State CIO Leadership
in Government Innovation and Transformation

Forward

As Governor of Wyoming for eight years, aware of how emerging technologies might transform the delivery of state services, I looked for a CIO who could see potential, understand policy and deliver innovation through productive use of technology. I did not find my ideal CIO. So what was I looking for?

As a starter, the State CIO should be or is the primary technology business leader of the state. The CIO should be able to anticipate the policy implications of any issue, return a vision of what's needed through technology, then articulate a plan to combine technology with the top policy priorities addressing state services. Don't just automate, transform. The CIO should be an agent of change, a champion of integrated solutions across multiple departments, able to articulate how the chief exec's vision would be enabled through technology, be a trusted advisor to departments as they plan and implement strategic IT projects, be able to understand, anticipate and accommodate public expectations.

The CIO should know the issues as well as the Chief of Staff and the transformative power of IT better than an IT business executive. The CIO should not be just a vertically challenged manager of routine commodities, manager of hardware, software, IT procurement and training. Unfortunately, that's just what too many CIOs are today.

As you read through this survey and summation of state CIOs, consider what your state should do to enable the ideal CIO. If the impediment is the Governor, challenge her or him to consider the benefit of empowering such a position and person. Don't settle for what's been done, be a champion for what should be. *Jim Geringer, Governor of Wyoming (1995-2003)*

As a former Chief of Staff under two Governors, I worked closely with our State CIO and personally witnessed an evolution as to the importance of the role, and the impact the role can have on State Government. Governors and senior state government leaders know firsthand that the State CIO continues to be one of the most important roles in State Government. Technology and technology leadership is critical to helping government agencies fulfill their missions while continually having to do more with less resources. Unfortunately many state agencies do not possess the technological insight to see what needs to be done. The evolution of the role of the State CIO is necessary to help bring leadership and innovation to government, allowing agencies to increase their agility and respond to the demands of servicing a new generation of customers. Now it's time for the role to further evolve into being the major change agent in a State, supporting transformative initiatives to help agencies better serve their constituents. *Bill Leighty, Chief of Staff to Former Governor Mark Warner (2002-2006) and Governor Tim Kaine (2006-2007), Commonwealth of Virginia*

Executive Summary

One of NASCIO's guiding principles is to *"promote the CIO as the technology leader who drives innovation and transformation."* To advance this belief, this leadership white paper explores the various structures and relationships of the State Chief Information Officer's (CIO) role and how these differences impact the CIO's participation in government transformation and innovation. The NASCIO CIO Leadership Working Group explored these differences and caution that a "one size fits all" approach is not the objective given that there are clear reasons for these variations. State models are influenced by factors such as the position of the office within the governor's leadership team, the span of authority granted by statute or policy, the services being provided, and human resource constraints.

We looked at how the role of the CIO might evolve given 'forces' that could impact this evolution, such as technology disrupters and innovation. We discussed these 'forces' and critical success factors with private sector CIOs to learn how they have evolved their position, authority, and responsibility to support corporate transformation. We also explored the topics of leadership and innovation as opportunities for the CIO's evolution.

We prepared this paper as a guide for CIOs, Governors, and other state officials to learn more about the various models that exist and how those models could evolve to support the direction of the enterprise.

Introduction

More rapidly than ever before, state governments and their CIOs must adapt to quickly evolving technology, disruptive forces, and a new generation of customers. These factors result in a rapidly changing environment and bring challenges and opportunities both within and outside of their organizations. It is important to understand the structure and role of the State CIO to better understand how a state can respond to these challenges and opportunities.

As public sector CIOs and IT models evolve, it is important to understand:

- The driving and defining issues facing state government
- The structures of the state's technology organization
- How successful private sector organizations have structured and modeled their IT environment, specifically their CIOs' roles and responsibilities

State executives can leverage best practices from other public and private sector organizations to ensure their CIO is able to accomplish their state's strategic objectives. State executives and CIOs are actively working to adjust their technology enterprise systems to better meet their customers' needs by managing infrastructure, procurement, and applications.

