

2020 STATE AND LOCAL TECH FORECAST



1.22.20 2pm ET

What State and Local Government Technology Officials Can Expect

January 22, 2020



Speakers



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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

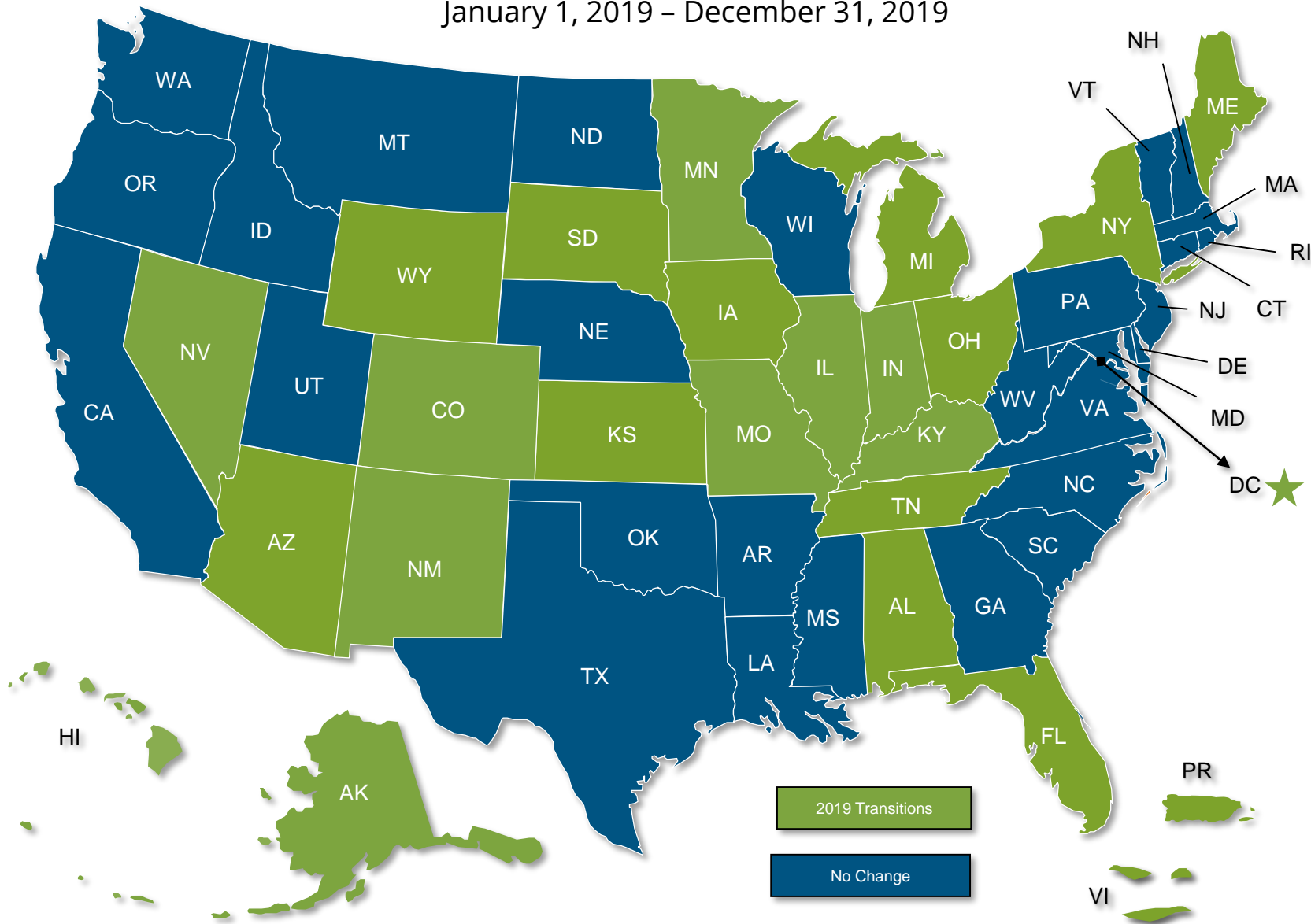
Artificial intelligence (AI) leads emerging technology. RPA, chatbots adoption grows as benefits realized

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



STATE CIO TOP 10 PRIORITIES

2020 Strategies, Policy Issues and Management Processes



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

#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

Back on the list. Last appeared in 2017.

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

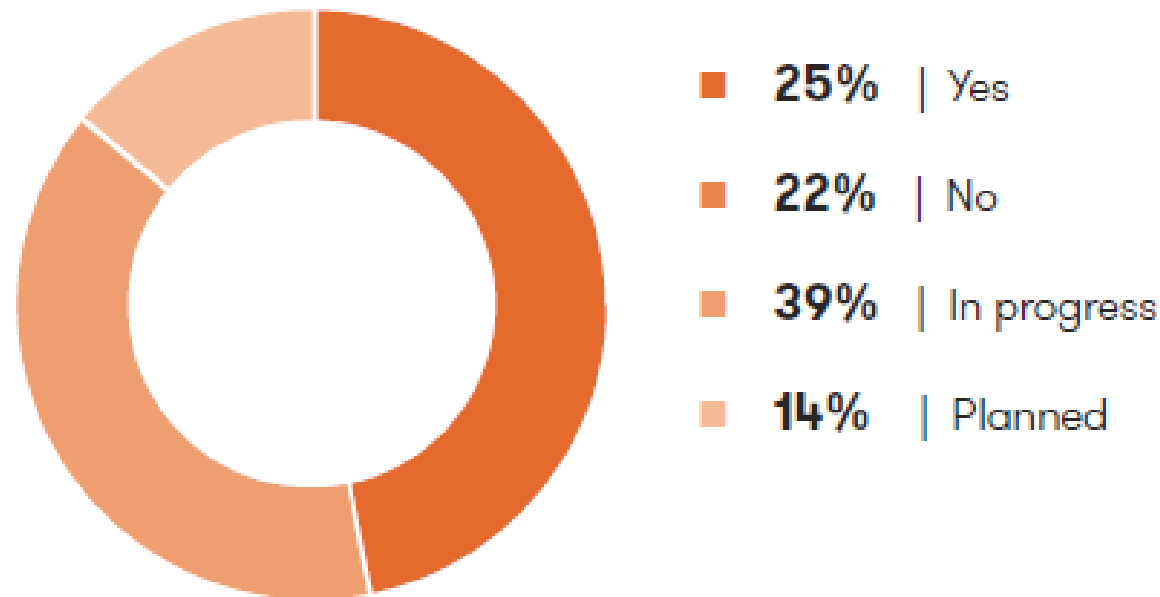
What is the current role of your state CIO organization in administering the statewide cybersecurity program?

