What State and Local Government Technology Officials Can Expect

January 22, 2020
Speakers

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PTI
State-of-the-States 2020: Trends and Perspectives

Technology Forecast 2020: What State and Local Government Technology Officials Can Expect

January 22, 2020

Doug Robinson, NASCIO Executive Director
@NASCIO
More focus on enterprise cybersecurity models; cyber talent and workforce crisis remains

CIO as broker business model: evolution from owner-operator to more managed services, outsourcing and multi-sourcing initiatives

Digital government: user centric design, focus on streamlining experiences, citizen IAM

Artificial intelligence (AI) leads emerging technology. RPA, chatbots adoption grows as benefits realized

State IT organization transition continues: more consolidation, hybrid models and unification initiatives

25 state CIO transitions in 2019. What do we expect in 2020?
State CIO Transitions 2019
January 1, 2019 – December 31, 2019

2019 Transitions
No Change
### STATE CIO TOP 10 PRIORITIES
2020 Strategies, Policy Issues and Management Processes

<table>
<thead>
<tr>
<th>Rank</th>
<th>Priority</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cybersecurity and Risk Management</td>
<td>Governance; budget and resource requirements; security frameworks; data protection; training and awareness; third party risk</td>
</tr>
<tr>
<td>2.</td>
<td>Digital Government</td>
<td>Framework for digital services; portal; improving citizen experience; accessibility; identity management; digital assistants; chatbots</td>
</tr>
<tr>
<td>3.</td>
<td>Cloud Services</td>
<td>Cloud strategy; selection of service and deployment models; scalable and elastic services; governance; service management; security</td>
</tr>
<tr>
<td>4.</td>
<td>Consolidation/Optimization</td>
<td>Centralizing, consolidating services, operations, resources, infrastructure, data centers; communications and marketing “enterprise” thinking</td>
</tr>
<tr>
<td>5.</td>
<td>Customer Relationship Management</td>
<td>Internal customer service strategies; building customer agency confidence, trust and collaboration; service level agreements (demand planning)</td>
</tr>
<tr>
<td>6.</td>
<td>Budget, Cost Control, Fiscal Management</td>
<td>Managing budget reduction; strategies for savings; reducing or avoiding costs; dealing with inadequate funding and budget constraints</td>
</tr>
<tr>
<td>7.</td>
<td>Legacy modernization</td>
<td>Enhancing, renovating, replacing, legacy platforms and applications; business process improvement</td>
</tr>
<tr>
<td>8.</td>
<td>Data Management and Analytics</td>
<td>Data governance; data architecture; strategy; business intelligence; predictive analytics; big data; roles and responsibilities</td>
</tr>
<tr>
<td>9.</td>
<td>Broadband/Wireless Connectivity</td>
<td>Strengthening statewide connectivity; implementing broadband technology opportunities; 5G deployment</td>
</tr>
<tr>
<td>10.</td>
<td>Innovation and Transformation through Technology</td>
<td>Drive a culture of innovation; crowd sourcing; communications/collaboration; focus on outcomes</td>
</tr>
</tbody>
</table>

#1 for seven consecutive years. On the top ten list since 2006

Steadily moving up the list. #4 in 2019

CIO priority each year. On the top ten list since 2006

A key issue because of business model. On the list since 2009


Holding steady on the list since 2016

First time in the top ten
State Governments at Risk!

- States are attractive targets – constant attack
- More aggressive threats, more intensity, ransomware
- Nation state threats, organized crime
- Critical infrastructure impact: disruption
- Human factor – employees, contractors
- Elections security
## Current Status of Cyber Program

