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THE STATE CIO OPERATING MODEL:
BRIDGING TRENDS AND ACTION

In this third paper in our NASCIO "The State CIO as Broker" series, we explore a maturity model that can help state CIOs develop their organization and explain their leadership role to a broad stakeholder audience. This paper creates a connection between trends and action and supports NASCIO's mission to represent state CIOs in the evolving state government market.

OVERVIEW: THE TRENDS CONTINUE

NASCIO's 2018 State CIO Survey highlights the changing focus of the state CIO. Most notably the leadership role of the technology function in state government is expanding. State CIOs must be able to communicate, lead change, and cast a vision that stakeholders can believe. CISOs are getting in on the act too. The Deloitte-NASCIO Cybersecurity study calls on CISOs to be enablers of innovation and to play a more active leadership role in the enterprise. There has never been a more exciting time for the state CIO and state government technology!

NASCIO's "CIO Operating Model" project was initiated in anticipation of these results seen at our 2018 annual conference and to help build a bridge between trends and action. How does a CIO navigate the "Four Forces" of a state government enterprise? How does an organization build the platforms capable of managing multiple sources of supply? How can state CIOs meet customer demand by becoming a "broker" of services relevant to agencies and the citizens they serve?

The state CIO "operating model" addresses these questions by providing a framework for communicating to stakeholders, establishing the groups and forums necessary to navigate an enterprise, and establishing the organizational capabilities necessary to create a "brokerage" model for service delivery and evolution.

BROKER, COMMUNICATOR OR BOTH?

The answer is both! A state CIO must be both but why use the term "broker?" Trends indicate that state CIOs do not view the technologist role of their job as the most important success factor. We have seen this coming for a long time. State CIOs must be leaders and communicators. How then does a state CIO deliver technology services? By understanding customer demand, sources of supply available to meet that demand, and managing the government enterprise to build a transparent platform that can change as rapidly as necessary to manage the "Four Forces."[1] In other words they must broker supply, demand, and expectations in a complex political environment. No small task!

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DEVELOPING THE ROADMAP

Delivery capability of the state CIO's organization is his or her currency. How then does a state CIO know that he or she is on the right path? To help answer that question we look to a maturity model to establish a path forward.

Most readers of this paper have experience working with maturity models. They are a useful tool for establishing a target or desired end state. They also present the notion of *maturing* or *iterative development* – a rather interesting concept in the world of change driven approaches such as Agile. These models show reasonable milestones toward that *desired end state* so an enterprise can measure progress and plan next steps and necessary course corrections toward that end state.

More important than the target any model might establish is the path to move toward that target. Consider this exchange between Alice and the Cheshire Cat in Lewis Carroll's *Alice in Wonderland*:

> "Would you tell me, please, which way I ought to go from here?"
> "That depends a good deal on where you want to get to," said the Cat.
> "I don't much care where–" said Alice.
> "Then it doesn't matter which way you go," said the Cat.
> "–so long as I get SOMEWHERE," Alice added as an explanation.
> "Oh, you're sure to do that," said the Cat, "if you only walk long enough."

Maturity models provide the measuring stick, metrics, and feedback that allow an organization to establish a baseline and measure progress along the journey. The end state itself will mature and continue to be a target that is possibly never actually reached. But reaching the ideal end state is not necessarily the intent - instead it serves to push or drive the enterprise toward higher levels of excellence and competitiveness.