	2019	2018
Leading or participating in policy setting	92%	88%
Responsible for setting overall direction	92%	88%
Responsible for execution	80%	76%
Responsible for oversight	90%	86%

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

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?



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



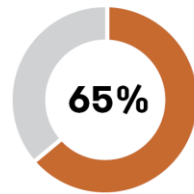
IT supply chain risks



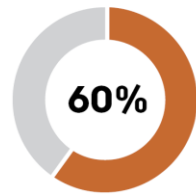
Public records laws/FOIA exemptions for cyber

State and local collaboration

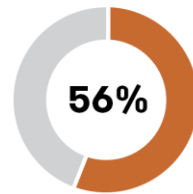
What services do you provide to local governments?



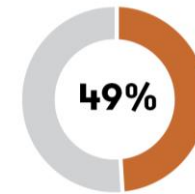
Security infrastructure/
services



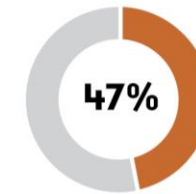
Network services



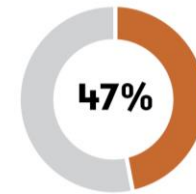
Data center hosting
– mainframe, servers



Backup services



Co-location

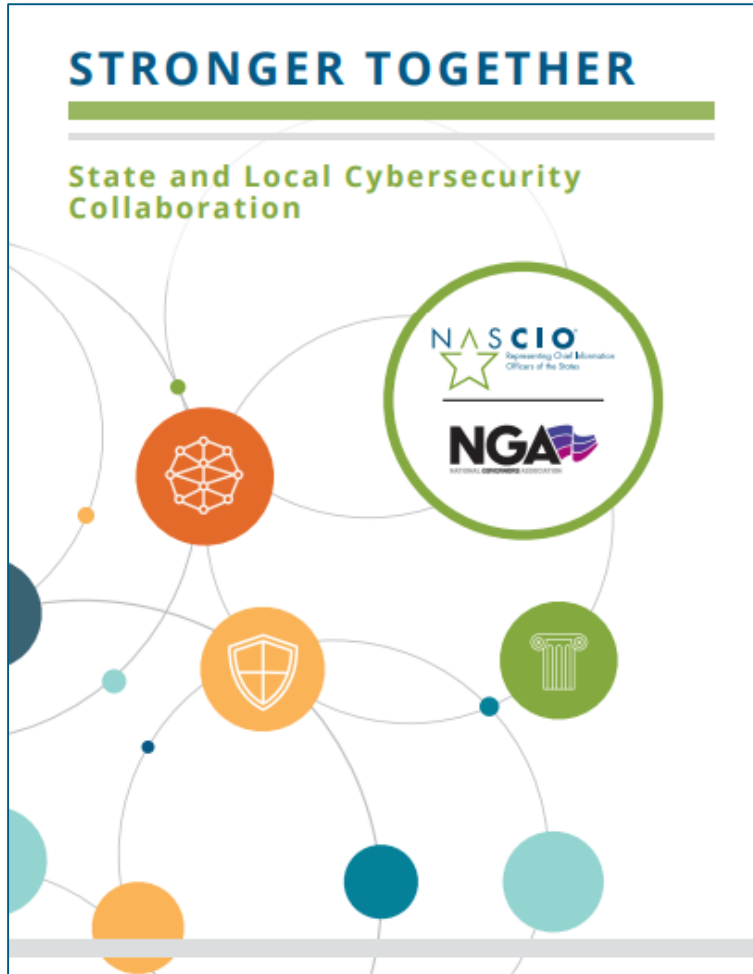


Storage

Additional insights:

42%	Business continuity/disaster recovery	36%	Telephony/VoIP	24%	Imaging/file retention
42%	Geographic Information Systems (GIS)	33%	Cloud solutions/hosting	24%	IT training
40%	Website hosting	33%	Video/web conferencing	22%	Business Intelligence/Data Analytics
40%	Email/Office productivity	29%	Applications development/support	20%	ERP
38%	Mainframe services	27%	Cellular phone service	20%	Records management
36%	Digital government services/portal	27%	Identity and Access Management	18%	Mobile apps
36%	Database hosting/maintenance	24%	Digital archiving and preservation	18%	Other