<table>
<thead>
<tr>
<th>Activity</th>
<th>2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed security awareness training for workers and contractors</td>
<td>92%</td>
<td>98%</td>
</tr>
<tr>
<td>Adopted a cybersecurity framework, based on national standards and guidelines</td>
<td>90%</td>
<td>94%</td>
</tr>
<tr>
<td>Acquired and implemented continuous vulnerability monitoring capabilities</td>
<td>86%</td>
<td>81%</td>
</tr>
<tr>
<td>Created a culture of information security in your state government</td>
<td>80%</td>
<td>79%</td>
</tr>
<tr>
<td>Established trusted partnerships for information sharing and response</td>
<td>82%</td>
<td>92%</td>
</tr>
<tr>
<td>Adopted a cybersecurity strategic plan</td>
<td>74%</td>
<td>85%</td>
</tr>
<tr>
<td>Developed a cybersecurity disruption response plan</td>
<td>61%</td>
<td>69%</td>
</tr>
<tr>
<td>Documented the effectiveness of your cybersecurity program with metrics and testing</td>
<td>55%</td>
<td>63%</td>
</tr>
<tr>
<td>Used analytical tools, AI, machine learning, etc. to manage cyber security program</td>
<td>49%</td>
<td>44%</td>
</tr>
<tr>
<td>Obtained cybersecurity insurance</td>
<td>47%</td>
<td>42%</td>
</tr>
</tbody>
</table>

What is the current role of your state CIO organization in administering the statewide cybersecurity program?

<table>
<thead>
<tr>
<th>Role</th>
<th>2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading or participating in policy setting</td>
<td>92%</td>
<td>88%</td>
</tr>
<tr>
<td>Responsible for setting overall direction</td>
<td>92%</td>
<td>88%</td>
</tr>
<tr>
<td>Responsible for execution</td>
<td>80%</td>
<td>76%</td>
</tr>
<tr>
<td>Responsible for oversight</td>
<td>90%</td>
<td>86%</td>
</tr>
</tbody>
</table>
Whole-of-State Cybersecurity

Has your state adopted a whole-of-state approach to cybersecurity with collaboration among state agencies, local governments, utilities, private companies, universities, healthcare and others?

- 25% | Yes
- 22% | No
- 39% | In progress
- 14% | Planned
State Cyber Issues to Watch

- Support and assistance to local governments
- Elections security and disinformation
- Risk of emerging technologies – AI, IoT, UAS
- Third-party contractor security risks - outsourcing
- IT supply chain risks
- Public records laws/FOIA exemptions for cyber
State and local collaboration

What services do you provide to local governments?

<table>
<thead>
<tr>
<th>Service</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security infrastructure/services</td>
<td>65%</td>
</tr>
<tr>
<td>Network services</td>
<td>60%</td>
</tr>
<tr>
<td>Data center hosting - mainframe, servers</td>
<td>56%</td>
</tr>
<tr>
<td>Backup services</td>
<td>49%</td>
</tr>
<tr>
<td>Co-location</td>
<td>47%</td>
</tr>
<tr>
<td>Storage</td>
<td>47%</td>
</tr>
</tbody>
</table>

Additional insights:

- Business continuity/disaster recovery: 42%
- Geographic Information Systems (GIS): 42%
- Website hosting: 40%
- Email/Office productivity: 40%
- Mainframe services: 38%
- Digital government services/portal: 36%
- Database hosting/maintenance: 36%
- Telephony/VoIP: 36%
- Cloud solutions/hosting: 33%
- Video/web conferencing: 33%
- Applications development/support: 29%
- Cellular phone service: 27%
- Identity and Access Management: 27%
- Digital archiving and preservation: 24%

- Imaging/file retention: 24%
- IT training: 24%
- Business Intelligence/Data Analytics: 22%
- ERP: 20%
- Records management: 20%
- Mobile apps: 18%
- Other: 18%
Action is Needed Now

1) **At the very minimum states should be building relationships with local governments.**
   - Work through state municipal leagues and county associations, with emphasis on local information technology associations.

2) **States should raise awareness of existing services being offered to local governments.**
   - Hold cyber summits
   - Educate stakeholders

3) **States should be exploring cost savings that can be achieved through including local governments in service contracts.**
   - Consult local governments during the contract planning process solicitation
   - Provide a conduit for discussions about pooling resources among shared risk pools at the local level
Advancing Digital Government

Which digital thinking concepts are most purposeful to your deployment of a digital strategy?

