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ICMA

Cybersecurity 2016 Survey

Summary Report of Survey Results

Introduction

In 2016, the International City/County Management Association (ICMA), in partnership with the University of Maryland, Baltimore County (UMBC), conducted a survey to better understand local government cybersecurity practices. The results of this survey provide insights into the cybersecurity issues faced by U.S. local governments, including what their capacities are, what kind of barriers they face, and what type of support they have to implement cybersecurity programs.

Methodology

The survey was sent on paper via postal mail to the chief information officers of 3,423 U.S. local governments with populations of 25,000 or greater. An online submission option was also made available to survey recipients. Responses were received from 411 of the governments surveyed, yielding a response rate of 12%. Cities were overrepresented among respondents while counties were underrepresented. Similarly, higher percentage of responses received from larger communities compared to smaller communities. Further, jurisdictions in the Mountain region of the U.S. were overrepresented, while jurisdictions in the Mid-Atlantic and East South-Central regions were underrepresented. The following report reflects trends among the unweighted survey responses, and should only be considered to be representative of the responding governments. Weighting should be applied to achieve representation of the broader survey population.

Cybersecurity 2016 Survey

	Number Surveyed	Number Responding	Response Rate
Total	**3423**	**411**	**12.0%**
Population Size			
Over 1,000,000	42	11	26.2%
500,000 - 1,000,000	98	20	20.4%
250,000 - 499,999	168	26	15.5%
100,000 - 249,999	532	63	11.8%
50,000 - 99,999	939	108	11.5%
25,000 - 49,999	1644	183	11.1%
Geographic Division			
New England	183	23	12.6%
Mid-Atlantic	391	23	5.9%
East North-Central	782	94	12.0%
West North-Central	266	26	9.8%
South Atlantic	541	79	14.6%
East South-Central	253	20	7.9%
West South-Central	354	41	11.6%
Mountain	220	48	21.8%
Pacific Coast	433	57	13.2%
Type of Government			
Municipalities	1893	267	14.1%
Counties	1530	144	9.4%

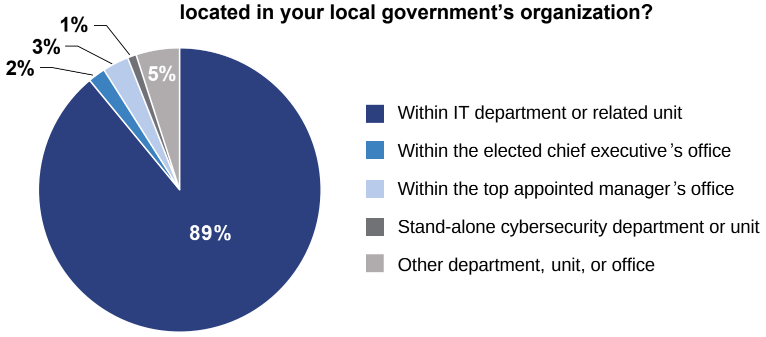
Survey Highlights

This survey provides insight into the cybersecurity practices among local governments in the U.S. Key topics explored include which departments are responsible for cybersecurity; awareness of and support for cybersecurity; what barriers local governments face to achieve higher levels of cybersecurity; and what cybersecurity practices and tools local governments are using. Highlights from the data are outlined below, and responses to survey questions are summarized in the appendix.

Information Technology and Cybersecurity

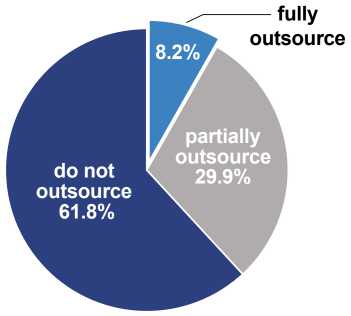
Primary responsibility for cybersecurity is located within the information technology (IT) departments in most of the responding local governments. Only 1% of the responding local governments have a stand-alone cybersecurity department or unit.

Where is the primary responsibility for cybersecurity located in your local government's organization?

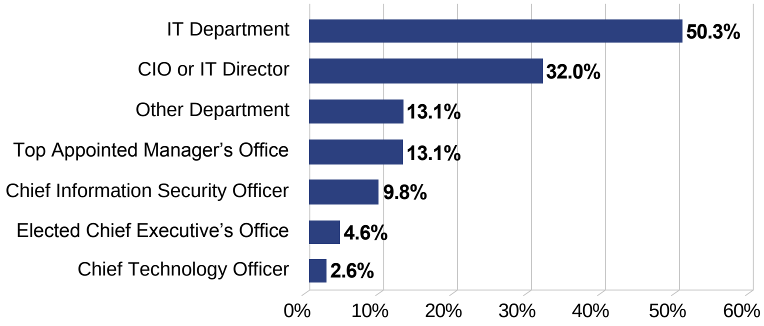


Most of the responding local governments do not outsource cybersecurity functions (61.8%). For the ones that outsource (38.1%), the contractors mostly report to the IT department (50.3%).

Does your local government outsource any of its cybersecurity functions?