3

Each state's technology executive can accomplish their objectives using a variety of governance models. As the role of the Public Sector CIO evolves from a *technology leader to a critical transformer of enterprise government services*, there are countless perspectives around skills, experience, competency, and accountability that should be taken into consideration. While these perspectives may differ based on specific environments, one thing is clear: The role of the State CIO is evolving and this requires that the skills and professional experience of the role evolve.

The Research Approach

The CIO Leadership Workgroup comprised of volunteers from the NASCIO Executive Committee and the Corporate Leadership Council (CLC) developed this white paper. The research process included:1) a compilation of publicly available information, 2) findings of The 2012 State CIO Survey, 3) data from State CIO Priorities for 2013, "Priorities for Government Directors and CIOs", 4) interviews with CIOs from select states, and 5) interviews with private sector CIOs.

As part of our current state analysis within the public sector, our research team reviewed publicly available information across the following seven main domain areas:

- CIOs' top priorities
- State infrastructure management
- Project portfolio governance
- Enterprise procurement
- Budgeting
- Enterprise applications
- Agency applications

To round out the publicly available data and add context for the results, we conducted interviews with 11 State CIOs. The State CIOs were asked to rank their critical success factors as identified by NASCIO State Members. The critical success factors that ranked highly included relationships, authority, operations, and innovation.

The second part of the assessment included the review of a sample of private sector CIO models. The same domain areas and critical success themes were used for these interviews. The goal of these interviews was to identify how the domain areas and critical success factors compared between private sector CIO models and public sector models. The report uses this information to summarize useful leadership strategies that should be considered in the public sector models.

Transformational CIO Issues and Opportunities

CIOs face a mixture of issues and opportunities that can support government operations, grow capabilities, and enable the transformation of the way government does business. Various third parties have defined this as the 'nexus of forces' or 'disruptors' (cloud, mobile, data and analytics, and social computing). This convergence is transforming solutions, business processes, and roles, forcing a reprioritization of relationships, modifying the traditional roles of authority, and placing new emphasis on innovation, data, vendor relations management, and hybrid public / private business models.

While no single NASCIO publication has addressed the full array of issues and solutions, several have recognized CIO engagement with these issues:

- The 2013 State CIO Priorities include the cloud and mobile services among the top five strategies and technologies.
- The 2012 State CIO survey documents significant CIO engagement with all four 'nexus forces.'
- Further, the 2012 CIO Survey focuses on balancing legacy and innovations, and examines innovation and transformation activity uptake. While only 26 percent reported having innovation as an explicitly funded activity in the budget, slightly more than half of the respondents to the process redesign question indicated that they participated in the government transformation process.

The issues and trends listed above, combined with the current gubernatorial emphasis to leverage technological innovation to redesign government, are transforming the role of the CIO.
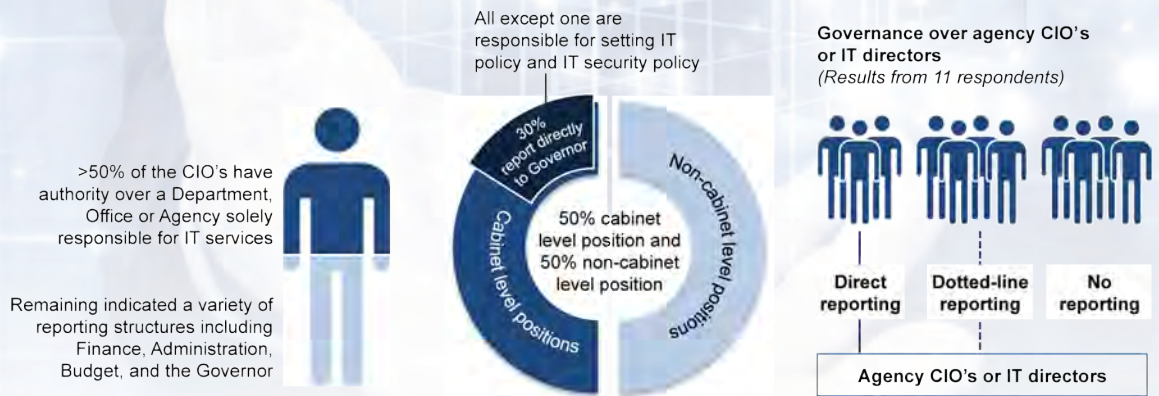
Current State CIO Models are Diverse

Most government services and operations are built on comparable technology infrastructures, but the way a state implements these services, and their respective governance models, vary by state. The structural variations result in different opinions related to the CIOs' critical success factors, roles, and responsibilities in IT service provisioning. In the next few sections we discuss the main findings from our research and interviews.