1. Transparent and open access to information
2. Design thinking process for problem solving
3. Adaptable organizations to deploy technologies and enhance processes
4. Taking a citizen-centric approach to prioritizing activities and creating value
5. Encouraging experimentation and innovation to create a continuous improvement culture
6. Using technology for a personalized customer experience
What digital technologies provide the best value for enhancing the user experience?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Enhanced agency websites</td>
<td>39%</td>
<td>39%</td>
<td>61%</td>
<td>65%</td>
<td>16%</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>2 Social and mobile citizen engagement applications</td>
<td></td>
<td></td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Virtual chatbots</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>4 More online citizen services</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>5 “Single door” entry point for multiple agency portals</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>6 Automation of back-office functions</td>
<td></td>
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</tr>
<tr>
<td>7 Identity services/digital credentials</td>
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</tr>
</tbody>
</table>
## CIO business models

How does your state CIO organization plan to deliver or obtain IT services over the next three years?

<table>
<thead>
<tr>
<th>Model</th>
<th>Introduced</th>
<th>Maintain</th>
<th>Expand</th>
<th>Downsize</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-owned-and-operated data center(s)</td>
<td>0%</td>
<td>35%</td>
<td>17%</td>
<td>48%</td>
</tr>
<tr>
<td>IT shared services model</td>
<td>4%</td>
<td>27%</td>
<td>65%</td>
<td>4%</td>
</tr>
<tr>
<td>Outsourcing services model</td>
<td>2%</td>
<td>41%</td>
<td>50%</td>
<td>7%</td>
</tr>
<tr>
<td>“As-a-service” models (e.g. SaaS, PaaS, IaaS, etc.)</td>
<td>2%</td>
<td>6%</td>
<td>92%</td>
<td>0%</td>
</tr>
<tr>
<td>Managed services model</td>
<td>9%</td>
<td>28%</td>
<td>61%</td>
<td>2%</td>
</tr>
<tr>
<td>State IT staff</td>
<td>0%</td>
<td>67%</td>
<td>26%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Perspectives on Emerging Technology

What emerging IT area will be most impactful in the next 3-5 years?

- **65%** | AI (machine learning, RPA, chatbots)
- **20%** | Internet of Things (IoT)
- **6%** | Connected/Autonomous Vehicles
- **4%** | Other
- **2%** | Blockchain
- **2%** | Quantum Computing

Are you planning to deploy automation software, either for robotic process automation (RPA) or machine learning, in the next 2-3 years?

- **25%** | Yes, already complete or in-progress
- **25%** | Yes, planned
- **22%** | Yes, considering
- **18%** | No
- **8%** | Unsure
Where is Artificial Intelligence Today?

How would you describe your state’s adoption of artificial intelligence?

- **31%** Proofs of concepts/demonstrations
- **24%** Evaluating/gathering requirements (RFI)
- **19%** Piloting
- **13%** Currently using but not in core lines of business
- **12%** No use or planned use
- **1%** Widely used across the state

Where are you using AI?

- **19%** Information technology
- **15%** Cybersecurity
- **14%** Transportation/infrastructure
- **11%** Health and human services
- **7%** Citizen experience

Source: Delivering on Digital Government: Achieving the Promise of Artificial Intelligence Survey 2019. CGIG, IBM and NASCIO.
What’s Needed to Unlock the Promise of AI?

Data Organization & Hygiene
42% do not feel that their state has their data organized in a manner to be successful with artificial intelligence today.

Data Assessments
51% have not completed an assessment of their data to ensure that it is usable, accessible and cleansed enough to effectively leverage artificial intelligence.

A Framework for Risk
57% do not have a framework for evaluating risk for emerging technologies like artificial intelligence.

Policy
72% do not have a policy governing the responsible and ethical use of artificial intelligence.

What are the most significant challenges or barriers to AI adoption?

- Legacy IT Infrastructure: 45%
- Cultural concerns inside the organization: 33%
- Lack of necessary staff skills for AI: 27%
- Organizational data silos: 24%
- Lack of executive support: 2%

(Five greatest barriers shown)
Representing Chief Information Officers of the States
Questions?

2020 STATE AND LOCAL TECH FORECAST

1.22.20 2pm ET
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