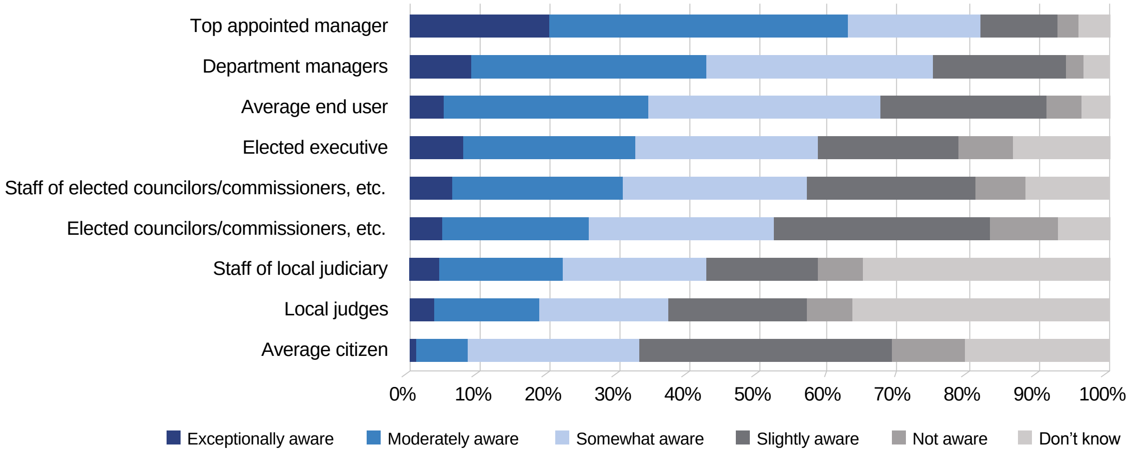
If outsourced, to what office or official in your local government does the contractor(s) to whom you outsource cybersecurity report?



Cybersecurity Awareness, Support

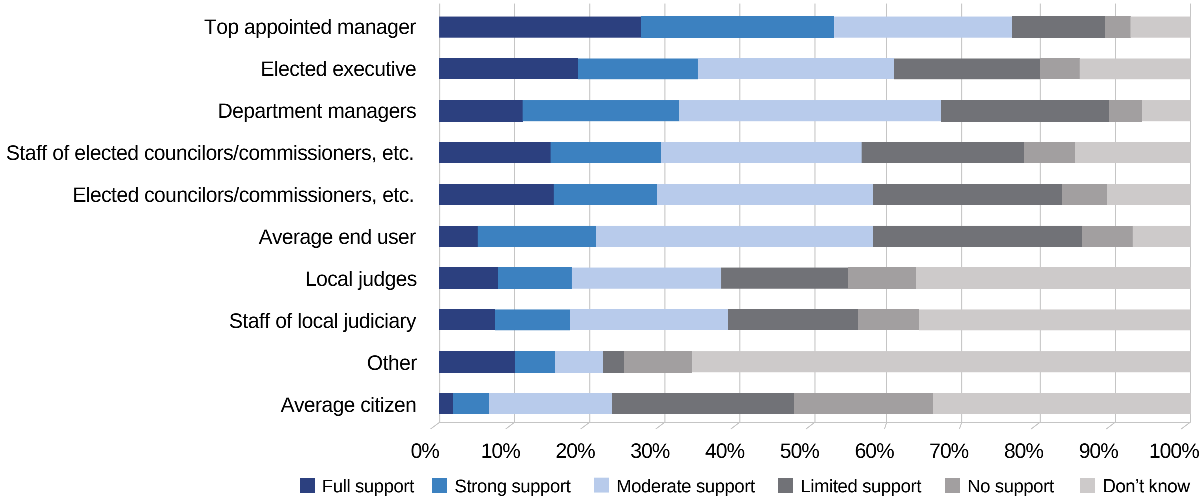
Among the responding local governments, a significant percentage of top appointed managers (61.7%) and department managers (42.5%) were either moderately or exceptionally aware of cybersecurity issues.

How would you rate the cybersecurity awareness of each of the following in your local government?



More than half of top appointed managers (53.8%) provide either strong or full support for cybersecurity, while one-third of the elected executives (35.6%) and department managers (33.3%) provide either strong or full support.

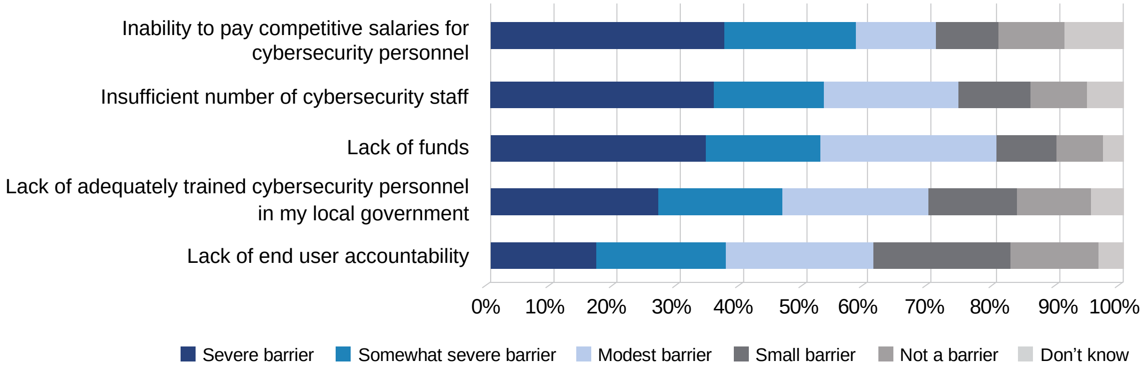
How would you rate the amount of support that cybersecurity receives in your local government from each of the following?