Enterprise Governance and Authority is Evolving

Across the 50 states and territories, more than 50 percent of State CIOs report having authority over a department, office, or agency solely responsible for IT services. The remaining CIOs indicated different reporting structures, including reporting to the Heads of Finance, Administration, Budget, or the Governor. Of the CIOs interviewed, approximately 50 percent are considered a Cabinet-level position, yet only 30 percent report directly to the Governor. Responsibility for

setting IT and IT security policies for agencies under the Governor is consistent. The majority of states either have an informal oversight relationship or no reporting relationship with Agency CIOs. As a result, most CIOs have policy-setting authority and executive authority, but not managerial authority.

All except one are responsible for setting IT policy and IT security policy

>50% of the CIO's have authority over a Department, Office or Agency solely responsible for IT services

Remaining indicated a variety of reporting structures including Finance, Administration, Budget, and the Governor

30% report directly to Governor

50% cabinet level position and 50% non-cabinet level position

Cabinet level positions

Non-cabinet level positions

Governance over agency CIO's or IT directors
(Results from 11 respondents)

Direct reporting   Dotted-line reporting   No reporting

Agency CIO's or IT directors

While most CIOs do not have direct authority over agency CIOs, the result is different when examining their *influence* on agency IT plans. An estimated 50 percent of State CIOs indicated they have direct approval authority over agency technology plans. The other 50 percent indicated an indirect review or approval authority, typically through an advisory relationship with the budget director.

Infrastructure is the Core to Service Expectations
Based on our interviews, the majority of CIOs viewed infrastructure functions as the core of their operations. Infrastructure services are provided through different models. Most states are providing, or are in the process of providing, these services through a centralized model. Both insourced and outsourced delivery models are used. Infrastructure remains the core service provided by CIOs and a priority, yet only four respondents listed using metrics to understand their success in this area. Of the CIOs who responded, defining and using metrics was listed near the bottom of the ranking. While many states are actively consolidating infrastructure, the use of metrics is not viewed as a critical success factor for CIO leadership outside of providing successful and consistent service to their customers.

Innovation, Infrastructure, or Both?
In describing their responsibilities, more than 50 percent of State CIOs listed their main priority as the support of agency infrastructure requirements, with "security" and "standards" close behind. Innovation has been an important theme across state government, yet our research shows that only one third of State CIOs listed this as a key responsibility. However, in the 2012 State CIO Survey, innovation and transformation received a ranking higher than our current research results. The difference in these results could be simply a different

6

cohort or may be a symptom of the dilemma CIOs face between balancing the responsibilities of enterprise service and the increasing trend of driving business innovation with technology.

Trending: Increase in Enterprise Application Support

IT infrastructure consolidation has been part of the State CIO agenda for many years. Current trends indicate that State CIOs are also moving toward the consolidation of application development and support. Central technology organizations are developing applications that can be used by multiple agencies, allowing both the central and agency technology departments to be more cost effective and to maximize resources. Many CIOs reference providing design and development services for enterprise applications (financials, payroll), eGovernment or web based applications, as well as providing agency application support.

Demonstrating IT Value through Budgeting and Procurement

The two final areas reviewed were technology budgeting and procurement. To improve controls associated with policy setting and budgeting, states are changing how technology procurement is conducted. Based on our research, the three prevalent procurement models include:

- CIO Office controlled
- Procurement agency controlled
- Hybrid model where technology purchase approvals for specific thresholds are channeled through the CIO's office yet the enterprise contract creation remains outside the CIO's authority

A review of the data indicates that in more than 25 percent of States, procurement contracts are initiated and managed by the CIO's office. Centralization of procurement contracts allows for alignment between technology procurement and IT policy and standards, creating a de facto authority. Overall, the trend shows a movement toward CIO oversight of technology procurement as an important factor in enforcing enterprise standards and policy.

