CoSN's **2019** K-12 IT Leadership Survey Report

**In Partnership with
Ed-Fi Alliance, Forecast5
and MDR**

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FORECAST**5**
ANALYTICS

MDR
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LEADING EDUCATION INNOVATION

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Overview

Introduction

As school districts transition to increasingly digital ecosystems, the world of the K-12 IT Leader will encompass a growing number of dots that need to be connected. From managing infrastructure and Cloud-based services to rostering and passwords, the sphere of IT Leader responsibilities continues to expand. Ultimately, IT Leaders are connecting administrators to operational efficiency, teachers to actionable insights, and students to opportunity. As districts focus on closing the homework gap, IT Leaders have another dot to connect—home access.

To gain insight into the current world of the IT Leader, CoSN deployed its annual IT Leadership Survey with underwriting from the Ed-Fi Alliance, as well as the help of partners Forecast5 and MDR. The survey was open between January 8 and February 20. The survey included 48 questions, and 36,673 data points were collected and sorted from 335 completed surveys.[1]

These survey results provide important insights into the roles and responsibilities of IT Leaders and the digital ecosystems of the school systems they serve. As in prior years, CoSN uses information from the survey to identify areas where additional focus and resources might be needed and to devise supports to assist IT Leaders in connecting all their dots. Existing CoSN publications and Toolkits already help IT Leaders address myriad issues including:

- The Digital Equity Toolkit — A guide to closing the Homework Gap and ensuring digital equity.

- Interoperability Resources and Tools for Self-Assessment — Resources to help assess where a district's digital ecosystem stand on the interoperability continuum.

- Cybersecurity Resources — A suite of resources defining risks and strategies to addressing cybersecurity challenges.

- Peer Reviews — A rigorous process for assessing the capability of a school system's digital conversion, based on CoSN's Digital Leap Success Matrix.

The full breadth of CoSN resources are available online.

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[1] The margin of error (4.4) was calculated based on completed surveys. However, responses from incomplete surveys have also been included meaning the margin of error is smaller for some questions.

Key Findings

1. Cybersecurity is the top priority for IT Leaders today.

2. The top 3 challenges faced by IT leaders for the past 3 years remain the same: Budget, Professional Development, and Breaking Down Department Silos.

3. Bring Your Own Device (BYOD) strategies declining in popularity. They are used by only 16% of school districts, probably as a result lower cost devices being introduced to the market.

4. Virtually all IT leaders (95%) agree that addressing the Homework Gap is a concern for their district. This is a significant change. Last year 30% of leaders indicated digital equity was not important issue for their district vs. only 5% one year later.

5. Print is not dead. Past predictions have been overly optimistic. For 67% of districts, print still comprises at least half of their instructional materials.

6. There is some progress on all areas of interoperability, but only Single Sign-On (SS0) has been fully implemented in more than a quarter of school systems.

7. This survey identifies a number of ways in which IT leaders are looking to be more relevant to teachers and learning, with 75% of IT Leaders saying it is important to be more responsive to educator IT needs in the classroom.

8. The largest percentage of IT leaders continue to have education backgrounds (40%), followed by those with technical backgrounds (35%), a growing number from business/management backgrounds (20%) and other (3%).

9. Lack of ethnic and racial diversity in school district IT leadership remains a serious problem in most school systems with no progress since last year.

10. The percentage of women in school district IT leadership roles has declined in recent years.

District Initiatives

Top Priorities

For the second straight year, cybersecurity has the top spot on IT Leaders' technology priority list. At a time when school districts are collecting greater amounts of data, threats to the security of that data are also increasing. Since 2016, there have been over 400 reported K-12 cybersecurity incidents.[2] IT Leaders are well-aware that their institutions are faced with the same challenges as the corporate sector, but risks in K-12 may actually be higher. According to a recent report, educational institutions are specifically being targeted by global cybercrime organizations —

> *"Rather than focusing on corporate targets, which are devoting increased resources to cyber defenses, the group focuses on more vulnerable sectors such as school districts, universities, and nonprofits, which the group likely believes are softer targets."* [3]

In this year's survey, "cost-effective/smart budgeting" appears as a top-three priority, leaping to the number two slot this year. While data-driven instruction and decision-making continues to hold its third-place ranking year-over-year, broadband & network capacity have slipped out of the top three. This result aligns with the results of CoSN's 2018-2019 Infrastructure Survey, which found that broadband to classrooms has significantly improved[4] and hence become less of a priority for most districts.

	2017	2018	2019
#1	Mobile Learning	Broadband & Network Capacity Cybersecurity *	Cybersecurity
#2	Broadband & Network Capacity		Cost-Effective/ Smart Budgeting
#3	Cybersecurity	Data Driven Instruction & Decision Making	Data Driven Instruction & Decision Making

Tie for number one

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[2] https://k12cybersecure.com/map/
[3] Scarlet Widow, BEC Bitcoin Laundry: Scam, Rinse, Repeat, ACID Agari Cyber Intelligence Division
[4] CoSN's 2018-2019 Annual Infrastructure Survey Report (https://cosn.org/Infrastructure)

Top Challenges

IT Leaders' top challenges have remained the same for the past three years:

- Budget constraints and lack of resources continue to top the list as number one, as they have done for six of the seven years CoSN has conducted this survey. This top ranking continues despite the vast majority of respondents indicating that their budgets are sufficient to meet expectations. Perhaps this is because IT Leaders see the "overall expectations" of the school board/district leaders as "minimum requirements." Budgets sufficient to address requirements may not be sufficient, for example, to expand Wi-Fi on school buses, which would help IT Leaders address digital equity.

- Budgets are also directly linked to professional development (PD), which is the number two challenge on the list. In the open-ended answer section of the survey, respondents were asked about areas in which they wished they had more time; they cited the need for PD for all stakeholders— administrators, teachers, IT staff, as well as the IT Leader themselves.

- Ranked third is the challenge of breaking down silos *within* the district. As one respondent lamented, "[in regard to] inter-departmental strategic planning—No structures are in place for the process." Another respondent commented on the silos that exist *between* districts— "I would like to network more often with nearby schools…we often share the same battles across districts." Unfortunately, silos of any kind block opportunities to leverage knowledge.
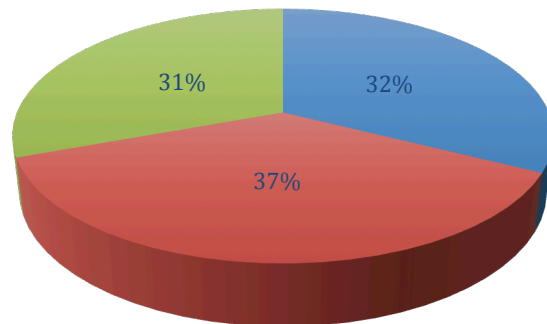
Top 3 Challenges	2017	2018	2019
#1	Budget constraints and lack of resources	Budget constraints and lack of resources	Budget constraints and lack of resources
#2	Relevant training and professional development unavailable	Relevant training and professional development unavailable	Relevant training and professional development unavailable
#3	Existence of silos in the district, which make it difficult to work together on technology planning	Existence of silos in the district, which make it difficult to work together on technology planning	Existence of silos in the district, which make it difficult to work together on technology planning

Privacy & Security

It is not surprising that cybersecurity is the number one technology priority for districts. When asked, "How would you rate privacy and security of student data as a priority in comparison to last year?" the vast majority of IT Leaders (68%) rate them as more important than the year prior. Due to the low response rates in prior years to "Less important than last year" (1% or less, with a 0% in 2018) that answer option was eliminated in this year's survey.