Barriers

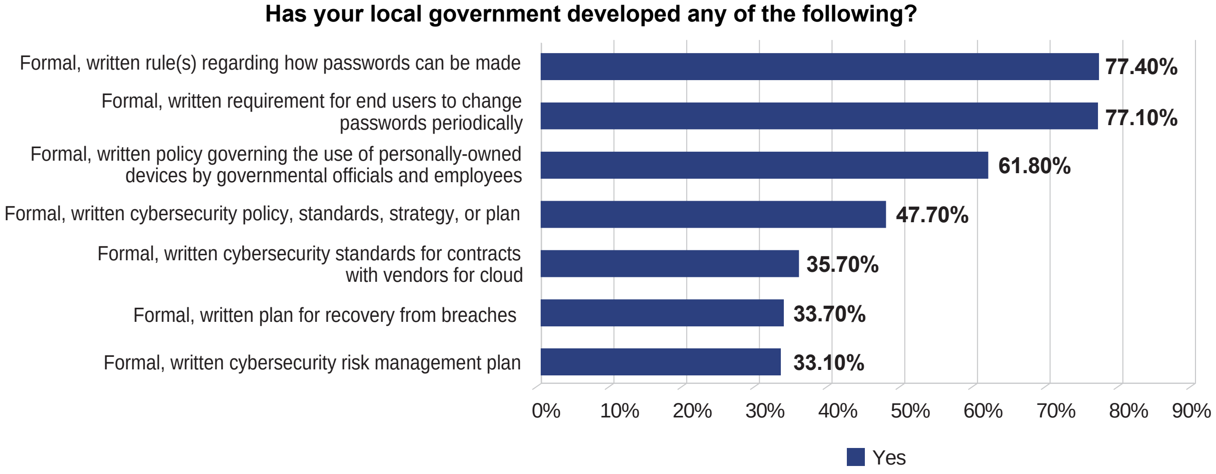
Inability to pay competitive salaries for cybersecurity personnel (58.3%), insufficient number of cybersecurity staff (53.0%), and lack of funds (52.3%) were identified by responding local governments as severe or somewhat severe barriers to achieving the highest possible level of cybersecurity.

To what extent is each of the following a barrier for your local government to achieve the highest possible level of cybersecurity?

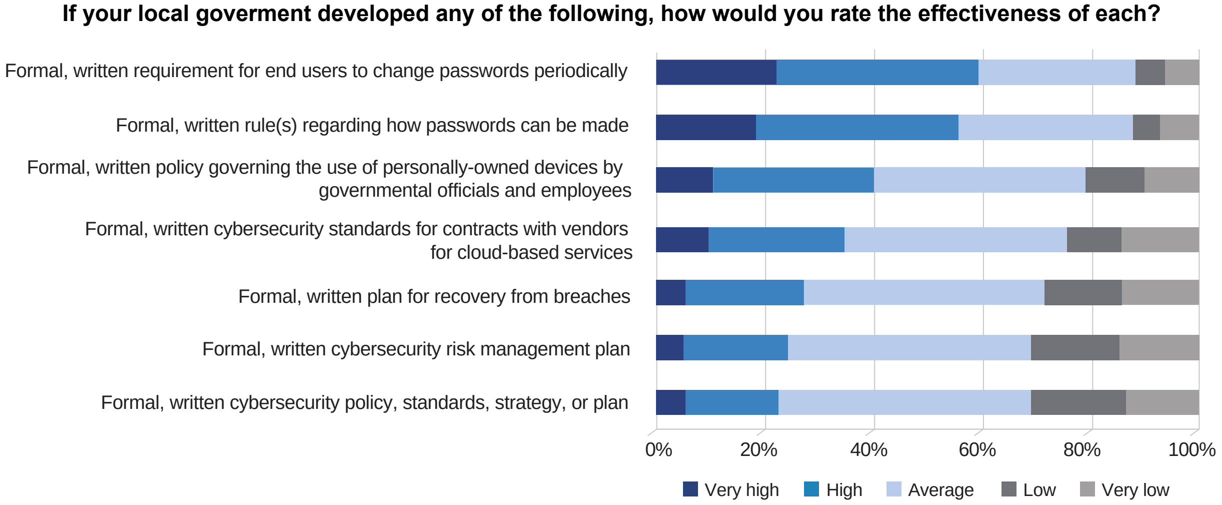


Cybersecurity Practices, Policies, and Tools

A significant proportion of responding local governments developed rule(s) regarding how passwords can be made (77.4%), a requirement for end users to change passwords periodically (77.1%), and a formal policy governing the use of personally-owned devices by governmental officials and employees (61.8%)