In contrast to technology procurement, technology budgeting showed more of a decentralized structure. Interview responses reveal that State CIO budgetary control came in the form of procurement approval over individual technology projects, instead of direct control of the agency technology budget.

Critical Success Factors for a State CIO

To understand the skills, experiences, and competencies that State CIOs felt were important to organizational success, 20 critical success factors were ranked from one (highest) to five (lowest) by the CIOs that were interviewed. Only one critical success factor, crisis management, was not ranked within the top five of importance. The remaining nineteen factors were ranked by the CIOs as important to their organization's success in the enterprise. One of the more important results of the ranking was the emphasis on developing relationships with key state executives. Specifically, the relationship between the State CIO and his/her cabinet secretary or Governor was listed as the highest priority (avg. rank 1.7), which was followed closely by the budget officer (avg. rank 1.75). This result is consistent with other NASCIO publications and research such as the Gartner State CIO-Budget Director Survey. Given the diverse operating models across the states, it is apparent that building relationships is a key factor to CIO success, especially where authority is not inherently ascribed to the role.

Critical Success Factor — Ranking	Average Rank
Relationship with Secretary/Director and their relationship with the Governor	1.7
Relationship with Budget Officer	1.75
Authority and resources commensurate with responsibility	2
Enterprise Security	2
Relationship with Customers	2.6
Know your primary mission	3
Communication/Coordination (govt affairs/ agencies)	3
Know cultivate political power	3
Governance	3
Budget/planning oversight	3
Relationship with Legislature/Legislators	3.2
Exercising Authority	3.5
Project portfolio	4
Procurement oversight	4
Driving innovation	4.25
Access to key decision makers	4.5
Measuring metrics, data driven, know your infrastructure	4.75
One voice-communication	5
Implement standard agency CIO training	5
Crisis Management	Not ranked

Closely following relationships as a critical factor were the two factors of enterprise security and having authority and resources commensurate with responsibility. The importance of security to CIO success was almost a given in each response. Similar to security, CIOs ranked authority and resources as an important factor to fulfilling their responsibilities.

In the middle of the ranking list we see that governance, budget/planning oversight, mission, political power, and communication/coordination each ranked an average of 3 out of 5 in terms of importance. The establishment of a clear and strong primary mission was prioritized by 37 percent of CIOs interviewed. Interestingly, while technology could be an important enabler of innovation, the interviewed CIOs gave this an average ranking of 4.25 out of 5 as one of their critical success factors.

A Private Sector CIO View of Critical Success Factors

For comparison, we interviewed a sample of private sector CIOs to understand what they view as critical success factors and to evaluate any similarities or differences compared to public sector. All of the organizations interviewed were either global or national in scope and covered the healthcare, insurance, and communication industries. A conscious decision was made to interview organizations that were not considered technology organizations, but rather companies that best modeled similar services as those provided by a state government.

IT as a Strategic Corporate Asset

A key theme we heard is that the CEO/President of these corporations viewed technology as a major differentiator in their marketplace. This was further enforced by where the CIO sits in relation to the rest of the C-suite. The common structure of the corporate IT organizations is depicted below:
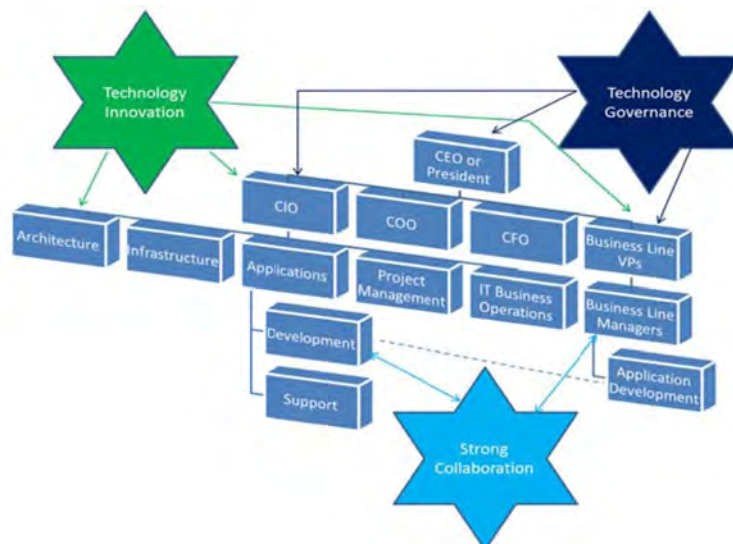
Private sector CIOs tend to have a business title first, such as Vice President, followed by their CIO title. They report directly to the highest-ranking official of the company and are considered both an integral part of executive management and a significant contributor to their respective company strategy. The trend appears to have shifted over the past couple of years from CIOs reporting into a COO or Finance area, directly to the CEO. All of the CIOs interviewed adamantly agreed that they needed the appropriate authority to drive efficiencies and ensure technology projects adhered to their standards.