How would you rate privacy and security of student data as a priority in comparison to last year?

- ■ No change. Same level of importance as it was last year
- ■ Somewhat more important than it was last year
- ■ Much more important than it was last year

One of the basic tools to help keep data private and secure is responsible password management. A majority of districts (72%) have a formal password policy. Unfortunately, 16% of districts report that despite having a policy, it is not widely followed. This suggests more staff training and awareness are needed. A fifth of respondents (21%) report their district encourages employees to use password management best practices, although they do not have a formal policy. Less than a tenth (7%) of districts report a worst-case scenario — they neither have a formal policy nor provide any guidance to their staff.
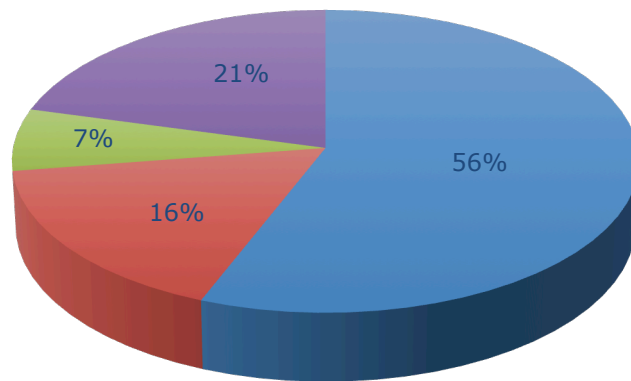
District Approach to Password Management

- ■ My district has a formal password policy that is widely followed.

- ■ My district has a formal password policy, but it is not widely followed.

- ■ My district does not have a formal password policy and does not provide central guidance to staff members on managing their passwords.

- ■ My district does not have a formal password policy, but staff members are regularly encouraged to use best practices for password management.

21%

7%

56%

16%

Guidelines for minimum length/complexity are the most common password protocols cited in districts' password policies, as indicated by 84% of respondents. The second most frequently cited protocol is the prohibition on sharing passwords (73%) followed by "accounts locked after specified number of unsuccessful login attempts" (62%). While multiple methods are required to keep passwords (and the data/systems they protect) secure, one of the most highly recommended security methods— two-factor authentication[5]—is the one least often required (8%) by districts. Only the requirement to use password management software ranked lower, with 1%.

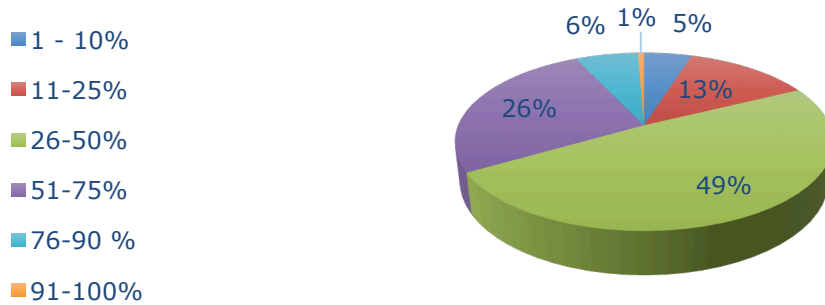[5] 2018 Date Breach Investigations Report, Verizon

District Password Policy

Policy	Percentage
My district does not have a password policy and does not have plans to adopt one	~3%
My district does not have a password policy but plans to adopt one	~8%
Penalties for violations of password policy	~11%
Limits on access to school resources from personal devices	~35%
Limits on access to school resources from remote locations	~47%
Accounts locked after specified number of unsuccessful login attempts	~61%
Monitoring of log-in attempts to school services	~40%
Guidance on reporting compromised passwords	~45%
Guidance on addressing forgotten or lost passwords	~57%
Reuse of passwords prohibited	~56%
Single Sign-On service available	~52%
Password-management software required	~6%
Two-factor authentication required	~8%
Prohibitions on sharing passwords	~73%
Minimum length/complexity for passwords	~83%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90%

Digital Instructional Materials

Print continues to be the predominant format for instructional materials. The majority of respondents (67%) report that digital materials comprise 50% or less of their district's instructional materials. For almost a fifth of respondents (18%), digital comprises a quarter or less of their instructional materials. Of districts that have flipped to a digital majority, only 7% are over 75% digital.

% of Materials that are used in Digital Format (opposed to print)

- 1 - 10%
- 11-25%
- 26-50%
- 51-75%
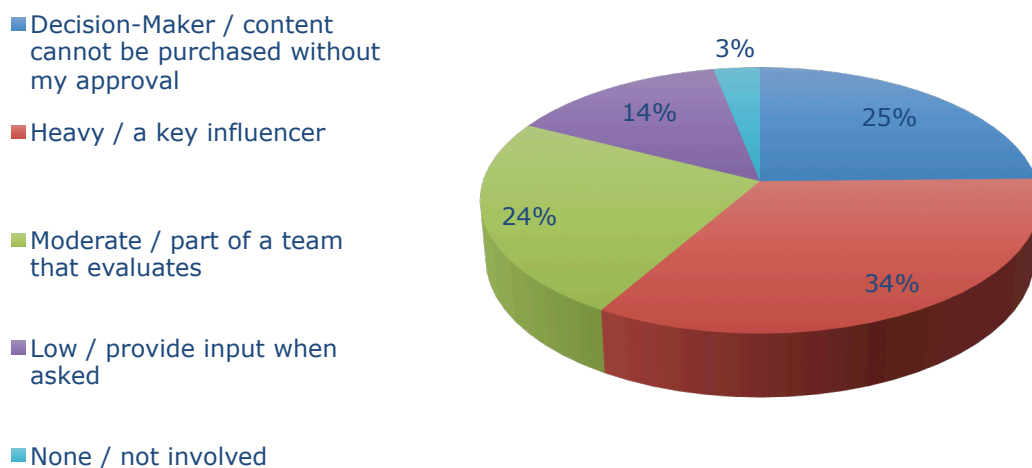- 76-90 %
- 91-100%