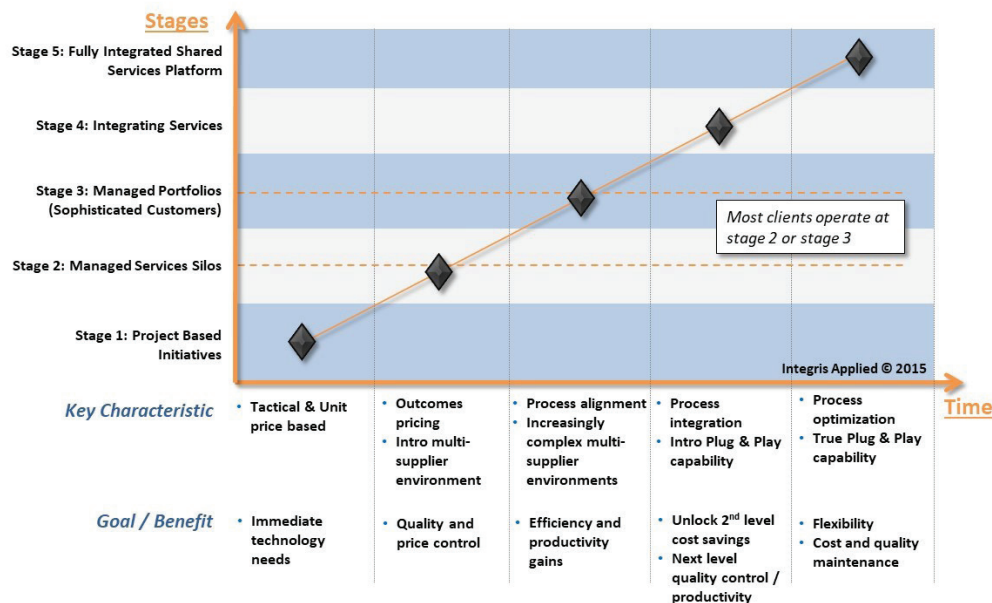## A SERVICES BASED MATURITY MODEL

Throughout this project NASCIO has used a model developed by its corporate partner Integris Applied, Inc. This model describes a "Fully Integrated Shared Services Platform" with true "Plug and Play Capability" and is aligned with the evolving "brokerage" capability a state CIO requires to be effective. It applies organizational capabilities and the qualities of a maturing state CIO role to develop a complete framework of operational and leadership maturity. For a detailed discussion of our framework please see our related webinar.

This model and its supporting criteria formed the basis of a survey issued by NASCIO, the data from which will inform a roadmap in the coming months. After multiple visits with state CIOs to seek input on our approach and supporting rationale, we are convinced that this framework asks the right questions to enable organizational growth and maturity.

Different skill sets are required within today's technology organizations to manage an evolving marketplace and changing customer expectations.

The five stages of the maturity model present as follows. It is mapped to key characteristics and typical goals and benefits .

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Key Characteristic	• Tactical & Unit price based	• Outcomes pricing • Intro multi-supplier environment	• Process alignment • Increasingly complex multi-supplier environments	• Process integration • Intro Plug & Play capability	• Process optimization • True Plug & Play capability
Goal / Benefit	• Immediate technology needs	• Quality and price control	• Efficiency and productivity gains	• Unlock 2nd level cost savings • Next level quality control / productivity	• Flexibility • Cost and quality maintenance

