The Digital Forerunners

A Survey Report on Network Infrastructure in State and Local Government
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Overview

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Purpose

When asked to provide examples of “infrastructure,” most people think of roads, bridges, utilities, and other traditional definitions. Today, digital infrastructure is just as important. In the same way that a city’s water system ensures that all citizens have access to a critical resource, a city’s digital infrastructure (defined as access to both the traditional telecommunications network as well as the Internet) provides a similar service.

Local and state governments play a key part in making sure their citizens have access to the latest in digital infrastructure. To explore how governments today are expanding their digital network, Government Business Council (GBC) undertook an in-depth research study in June 2017 on behalf of CenturyLink.

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Methodology

To assess the perceptions and experiences that government leaders have regarding advancements in state and local network infrastructures, GBC deployed a survey to a random sample of respondents in state and local government in June 2017. The pool of 378 respondents includes a largely senior audience, with 80 percent identifying as salaried, full-time managers and 86% supervising at least one or more employees. 40 states receive representation in the survey. 16% hold positions in state government, and 84% hold positions in various levels of local government (county, municipal, independent district, etc.).
Executive Summary

Instant access to information is a requirement for state and local government.

89% of respondents say having instant access to information and data sharing is either important or very important when it comes to fulfilling their agency’s mission. Most agree that such access allows them to improve accountability and transparency (80%), workflow management / operations (79%), and expand the availability of services / increase citizen participation (76%)

6 in 10 consider digital infrastructure to be a key priority.

Like roads and bridges, digital infrastructure is a key element of the modern city. 60% of respondents agree or strongly agree that digital infrastructure is a top priority for the government they serve. As one respondent says, “Just like roads, digital infrastructure is a basic necessity, not a luxury. Everyone should have ready access to this.”

Some cities are early adopters of city-wide Wi-Fi, and more plan to follow suit in the near future.

18% of respondents surveyed say that city-wide wireless access is already in place, with another 19% indicating plans are under way to implement in the near future. Expanding access and network reach are key to providing greater access to education, attracting business investments, and creating new jobs.

While most respondents say their systems are up-to-date and well maintained, common complaints surface under further investigation.

91% of respondents believe that at least some (if not most or all) of their digital infrastructure is up-to-date. However, this is complicated by the finding that 56% of respondents say their network suffers performance disruptions or slowdowns at least occasionally, if not more frequently.
When it comes to fulfilling your agency’s mission, how important is having instant access to information and data-sharing capabilities (e.g., Internet, cloud sharing)?

- Not at all important: 1%
- Not very important: 3%
- Neutral: 8%
- Important: 39%
- Very important: 50%

A significant majority of respondents say having instant access to information is crucial to their mission. 89% of respondents say having instant access to information and data sharing is either important or very important when it comes to fulfilling their agency’s mission.

The most important asset is shared data. The most important policy consideration is keeping it secure. Greater data integration and access must occur with more secure and robust use.

Survey Respondent
Most respondents agree that their agency is using new technology to improve services.

"My organization is proactively using new technology to ________________________________.”

<table>
<thead>
<tr>
<th>Choice</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve workflow management/operations</td>
<td>5%</td>
<td>6%</td>
<td>10%</td>
<td>42%</td>
<td>37%</td>
</tr>
<tr>
<td>Improve accountability/transparency by making data publicly available</td>
<td>3%</td>
<td>4%</td>
<td>13%</td>
<td>46%</td>
<td>34%</td>
</tr>
<tr>
<td>Expand availability of services/citizen participation</td>
<td>4%</td>
<td>5%</td>
<td>14%</td>
<td>46%</td>
<td>30%</td>
</tr>
<tr>
<td>Share services and/or data with other government agencies</td>
<td>3%</td>
<td>6%</td>
<td>16%</td>
<td>46%</td>
<td>28%</td>
</tr>
<tr>
<td>Better understand citizen needs in my state/local community</td>
<td>3%</td>
<td>8%</td>
<td>17%</td>
<td>49%</td>
<td>22%</td>
</tr>
<tr>
<td>Reduce fraud, waste, and improper payments</td>
<td>4%</td>
<td>5%</td>
<td>24%</td>
<td>45%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Respondents generally approve of how their agency is using new technology. Among the possible choices listed, the majority of respondents agree or strongly agree that technology is being used to improve workflow management and data transparency with the public.

80% of respondents agree or strongly agree their agency is using new tech to improve accountability and data transparency.
Respondents most often associate infrastructure with transportation facilities

When you think of the term “infrastructure,” what specifically comes to mind?