6% 1% 5%
13%
26%
49%

Digital Content Purchasing

A quarter (25%) of respondents are the final decision-makers in digital content purchasing decisions. A third (34%) of respondents are key influencers in the process and 24% are part of the team that makes digital content decisions. In digital ecosystems, it is critical that IT Leaders vet the digital purchases, including instructional materials, before deciding to integrate them into a school system. This is necessary to ensure digital content, especially supplemental content accessed from the myriad of ancillary apps, isn't transmitted in a way that poses risks to student data privacy. The vetting process also ensures that digital content can be accessed in a timely and cost-efficient way, avoiding post-purchase implementation problems. As one respondent commented:
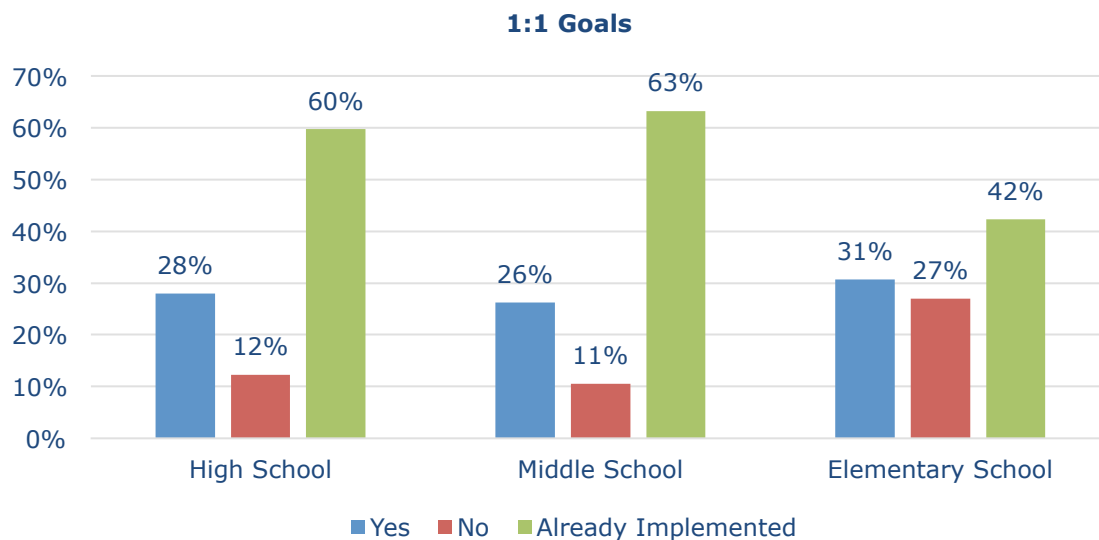
> "I would like to spend more time working with our staff to improve education rather than working with consultants and vendors to fix IT."

Level of Involvement in Digital Content Purchasing Decisions

- Decision-Maker / content cannot be purchased without my approval
- Heavy / a key influencer
- Moderate / part of a team that evaluates
- Low / provide input when asked
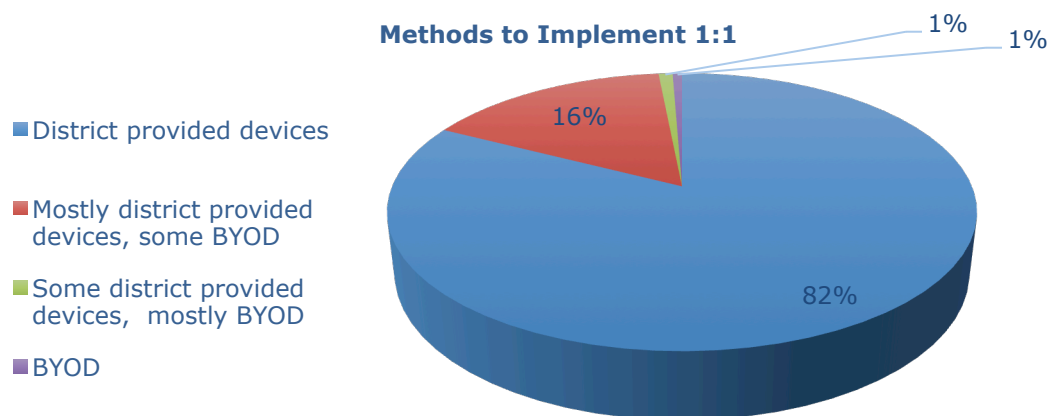- None / not involved

3%
14%
24%
25%
34%

1:1

Not unexpectedly, Elementary Schools have less 1:1 implementation than schools with older students. Only 42% have implemented 1:1 in Elementary Schools, as compared with 60% in High Schools and 63% in Middle Schools. More than a quarter (27%) of respondents report that 1:1 is not a goal for their Elementary Schools—more than double the response rates for High School (12%) and Middle School (11%). However, almost a third (31%) of respondents do have a 1:1 goal for their Elementary Schools. This appears to suggest that the "pros" of using technology in the primary grades are winning out over the "cons."

1:1 Goals

To achieve their 1:1 goals, the overwhelming majority of districts (82%) are providing devices, an increase from 69% the prior year. BYOD methods are used by 17% of districts, including just 1% that report "mostly BYOD." There has been a clear shift away from BYOD initiatives over the years—in the 2013 IT Leadership survey BYOD was ranked the number one priority.
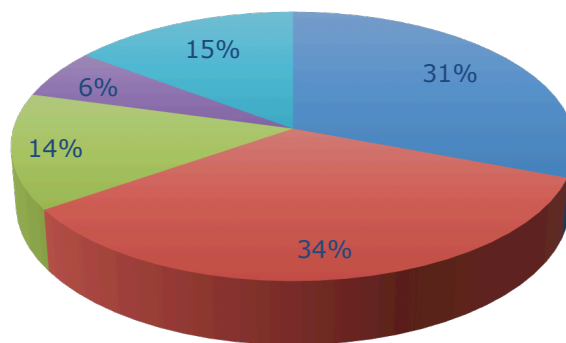
Methods to Implement 1:1

A third (34%) of districts, allow teachers to determine if students can use a personal device in their classrooms. Another third (31%) allow students to use their devices when not in classes. The principal makes the policy decision for 14% of districts while 6% have the most liberal policy —encouraging students to bring their devices.

The 2019 policy breakdowns are roughly the same as the prior year with one exception — banning devices. Districts banning devices increased from 10% in 2018 to 15% this year. This result is a bit of a surprise. Devices are ubiquitous in our society even in the hands of young children. The reported average age for getting that first phone is 10.3 years.[6] The mobile phone is also a key communication tool between parents and students. Emergency preparedness experts warn that during a school crisis parental communications can hamper emergency response work by overloading phone systems, but banning all student mobile devices is not likely a realistic solution in most communities.

Policies Regarding Students' Use of Personal Devices in School

- Primarily allow students to use their devices before, between, or after classes
- Teachers to determine if BYOD/BYOT is allowed in their class
- The principal of the school determines the overall BYOD/BYOT policy
- Students are encouraged to bring their own devices
- Student devices are banned

15%

31%
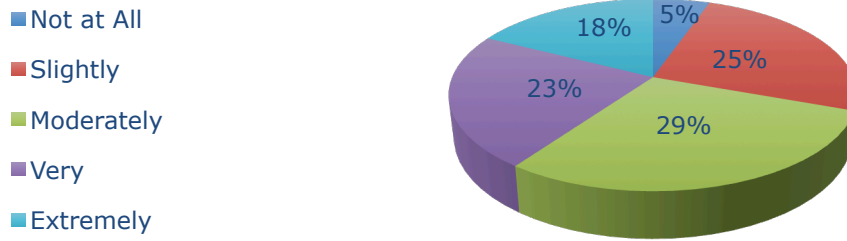
6%

14%

34%

Closing the Homework Gap

While broadband access has largely been realized within school systems,[7] digital equity has not been achieved outside the classroom. For an overwhelming majority (95%) of respondents, addressing the Homework Gap is a concern for their district compared to only 5% who said it was "not at all" important. This reflects a significant change from 2018, when 30% indicated it wasn't important versus 70% who said it was. In a digital learning environment, student access

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[6] http://influence-central.com/kids-tech-the-evolution-of-todays-digital-natives/