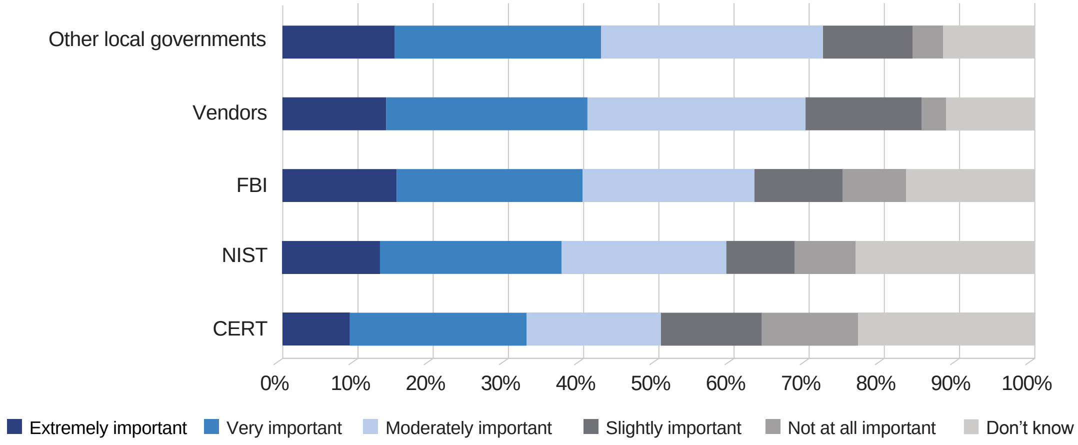


As a follow-up, respondents rated the following three cybersecurity measures as the most effective ones: formal requirement for end users to change passwords periodically, formal rule(s) regarding how passwords can be made, and formal policy governing the use of personally-owned devices by government officials and employees.



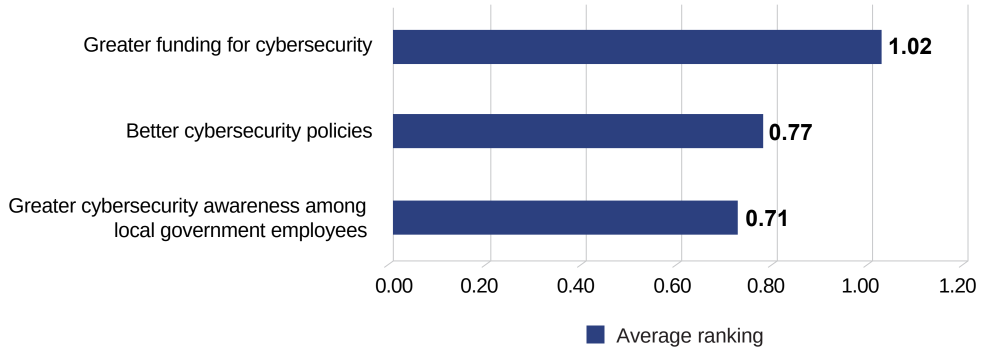
Other local governments (42.5%), vendors (40.8%), and the FBI (40.1%) were rated as extremely or very important by the responding local governments in terms of learning about cybersecurity problems and best practices. Other local governments were rated more important among counties compared to municipalities in learning about problems and best practices.

Please rate the following in terms of their relative importance to your local government's cybersecurity staff for learning about cybersecurity problems and best practices.

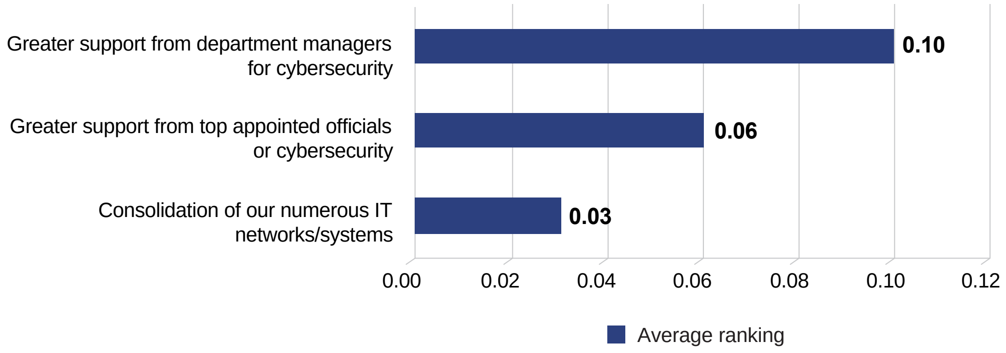


Greater funding for cybersecurity, better cybersecurity policies, and greater cybersecurity awareness among local government employees were rated as the most important things to ensure the highest level of cybersecurity among responding local governments, whereas consolidation of numerous IT networks/systems was rated as the least important one.

Top 3 things that local governments need most to ensure the highest level of cybersecurity



Top 3 things that local governments need the least to ensure the highest level of cybersecurity



Appendix: Summary of Survey Results[1]

Where is the primary responsibility for cybersecurity located in your local government's organization? (Please select one).

n=400

a. Within the information technology department or related unit	**89%**
b. Within the elected chief executive's office (e.g., mayor, county executive)	**2%**
c. Within the top appointed manager's office (e.g., city or county manager or administrator)	**3%**
d. Stand-alone cybersecurity department or unit	**1%**
e. Other department, unit, or office	**5%**

Does your local government outsource any of its cybersecurity functions?

n=401

Yes, we fully outsource cybersecurity	**8.2%**
Yes, we partially outsource cybersecurity	**29.9%**
No, we do not outsource cybersecurity	**61.8%**

If yes, to what office or official in your local government does the contractor(s) to whom you outsource cybersecurity report? (Select all that apply.)

n=153

Information Technology Department	**50.3%**
Chief Information Officer or Information Technology Director	**32.0%**
Chief Information Security Officer	**9.8%**
Chief Technology Officer	**2.6%**
The elected chief executive's office (e.g., mayor, county executive)	**4.6%**
The top appointed manager's office (e.g., city or county manager or administrator)	**13.1%**
Other department, unit, or office	**13.1%**

See full dataset for open-ended responses for "Other department, unit, or office" option.