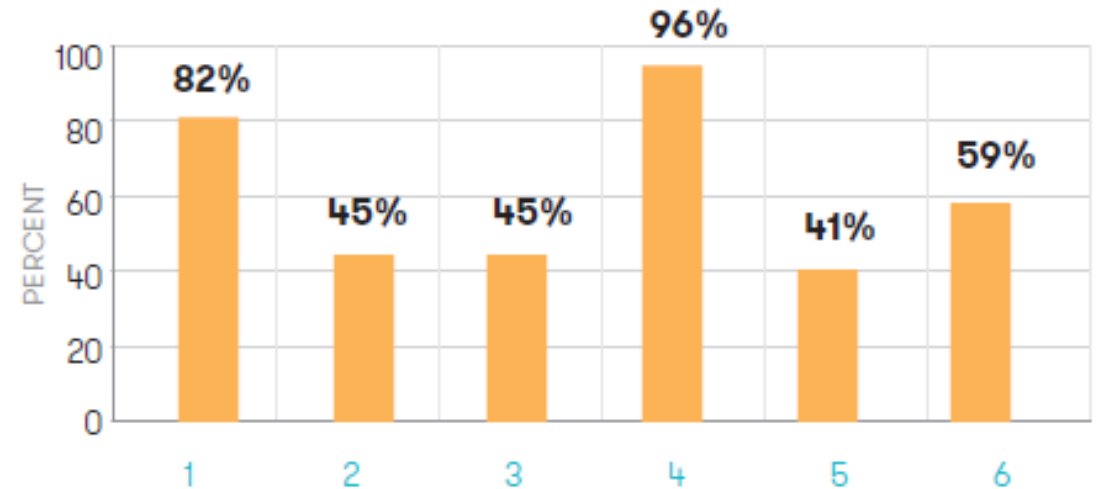
Action is Needed Now



- 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

4 Taking a citizen centric approach to prioritizing activities and creating value

2 Design thinking process for problem solving

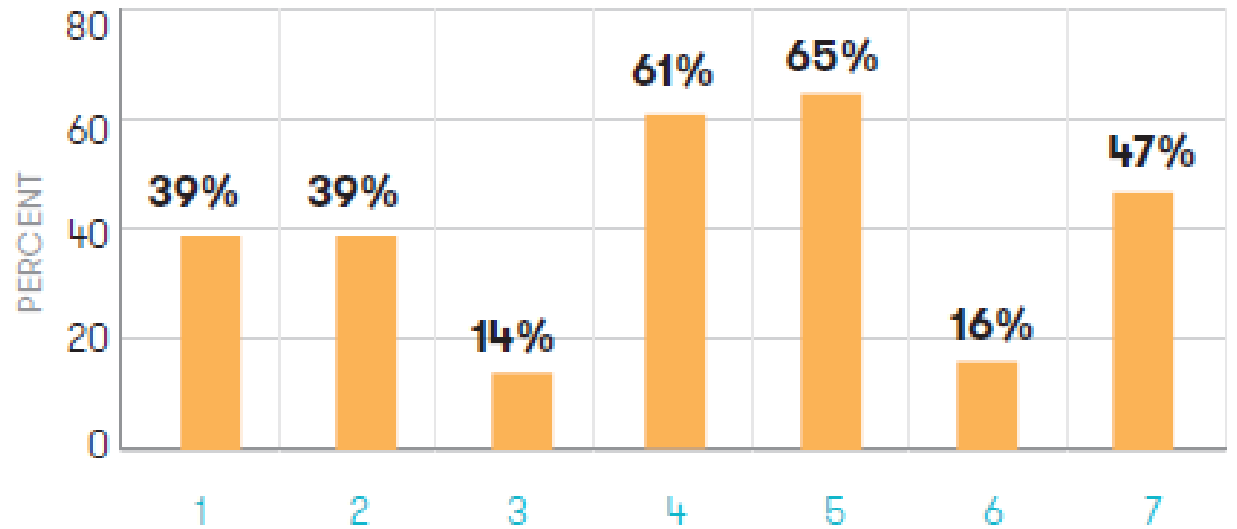
5 Encouraging experimentation and innovation to create a continuous improvement culture

3 Adaptable organizations to deploy technologies and enhance processes

6 Using technology for a personalized customer experience

Advancing Digital Government

What digital technologies provide the best value for enhancing the user experience?



- | | |
|---|---|
| 1 Enhanced agency websites | 5 "Single door" entry point for multiple agency portals |
| 2 Social and mobile citizen engagement applications | 6 Automation of back-office functions |
| 3 Virtual chatbots | 7 Identity services/digital credentials |
| 4 More online citizen services | |

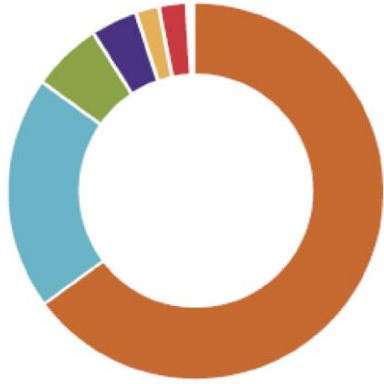
CIO business models

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

	Introduced	Maintain	Expand	Downsize
State-owned-and-operated data center(s)	0%	35%	17%	48%
IT shared services model	4%	27%	65%	4%
Outsourcing services model	2%	41%	50%	7%
“As-a-service” models (e.g. SaaS, PaaS, IaaS, etc.)	2%	6%	92%	0%
Managed services model	9%	28%	61%	2%
State IT staff	0%	67%	26%	7%

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%

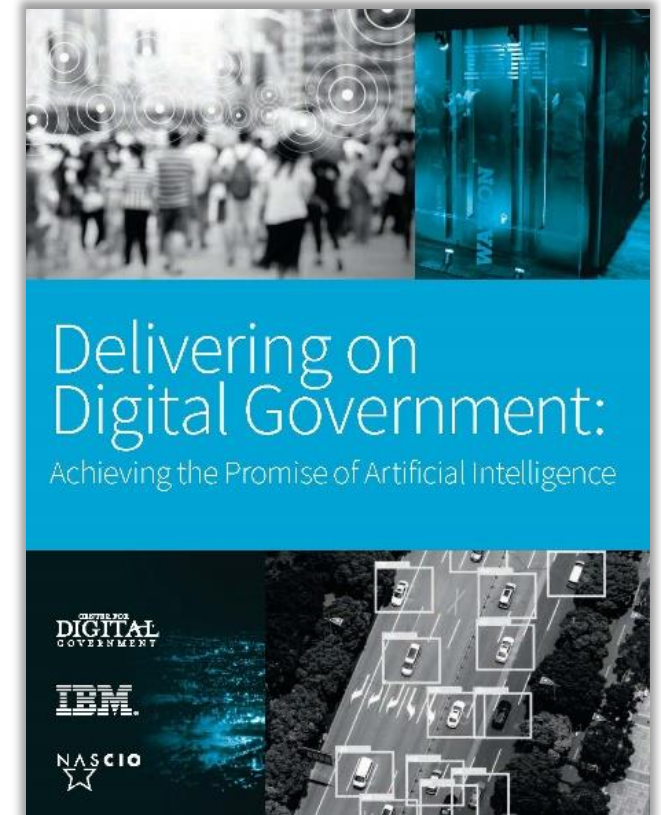
Transportation/infrastructure

11%

Health and human services

7%

Citizen experience



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?