[7] CoSN's 2018 Annual Infrastructure Survey Report (https://cosn.org/Infrastructure)

to digital devices and digital resources outside the classroom is a key factor in their ability to not only do their homework but also to use technology for enrichment and expanding their learning experiences outside of assigned coursework. The significant year-over-year increase in the relative importance of digital equity might also be influenced by the fact that parental communication is increasingly digital, whether via email, text messaging, or through online learning management systems and/or grade portals.
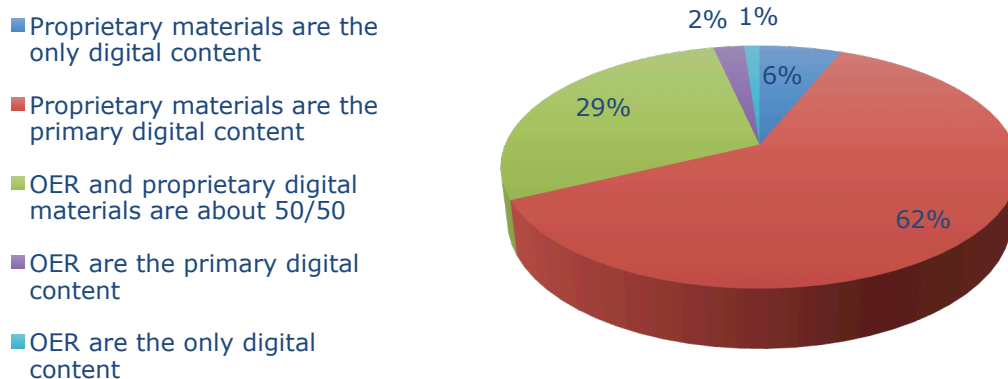
Importance of Addressing Digital Equity

Legend:
- Not at All
- Slightly
- Moderately
- Very
- Extremely

Pie chart values: 5%, 25%, 29%, 23%, 18%

Open Educational Resources (OER)

Three years ago, the IT Leadership survey asked respondents to project what percentage of their district's digital resources would be comprised of OER versus proprietary materials. Almost half (46%) estimated digital resources would be about 50% OER. It turns out respondents in 2016 overestimated. In 2019, the actual percentage of districts with 50% OER is less than a third (29%). Inconsistent quality, lack of efficacy, and sustainability issues have been detracting factors of OER since the beginning and likely hamper fuller adoption. For few districts (2% of respondents), OER comprises their primary digital content and for 1% OER is 100% of their digital content, probably reflecting the usage in virtual schools.

Proprietary Materials vs Open Educational Resources

Legend:
- Proprietary materials are the only digital content
- Proprietary materials are the primary digital content
- OER and proprietary digital materials are about 50/50
- OER are the primary digital content
- OER are the only digital content

Pie chart values: 6%, 62%, 29%, 2%, 1%

Interoperability

More than three-quarters (79%) of respondents have at least partially or fully implemented single sign-on (SSO), including 27% that have fully implemented SSO. Data dashboards are the next most common interoperability strategy yet only 15% of districts have fully implemented them. Likewise, data and content interoperability reach only 12% and 8% of full implementation, respectively.

However, there is some progress. For example, content interoperability increased from 62% to 69% partial/full implementation over the past year, and data dashboards modestly increased from 60% to 62%. Year-over-year data interoperability had the largest increase in implementation of any category, rising to 78% from 70% the prior year. While districts still have a long distance to go for full interoperability, there are year-over-year gains in every category of interoperability. Commenting on the importance of interoperability one respondent noted, "It can impact everyone and everything."

Interoperability Initiative	Fully Implemented	Partially Implemented	Planning	Not at All	Don't Know
Single Sign-On	27%	52%	9%	11%	1%
Data Dashboards	15%	47%	22%	11%	5%
Data Interoperability	12%	67%	10%	6%	7%
Content Interoperability	8%	61%	14%	9%	9%

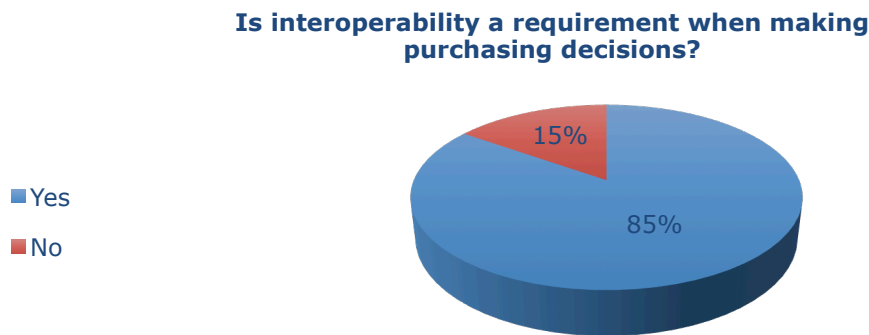*Some totals are more than 100% due to rounding of the nearest whole percent.*

The respondents were asked to provide breakdowns of open standards versus custom solutions, as well the percentage applications that were not integrated at all. Due to a technical problem in collecting responses to this question, this data may not be statistically reliable. However, results at a high level do appear to align with basic tacit knowledge—school systems are using a combination of methods to get their systems to work together.

Integration Method	0%	1-10%	11-25%	26-50%	51-75%	76-90%	91-100%
Open Interoperability Standards	10%	6%	20%	37%	13%	11%	4%
Custom Solutions	16%	17%	27%	29%	10%	1%	1%
Not Integrated At All	16%	20%	21%	23%	11%	6%	3%

The importance of technology integration into a district's digital ecosystem is highlighted by the affirmative answers of the vast majority (85%) of respondents to the question, "Is interoperability a requirement when making purchasing decisions?" Districts are increasingly including interoperability in RFP requirements to ensure that new technology brought into an

existing digital ecosystem will not require costly custom integrations or on-going manual maintenance. As stated in the purchasing guide available through ISTE:
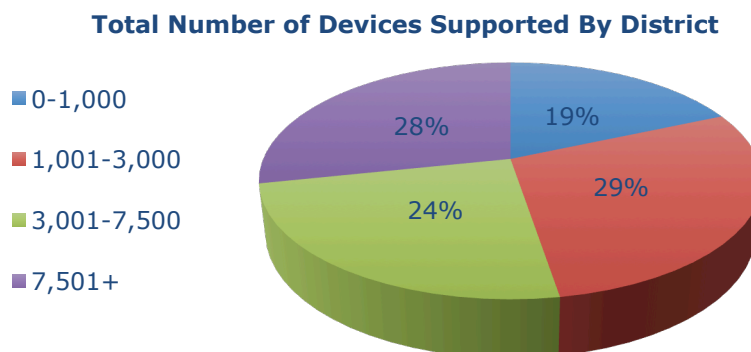
> *"Without interoperability, schools bear the financial burden of manually performing tasks that applications should do automatically. This builds hidden costs into every solution that lacks interoperability support."[8]*

Is interoperability a requirement when making purchasing decisions?