Integris Applied Services Maturity Model

This year's state CIO survey validates the movement towards market-based services and solutions. This movement is undeniable and state CIOs must adapt. Significant progression in this model from tactical operating models toward an enterprise wide optimization where the state CIO is working with the business to evaluate application of automation but only after evaluating business processes, organization, use of data and information, and outcomes sought.[2]
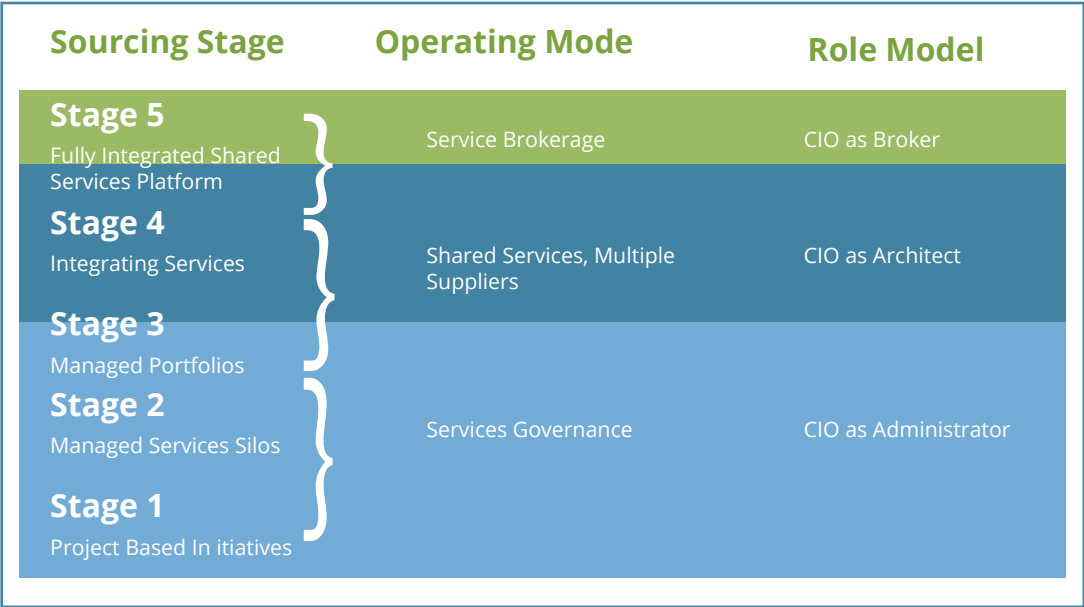
How does your state CIO organization plan to deliver or obtain IT services over the next three years (e.g., server and platform administration, backup, storage, software and hardware maintenance, network management and service desk management)?

	Introduce	Maintain	Expand	Downsize
State-owned-and-operated data center(s)	0%	35%	14%	52%
Outsourcing service model	15%	26%	57%	2%
Managed services model	10%	23%	65%	2%
IT shared services model	0%	22%	75%	2%
"As-a-service" models (e.g. SaaS, PaaS, IaaS, etc.)	14%	12%	75%	0%
State IT staff	0%	69%	10%	22%

In making this shift towards a multi-sourced, services-based, delivery model, new skills are required, and different questions must be asked. How do you integrate multiple suppliers into a delivery model? What contract management capabilities exist within your organization? Does your governance model include agencies at the operational and relational levels?

In Stage 5 of Integris Applied's maturity model the services are being deployed from a variety of sources including internal, cross-jurisdictional arrangements, and corporate partners. Underlying business processes are evaluated for effectiveness and efficiencies and only then are automation opportunities considered. Essentially, the state CIO and the agencies are first asking, "are we doing the right things?"[3] Then, "are we doing them the right way?" Followed by, "what services do we deploy or employ, and from whom?"

The general progression in this model from Integris Applied presents the state CIO as moving from an administrator of service contracts to an architect of process and procedure to a true *broker of services and capabilities*. This progression can be depicted as follows .

Sourcing Stage	Operating Mode	Role Model
Stage 5 Fully Integrated Shared Services Platform	Service Brokerage	CIO as Broker
Stage 4 Integrating Services	Shared Services, Multiple Suppliers	CIO as Architect
Stage 3 Managed Portfolios		
Stage 2 Managed Services Silos	Services Governance	CIO as Administrator
Stage 1 Project Based In itiatives		

Progression Toward CIO as Broker

At Stage 1, the state CIO is working at the project level *administering* the matching of skills and capabilities internally to specific projects. Included is the issuing of RFPs and even RFIs but still relatively focused on the project at hand and immediate business needs within agency specific swim lanes. On to Stage 2, the state CIO is managing services with more attention to governance that includes closer collaboration and partnering with the business, but still without complete enterprise-wide considerations or a longer-term planning horizon.

At stage 3, the state CIO has moved into the management of portfolios. There are a number of portfolios to consider that actually comprise the state "portfolio of portfolios."[4] Advancing onto Stage 4 and 5, the state CIO has moved from a predominant role as owner / operator to a *broker of enterprise services*. These stages are the higher levels of maturity and sophistication in managing a fully integrated services platform. Visioning has a new emphasis from agency-only silos and short-term outcomes to a wider enterprise view that is looking at a time horizon of 10 years or more. This is the ultimate destination for state government.

