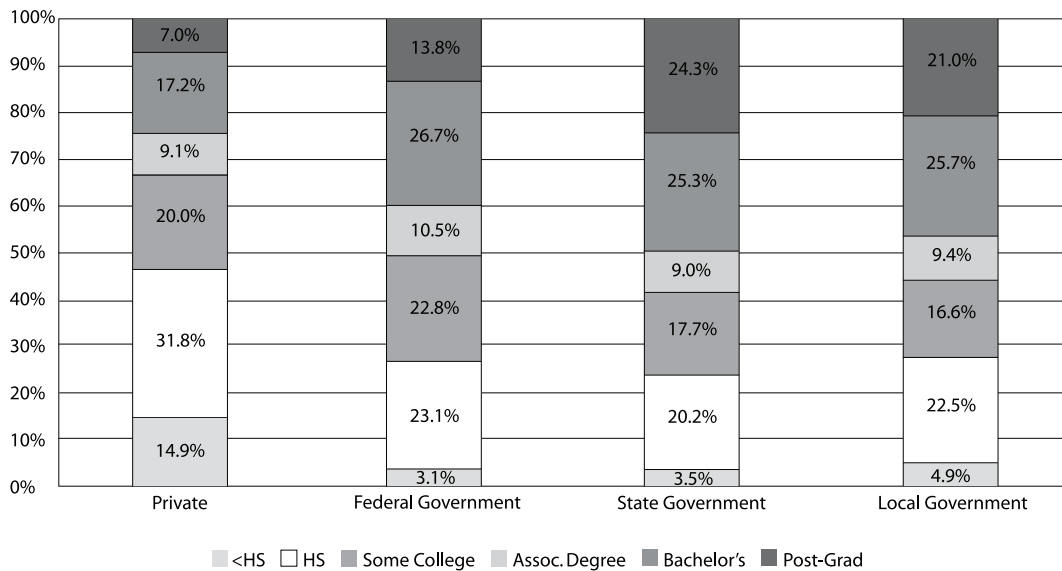


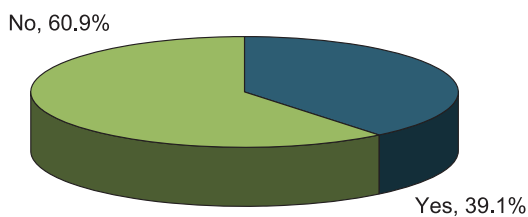
Figure 12: Educational Attainment of Workers in Government and Private Sector, 2005



Source: Bureau of Census, Current Population Survey (CPS), Annual Demographic File, March 2005

emphasis on mentoring programs to ensure that key information and principle institutional knowledge is not leaving with retiring employees. In New York, the state recently issued an IT Workforce Skills Assessment in order to address IT skills gaps that were previously identified in a statewide survey and to improve IT training. This survey was issued in order to gather information on the current IT workforce's technology skills. The state is currently working to follow the 9 recommendations provided by this Assessment. To learn more about New York's IT Workforce Skills Assessment, see Appendix I. (See Figure 13)

Figure 13: Will State Be Able to Promote Qualified Staff to Replace Those Retiring?



11. What attracts new IT employees to work for your state?

States were asked to indicate what attracts new IT employees to work for them and were allowed to select all answers that applied. Not surprisingly, a large percentage (89 percent) indicated that their benefits package was the leading incentive in attracting incoming state employees. It is well-known that a comprehensive benefits package is one of the primary drivers behind application for a state government job. This high response rate indicates that these benefits are continuing to be attractive to potential and incoming employees, as well as to current employees.

While the benefits package is a commonly regarded advantage in state government employment, location garnered a 65.2 percent response rate, coming in as the second highest attraction for new state IT employees. This response is somewhat surprising given the variety of state capital locations; however, state capitals are generally situated in desirable locations that boast a desirable quality of life and an increased standard of living. Particularly in rural states with few large cities, state capitals can be attractive places for young workers across the state to relocate.