For the purposes of this survey, we use the following terms: ***attack, security incident (or incident), and data breach (or breach)***. We define ***attack*** as: an attempt by any party to gain unauthorized access to any component of your local government's information technology system for the purpose of causing mischief or doing harm. We use Verizon's definitions of incident and breach (*2015 Data Breach Investigations Report*). According to Verizon, an ***incident*** is: "Any event that compromises the confidentiality, integrity, or availability of an information asset." A ***breach*** is: "An incident that resulted in confirmed disclosure (not just exposure) to an unauthorized party."

Does your local government catalogue and count attacks, incidents, and breaches?

a. Attacks (n= 377)		**b. Incidents (n= 377)**		**c. Breaches (n= 373)**	
Yes: **46.4%**	No: **53.6%**	Yes: **58.1%**	No: **41.9%**	Yes: **60.1%**	No: **39.9%**

If you answered yes to any of the options above, please indicate whether your local government employs a formal system of cybersecurity management, or if you catalogue and count the attacks, incidents, and breaches informally. (Please select all that apply.) n= 244

Formal system (Please name or describe the formal system):	**31.1%**
We do this informally (Please briefly describe how you do this):	**66.4%**

How frequently is your local government's information system subject to attacks, incidents, and breaches? (Please select one from each column.)

a. Attacks (n= 366)		**b. Incidents (n= 367)**		**c. Breaches (n= 363)**	
Hourly or more	**26.0%**	Hourly or more	**4.1%**	Hourly or more	**2.8%**
At least once a day	**18.0%**	At least once a day	**4.9%**	At least once a day	**2.2%**
At least once a week	**7.7%**	At least once a week	**5.7%**	At least once a week	**1.1%**
At least once a month	**6.6%**	At least once a month	**10.4%**	At least once a month	**0.8%**
At least once a quarter	**4.6%**	At least once a quarter	**13.4%**	At least once a quarter	**3.3%**
At least once annually	**3.8%**	At least once annually	**16.3%**	At least once annually	**14.0%**
Other	**5.7%**	Other	**15.5%**	Other	**34.7%**
Don't know	**27.6%**	Don't know	**29.7%**	Don't know	**41.0%**

[1] Certain questions were removed from the published report due to sensitivity and relevance to local government officials. If you are interested in additional information, please contact ICMA Survey Research at surveyresearch@icma.org.

In the past 12 months, has your local government's information system experienced more, less, or about the same number of attacks, incidents, and breaches?

	A lot fewer	Fewer	Same	More	A lot more	Don't know
a. Attacks **(n=368)**	**3.8%**	**3.8%**	**34.2%**	**22.0%**	**10.3%**	**25.8%**
b. Incidents **(n=365)**	**4.7%**	**8.5%**	**41.1%**	**14.8%**	**3.3%**	**27.7%**
c. Breaches **(n=363)**	**8.0%**	**5.2%**	**45.7%**	**3.9%**	**1.7%**	**35.5%**

What percentage of attacks against your system in the past 12 months were initiated internally (that is, by employees or other persons from within your local government) versus externally (from outside your local government)? (Combined internal and external total should equal 100%.) n= 332

Average Internal		**Average External**		**Don't know**	
No.	%	No.	%	No.	%
226	11.24%	226	88.76%	106	31.9%

What percentage of the breaches experienced by your local government in the past 12 months occurred because end users fell victim to a phishing or spearphishing attack and opened urls or attachments that contained malware?

n= 371

No breaches (N/A)		**Percentage known**		**Don't know**	
No.	% of n	No.	% of n	No.	% of n
167	45.0%	128	34.5%	76	20.5%

Average percentage reported: 65.2% (n=128)

Is your local government able to determine the types of attackers that attack your system?

n= 368

Yes, can determine	**41.8%**	No, cannot determine	**58.2%**

If yes, please give the approximate percentage of total attacks in the past 12 months that were initiated by each type of attacker. (Combined total should equal 100%.)

n= 113

a. Malicious insiders (n=110)

Mean	Median	Minimum	Maximum
1.2%	0.0%	0.0%	40.0%

b. External actors - individuals (n=109)

Mean	Median	Minimum	Maximum
34.8%	25.0%	0.0%	100.0%

c. External actors - organizations (n=109)

Mean	Median	Minimum	Maximum
35.7%	25.0%	0.0%	100.0%

d. State actors - national governments (n=109)

Mean	Median	Minimum	Maximum
11.2%	0.0%	0.0%	90.0%

e. Other (n=112)

Mean	Median	Minimum	Maximum
14.0%	0.0%	0.0%	100.0%

If you know or can estimate the purposes of the attacks that your local government experienced in the past 12 months (i.e., what the attackers were after), please give the approximate percentage of total attacks for each category. (Combined total should equal 100%.)

n= 107

a. Private/sensitive/confidential info (n=103)

Mean	Median	Minimum	Maximum
12.4%	0.0%	0.0%	100.0%

b. Confidential records (n=103)

Mean	Median	Minimum	Maximum
1.8%	0.0%	0.0%	25.0%

c. Employee records (n=103)

Mean	Median	Minimum	Maximum
3.5%	0.0%	0.0%	100.0%

d. Customer/citizen records (n=103)

Mean	Median	Minimum	Maximum
2.5%	0.0%	0.0%	50.0%

e. Theft of money (n=103)

Mean	Median	Minimum	Maximum
8.8%	0.0%	0.0%	100.0%

f. Terror (n=103)