As we look at the progression of the state CIO's role and the state enterprise through these stages, we also look at organizational capabilities to support the progression, each of which can be measured and managed. These capabilities are organized into the capabilities table below. Organized under these columns are 25 descriptors or specific ratings. These ratings can be organized into five categories matching the columns in the Ratings Table .

Cost Accountability & Currency	Access to Technology Choices	Operational Competence	Control & Flexibility	Change Capability
Continual Market validation	Unlimited rights to substitution	Organization designed to manage multiple services & governance	Well defined rule-set	Agreed method for equitable adjustments between parties
Current prices, terms & conditions	Multiple service providers engaged in a shared delivery framework	Process alignment (SMM to OLA to SLA to OLM)	Mature decision making forums	Forums for change coordination and management
Competitive outcomes adopted	Defined and adopted Technology Architecture	Regular process review and improvement	Service element 'plug & play' rights and processes	Mature processes for realignment and integration
Variable price/volume	Active user engagement in framing Supply & Demand	Shared reporting in a multi-party context	Active Performance Management & Reporting	Repeatable method for adoption and revisions to baselines and goals
Accurate & verifiable charging	Accurate environmental records - CMDB	Shared service levels for documented interdependencies	Effective Dispute Management and remedies	Forums for Stakeholder engagement and impact validation [11]

Capabilities Chart

PUTTING IT ALL TOGETHER

By combining the maturity paths of an organization with the path of a CIO, we can describe a future state that addresses leadership development and organizational maturity. The figure below presents this framework. Organizational progress can be measured, and prescriptive recommendations can be offered to assist the state toward the next level of maturity. Progress related to the column headings AND progress related to each of the characteristics under each column can all reside at different points along a maturity curve. A state may be making excellent progress related *Cost and Accountability* and be more challenged relative to *Change Capability* .
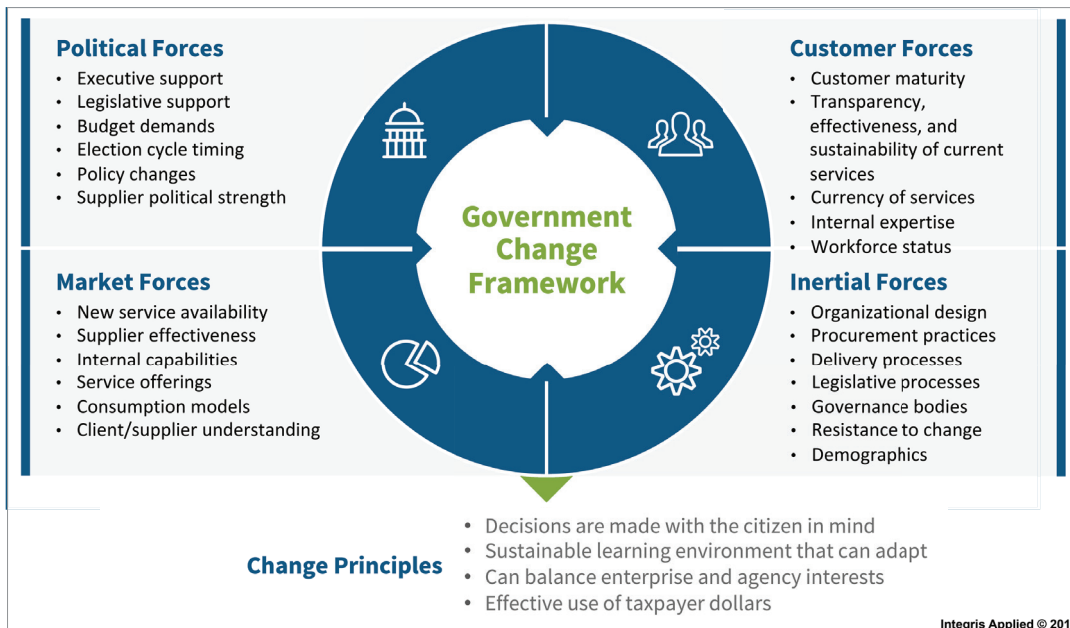
By combining the maturity paths of an organization with the path of a state CIO, we can describe a future state that addresses leadership development and organizational maturity.