Among the choices listed below, which do you most readily associate with the subject of “infrastructure”? Please select all that apply.

- Transportation (e.g., roads, bridges) 24%
- Water (e.g., waterworks, dams) 17%
- Digital (e.g., network, internet) 16%
- Power (e.g., production, distribution) 15%
- Waste (e.g., landfills, sewage) 14%
- Telecommunications (e.g., voice, cell services) 14%

Percentage of respondents, n=281
Respondents were asked to select all that apply

Respondents’ answers were limited to three words or less

n=347
For 6 in 10 respondents, digital infrastructure is a top priority in state and local government.

“Compared to other objectives, investing in digital infrastructure (e.g., network access, broadband, digital services) is considered a high priority for leaders in the state/local government in which I serve.”

60% of all respondents agree that investments in digital infrastructure—such as network access and broadband Internet—are a major priority for leaders in their agency.

“Just like roads, digital infrastructure is a basic necessity, not a luxury. Everyone have ready access to this.

Survey Respondent

Percentage of respondents, n=324
Note: Percentages may not add up to 100% due to rounding
Local government respondents say digital infrastructure is generally up-to-date and well-supported.

**Research Findings**

To the best of your knowledge, what portion of your city’s digital infrastructure would you consider to be up-to-date?

- None: 4%
- Some: 47%
- Most: 44%
- All: 5%

91% of local respondents believe at least ‘some’ or ‘most’ of their city’s digital infrastructure is up-to-date.

How supportive is your organization when it comes to providing resources (e.g., equipment/funding/policy guidance) to support your local network infrastructure?

- Not at all supportive: 1%
- Not very supportive: 10%
- Neutral: 26%
- Supportive: 52%
- Very supportive: 11%

63% of local respondents say their organization is supportive or very supportive when it comes to providing resources to support their local network infrastructure.
Local respondents give high marks to network speed, but disruptions occur more often than not

<table>
<thead>
<tr>
<th>What types of network access does your organization provide?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slow (e.g., Dial-up, satellite)</td>
</tr>
<tr>
<td>Fast (e.g., DSL, Cable)</td>
</tr>
<tr>
<td>Very fast (e.g., Fiber-optic)</td>
</tr>
<tr>
<td>None of the above</td>
</tr>
<tr>
<td>Don’t know</td>
</tr>
</tbody>
</table>

86% of local respondents consider their organization’s network speed to be either fast or very fast.

<table>
<thead>
<tr>
<th>How frequently do your organization’s network services suffer performance disruption or slowdowns?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
</tr>
<tr>
<td>Rarely</td>
</tr>
<tr>
<td>Occasionally</td>
</tr>
<tr>
<td>Frequently</td>
</tr>
<tr>
<td>Very frequently</td>
</tr>
</tbody>
</table>

56% of local respondents say their organization experiences occasional to frequent network slowdowns or disruptions.
Local government respondents show varying progress in adopting wireless infrastructure

To what extent does your city/locality have plans to adopt wireless infrastructure (i.e. citywide wifi)?

<table>
<thead>
<tr>
<th>Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No plans or consideration have been given</td>
<td>16%</td>
</tr>
<tr>
<td>The idea has been considered, but no plans are yet in place</td>
<td>17%</td>
</tr>
<tr>
<td>There are plans in place, but it is still a long way off</td>
<td>9%</td>
</tr>
<tr>
<td>Plans exist, and we are currently making progress on this front</td>
<td>19%</td>
</tr>
<tr>
<td>Wireless infrastructure is already in place</td>
<td>18%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>22%</td>
</tr>
</tbody>
</table>

Respondents indicate varying degrees of progress when it comes to wireless infrastructure plans. One-third say that no plans have been made to adopt anything resembling city-wide Wi-Fi. Nearly 1 in 5 say progress is being made toward this goal, whereas 18% say that wireless infrastructure is already in place. Meanwhile, just over a fifth of respondents are unaware of their organization’s progress on this front or if such plans are yet in place. 33% of local respondents say their agency has no plans in place to pursue wireless infrastructure in the near future.
40% of state respondents do not think their state is a leading investor in the information economy.

45% of state respondents are neutral on the issue of whether or not their state is an active supporter of local network infrastructures.
Education access and business opportunities are the greatest drivers for network expansion

According to state respondents, providing greater access to educational opportunities and attracting business investments are the leading drivers for network infrastructure growth in their states.

"Other" includes such responses as providing safe transportation, providing constituent service, economic development, allowing quicker access to information, and driving sales.