Another surprisingly high response was that of workplace flexibility. Nearly half of all respondents

indicated that workplace flexibility is an attraction for new IT employees, which goes against the general perception of a rigid state government structure. The ability to work during alternative hours, condensed work weeks, and other perks of a flexible workplace are more often generally associated with the private sector, rather than government employment. While the high response rate could be attributed to the flexibility to change offices or departments that state workers have once they are within a state civil service system, these results indicate that states seem to be experimenting with ways to incorporate flexibility as an incentive to their employees and the practice is more widespread than commonly thought. (See Figure 14)

Figure 14: What Attracts New Employees to State?

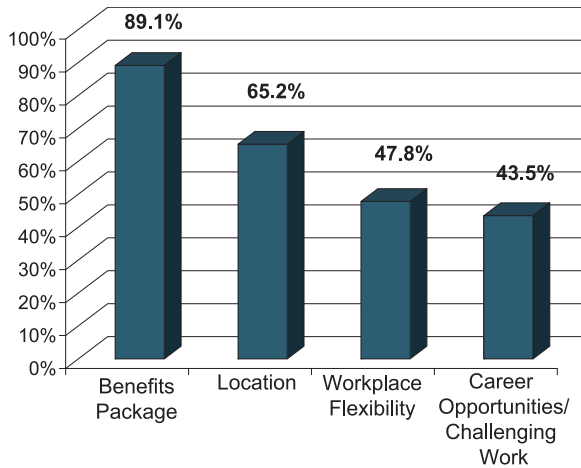
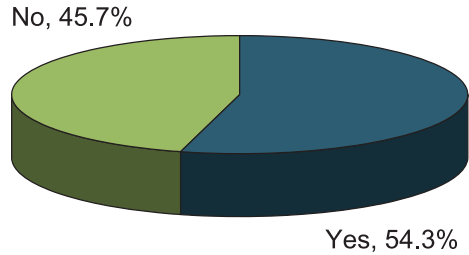


Table 1: What Attracts New Employees to State?

Benefits Package	89.1%
Location	65.2%
Workplace Flexibility	47.8%
Career Opportunities/Challenging Work	43.5%
Tuition Reimbursement	23.9%
Training and Certification Opportunities	19.6%
Salary	17.4%
Other	17.4%

12. Does your state’s civil service system affect your ability to acquire the skilled IT personnel that you need? (See Figure 15)

Figure 15: Does Civil Service System Affect Ability to Acquire Skilled Personnel?



12.1. If Yes, in what ways?

States were asked if their state’s civil service system affected their ability to acquire needed skilled IT personnel. A slim majority, 54 percent, indicated that their civil service system does affect their ability to acquire these staff; however, this is far from an overwhelming majority. A little over 45 percent of respondents indicated that their civil service systems have no effect on their ability to acquire needed IT personnel. Of those that did respond “yes,” responses varied in the ways in which their system affects this ability.

These results are somewhat counterintuitive. Among the common reasons cited by states regarding the negative impact of the civil service system included a too-rigid hiring process, with systems that take too long to hire eligible employees and often end with employees seeking other employment due to the lengthy process. This problem is commonly thought to be, albeit with a few exceptions, a nationwide dilemma faced by state governments. The split response rate seems to indicate that widespread hiring impediments caused by civil service systems may not be as universal as once thought.

States Respond

Tennessee: “1) Lengthy process to get on civil service registers 2) Salary restrictions 3) Inflexible job classification 4) Difficult to release entrenched under-performers 5) No

merit raise consideration for high performers.”

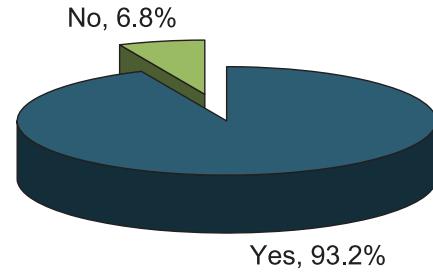
Oregon: “The challenges we face are primarily related to the following: IT professionals believe they should be able to apply for positions online. The state’s current application process is initiated by either 1) filling out a pdf or word version of the application form and submitting via email or 2) filling out a paper form and mailing, faxing, or emailing an imaged copy of the application by the submission deadlines. Further, IT professionals feel they should be able to go to check the status of their application as it proceeds through the process. Finally, IT professionals have expressed their belief that the recruitment process from application to hiring is too lengthy. Oregon has initiated a State Recruitment Improvement Project <http://www.oregon.gov/DAS/HR/SRIP.shtml> to address these and other issues associated with streamlining the recruitment process for all job classifications.”