- ■ Yes
- ■ No
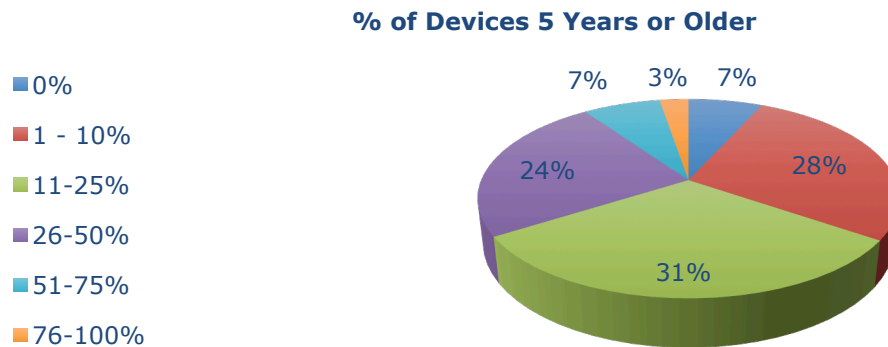
15%
85%

About Technology

Devices

Over a quarter (28%) of respondents report they are responsible for more than 7,500 devices (including student, administrator, teachers, and other educators), while slightly less than a fifth (19%) are managing 1,000 devices or less. The majority of respondents (53%) support between 3,000 and 7,501 devices, somewhat equally split between those supporting 1,000-3,000 (24%) and those supporting 3,001-7,500 (29%).

Total Number of Devices Supported By District

- ■ 0-1,000
- ■ 1,001-3,000
- ■ 3,001-7,500
- ■ 7,501+

28%
19%
29%
24%

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[8] *Better EdTech Buying for Educators: A Practical Guide* (ISTE, 2019)

The majority of respondents (66%) support newer devices— less than 25% of their inventory is five years or older. This includes 7% without any devices over five years. Almost a quarter (24%) of respondents are in districts where 26-50% of devices are five years or older. Only a tenth of respondents report more than 50% of devices aged five years or more, including 3% where the vast majority (76-100%) of devices are old.
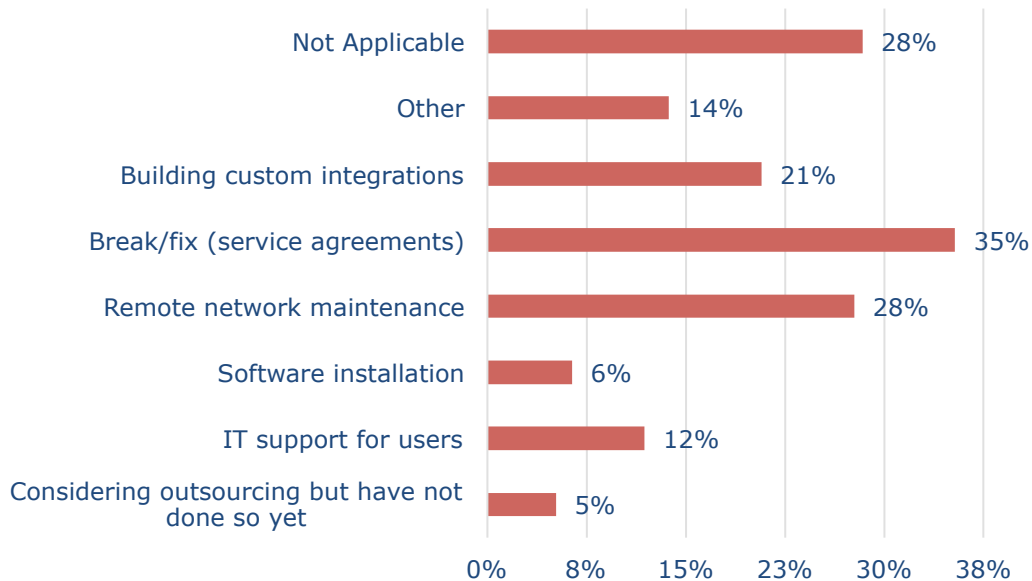
% of Devices 5 Years or Older

Legend:
- 0%
- 1 - 10%
- 11-25%
- 26-50%
- 51-75%
- 76-100%

Pie chart values: 7%, 3%, 7%, 28%, 31%, 24%

Outsourcing

Rates for all outsourced functions decreased from the previous year. "Break/Fix" services are the most common outsourced function, with more than a third of respondents (35%) indicating they outsource this type of support. This is a decrease from prior year when 46% identified it as an outsourced function. "Remote Network Maintenance" decreased from 52% in 2018 to 28% this year, "IT Support for Users" from 23% to 12%, and "Software Installation" from 16% to 6%.

Note that two new outsourced category options, "Building Custom Integrations" and "Considering Outsourcing but have not", were added to this year's survey in an attempt to whittle-down the relatively high percentage (34%) of respondents who selected "Other" in 2018. While we can't know what comprised "Other" in 2018, we know that this year 5% of respondents aren't outsourcing but are considering it and a fifth (21%) are outsourcing custom integrations—generally a short-term activity that requires high-level programming skills.

Outsourced IT Functions

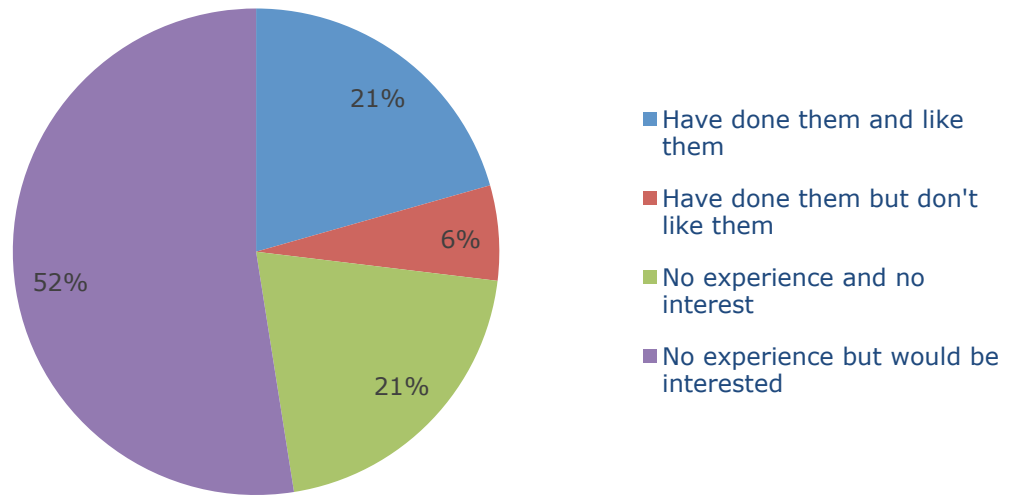| Category	Percentage
Not Applicable	28%
Other	14%
Building custom integrations	21%
Break/fix (service agreements)	35%
Remote network maintenance	28%
Software installation	6%
IT support for users	12%
Considering outsourcing but have not done so yet	5%

Peer Reviews

A peer review, as the name suggests, is an evaluation conducted by colleagues with experience specific to the topic/issue being evaluated. It's a process often used in software development and scholarly publishing. The notion of using peer review to assess a district's digital ecosystem is relatively new. While a majority of respondents (52%) are interested in learning more about what a peer review is, only 27% have actually done one , including 21% who liked the process. Another 21% expressed no interest in such an effort. One education leader whose district recently completed a peer review stated they found this value—