23% of respondents say that opening access to education is the leading driver of network growth in their state.
Insufficient funds and outdated equipment are seen as top challenges to digital literacy

In your opinion, which of the following present(s) the greatest challenge to improving digital literacy within your state? Please select all that apply.

- Lack of funding: 18%
- Outdated equipment/resources: 15%
- Inability to recruit/retain digital experts: 12%
- Poor strategy/goal execution: 9%
- Inadequate policy: 9%
- Aging/retiring workforce: 8%
- Lack of collaboration between governments: 8%
- Low awareness of available solutions: 7%
- Stagnant economic growth/job creation: 6%
- Lack of public/private partnerships: 4%
- Other: 1%
- None of the above: 1%
- Don’t know: 3%

A lack of funding, shortage of updated equipment and resources, and ongoing difficulties related to recruiting and retaining IT talent are among the top challenges state leaders face in efforts to improve digital literacy.

18% of respondents say lack of funding is a top impediment to efforts aimed at improving digital literacy across the state.
Hosting public forums and classes is a common tactic for improving access in rural areas

Which of the following steps is your organization taking to help improve information access for citizens in rural municipalities/counties? Please select all that apply.

- Hosting public forums/classes on digital practices: 14%
- Promoting cloud adoption/shared services: 12%
- Extending broadband/high-speed access to remote locations: 12%
- Investing in fiber-optic communication: 10%
- Fostering private sector partnerships: 9%
- Developing multi-service networks: 8%
- Creating/rewriting existing policy to be more inclusive: 5%
- Other: 3%
- None of the above: 12%
- Don’t know: 17%

Percentage of respondents, n=78
Respondents were asked to select all that apply
A quarter of respondents lack confidence in agency ability to recruit and retain IT expertise

How confident are you in your agency’s ability to attract competitive individuals with IT expertise?

1 in 4 respondents say they are not very or not at all confident in their organization’s ability to attract competitive individuals with IT expertise.

We outsource IT and I feel we just deal with frustration rather than proactively address it.

Survey Respondent

Note: Percentages may not add up to 100% due to rounding

<table>
<thead>
<tr>
<th>Confidence Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all confident</td>
<td>7%</td>
</tr>
<tr>
<td>Not very confident</td>
<td>18%</td>
</tr>
<tr>
<td>Neutral</td>
<td>37%</td>
</tr>
<tr>
<td>Confident</td>
<td>30%</td>
</tr>
<tr>
<td>Very confident</td>
<td>8%</td>
</tr>
</tbody>
</table>
What Respondents Say...

"Please provide any other thoughts you have on the state of network infrastructure or digital innovations happening in your organization and/or surrounding community."

<table>
<thead>
<tr>
<th>Respondent Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Just like roads, digital infrastructure is a basic necessity, not a luxury. Everyone should have ready access to this.</td>
</tr>
<tr>
<td>The will for innovation is there, but they don’t support it with budget funding or partner with tech companies to update it.</td>
</tr>
<tr>
<td>Due to the financial situation, we have a limited ability to improve. But there is a focus on network infrastructure contributing to long-term savings.</td>
</tr>
<tr>
<td>We have lots of technology equipment, yet very little training provided. Also IT are grossly underpaid compared to similar positions in other industries.</td>
</tr>
<tr>
<td>I would like to provide more bandwidth and net neutrality for “work from home” citizens.</td>
</tr>
<tr>
<td>We outsource IT and I feel we just deal with frustration rather than proactively addressing it.</td>
</tr>
<tr>
<td>Our organization is extremely tech-engaged and understands the foundation the network provides for that.</td>
</tr>
<tr>
<td>The most important asset is shared data. The most important policy consideration is keeping it secure. These coequal needs are both underfunded and “underbuilt.” Greater data integration and access must occur with more secure and robust use.</td>
</tr>
<tr>
<td>We ought to enact law to build fiber-optics ready/compliant office buildings in downtowns of major cities.</td>
</tr>
<tr>
<td>Rural access to high-speed Internet is very spotty and limited.</td>
</tr>
<tr>
<td>Currently our organization does not have the resources to invest in local network or digital infrastructure.</td>
</tr>
<tr>
<td>We are a small community with little money to spend on the IT infrastructure that we need. Our financial systems are more than 20 years out of date, but they meet our minimum requirements so we continue to use them. This is the plight of small rural governments.</td>
</tr>
</tbody>
</table>
Final Considerations

What should state & local leaders be aware of regarding digital infrastructure benefits and challenges?