Kansas: “We are only allowed to offer the pay grade specified by the civil service system. We can not hire a new employee before the current employee leaves, to ensure an overlap of experience. Positions are approved by the personnel office who may not understand our requirements.”

States also cited that the typically lower salary that state workers may earn makes it difficult to retain current workers or lure future workers from the private sector. While a few states did cite that their state have processes in place that allow them to compete with the private sector for skilled IT workers by exempting them from their traditional civil service system, most states indicated that their state’s inflexible hiring and pay systems impact their ability to attract new state IT workers.

13. Do your state’s salary rates and pay grade structures present a challenge in attracting and retaining IT talent?
(See Figure 16)

Figure 16: Do State’s Salary Rates Present a Challenge in Retaining IT Talent?



13.1. If yes, how do you plan to overcome this challenge?

States gave a very clear majority of “yes” responses when asked if their state’s salary rates and pay grade structures present a challenge in attracting and retaining IT talent. All except three states indicated that there is a challenge in these areas. However, when asked how they plan to address this issue, states did not give much indication that this challenge is being addressed in a specific manner. While some states did indicate that they are actively working to expand their entry-level recruiting efforts or are currently doing a market and pay analysis, many are still primarily in the planning or abstract stages of dealing with this issue. Some states responded that a re-design of their state’s current job classifications had been recently completed or was in the process.

Answers for overcoming these challenges primarily indicated an emerging interest in innovative recruitment strategies, growing use of contract employees, re-addressing current job classifications and placing studies or surveys into the field to adequately identify market salaries. Other states cited that they would continue to emphasize the generous benefits and retirement packages that states can offer potential employees that may counteract a lower starting salary, as well as offering sign-on bonuses and/or training stipends.

States Respond

Washington: “The budget for Washington State that becomes effective on July 1, 2007 provides a ten percent increase in salaries for IT positions.”

Texas: “Create defined career ladders. The State of Texas has the ability to use recruitment and retention payments up to \$5,000.00.”

Utah: “Hire less experienced workers that can be trained to perform higher level skills. Augment skill shortage by hiring consultants and more experienced talent as needed.”

North Dakota: “Sell [potential employees] on the family-friendly environment and quality of life in our state.”

It is important to note that this question only focused on pay grades and salary rates specifically, and not on overall benefits packages, which may have contributed to the overwhelmingly high response rate. However, it is well-known that state government salaries are often lower than the private sector. State pay grades are generally below the marketplace in highly competitive and demanding IT positions. This commonly held assumption will vary depending on regional locations as well. For instance, a job at a prominent private sector IT firm may pay a considerably higher salary, but these private sector firms may also require employees to relocate. Depending on the region, a state government job may be among the higher paid positions in the area.

14. What skills and disciplines present the greatest challenges in attracting and retaining IT employees? Select the Top 5 that apply.

When states were asked to select the top 5 skills and disciplines which present the greatest challenges in attracting and retaining employees, the top responses seemed to vary widely between current and future challenges.

The option that garnered the largest response rate was Project Management, with well over half of states—29 in total—responding that this was among the greatest challenges they face. While this answer may come as somewhat of a surprise initially, project management is a highly desirable skill set. It is in considerable demand across sectors, and often requires years of training. This number reflects the growing recognition of project management as

critical to the success of delivering IT projects on time and within budget. In 2005, during NASCIO’s Midyear Conference, state CIOs were asked what key capabilities and disciplines they were seeking in developing effective public-private partnerships. Project management ranked second among several categories. State CIOs have recognized this discipline as one that needs careful attention, and these numbers reflect this.