Organizational Alignment to Business Units

All of the corporate CIOs interviewed emphasized the importance of having an organizational structure closely aligned with their business units. The critical need for the organizational structure is to ensure collaboration from the initial planning through the actual development of critical applications. Private sector CIOs are not overly concerned with a strategic IT roadmap that goes years into the future, but are much more concerned with contributing directly to the company's strategic plan. The CIOs and their teams regularly engage with the business executives to review priorities. Each organization has a governance structure that meets regularly, consisting of both business and IT, and aligned with technology priorities.

All interviewed CIOs divide their organizational model between infrastructure and applications. Each model was designed to closely align technology applications with their respective business units. The private sector CIOs are very definite that their organization holds complete responsibility for infrastructure but the technology applications are driven by the business. This makes it critically important for CIOs to co-locate, work with, and collaborate with the business teams and their respective technology teams.

Innovate and Operate

Each CIO stated ensuring stable IT operations while leveraging efficiencies and economies of scale as a main responsibility. Corporate CIOs stressed that their focus should be less on running the organization and more on innovation, with the assumption that their operations staff is responsible for infrastructure and application support. Corporate CIOs also noted that to be accountable for driving down costs across the enterprise, budgetary and infrastructure control was necessary to effectively create economies of scale and skill.

Evolutionary Leadership

It is clear from the research and interviews that the role of the CIO in both the public and private sectors is evolving, and a fundamental ingredient for this evolution is the leadership capability of the CIO. Leadership requires that a CIO develop key relationships that are important to delivering the mission of the IT organization. This is supported by the interviews with the State CIOs, who ranked relationships the highest among critical success factors.

Critical Success Factor — Ranking	Average Rank
Relationship with Secretary/Director and their relationship with the Governor	1.7
Relationship with Budget Officer	1.75
Relationship with Customers	2.6
Relationship with Legislature/Legislators	3.2

In discussions with both state and private sector CIOs, we heard three categories of technology leader terminology; Chief Technology Officer, Chief Information Officer, Chief Innovation Officer. In some instances the use of a particular title was intentional, in others all three were used interchangeably. Perhaps this inconsistency speaks to the evolution of the CIO role from chief technologist to IT business leader to innovator.

Evolution may not be limited to a single role but may be tied more closely to the evolution of the organization. For a CIO, we have seen an evolution in the expectations of the role to support the enterprise shift from infrastructure management to enterprise applications to governance to policy development to security to business transformation. This shift requires different skill sets and professional experiences of the CIO.

Additional skills and expertise in relationship building, strategy development, and most importantly, communication are critical for this evolution. Leaders of information and innovation need to be able to communicate the Governor's vision and mission, and effectively articulate what that means in terms of technology for stakeholders, while building consensus to move critical initiatives forward. CIOs need to manage conflicts when they occur, while keeping to their core

11

mission of operating an efficient and effective organization that supports the multitude of systems ensuring services continue to be provided to citizens.

Cultivating Leadership Capital

It is very clear from the interviews with private sector CIOs that they are empowered in their roles to act. This differed from State CIOs who believe they need key executive relationships to enforce their authority to act, as evidenced by the ranking of their critical success factors. The two major differences between the private sector CIOs and the state CIOs were 1) the priority on innovation and 2) the authority ascribed to the role of the CIO.