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Role of the CIO	ADMINISTRATOR		ARCHITECT	BROKER	
Value Delivered (As perceived by the Governor, Legislature and Agencies)	Keeping the lights on	Adopting best in class "point solutions"	Responsive to Legislative agenda and Agency needs Delivers critical technology services and meets SLAs	Leads the State's Digital Transformation	Partner with agencies, legislature & governor on technology strategy & policy; viewed as a change agent able to improve service for citizens.
Cost Accountability	Limited connection between cost and price. Limited visibility into pricing rational.	Transition from input based (FTE) pricing to Outcome based (RUs) pricing	Consumption based pricing (true variability). Agencies' fees based on actual consumption.	Qualified recurring competition drives continuously contemporary pricing.	Real time market based pricing driven through a platform of technology partners.
Technology Access	Only basic services provided. Agencies often seek solutions elsewhere.	Some services are provided to agencies at the enterprise level.	Agencies can access a set of enterprise wide services that meet their needs. Ability to change or add services limited by inertial forces.	A "plug & play" capability makes adding and removing services efficient and expedient. Competition exists within the delivery platform.	Unfettered access to a broad spectrum of qualified technology choices. Business outcomes drive technology decisions.
Operational Competence	Ad-hoc processes. Processes not well defined or documented.	Repeatable processes in place for certain processes. Tools and templates exist for certain processes.	Standardized processes across the organization. Processes well defined and documented.	Standardized processes are actively managed through quality metrics.	Processes are optimized through continuous improvement techniques.
Control & Flexibility	No clear decision-making process. Limited stakeholder engagement.	Operational forums established. Issues and decisions escalated.	Customers and Suppliers engaged in forums. Management empowered to resolve issues.	Forums proactively focused on Customer. Decision authority pushed to appropriate level.	Relational governance forums focused on innovation & platform improvement.
Change Capability	Change driven by outside forces	Necessary changes identified by CIO, but inertial and political forces hinder adoption.	CIO gains adoption of and can implement changes needed at the enterprise and agency levels.	Proactive changes based on customers demand and new services / technology availability.	Mature "plug & play" enables continuously contemporary environment

Capabilities Mapped to CIO Role Model

OUR SURVEY: A PREVIEW

NASCIO in partnership with Integris Applied, Inc., created a survey to explore states' perception of themselves vis a vis and the maturity model described above and the "four forces" framework described in the first paper of this project, *The State CIO as Broker: A New Model*[5]. The survey was designed to explore the relationship between the operational capabilities of a state CIO and the impact of those capabilities on his or her ability to influence a government enterprise. Data was collected during September 2018. Survey participants included state CIOs or deputy CIOs representing 45 states.

PART 1 of the survey focused on the forces that influence a state CIO's leadership opportunities and the manner in which the state CIO operates within those forces. We have discussed this model extensively in the papers produced for this project and have presented it again in the figure below for the reader's convenience. This framework is used as a means to describe the environment within which a state CIO must operate. Managing these forces is critical to a CIO's success and understanding the perceptions of how state CIOs are navigating in response to these forces. The "four forces" model provides an important context to the operational discussion generated by the questions in Part 2.

Political Forces
- Executive support
- Legislative support
- Budget demands
- Election cycle timing
- Policy changes
- Supplier political strength

Customer Forces
- Customer maturity
- Transparency, effectiveness, and sustainability of current services
- Currency of services
- Internal expertise
- Workforce status

Market Forces
- New service availability
- Supplier effectiveness
- Internal capabilities
- Service offerings
- Consumption models
- Client/supplier understanding

Inertial Forces
- Organizational design
- Procurement practices
- Delivery processes
- Legislative processes
- Governance bodies
- Resistance to change
- Demographics

Government Change Framework

Change Principles
- Decisions are made with the citizen in mind
- Sustainable learning environment that can adapt
- Can balance enterprise and agency interests
- Effective use of taxpayer dollars

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PART 2 of the survey explores the components required for a technology organization to mature as broker of a services delivered from multiple supply sources. Questions in Part 2 were based on the capabilities table described above.