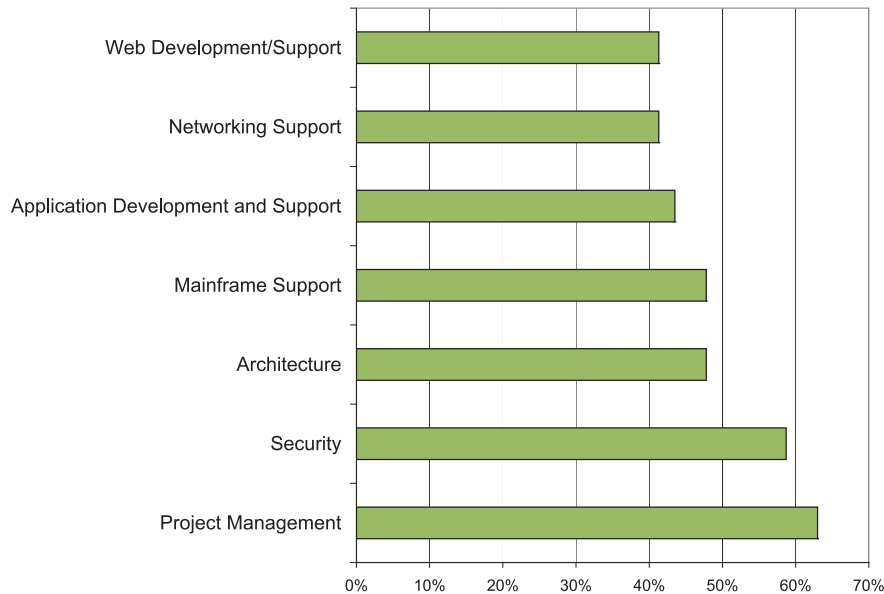
The second highest response of Security, which over 58 percent of states indicated as a top challenge, mirrors the priority that state CIOs have frequently cited as among their top areas of concern in recent years. The third and fourth highest response rates were tied at 47.8 percent, with 22 states each reporting that Architecture and Mainframe Support are among their top challenges. Finally, the fifth highest response was that of Application Development and Support, with 20 states citing this as a top challenge in attracting and retaining IT employees. The demand for these IT skills mirrors recent surveys of private-sector CIOs.

The U.S. Government Accountability Office (GAO) issued a report in 2006 that employees with desired skills particularly in enterprise architecture, project management, and information security are in short supply in both the federal government and the private sector.⁴ The state responses reflect this trend. (See Figure 17)

Table 2: What Skills Present the Greatest Challenge in Attracting & Retaining IT Employees?

Project Management	63.0%
Security	58.7%
Architecture	47.8%
Mainframe Support	47.8%
Application Development and Support	43.5%
Networking Support	41.3%
Web Development/Support	41.3%
Client/Server Development/Support	26.1%
Analysis and Design	23.9%
Geospatial Analysis	23.9%
Other	19.6%
Disaster Recovery	13.0%
Testing/Quality Assurance	13.0%
Help Desk and Training	8.7%

Figure 17: What Skills Present the Greatest Challenge in Attracting & Retaining IT Employees?



SURVEY SECTION III. Impact on Future State IT Staffing and Delivery Structure

15. Has there been a change in the number of contracted IT positions within your state government over the past five years?

States were asked whether there has been a change in the number of contracted IT positions within their state government over the past five years and were asked to select “Increase,” “Decrease,” “Same,” or “Don’t Know.” While no response garnered a runaway majority, most states indicated that there had been an increase (39.1 percent). However, 30.4 percent indicated a decrease in these positions, while 23.9 percent indicated that the number had stayed the same, and 6.5 percent of respondents said they did not know.