> *"It gave us high level, externally validated overview on how we are using technology… It was very timely and provided key recommendations that were realistic, tangible and very much aligned with the realities of our operating environment."*
>
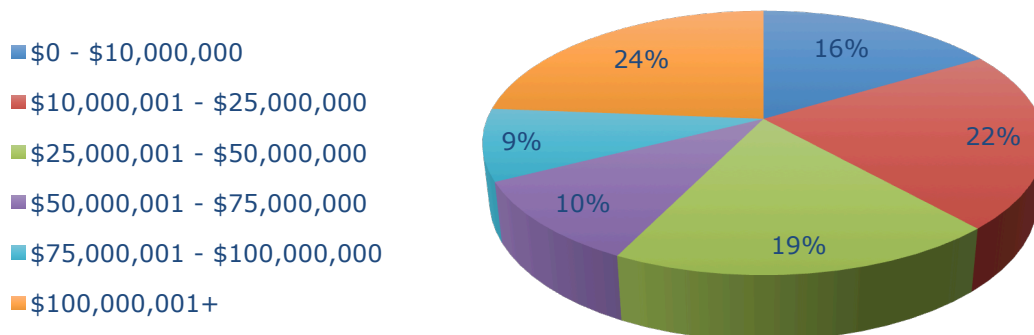> *Dr. Veronica Garcia, Superintendent, Santa Fe Public Schools, NM*

Peer Technology Reviews

- 21% — Have done them and like them
- 6% — Have done them but don't like them
- 21% — No experience and no interest
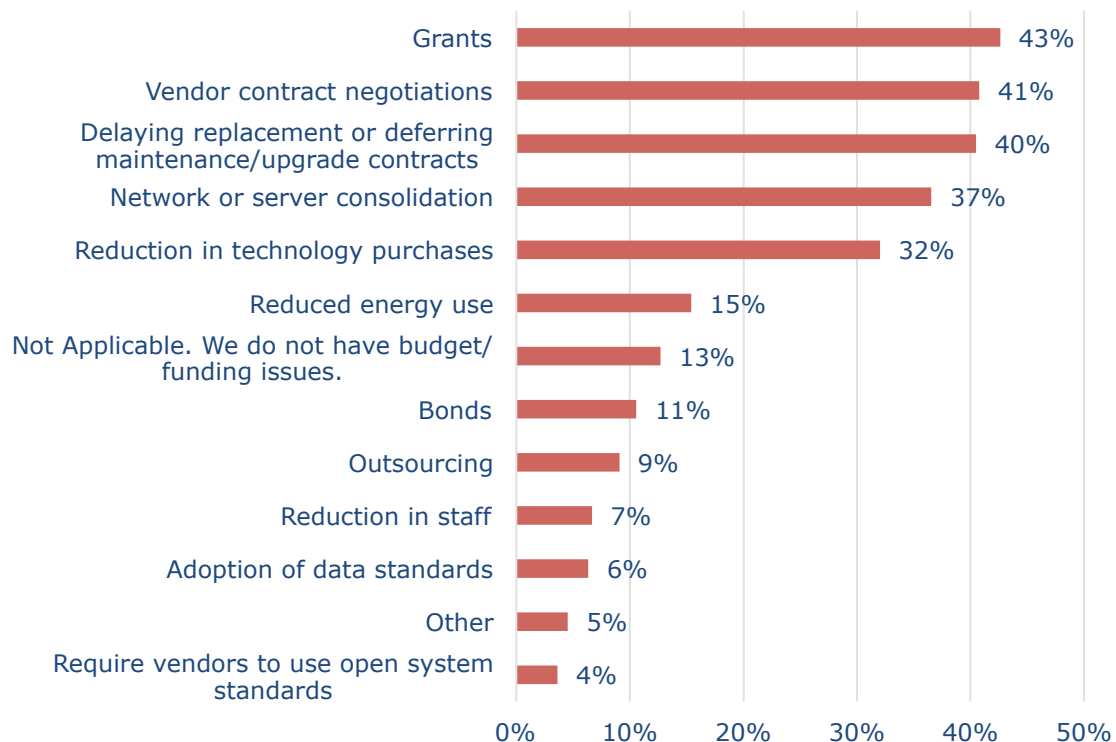- 52% — No experience but would be interested

Budgets

The majority (62%) of respondents have a technology budget of $1 million or less, including almost a third (32%) with budgets of $100,001-500,000. Thirty-one percent (31%) of the respondents are districts with technology budgets of $1,000,001-5,000,000.

% of Districts within Operating Budget Ranges

- $0 - $10,000,000
- $10,000,001 - $25,000,000
- $25,000,001 - $50,000,000
- $50,000,001 - $75,000,000
- $75,000,001 - $100,000,000
- $100,000,001+

16%
22%
19%
10%
9%
24%

There was an increase from 70% in 2018 to 75% this year in respondents reporting their IT budgets allow them "to meet the overall expectations of the school board/district leaders." For districts with insufficient IT funding, 43% of respondents are seeking to secure more money via grants. Forty-one percent (41%) of respondents indicated that they would attempt cost savings through vendor contract negotiations. This strategy is closely followed by a cost-avoidance plan in which 40% of respondents will delay replacement or defer maintenance/upgrade contracts. Only a relatively small percentage (7%) is planning to reduce staffing in their efforts to make ends meet.
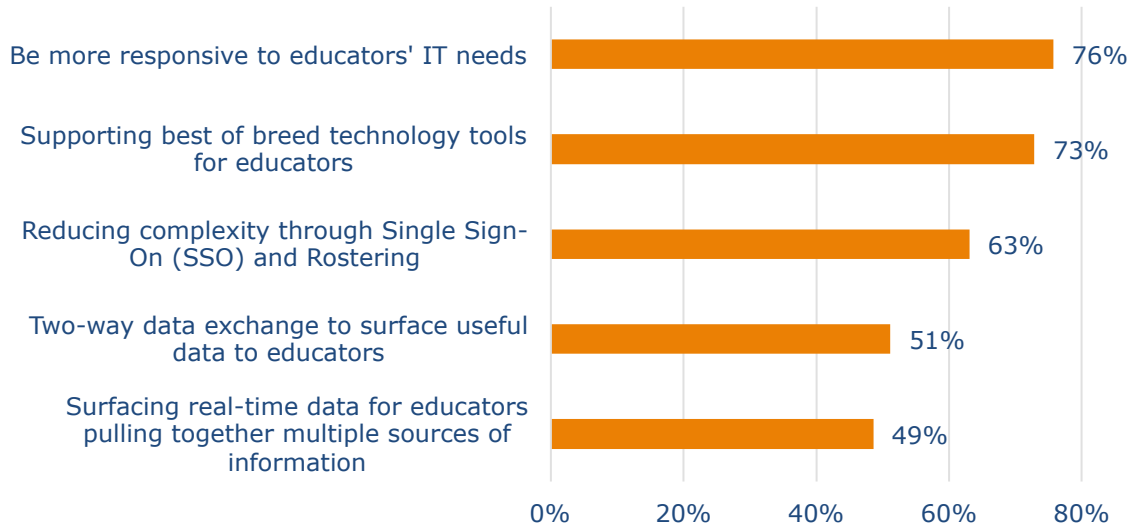
Plans to Overcome IT Budget Issues

Category	%
Grants	43%
Vendor contract negotiations	41%
Delaying replacement or deferring maintenance/upgrade contracts	40%
Network or server consolidation	37%
Reduction in technology purchases	32%
Reduced energy use	15%
Not Applicable. We do not have budget/funding issues.	13%
Bonds	11%
Outsourcing	9%
Reduction in staff	7%
Adoption of data standards	6%
Other	5%
Require vendors to use open system standards	4%

Teaching & Learning Support

A new question on this year's survey was, "How do you envision your technology department supporting teaching and learning?" The top response with 76% is "be more responsive to educator IT needs," aligning with results of IT Leaders expressing the need for more time for instructional technology. The second most common response is "supporting best of breed technology tools for educators" with 73%. SSO/Rostering and two-way data exchange also received majority responses, 63% and 51% respectively. About half of respondents (49%) are focusing on actionable classroom information— providing teachers with real-time data gathered from multiple sources.