Mean	Median	Minimum	Maximum
0.1%	0.0%	0.0%	10.0%

g. Espionage - nation state, industrial (n=103)

Mean	Median	Minimum	Maximum
0.6%	0.0%	0.0%	30.0%

h. Hacktivism - i.e., Anonymous-group (n=103)

Mean	Median	Minimum	Maximum
10.9%	0.0%	0.0%	100.0%

i. Mischief (n=103)

Mean	Median	Minimum	Maximum
16.1%	0.0%	0.0%	100.0%

j. Revenge (n=103)

Mean	Median	Minimum	Maximum
0.1%	0.0%	0.0%	5.0%

k. Ransom (n=103)

Mean	Median	Minimum	Maximum
32.0%	10.0%	0.0%	100.0%

l. Other (n=106)

Mean	Median	Minimum	Maximum
9.0%	0.0%	0.0%	100.0%

How would you rate the cybersecurity awareness of each of the following in your local government?

Local Government Unit / Citizens	n	Not aware	Slightly aware	Somewhat aware	Moderately aware	Exceptionally aware	Don't know
a. Department managers	362	2.5%	19.1%	32.3%	33.7%	8.8%	3.6%
b. Elected executive (if your local government has one)	313	7.7%	20.1%	26.2%	24.6%	7.7%	13.7%
c. Elected councilors/commissioners, etc.	359	9.7%	30.9%	26.5%	20.9%	4.7%	7.2%
d. Staff of elected councilors/commissioners, etc.	324	7.1%	24.1%	26.2%	24.4%	6.2%	12.0%
e. Top appointed manager (if your local government has one)	342	2.9%	11.1%	19.0%	42.7%	19.0%	5.3%
f. Local judges (if judiciary is part of your local government)	271	6.3%	19.9%	18.5%	14.8%	3.7%	36.9%
g. Staff of local judiciary (if judiciary is part of your local government)	269	6.3%	16.0%	20.4%	17.5%	4.5%	35.3%
h. The average end user	361	5.0%	23.8%	33.2%	29.1%	5.0%	3.9%
i. The average citizen	357	10.6%	36.1%	24.4%	7.6%	0.8%	20.4%
j. Other	94	6.4%	7.4%	7.4%	3.2%	6.4%	69.1%

How would you rate the amount of support that cybersecurity receives in your local government from each of the following?

Local Government Unit / Citizens	n	No support	Limited support	Moderate support	Strong support	Full support	Don't know
a. Department managers	354	4.2%	22.6%	34.7%	21.2%	12.1%	5.1%
b. Elected executive (if your local government has one)	284	5.3%	19.7%	26.1%	16.2%	19.4%	13.4%
c. Elected councilors/commissioners, etc.	349	6.3%	25.5%	28.4%	14.3%	16.0%	9.5%
d. Staff of elected councilors/commissioners, etc.	305	7.2%	21.6%	26.6%	15.1%	15.7%	13.8%
e. Top appointed manager (if your local government has one)	329	3.3%	12.5%	23.7%	25.8%	28.0%	6.7%
f. Local judges (if judiciary is part of your local government)	256	9.0%	17.2%	19.9%	10.2%	8.6%	35.2%
g. Staff of local judiciary (if judiciary is part of your local government)	253	8.3%	17.4%	20.9%	10.3%	8.3%	34.8%
h. The average end user	351	6.8%	28.2%	36.8%	16.0%	6.0%	6.3%
i. The average citizen	341	18.5%	24.6%	16.7%	5.0%	2.3%	32.8%
j. Other	66	9.1%	3.0%	6.1%	6.1%	10.6%	65.2%

How frequently does your local government take any of the following actions to improve its cybersecurity practice?

Action	n	Never	At least monthly	At least quarterly	At least annually	At least every 2 years	Don't know
a. Scanning and testing	351	7.4%	38.2%	19.4%	19.9%	10.0%	5.1%
b. Risk assessment	352	13.4%	9.9%	12.5%	40.9%	16.2%	7.1%
c. Technical security review	351	12.0%	8.5%	16.8%	38.2%	16.5%	8.0%
d. Cybersecurity exercises	348	40.8%	3.7%	6.3%	25.0%	12.4%	11.8%
e. Audit of our cybersecurity practices	345	26.7%	2.6%	5.5%	38.6%	17.7%	9.0%
f. Forensic services after incidents or breaches (leave blank if no incidents or breaches)	217	42.9%	8.8%	6.9%	17.5%	3.2%	20.7%
g. Cybersecurity staff training	349	20.9%	8.6%	10.3%	40.1%	12.0%	8.0%
h. End user training	346	29.5%	5.8%	9.5%	33.5%	11.8%	9.8%
i. Cybersecurity awareness training for local government employees	350	31.7%	3.1%	10.0%	35.1%	10.9%	9.1%
j. Cybersecurity awareness training for local government elected officials	347	50.1%	2.6%	3.2%	21.3%	8.9%	13.8%
k. Cybersecurity awareness training for local government information technology personnel (not including cybersecurity personnel)	347	23.3%	10.7%	10.1%	37.5%	11.0%	7.5%
l. Cybersecurity awareness training for local government cybersecurity personnel	339	25.1%	11.5%	13.0%	33.9%	7.1%	9.4%
m. Cybersecurity awareness training for citizens	339	71.4%	1.2%	0.3%	5.0%	1.5%	20.6%
n. Cybersecurity awareness training for contractors	341	61.9%	2.6%	1.8%	11.7%	2.1%	19.9%
o. Other	45	26.7%	0.0%	2.2%	4.4%	4.4%	62.2%

To what extent is each of the following a barrier for your local government to achieve the highest possible level of cybersecurity?