Given anecdotal evidence, the high response to decreased contract positions is inconsistent. This reported decrease in contracted positions could be attributed to several factors. For instance, the question asked states to gauge from the present to five years ago—this includes a timeframe in which many states were suffering from dire fiscal stress and were facing major budget constraints. When faced with making cuts, they could not feasibly reduce their merit workforce, so contracted employees were often the first to be let go. Also, states could have

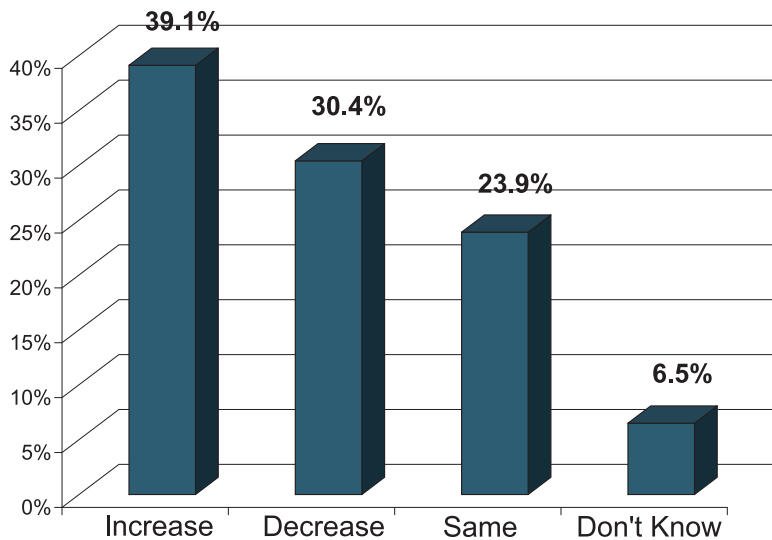
made some of those contract employees full merit state employees, which would decrease numbers of contracted workers as well. The majority of states are indicating that they are seeing an increase or the same numbers of contracted IT workers, which is parallel to the trend of states having difficulty recruiting new employees. (See Figure 18)

16. How much of a role will outsourcing play in your future plans to maintain aging legacy systems?

States were asked how much of a role will outsourcing play in future plans to maintain aging legacy systems and were asked to select “Very little part of our strategy,” “Very large part of our strategy,” or “Not applicable to my state.” A majority (58.7 percent) indicated that outsourcing will play a very little part of their state’s strategy. Nearly one-third of respondents indicated that outsourcing would play a very large part of their state’s strategy, while only six respondents indicated that the question was not applicable to their state.

The response rate shows that states are considering future outsourcing in the maintenance of aging legacy systems, at least in some capacity. This may mean business outsourcing to the private sector, use of supplemental staffing services, or re-hiring retired employees on a contractual basis who may be the only people with intimate knowledge of

Figure 18: Has There Been a Change in Number of Contracted IT Positions Over Past Five Years?



these systems. Given that this question focused on maintaining aging legacy systems specifically, and not other areas, this response is not likely reflective of overall future IT service outsourcing levels. (See Figure 19)

17. In what areas within your organization will IT outsourcing be an option over the next five years? Choose all that apply.

States were asked in which areas within their organization will IT outsourcing be an option over the next five years and were asked to select all answers that applied. There were no overwhelming majorities among the answers provided. The selections with the largest rate of response included Application Development and Support and Web Development/Support, garnering 43.5 percent and 41.3 percent respectively.

Following closely behind were Disaster Recovery (34.8 percent) and Help Desk and Training (30.4 percent). Only 8.7 percent indicated that outsourcing

Figure 19: How Much of a Role Will Outsourcing Play to Maintain Legacy Systems?