45%

Legacy IT infrastructure

33%

Cultural concerns inside the organization

27%

Lack of necessary staff skills for AI

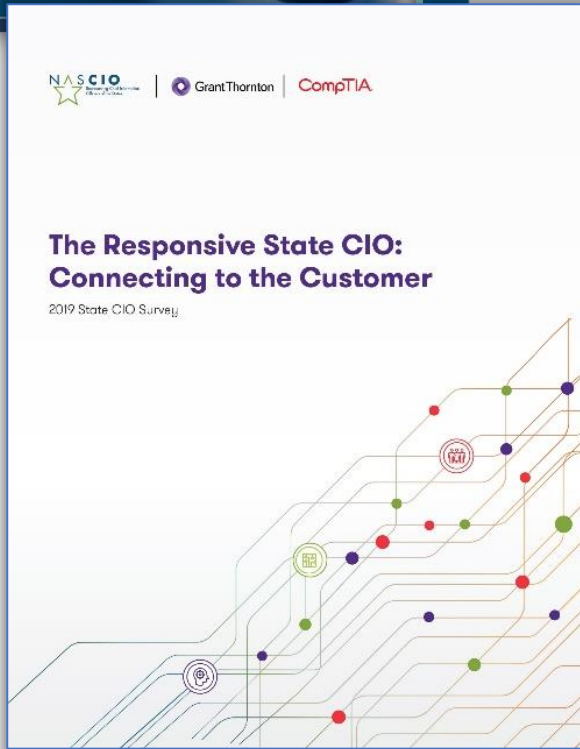
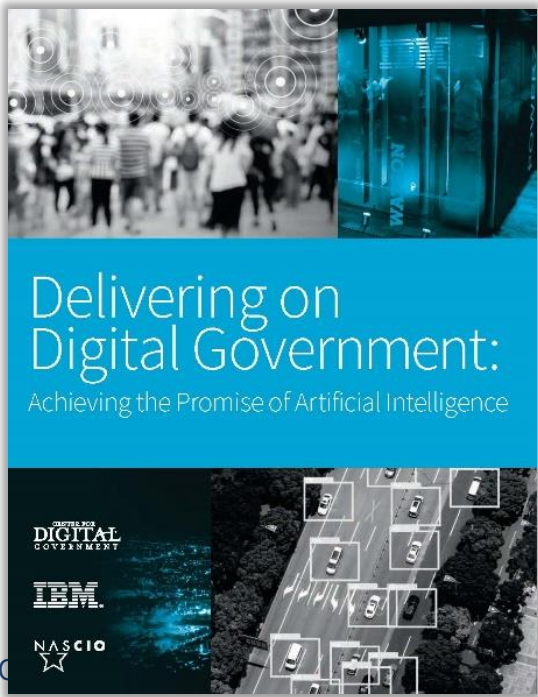
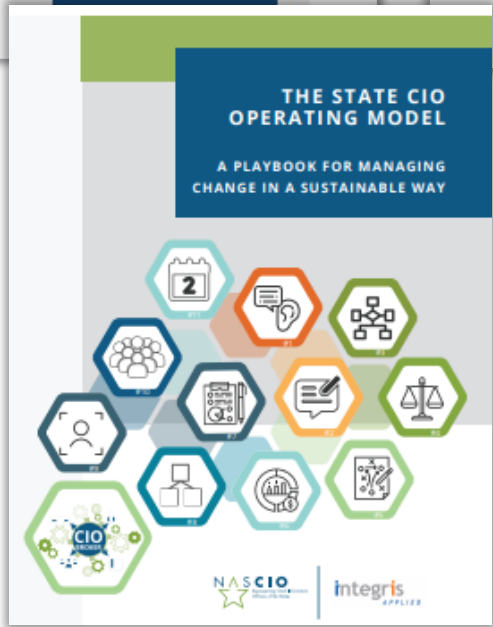
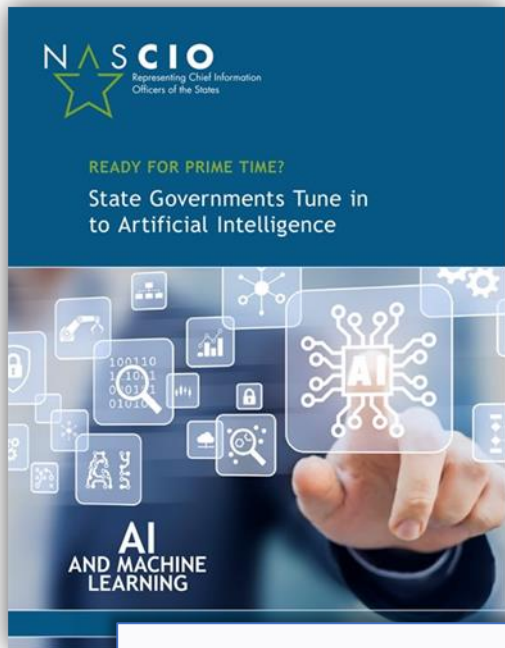
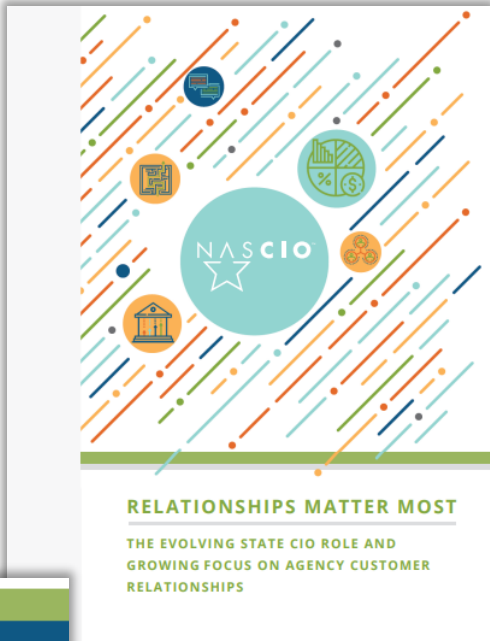
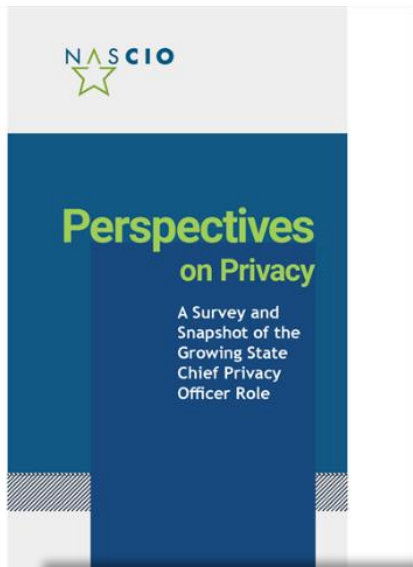
24%

Organizational data silos

2%

Lack of executive support

(Five greatest barriers shown)



City and County Technology and Workforce Trends

*Highlights from the 2020 National Survey of
Local Government Technology Executives*