Initial Findings

While we will use survey data to inform the future work related to the "CIO Operating Model" project, we do want to preview our findings. We start by noting that the survey in no way measures the effectiveness of an organization's capabilities. While an organization may state in the survey that a capability exists (e.g., "The CIO has the ability to implement an agile like process during technology procurements"[6]) we do not opine on the effectiveness of that capability. Exhibiting the capability is sufficient for the purposes of this project to explore how state governments are evolving the state CIO role and how state CIOs perceive that evolution.

Initial Finding 1: A Disparity Exists Between Political Perceptions and Operational Perceptions

State CIOs largely believe that their role in the enterprise is well documented and that they have the needed authority to manage their organization.

- ✓ *Over 90% of states agree or strongly agree that the state CIO sets policies and standards that the enterprise follows.[7]*

However, responses in Part 2 of the survey indicate that the capabilities required to manage a services-based organization are lacking.

- ✓ *Only 30% of state CIOs agree or strongly agree that they have a documented process for engaging the market and end users in defining the supply of services provided by the state CIO organization.[8]*
- ✓ *35% of state CIOs agree or strongly agree that the state CIO organization maintains a Service Management Manual documenting all services provided by the organization, the processes through which those services are delivered, the manner in which new services are adopted, and the governance used to manage service delivery.[9]*

Initial Finding 2: States Need to Improve Interactions with the Marketplace

On the one hand, a majority of state CIOs are engaging the market to explore new technologies. However, only in a minority of states do agencies perceive the state CIO is meeting their demand for new technologies. The majority of state CIOs do not agree that they have a documented process for bringing new suppliers into the service delivery portfolio.

- ✓ *74% of state CIOs agree or strongly agree that the state CIO organization manages recurring forums to engage with the market and to understand new technologies. Key suppliers understand the state's priorities and potential RFPs. Suppliers are bringing key personnel to procurements and investing in the state's procurements.[10]*

- *35% of state CIOs agree or strongly agree that agency customers believe the state CIO organization offers a range of competitive choices for technology services required by the agency to deliver on its mission.[11]*
- *37% of state CIOs agree or strongly agree that a documented process exists to integrate new suppliers into the organization's delivery model and its Service Management Manual (SMM).[12]*

Initial Finding 3: Integration and Supplier Management Capabilities Should be Explored

Different skill sets are required within today's technology organizations to manage an evolving marketplace and changing customer expectations. Every technology organization is multi-sourced but those that have a *directed multi-sourcing strategy* will be the most successful at managing and delivering services to citizens. Understanding how to integrate multiple sources of supply and how to manage suppliers both internal and external will help CIOs manage the rapidly evolving technology function.

- *Only 33% of states agree or strongly agree that where services are interdependent across multiple suppliers, those interdependencies are recognized within shared SLAs (multiple service providers are held accountable to a single – shared – service level).[13]*
- *37% of state CIOs agree or strongly agree that a documented process exists to integrate new suppliers into the organization's delivery model and its Service Management Manual (SMM).[14]*
- *Only 30% of states agree or strongly agree that Suppliers agree that the procurement process produces the best value for the state and facilitates healthy service relationships with end users.*

Initial Finding 4: Procurement Capabilities Are Not Enabling Service Acquisition Strategies

Procurement processes are often characterized as emblematic of *inefficient government at its finest*. NASCIO has for years worked with state CIOs to help influence how government procurements are managed. While state CIOs indicate that they have increasing influence over the procurement process, our survey suggests that state governments have much work to do to align procurement practices with multi-supplier strategies and customer expectations.