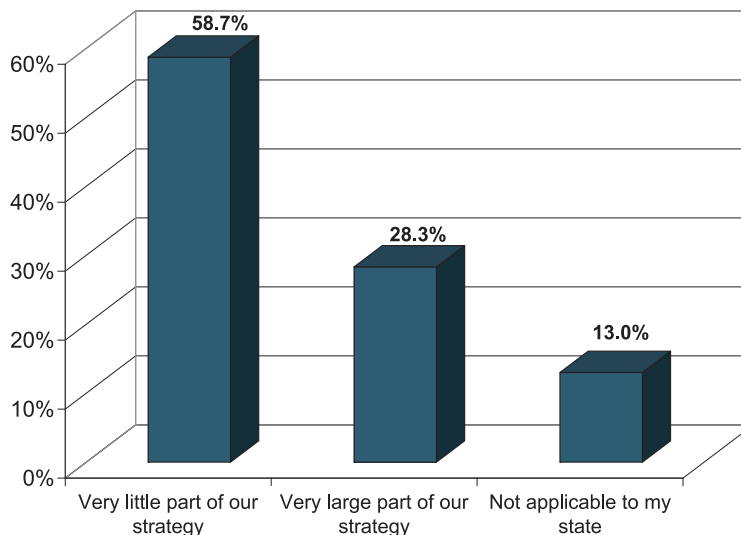
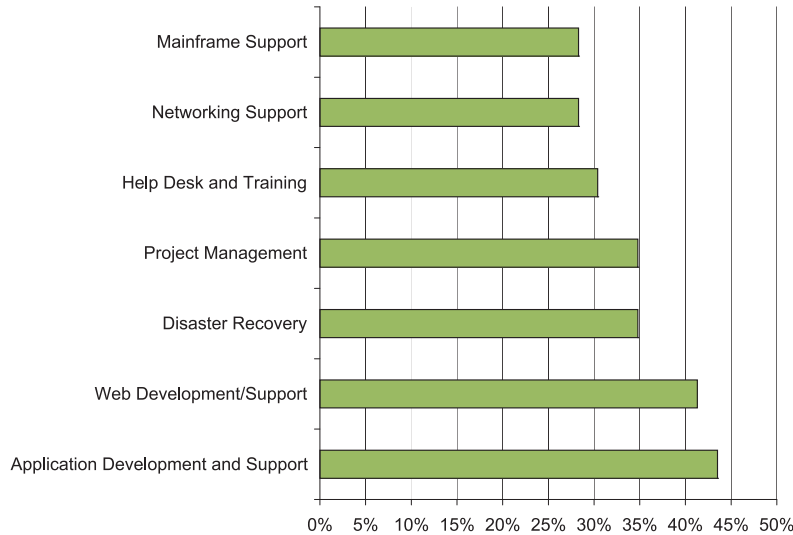


Figure 20: In What Areas Will Outsourcing Be an Option Over the Next Five Years?



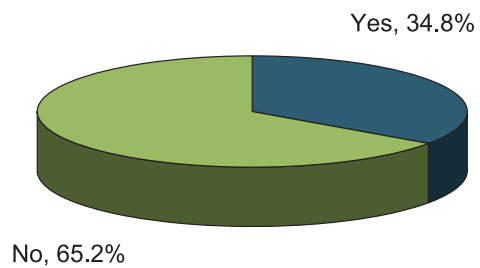
would not be an option in any of these areas. Since these are areas where states now have a skills gap and difficulty recruiting new hires, these selections are to be expected. Historically, states have not been inclined to outsource strategic business functions such as security and architecture. (See Figure 20)

Table 3: In What Areas Will Outsourcing Be an Option Over the Next Five Years?

Application Development and Support	43.5%
Web Development/Support	41.3%
Disaster Recovery	34.8%
Project Management	34.8%
Help Desk and Training	30.4%
Networking Support	28.3%
Mainframe Support	28.3%
Client/Server Development/Support	26.1%
Analysis and Design	26.1%
Testing/Quality Assurance	21.7%
Security	19.6%
Geospatial Analysis	17.4%
Architecture	13.0%
Other	10.9%
Outsourcing will not be an option in any of these areas	8.7%

18. Do you have a contingency plan that will allow you to achieve your state’s IT objectives, even if a large number of job vacancies exist at the same time? (See Figure 21)

Figure 21: Does State Have a Contingency Plan?



18.1. If yes, please describe the plan:

Overall, most states indicated that they do not have a current plan actively in place to counteract this trend of prevalent IT vacancies. Over 65 percent of respondents indicated that there is no current contingency plan in place that will allow them to achieve their state’s IT objectives even with the prospect of a large number of job vacancies at the same time.

Among the states that did indicate that they do have a contingency plan in place, the majority of these plans are far from well-developed. Most involve the use of temporary contract employees, outsourcing certain services, or relying on existing staff to pick up the slack. Several states indicated that their plans are still in the development stages and that they are uncertain as to how exactly this problem would be dealt with upon its potential occurrence.

