The shift to online learning is putting pressure on technology infrastructure in California schools

- A large number of schools need significant infrastructure upgrades or overhauls
- California schools need to make digital learning tools accessible to all students—at home and in the classroom
90 percent of schools need network upgrades
Network needs vary across schools

- School and student characteristics are contributing factors
  - School size
  - Student demographics and educational needs
- Large schools are especially concerned about wireless networks and devices
- Rural and urban schools have similar concerns
IT staffing continues to be a big challenge for schools

- Rely on district IT staff for devices: 82%
- Have IT staff onsite to support local network configuration: 33%
To estimate costs, we created two upgrade scenarios

- **Baseline scenario** (minimum levels for digital learning)
  - Bandwidth: 100 kbps per student
  - Devices: 2:1 student-to-device ratio
  - IT staffing: 1 staffer for every 300 devices

- **Target scenario**
  - Bandwidth: 1,000 kbps per student
  - Devices: 1:1 student-to-device ratio
  - IT staffing: 1 staffer for every 300 devices
Upgrades require multi-year investments

<table>
<thead>
<tr>
<th></th>
<th>Baseline ($ millions)</th>
<th>Target ($ millions)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Year 1</td>
<td>Year 2</td>
</tr>
<tr>
<td>Connectivity</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Devices</td>
<td>117</td>
<td>184</td>
</tr>
<tr>
<td>IT staffing</td>
<td>316</td>
<td>323</td>
</tr>
<tr>
<td>Three-year total</td>
<td>1493</td>
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Policy recommendations

- Continue and expand funding for school network upgrades
- Plan to make long-term tech infrastructure investments
- Provide targeted technical assistance and professional training to school technicians
- Bridge gaps in technology access among students in high-minority and high-poverty schools
  - Public libraries can provide devices and Internet to economically disadvantaged students
  - Innovative public-private programs
Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.