Tech Forecast 2020 Webinar

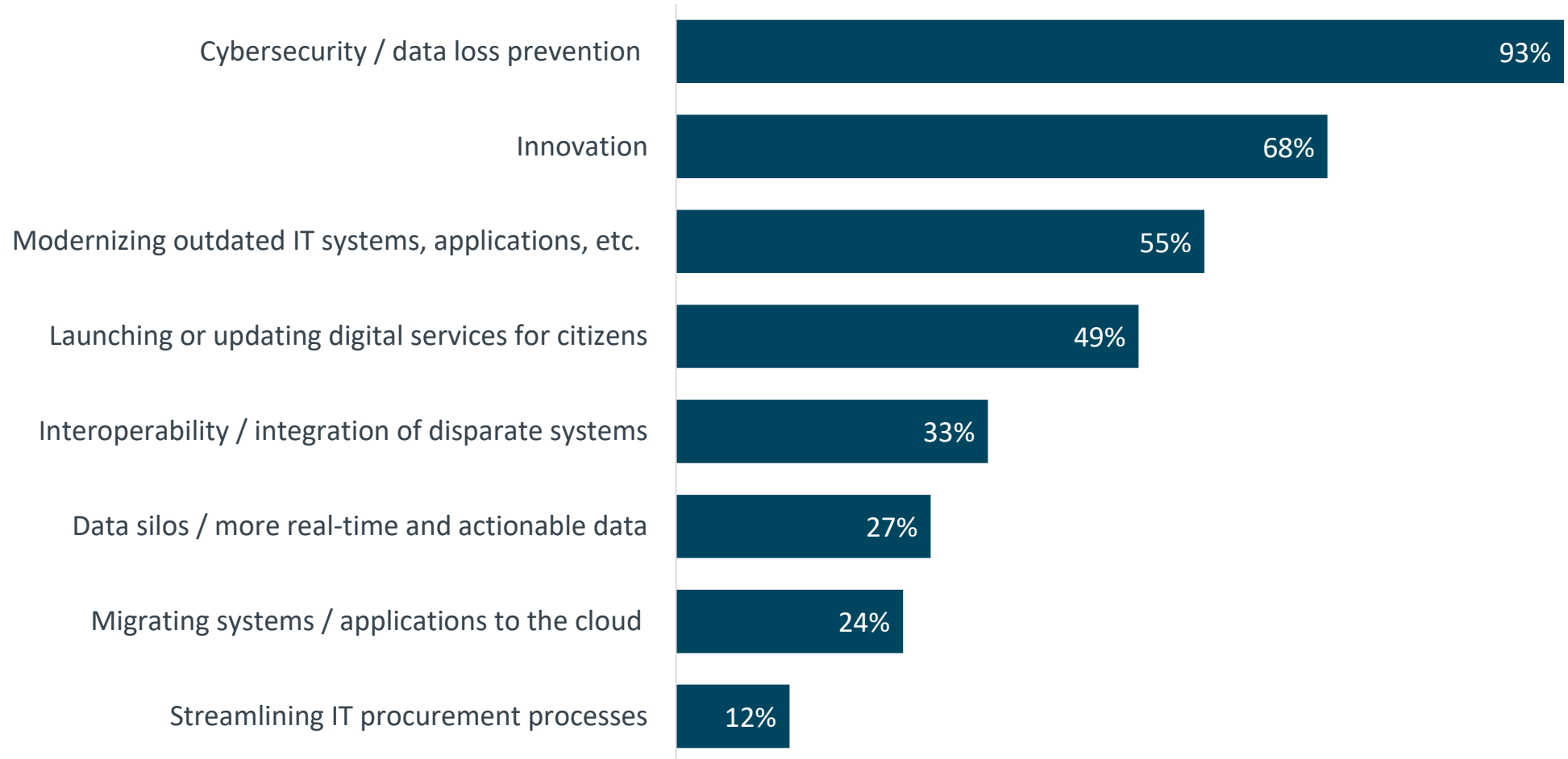
Dr. Alan R. Shark, Executive Director, Public Technology Institute

January 22, 2020

Background

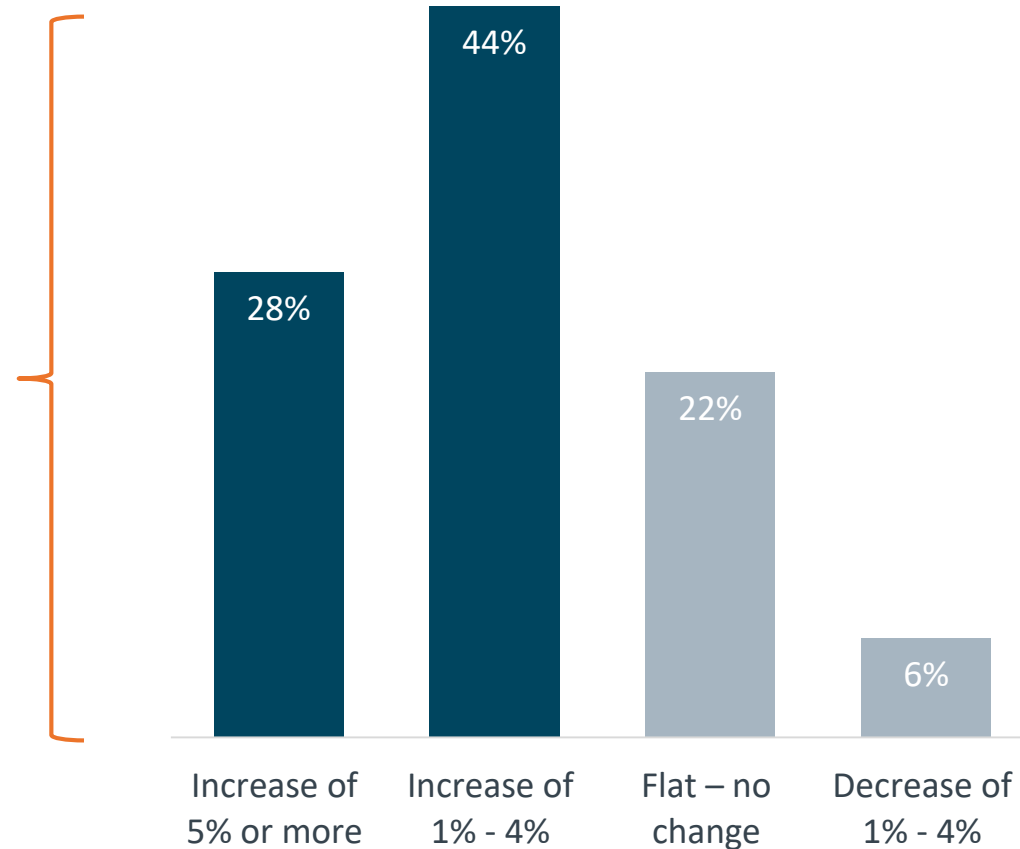
- 9th year that PTI has conducted the survey
- Intent: To provide a snapshot of the technology management issues and organization priorities of local government
- Expanded for 2020 to include new topics and areas of interest
- National survey conducted November-December 2019
- 102 city and county IT executives participated in the survey