States Respond

Missouri: "I'm hesitant to call it a plan but we could certainly lower our standards by hiring in people as trainees and "growing" them into trained employees. ...one very promising option we will use is to take some of the salary dollars from vacant positions to offer scholarships to students seeking IT degrees in exchange for one or two year work commitments from them."

Indiana: "We do not expect it, but have alternate suppliers set up for that event if it happens."

North Dakota: "Outsource and/or delay the deployment of new projects."

In May of 2007, California issued an IT Succession Management Planning Toolkit in order to help the California Public Employees' Retirement System's (CalPERS) Information Technology Services Branch (ITSB) management identify the required skills, potential talent, and supplemental training needed to fill key management positions when they are vacated. For more information regarding California's Succession Management Planning Toolkit, please see Appendix I.

IN CONCLUSION

The predicted shortage in the state government IT workforce has been discussed and debated for a decade. This national survey, the first to specifically assess state government IT workforce challenges from the state CIO perspective, addresses a lingering issue of which state governments have been aware, but slow to respond.

Now more than ever, state governments rely on information technology to conduct business, serve citizens and enable the delivery of agency services. These services are developed, deployed and supported by skilled IT employees. This survey sought to assess the scope of the workforce challenge and identify trends in the states. As these survey results reflect, states will likely face a critical shortage of IT employees in just a few short years.

As the large wave of baby boomers come closer to state retirement status, knowledge management and succession planning becomes critical. At the same time, recruiting and retaining younger employees entering the workforce poses unique challenges and opportunities. State CIOs face considerable challenges when it comes to the recruitment and retention of IT employees. Exploring innovative recruitment strategies, seeking opportunities for increased private partnerships, and examining ways to deliver IT services through alternative business models are just a few of the ways that states are beginning to face this looming challenge.

The upcoming exodus of state IT employees appears to be certain and imminent. State CIOs understand the probable shortage of skilled IT employees available to replace those outgoing employees. They understand the IT skills gap with existing employees. However, tough questions still remain: Who will replace the IT management and technical expertise? How will the existing IT workforce be transformed to meet the demands? What is the strategic approach and how will it be accomplished? These are major leadership challenges and cannot be ignored. The survey results clearly indicate that states will face a troubling future unless they take action now to bridge the knowing-doing gap.

APPENDIX I - ADDITIONAL RESOURCES

New York State Information Technology Workforce Skills Assessment Project, December 2006. The statewide survey results and recommendations can be found at www.cio.state.ny.us

California IT Succession Management Planning Toolkit, May 2007. The Toolkit can be found at www.cio.ca.gov/pubs

The Impact of the Aging Workforce on Public Sector Organizations and Mission, February 2007. This study, conducted by EquaTerra for the International Public Management Association for Human Resources (IPMA-HR), can be found at: <http://unpan1.un.org/intradoc/groups/public/documents/IPMA-HR/UNPAN025894.pdf>

The National Association of State Personnel Executives (NASPE) has several publications and research available on this and other topics. These can be found at www.naspe.net

Impact of Aging Trends on the State Government Workforce, June 2000. Prepared by the Task Force on the Changing Age Profile of the Washington State Government Workforce, this report can be found at: <http://hr.dop.wa.gov/workforceplanning/agingreport.pdf>

Building Successful Organizations, workforce planning for the U.S. Department of Health & Human Services, 1999. Prepared by the Office of Human Resources, Assistant Secretary for Management and Budget, this resource provides HHS Operating Divisions with guidance and information on all aspects of workforce planning and can be found at: www.hhs.gov/ohr/workforce/wfpguide.html

How CIOs Attract and Retain Talent, CIO Insight magazine research study, June 2007. The results of this research study can be found at: www.cioinsight.com/article2/0,1540,2145457,00.asp

Federal Workforce Overview, U.S. Office of Personnel Management, April 2006. This research brief provides an overview of observed trends and demographic changes in the Federal workforce from FY 1994 to FY 2004 and can be found at: www.opm.gov/feddata/Workforce_Overview_Brief_1994_to_2004.pdf

Robert Half Technology, resources and survey results can be found at www.roberthalftechnology.com

Report of the Recruitment and Retention Task Force Federation of Public Employees/AFT, June 2001. [www.aft.org/pubs-reports/pubemps/ Quiet_Crisis.pdf](http://www.aft.org/pubs-reports/pubemps/Quiet_Crisis.pdf)

APPENDIX II - ENDNOTES

¹ GAO Analysis of United States Office of Personnel Management's Central Personnel Data File (2006), May 2007, www.gao.gov/new.items/d07838t.pdf.