- *Only 35% of states agree or strongly agree that end*

users believe that the procurement process produces the best value for the state and facilitates healthy service relationships with contracted suppliers.[15]

✓ *Only 30% of states agree or strongly agree that suppliers believe that the procurement process produces the best value for the state and facilitates healthy service relationships with contracted suppliers.[16]*

✓ *While 40% of states agree or strongly agree that the state CIO has the influence and authority to adjust procurement practices to produce a better outcome, almost 40% of state disagree.[17]*

CONCLUSION:

State CIOs perceive that their role in the enterprise is evolving. They believe that they have the tools to influence the customer, political, market and inertial forces inherent in a state government enterprise. At the same time, state CIOs indicate that capabilities necessary to manage, build and lead a multi-sourced brokerage model are still evolving. A "brokerage" model allows the CIO the ability to respond to customer needs, keep pace with market demands, leverage new technology models and engage across stakeholder groups.

Fortunately, the characteristics of a multi-supplier brokerage model can be defined and measured. An organization's path to a mature brokerage delivery model can then be charted against a maturity curve. The characteristics required in a mature services-based organization are outlined in the Capabilities Table. Each top-level characteristic (column heading) is supported by five sub-characteristics (presented in the rows within each column), each one of which can be measured independently and assessed against a maturity path. We will explore next steps and recommendations in a "playbook" that will help CIOs and their stakeholders communicate the evolving role of the CIO and identify the capabilities needed to mature a state government technology function.

END NOTES
1. "The State CIO as Broker: A New Operating Model", NASCIO, April 2018, available at https://www.nascio.org/resource-center/resources/state-cio-as-broker-a-new-model/.
2. "State CIO As Communicator – The Evolving Nature of Technology Leadership", p. 6, NASCIO, Grant Thornton, CompTIA, October 2018, available at https://www.nascio.org/resource-center/resources/the-2018-state-cio-survey/.
3. "Is State IT Working on the Right Things?", NASCIO, July, 2015, available at https://www.nascio.org/resource-center/resources/is-state-it-working-on-the-right-things/.
4. "Destination: Advancing Enterprise Portfolio Management – First Stop: Issues Management", NASCIO, December, 2013, available at https://www.nascio.org/resource-center/resources/destination-advancing-enterprise-portfolio-management-first-stop-issues-management/.
5. "The State CIO as Broker: A New Operating Model", NASCIO, April 2018, available at https://www.nascio.org/resource-center/resources/state-cio-as-broker-a-new-model/.
6. NASCIO Survey, Political Forces Question 3.
7. Response to Question 2 in Political Forces Overview Section of the survey.
8. Response to Question 7 in Access to Technology Section of the survey.
9. Response to Question 14 in Control & Flexibility Section of the survey.
10. Response to Question 1 in Market Forces Overview Section of the survey.
11. Response to Question 1 in Access to Technology Choices Section of the survey.
12. Response to Question 4 in Access to Technology Choices Section of the survey.
13. Response to Question 5 in Access to Technology Choices Section of the survey.
14. Response to Question 4 in Access to Technology Choices Section of the survey.
15. Response to Question 10 in Access to Technology Choices Section of the survey.
16. Response to Question 11 in Access to Technology Choices Section of the survey.
17. Response to Question 4 in Inertial Forces Section of the survey.

PRINCIPAL AUTHORS

Eric Boyette, Chief Information Officer, State of North Carolina

Les Druitt, Founding Principal, Integris Applied

Patrick Moore, Partner, Integris Applied

Craig Orgeron, PhD, Chief Information Officer, State of Mississippi

Eric Sweden, Program Director, Enterprise Architecture & Governance, NASCIO

CONTRIBUTORS

Doug Robinson, Executive Director, NASCIO

Emily A. Lane, Program and Brand Director, NASCIO

Danielle Clements, Digital Communications Coordinator, NASCIO

NASCIO Staff Contact

Eric Sweden, Program Director, Enterprise Architecture & Governance esweden@nascio.org