City/County CIO Technology Priorities Over Next 2 Years



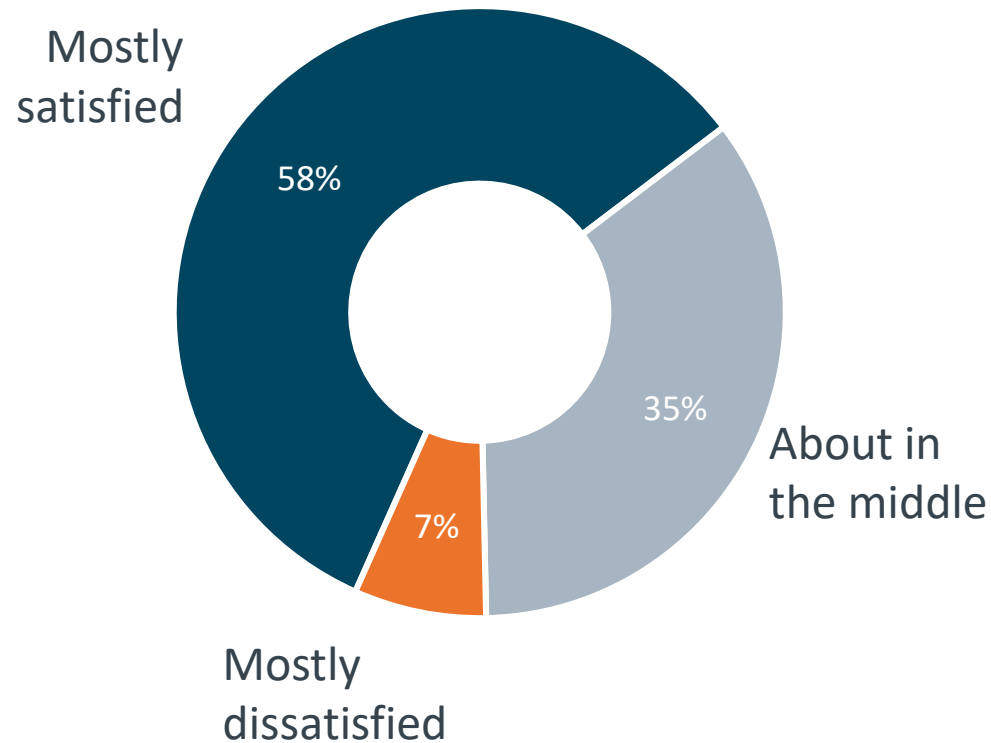
City/County Technology Budget Expectations

**72% of
City/County
CIOs (NET)
expect their
IT budgets
to increase
in the next
fiscal year**



City/County CIOs Mostly Satisfied with ROI of IT

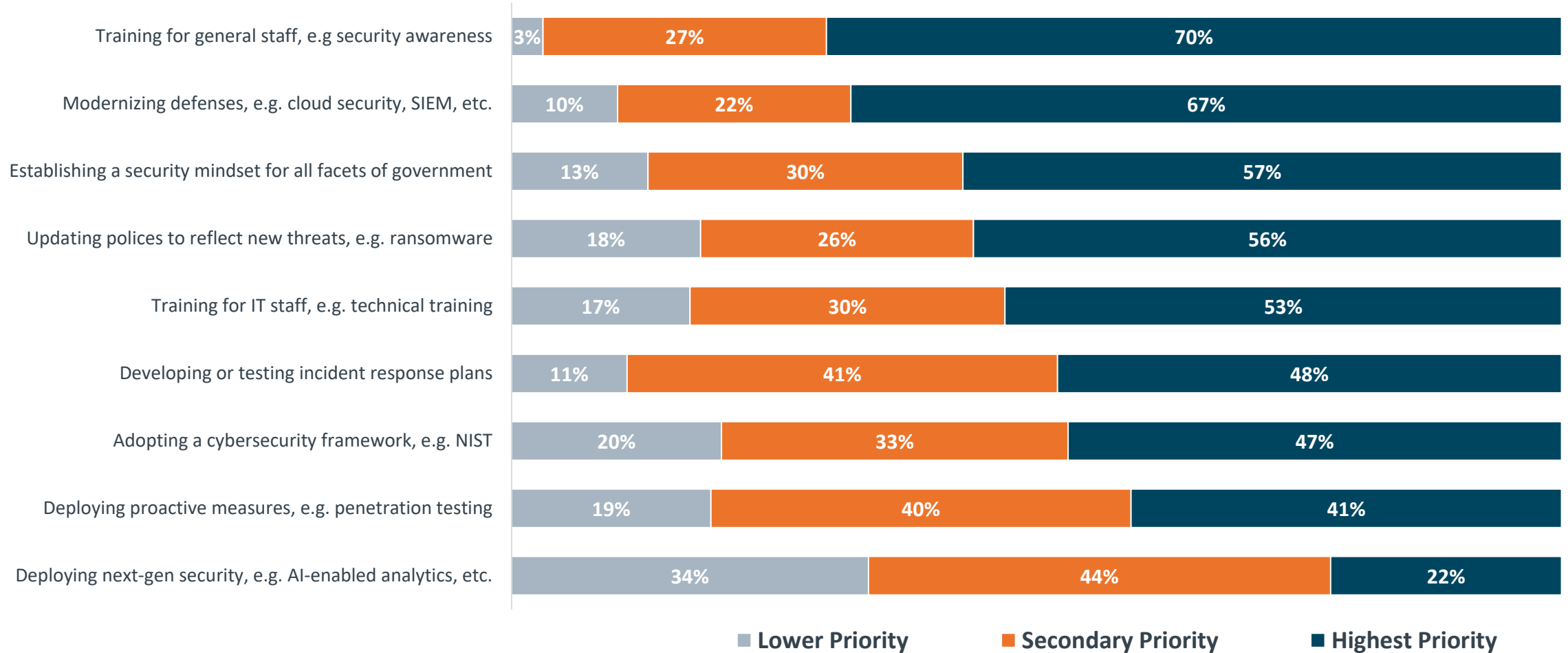
Degree of satisfaction with ROI of IT investments



Top reasons for dissatisfaction with ROI of IT investments

1. On-going maintenance costs / support fees / upgrades
2. Staff time requirements to operate and maintain
3. Complexity / poor user experience
4. Upfront cost / too expensive for return
5. Features / capabilities don't meet needs