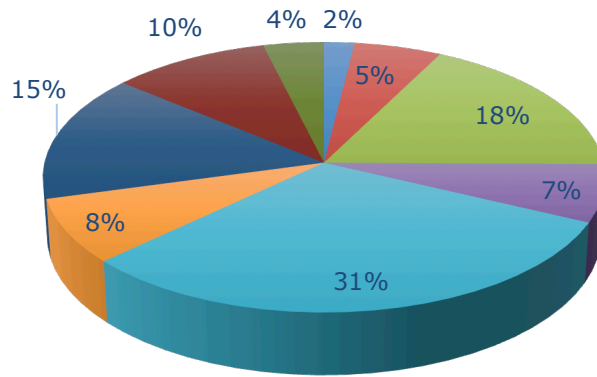**Tech Department Supporting Teaching & Learning**

Category	Percentage
Be more responsive to educators' IT needs	76%
Supporting best of breed technology tools for educators	73%
Reducing complexity through Single Sign-On (SSO) and Rostering	63%
Two-way data exchange to surface useful data to educators	51%
Surfacing real-time data for educators pulling together multiple sources of information	49%

IT Leader Profiles

Education

IT Leaders continue to be well educated. Seventy-one percent (71%) of respondents have attained some college degree beyond a Bachelor's degree, the same percentage as the prior year. The breakdown of the advanced degrees is similar to the prior years, with the largest segment (31%) holding a Master's degree in Education, 10% with Doctorates, and 8% with a Master's degree in Business Administration.

Highest Level of Education Achievement

- High School Diploma or GED
- Associates degree
- Bachelors degree
- Some college beyond Bachelors degree
- Masters of Education
- MBA
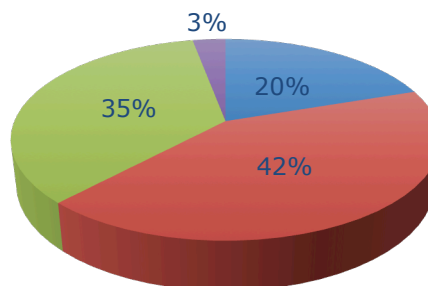- Other Masters degree
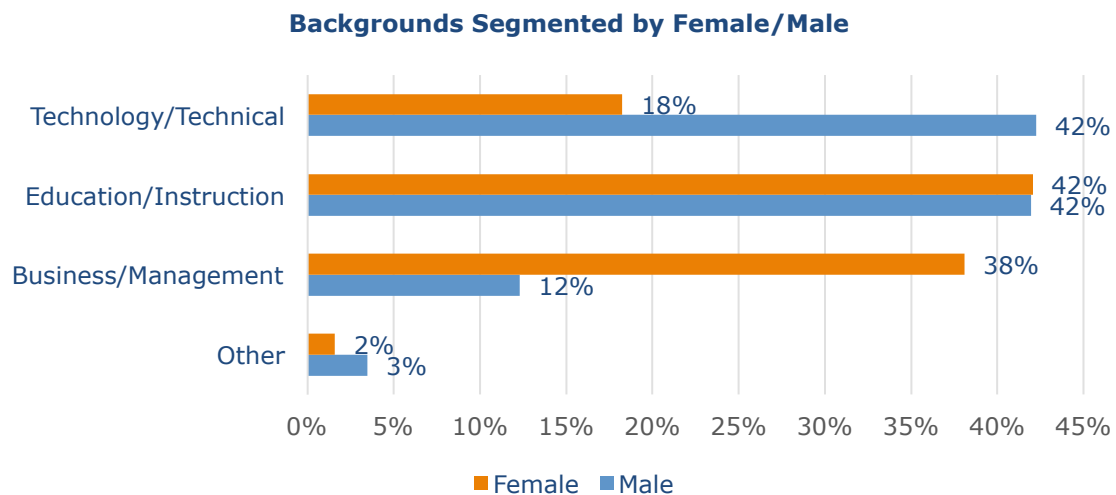- Doctorate
- Other

Professional Background

Education/Instruction (42%) is the most common professional background for IT Leaders, the same percentage as the prior year. While more than a third of respondents (35%) have Technology/Technical backgrounds, that percentage is significantly less than the 47% reported in 2018. With the "other" category a consistent 3% year-over-year, the percentage drop in technical backgrounds is accounted for by the increase in respondents with Business/Management backgrounds. IT Leaders with this profile comprise 20%, as compared to just 7% the prior year. This shift appears to reflect the increased need for operational efficiency in increasingly technology-rich environments.

Primary Professional Background

- Business/Management
- Education/Instruction
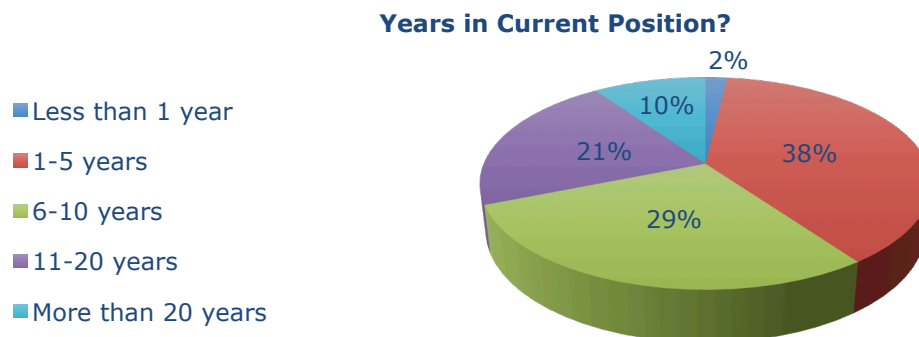- Technology/Technical
- Other

Women and men come to their IT Leadership position in equal rates from an education/instruction background (42%). This is a significant shift from prior year when women were more likely to follow the education path to IT Leadership (53%) as compared to men (34%). There is a lack of parity when it comes to other backgrounds. Technology/technical backgrounds account for 42% of male IT Leaders, compared to just 18% of women. Conversely, 38% of women bring a background in business/management to their IT role while only 12% of men do so.