Barrier	n	Not a barrier	Small barrier	Modest barrier	Somewhat severe barrier	Severe barrier	Don't know
a. Lack of funds	348	7.5%	9.5%	27.9%	18.1%	34.2%	2.9%
b. Lack of support from top elected officials	345	36.8%	21.2%	20.0%	7.0%	6.7%	8.4%
c. Lack of support from top appointed officials	334	41.6%	20.7%	16.5%	8.1%	5.1%	8.1%
d. Lack of support from department managers	345	38.0%	23.5%	20.9%	9.6%	4.1%	4.1%
e. Lack of availability of trained cybersecurity personnel to hire	345	20.6%	15.1%	21.7%	15.7%	15.7%	11.3%
f. Inability to pay competitive salaries for cybersecurity personnel	343	10.5%	9.9%	12.2%	21.0%	37.3%	9.0%
g. Insufficient number of cybersecurity staff	342	8.8%	11.4%	21.3%	17.3%	35.7%	5.6%
h. Lack of adequately trained cybersecurity personnel in my local government	342	11.7%	13.7%	23.1%	19.6%	26.9%	5.0%
i. Lack of adequate cybersecurity awareness in organization	341	10.6%	24.3%	31.4%	16.7%	14.1%	2.9%
j. The federated nature of local government (separation of powers - executive, legislative, judicial)	333	41.7%	13.8%	12.9%	8.4%	9.0%	14.1%
k. No end user training at all	340	32.6%	17.9%	20.0%	13.5%	12.1%	3.8%
l. Some but insufficient end user training	333	22.5%	24.9%	27.6%	11.4%	8.1%	5.4%
m. Lack of end user accountability	342	14.0%	21.6%	23.4%	20.5%	17.0%	3.5%
n. Too many IT networks/systems within my local government	341	43.7%	1.17%	12.9%	9.4%	7.0%	5.0%
o. Other	31	22.6%	6.5%	6.5%	6.5%	9.7%	48.4%

Has your local government developed any of the following?

Policy/Plan/Standard/Rule	n	No, not developed	Yes, developed
a. Formal, written cybersecurity policy, standards, strategy, or plan	346	52.3%	47.7%
b. Formal, written cybersecurity risk management plan	344	66.9%	33.1%
c. Formal, written plan for recovery from breaches	341	66.3%	33.7%
d. Formal, written rule(s) regarding how passwords can be made (e.g., strength, length, permitted characters, etc.)	349	22.6%	77.4%
e. Formal, written requirement for end users to change passwords periodically	349	22.9%	77.1%
f. Formal, written policy governing the use of personally-owned devices by governmental officials and employees	346	38.2%	61.8%
g. Formal, written cybersecurity standards for contracts with vendors for cloud-based services	339	64.3%	35.7%

If so, how would you rate the effectiveness of each?

Policy/Plan/Standard/Rule	n	Very low	Low	Average	High	Very high
a. Formal, written cybersecurity policy, standards, strategy, or plan	151	13.2%	17.9%	46.4%	17.2%	5.3%
b. Formal, written cybersecurity risk management plan	103	14.6%	16.5%	44.7%	19.4%	4.9%
c. Formal, written plan for recovery from breaches	106	14.2%	14.2%	44.3%	21.7%	5.7%
d. Formal, written rule(s) regarding how passwords can be made (e.g., strength, length, permitted characters, etc.)	246	6.9%	5.3%	32.1%	37.4%	18.3%
e. Formal, written requirement for end users to change passwords periodically	248	6.0%	5.6%	29.0%	37.1%	22.2%
f. Formal, written policy governing the use of personally-owned devices by governmental officials and employees	190	10.0%	11.1%	38.9%	29.5%	10.5%
g. Formal, written cybersecurity standards for contracts with vendors for cloud-based services	112	14.3%	9.8%	41.1%	25.0%	9.8%

How does your local government evaluate risk and security when purchasing Software-as-a-Service (SaaS) or "Cloud" applications?

n = 335

a. We use the Cloud Control Matrix from the Cloud Security Alliance	**2.4%**
b. We use NIST recommendations from Special Publication 800-144	**13.1%**
c. We develop our own security and risk procedures for cloud.	**24.2%**
d. We rely upon contracts to shift the responsibility and risk to the cloud vendor.	**47.5%**
e. Not Applicable, we do not purchase SaaS applications	**24.8%**
f. Other	**5.4%**

How has your local government's annual cybersecurity investment in any of the following changed over the past 5 years?