City/County Cybersecurity Priorities on Many Fronts



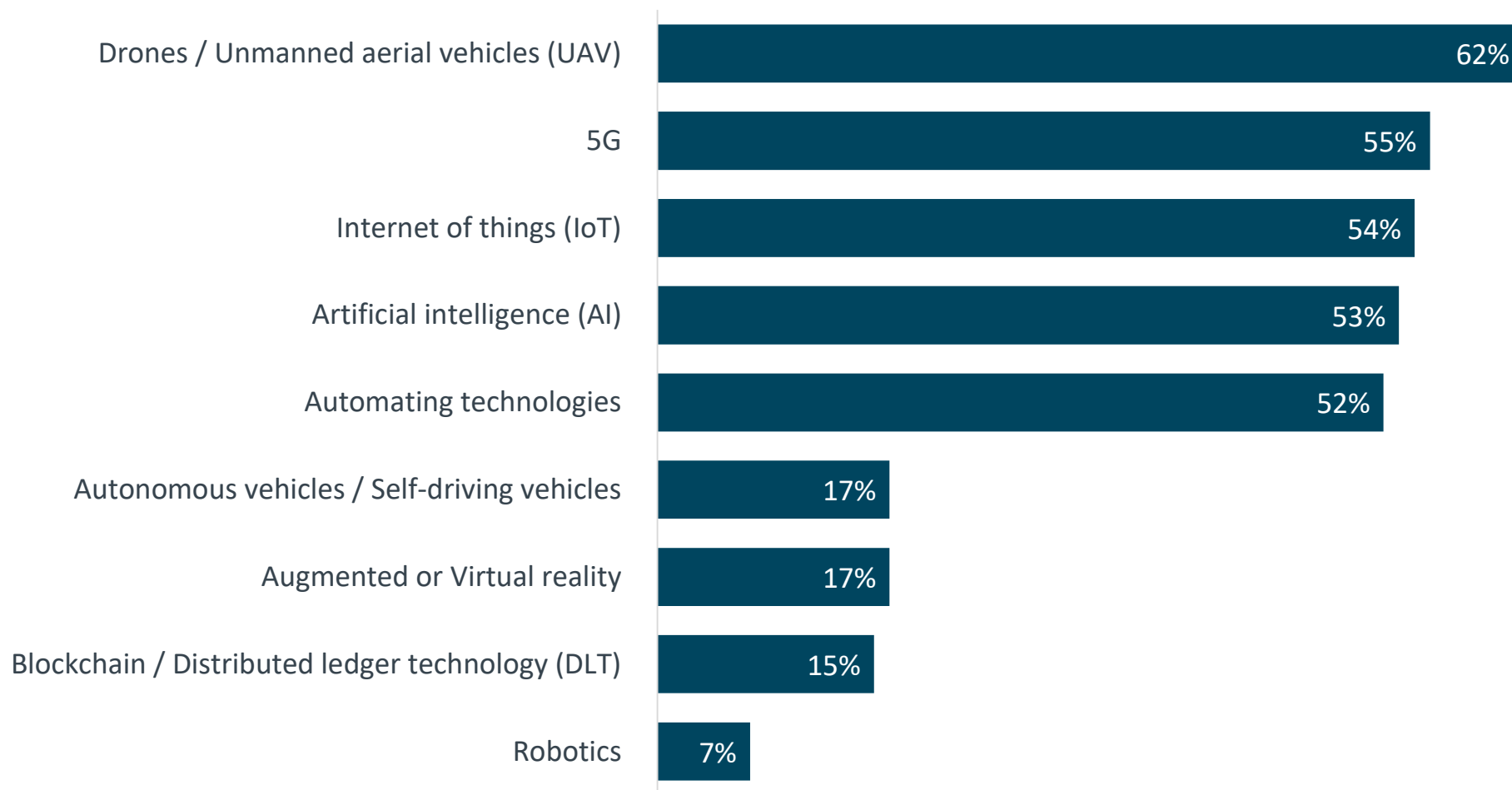
Training and Professional Development

Wish list for training at CIO's agency / department

#1	More training on emerging technology areas
#2	More training on core areas, e.g. infrastructure, systems, data, etc.
#3	More cross-training to better understand government operations
#4	More training on project management, agile design, user-centered design, etc.
#5	More leadership training for managers
#6	More soft skills training
#7	More simulations / real-world training scenarios

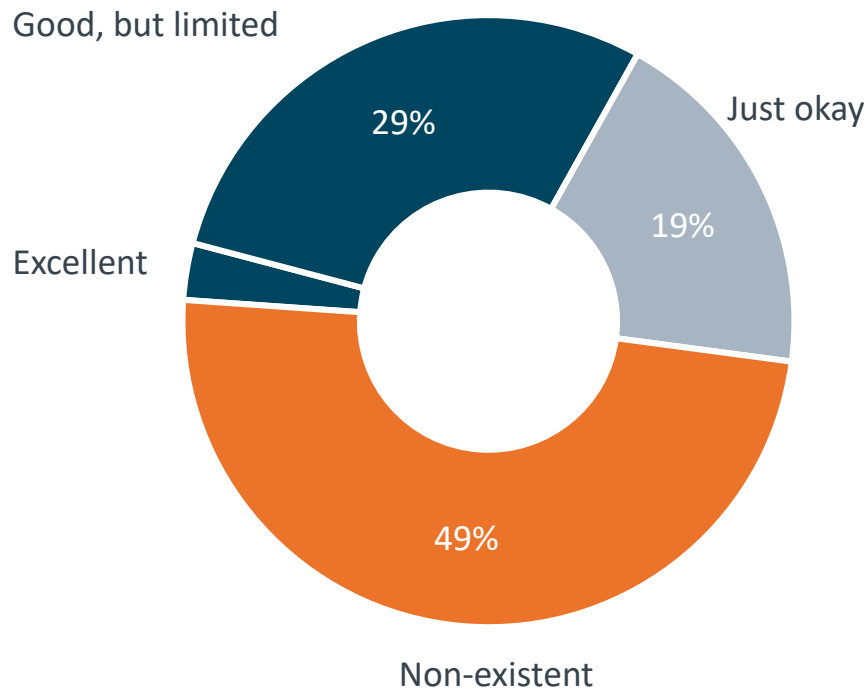
Emerging Technologies Start to Impact Cities/Counties