² Bureau of Census, Current Population Survey, Annual Demographic File, March 2005.

³ National Association of State Personnel Executives (NASPE), Council of State Governments' Book of the States, 2007.

⁴ "Status and Challenges of Employee Exchange Program," U.S. Government Accountability Office, December 2006, www.gao.gov/new.items/d07216.pdf.

APPENDIX III - SURVEY INSTRUMENT

A National Survey of the Landscape of the State IT Workforce

The National Association of State Chief Information Officers (NASCIO)

State IT Employee Retirement

1. What percentage of your state's IT employees will be eligible for retirement within the next five years?

2. Has there been a change in the number of applicants for state IT positions within the past five years?

...

3. Is your state offering any incentives to IT employees who postpone retirement?

Yes No

4. Is your state offering any incentives to IT employees who retire early?

Yes No

5. Has the number of retirements or expected retirements caused your state to reconsider the way in which it delivers IT support and services?

Yes No

- 5.1. If yes, in what ways?

Skip this question if you answered no to 2.5

State IT Employee Recruitment and Retention

6. **Is your state having any difficulty recruiting new employees to fill vacant IT positions?**
 Yes No
7. **Is a shortage of qualified candidates for state IT positions hindering your state's ability to achieve its strategic IT initiatives?**
 Yes No
8. **Does your state consider IT certifications in the application and hiring process?**
 Yes, IT certifications can be used to help validate the professed skills of the job applicant.
 No, IT certifications cannot be used to help validate the professed skills of the job applicant.
9. **What is the education level currently required for most entry-level state IT positions?**
 ...
10. **Is your state confident that it will be able to promote qualified staff to replace those retiring?**
 Yes No
11. **What attracts new IT employees to work for your state?**
Choose all that apply.
 Salary
 Benefits package
 Location
 Training & certification opportunities
 Career opportunities/challenging work
 Workplace flexibility
 Tuition reimbursement
 Other (please describe)
12. **Does your state's civil service system affect your ability to acquire the skilled IT personnel that you need?**
 Yes No
- 12.1. **If yes, in what ways?**
Skip this question if you answered no to 3.7
13. **Do your state's salary rates and pay grade structures present a challenge in attracting and retaining IT talent?**
 Yes No

13.1. If yes, how do you plan to overcome this challenge?

Skip this question if you answered no to 3.9.



14. What skills and disciplines present the greatest challenges in attracting and retaining IT employees?

Select the top 5 that apply.

- Web Development/Support
- Disaster Recovery
- Client/Server Development/Support
- Networking Support
- Mainframe Support
- Project Management
- Analysis and Design
- Testing/Quality Assurance
- Application Development and Support
- Help Desk and Training
- Security
- Architecture
- Geospatial Analysis
- Other (*please describe*) _____

Impact on Future State IT Staffing & Delivery Structure

15. Has there been a change in the number of contracted IT positions within your state government over the past five years?

... 

16. How much of a role will outsourcing play in your future plans to maintain aging legacy systems?

... 

17. In what areas within your organization will IT outsourcing be an option over the next five years?

- Web Development/Support
- Disaster Recovery
- Client/Server Development/Support

- Networking Support
- Mainframe Support
- Project Management
- Analysis and Design
- Testing/Quality Assurance
- Application Development and Support
- Help Desk and Training
- Security
- Architecture
- Geospatial Analysis
- Other (*please describe*) _____
- Outsourcing will not be an option in any of these areas

18. Do you have a contingency plan that will allow you to achieve your state's IT objectives, even if a large number of job vacancies exist at the same time?

- Yes No

18.1. If yes, please describe the plan

Skip this question if you answered no to 4.4.