Policy/Plan/Standard/Rule	n	Decreased greatly	Decreased slightly	About the same	Increased slightly	Increased greatly	Don't know
a. Investment in technology (hardware, software, etc.)	347	2.3%	4.3%	31.1%	35.7%	23.1%	3.5%
b. Investment in additional staff	345	5.2%	6.4%	55.1%	20.6%	8.7%	4.1%
c. Investment in higher staff compensation	343	3.2%	7.9%	63.0%	18.4%	1.5%	6.1%
d. Investment in training for staff	345	4.1%	8.7%	49.0%	25.8%	7.2%	5.2%
e. Investment in policies and procedures	345	2.3%	5.2%	47.8%	31.0%	7.5%	6.1%

Has your local government purchased cybersecurity insurance?

n=341

Yes	**44.0%**	No	**56.0%**

If yes, to what extent does the insurance cover your cybersecurity exposure? (Please select one.)

n=152

Very little coverage	Limited coverage	Moderate coverage	Most coverage	Full coverage	Don't know
1.3%	**19.7%**	**36.2%**	**17.1%**	**9.9%**	**15.8%**

How would you rate your local government's cybersecurity technology (hardware, software, etc.), practices (methods used, etc.), and policies (written or unwritten "rules" or procedures, etc.)?

Technology/Practice/Policy	n	State of the art	Current best practice	One generation behind current best practice	More than one generation behind current best practice	Don't know
a. Technology	344	4.9%	50.6%	29.4%	8.7%	6.4%
b. Practices	344	1.2%	41.9%	32.3%	18.0%	6.7%
c. Policies	344	0.9%	30.5%	32.0%	26.2%	10.5%

In deploying cybersecurity in your local government, are you aware of either the ISO 27000 series or the 2014 NIST Framework for Improving Critical Infrastructure Cybersecurity, and do you employ either?

Framework	n	No, not aware	Yes, aware and employ it substantially	Yes, aware and employ it partially	Yes, aware and don't employ it
a. ISO 27000	336	53.3%	2.4%	21.7%	22.6%
b. 2014 NIST Framework	337	47.2%	5.0%	28.5%	19.3%

Please rate the following in terms of their relative importance to your local government's cybersecurity staff for learning about cybersecurity problems and best practices.

Institution	n	Not at all important	Slightly important	Moderately important	Very important	Extremely important	Don't know
a. NIST (National Institute of Standards and Technology)	335	7.8%	9.3%	21.8%	24.2%	13.1%	23.9%
b. FBI (Federal Bureau of Investigation)	332	8.4%	11.7%	22.9%	24.7%	15.4%	16.9%
c. CERT (The CERT Program of the Software Engineering Institute, Carnegie Mellon University)	332	12.7%	13.3%	18.1%	23.2%	9.3%	23.5%
d. DoD (Department of Defense)	328	19.5%	19.8%	16.2%	17.1%	7.0%	20.4%
e. Vendors	336	3.3%	15.5%	28.9%	26.8%	14.0%	11.6%
f. Other local governments	334	3.9%	12.0%	29.6%	27.5%	15.0%	12.0%
g. Our state government	333	6.9%	18.3%	24.3%	22.5%	13.8%	14.1%
h. Other state governments	326	23.0%	21.5%	21.5%	13.5%	4.3%	16.3%
i. ISO (International Organization for Standardization)	331	14.5%	18.4%	23.9%	15.1%	7.6%	20.5%
j. IT-ISAC (IT - Information Sharing and Analysis Center)	325	14.5%	15.1%	15.4%	13.2%	10.5%	31.4%
k. OWASP (Open Web Application Security Project)	327	20.8%	18.7%	13.5%	10.1%	4.0%	33.0%
l. MSiSAC (Multi-State Information Sharing and Analysis Center)	328	14.0%	14.9%	14.0%	12.5%	15.5%	29.0%
m. Other	65	7.7%	3.1%	4.6%	3.1%	20.0%	61.5%

In your experience, do the top elected and appointed officials in your local government feel that responsibility for cybersecurity belongs mostly to the technologists; or do top elected and appointed officials believe that they also have to play an important role in cybersecurity? Please answer on a scale of 1 to 5, where 1 means officials believe responsibility belongs mostly to technologists and 5 means officials believe they have an important role to play.

Framework	n	1	2	3	4	5	Don't know
a. Top elected officials	337	51.3%	15.4%	10.7%	6.8%	2.7%	13.1%
b. Top appointed officials	334	42.2%	14.7%	13.8%	13.5%	3.9%	12.0%

In your opinion, what are the top three things that you need most to ensure the highest level of cybersecurity in your local government? Please select ONLY 3 and rank them in order of importance (1 = most important, 2 = second most important and 3 = third most important). n= 319

Support	Average ranking
a. Improved cybersecurity hardware	0.58
b. Better cybersecurity policies	0.77
c. Better enforcement of existing cybersecurity policies	0.29
d. Greater funding for cybersecurity	1.02
e. Greater support from top elected officials for cybersecurity	0.16
f. Greater support from top appointed officials for cybersecurity	0.10
g. Greater support from department managers for cybersecurity	0.14
h. The ability to pay competitive salaries for cybersecurity personnel	0.38
i. More cybersecurity personnel	0.54
j. More training for cybersecurity personnel	0.42
k. Greater cybersecurity awareness among employees in my local government	0.71
l. More end user training	0.48
m. Greater end user accountability	0.32
n. Consolidation of our numerous IT networks/systems	0.06
o. Other	0.03

How confident are you that consistent implementation of the best available cybersecurity technologies, policies and practices will enable your local government to prevent all breaches? n=334

Not confident at all	Slightly confident	Somewhat confident	Confident	Highly confident	Don't know
13.2%	**16.8%**	**31.1%**	**24.0%**	**11.4%**	**3.6%**

Please share any additional information about cybersecurity in your local government.

See full dataset for open-ended responses for this question.

For additional information about the Cybersecurity 2016 Survey, please contact ICMA Survey Research at surveyresearch@icma.org