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Governments pursue digital infrastructure to improve access to education, attract business, and create jobs

Digital infrastructure is key to the modern city, and governments increasingly recognize the value it provides. Beyond the obvious benefits of making their own work easier, cities and states are competing for talent — and a top-notch city network can provide a compelling asset in attracting new organizations.

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Common problems around funding and talent retention hold states back from expanding digital literacy

Lack of funding and outdated equipment are the top two reasons why states are limited in their ability to expand digital literacy. Combined with the well-documented talent shortage of digital experts in the government, there is a headwind to making progress at the pace demanded by citizens.

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Cities focus on public forums and promoting cloud policies to convince citizens of the benefits

Cities in particular are challenged by location when it comes to the age and quality of their network. One respondent comments, “We are a small community with little money to spend on the IT infrastructure that we need…. this is the plight of small rural governments.” Providing digital classes, promoting shared services, and expanding broadband access to more remote locations are the next steps most city governments plan to implement to improve information access for their citizens.
Respondent Profile

A majority of state and local respondents identify as leaders within their organization

**Employment Situation**

<table>
<thead>
<tr>
<th>Government Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>State government</td>
<td>16%</td>
</tr>
<tr>
<td>County government</td>
<td>29%</td>
</tr>
<tr>
<td>Municipal government</td>
<td>47%</td>
</tr>
<tr>
<td>Township government</td>
<td>5%</td>
</tr>
<tr>
<td>Independent special district government</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
</tr>
</tbody>
</table>

**Role**

<table>
<thead>
<tr>
<th>Role</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaried, exec. manager</td>
<td>54%</td>
</tr>
<tr>
<td>Salaried, manager</td>
<td>26%</td>
</tr>
<tr>
<td>Salaried, non-manager</td>
<td>8%</td>
</tr>
<tr>
<td>Hourly, full-time</td>
<td>8%</td>
</tr>
<tr>
<td>Hourly, part-time</td>
<td>4%</td>
</tr>
</tbody>
</table>

**Reports/oversees**

<table>
<thead>
<tr>
<th>Reports/oversees</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5</td>
<td>26%</td>
</tr>
<tr>
<td>6 to 20</td>
<td>23%</td>
</tr>
<tr>
<td>21 to 50</td>
<td>16%</td>
</tr>
<tr>
<td>51 to 200</td>
<td>13%</td>
</tr>
<tr>
<td>Over 200</td>
<td>8%</td>
</tr>
<tr>
<td>None</td>
<td>14%</td>
</tr>
</tbody>
</table>

84% of respondents hold positions in local government, whether at the county, municipal, township, or independent special district level.

80% of respondents identify as salaried managers, with 54% holding executive leadership status.

86% of respondents are supervisors who oversee at least one employee, either directly or through direct reports.
Respondents represent a wide range of job functions and geographical regions

### Job function

- Community planning/dev: 10%
- Executive offices: 9%
- Finance & budget: 7%
- Police/law enforcement: 7%
- Transportation/infrastructure: 5%
- Legislative/policy: 5%
- Tax & revenue: 4%
- Justice/courts: 3%
- Healthcare & human services: 3%
- Education: 3%
- Energy & utilities (public works): 3%
- Public affairs/communications: 3%
- Information technology: 2%
- Libraries: 2%
- Commerce: 2%
- Parks & recreation: 2%
- Elections: 1%
- Corrections/prisons: 1%
- Fire/EMS: 1%
- Aging: 1%
- Social services/CPS: 1%
- Environment & natural resources: 1%
- Housing & urban development: 1%
- Emergency preparedness: 0.3%
- Alcohol/tobacco/firearms: 0.3%
- Waste management: 0.3%
- Other: 23%

### Location

- California
- Michigan
- North Carolina
- Georgia
- Illinois
- Wisconsin
- Virginia
- Colorado
- Pennsylvania
- Massachusetts
- New York
- Florida
- Texas
- Ohio
- Oregon
- Idaho
- New Jersey
- Utah
- Alabama
- Montana
- California
- Wisconsin
- Oregon
- Florida
- Virginia

Respondent locations are listed in order of frequency.
About

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**Report Author:** Daniel Thomas

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**CenturyLink**

CenturyLink helps government, education and public safety sector organizations implement proven IT solutions to address public infrastructure continuity, ensure safety and security, facilitate economic growth, build stronger educational systems and augment technology needs. Our services are used by public sector customers of all sizes—from the largest and most critical government agencies to rural schools.

Learn more at [www.centurylink.com/GES](http://www.centurylink.com/GES)

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