Given this, what actions could State CIOs undertake to help them gauge their current role and begin the evolutionary process? The following questions might offer some insight:

- Is the State CIO invited to meetings about major projects if those projects are designated as a technology projects?
- Is the State CIO asked to give a brief status report or to weigh in on topics discussed at Cabinet meetings?
- Is the opinion of the State CIO solicited by other Cabinet leaders?
- Is there any reference to technology during the State of the State address?
- Is the State CIO (or representative) asked to speak with the press or legislators?

These are only a few of the questions one can ask to broadly gauge to what extent the CIO and the CIO's office is viewed in the scope of each state's executive leadership.

What moves could a State CIO make to help evolve the role and change the lens in which the role is viewed?

- Stay informed on all of the critical issues facing the state and specifically the issues the Administration is pursuing. Do not limit this information to technology issues only.
- Proactively communicate the status of issues and threats to delivery of government services (i.e., cybersecurity).
- Stay informed on how disruptive and enabling opportunities, technologies, solutions, and business models could help support and drive state priorities.
- Identify how IT can facilitate, enhance, or improve the core lines of the state's functions or processes.
- Develop personal relationships with critical decision makers in the Administration through visits, assistance to staff, sharing of information, and understanding their challenges.

12

- Encourage CIO staff to understand the critical issues of their peers and to give feedback on how IT could be of assistance.
- Assist with raising the awareness level of legislative staff with regard to technology.
- Know the budget, and the potential to deliver savings through efficiencies. Suggest how technology can drive efficiencies. Provide examples from other states.
- Keep the Governor's Chief of Staff and/or the Chief Operating Officer informed on opportunities for the CIO organization to contribute solutions to help solve specific issues or accomplish objectives.
- Identify other stakeholders who can help with education and awareness of the impact technology can have within a state, such as lobbyists, policy advisors, or agency chiefs of staff.
- Leverage emerging 'forces' or 'disruptors' to start the conversation for innovation and transformation.

Pathway to CIO Leadership

Create Relationships
- Governor
- Chief of Staff
- Agency Peers Legislature
- Press

Be Informed
- Business Issues
- Challenges
- Objectives / Goals
- Solutions (not just technology)

Inform
- Technology created business value
- Threats to Government Services

Innovate & Transform
- Start the conversation
- Measure value
- Technology as Strategic Asset

In the previous section, we reviewed the evolution of the CIO as leader. Please consider these moves as steps on that leadership path. Taking these steps will help facilitate the transition of the CIO role to that of a strategic partner within the Administration.

Regardless of the title of the role, leadership skills combined with accountability, authority, and productive relationships within the executive management team will directly impact the CIO's ability to transform government through

13

technology. This evolution may require different approaches in different states. Understanding the dynamics involved in the evolution of a CIO will help to ensure a successful transition.

CIO Leadership Working Group Chairs & Contributors

David Behen
Chief Information Officer, State of Michigan

John Letchford
Chief Information Officer, Commonwealth of Massachusetts

Kristen Miller
Principal, Deloitte Consulting LLP

Kimberly Nelson
Executive Director eGovernment and Government Solutions, Microsoft

Brenda Decker
NASCIO President and Chief Information Officer, State of Nebraska

Additional Contributors

Corky Allen
Business Development Manager, Oracle USA Inc

Andris Ozols
Senior Policy Advisor, Office of the CIO, State of Michigan

Pat Cummens
Government Strategist, ESRI

Marvel Davis
Client Partner, Public Sector, Assima Inc

Sharon Minnich
Specialist Leader, Deloitte Consulting LLP

Cathy Novak
Industry Principal, Public Sector, Pegasystems Inc.

Lauren Sallata
Vice President, Business Development and Marketing Xerox

Bulent Taskan
Director, State and Local Government, Level 3 Communication

David Taylor
Vice President, State and Local Government Solutions, Software AG

Aldona Valicenti
Vice President, Government Markets, CGI Technologies & Solutions Inc

Doug Robinson
Executive Director, NASCIO

Shawn Vaughn
Membership and Communications Coordinator, NASCIO

Chris Heiss
Web Designer, Creative Services, NASCIO