Technologies in some phase of adoption and/or on the radar of city/county CIOs

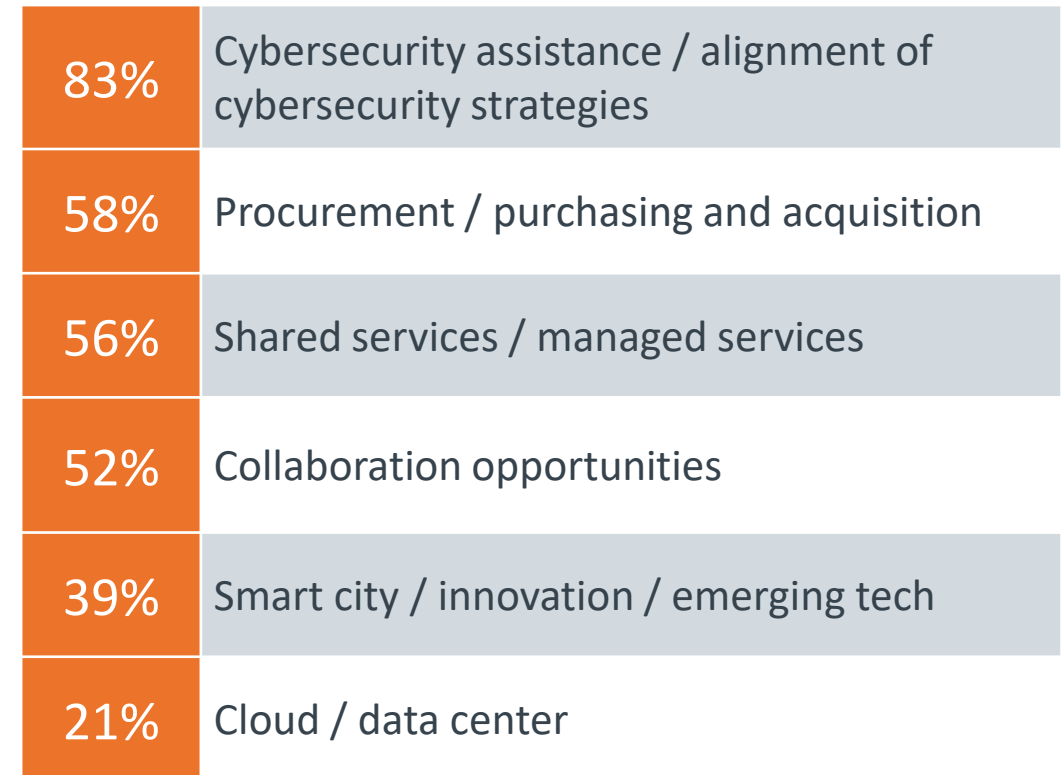


Potential Opportunities for Further Collaboration Between City/County CIOs and State CIOs?

Rating of jurisdiction's relationship with the state CIO



Top cited collaboration opportunities



In Addition to the Topics Just Presented the Survey Explores:

- IT Procurement
- Digital Service Delivery
- Staffing
- Budgeting
- Smart Cities and Counties
- Cloud Strategies
- Managed Services

PTI CIO and Leadership Summit: Research Priorities to Explore

Smart City/County Ecosystem:

A “deeper dive” into the usage and security needs and issues, and how to develop (or promote the need with elected leaders) a solid foundation for the ecosystem.

Right now, many local governments are experiencing that individual departments are “doing their own thing” versus a city/county-wide approach or strategy.

PTI CIO and Leadership Summit: Research Priorities to Explore

- How do IT executives manage **IoT**?
- **More on AI** – where is it headed, and can local governments develop a roadmap to implement AI within the organization and as a service delivery option.
- **Managing IT Compliance Policy and Privacy:** This should be considered a priority and not an after-thought for IT executives.

PTI CIO and Leadership Summit: Research Priorities to Explore

Blockchain – What is the latest and ID examples of how local governments are using.

The Maturity Model of IT: Not every IT department is the same. How can local government IT departments benchmark each other?

Regional approaches to IT operations and service delivery for IT executives to explore?

PTI CIO and Leadership Summit: Research Priorities to Explore

- Skillsets that IT executives are looking for in their staff. The **“soft skills”** are often lacking.
- Innovative approaches to **attracting and retaining IT talent**.
- IT/project/department **collaboration tools**.
- The latest with the **managed services** concept of IT.

“Ins and Outs 2019 - 2020”

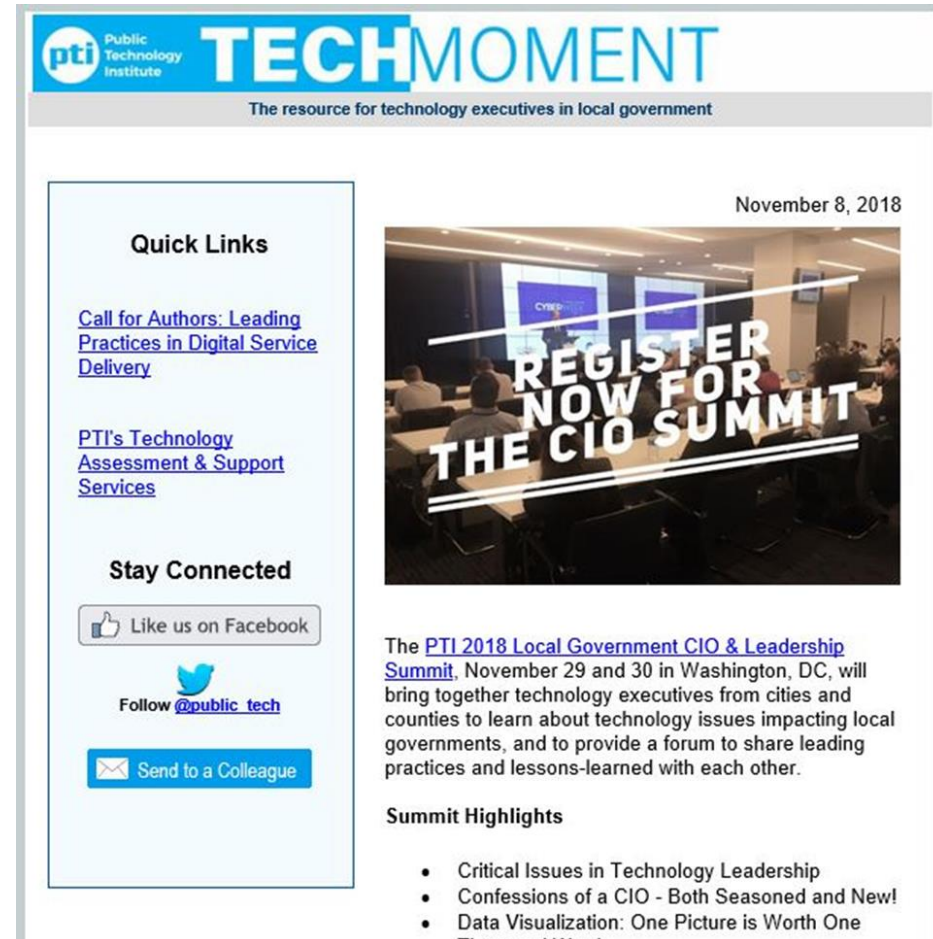
OUT	IN
1. Cyber Security as a concern	Cyber Security as a crisis
2. Perimeter-Based Security Focus	Holistic Active Monitoring and Response Systems
3. Smart Applications	Smart Government
4. Database transactions	Blockchain
5. Uber/Lyft	Bikes/Scooters/Autonomous vehicles
6. Smart software	Artificial Intelligence (AI)
7. Robotics	Robots/Bots
8. Innovation	Change Management
9. Virtual & Augmented Reality	Mixed Reality
10. Hiring IT Staff (internal)	Managing IT staff (external)

Additional PTI Research Resources

Weekly email scan of
technology news



Emails from PTI on upcoming events,
new research, webinars, etc.



Questions?



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