Backgrounds Segmented by Female/Male

Experience

The majority (60%) of respondents have been in their current position for six years or more, with more than a quarter (29%) in the 6-10 year range and 10% with more than 20 years. However, 40% of respondents have been in their position for five years or less. This is a decrease from 2018, when those with the least amount of experience comprised nearly half (49%) of respondents.
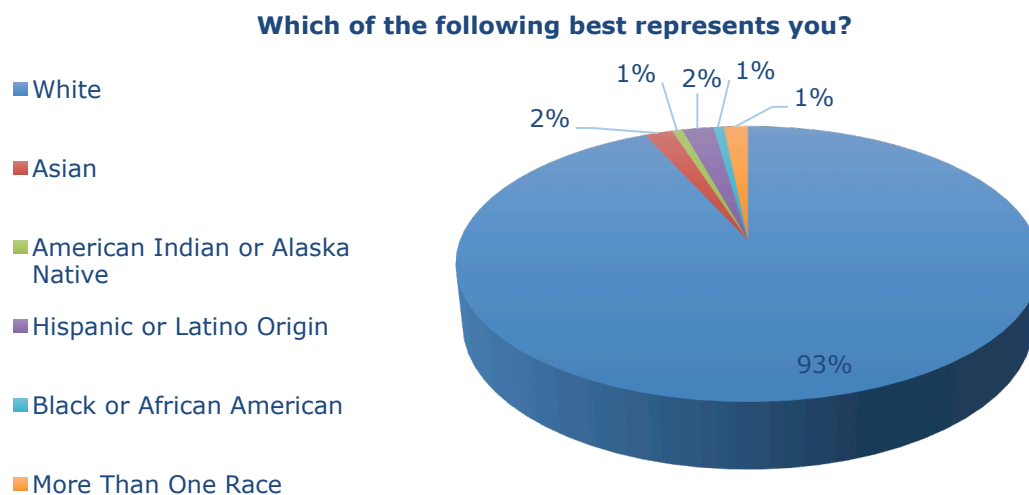
Years in Current Position?

Retirement

While a quarter of IT Leaders plan to retire in the next 6 years that projection is down from 35% three years ago. Schools districts need to continue to prepare now for the future generation of IT leaders.

Retirement Plans	2016	2019
This Year	2%	3%
1-3 years	13%	9%
4-6 years	20%	13%
7-10 years	22%	17%
More than 10 years	43%	41%
No Plans at this Time	N/A	17%

Diversity

The lack of minorities in leadership positions is a pervasive problem across all public and private institutions, including the K-12 sector. The ethnic and racial diversity of IT Leaders continues to look very different from the population they serve. The national make-up of the student body in K-12 is 49% White, 15% Black and 26% of Hispanic or Latino origin. In contrast, IT Leaders are 93% White, 1% Black, and 2% of Hispanic or Latino origin. The remaining 4% is comprised of 2% Asian, 1% American Indian or Alaska Native, and 1% identifying as more than one race.

Which of the following best represents you?

- White
- Asian
- American Indian or Alaska Native
- Hispanic or Latino Origin
- Black or African American
- More Than One Race

When looking at female-to-male ratios over a five-year period, the trend line shows decreasing gender diversity in IT Leadership. In 2016, women comprised 36% and men 64% of IT leadership positions. The breakdown of this year's survey is 28% female and 77% male. While

even this lower percentage of female IT K-12 Leadership is slightly better than the 23% in Higher Ed[9] and compares favorably to the 12% average[10] in the public sector, the downward trend is discouraging. The decline in female representation in leadership positions may suggest that retiring IT Leaders are being replaced from industry, where there are fewer women in executive roles to pull from, or simply that more men are now applying/being recruited for these positions. Historically, K-12 IT Leader talent was promoted from district instructional leadership, which is predominately female.

	2016	2017	2018	2019
Female	36%	36%	30%	28%
Male	64%	64%	70%	72%

Regardless of district size or metropolitan status, the percentage of woman and men is roughly comparable. However, there is an uptick for woman in districts with under 1,000 students, where 21% women IT Leaders work compared to 13% of men. This aligns with results of segmentation by metropolitan status. Districts with enrollments under 1,000 are mostly in rural areas, where a greater percentage of women IT Leaders (28%) work as compared to 20% of men.

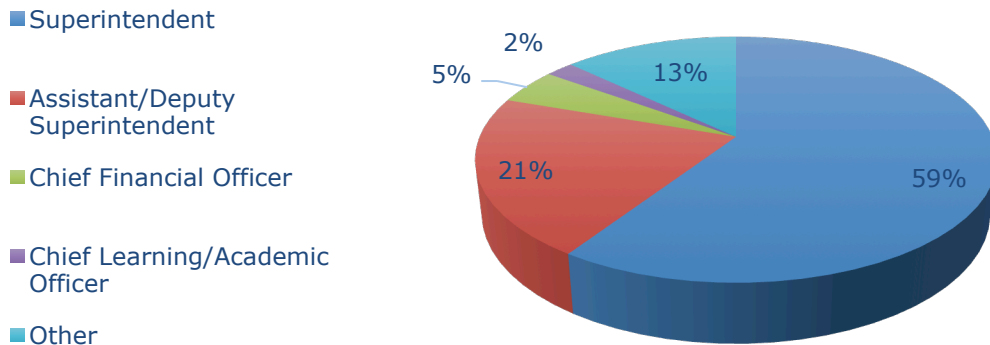|	Under 1,000	1,000 to 2,499	2,500 to 9,999	10,000 to 14,999	15,000 to 49,000	Over 50,000
Female	21%	24%	36%	8%	10%	1%
Male	13%	28%	42%	7%	8%	1%

Reporting Structure

The majority of respondents (59%) report directly to their superintendent with another 21% reporting to the assistant or deputy superintendent. A fifth of respondents report elsewhere— 5% to their CFO, 2% to their CAO, and 13% to other titles not included as response options. While we don't know what "other" entails, the reporting structures of the vast majority of respondents (87%) align with a Leadership and Vision attribute defined in CoSN's *Framework of Essential Skills for the K-12 CTO* —

> *"Actively participate with members of the Superintendent's cabinet (e.g., district senior management) to create a vision for how technology will support the district's strategic and operational goals."*

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[9] Galanek, Joseph D., Dana C. Gierdowski, and D. Christopher Brooks, *The Higher Education IT Workforce Landscape, 2019*. Research report. Louisville, CO: ECAR, February 2019.

[10] https://www.harveynash.com/usa/news-and-insights/US_CIO_survey_2018.pdf
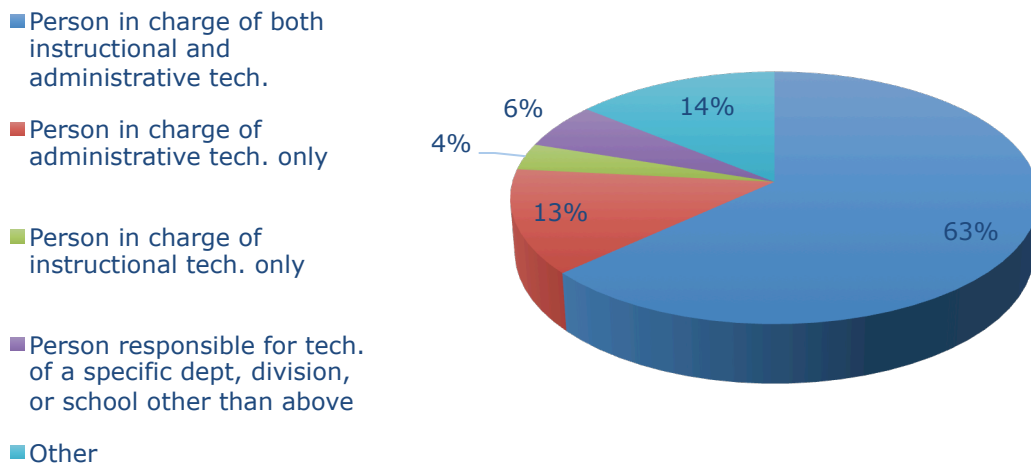
To whom do you report?

- Superintendent
- Assistant/Deputy Superintendent
- Chief Financial Officer
- Chief Learning/Academic Officer
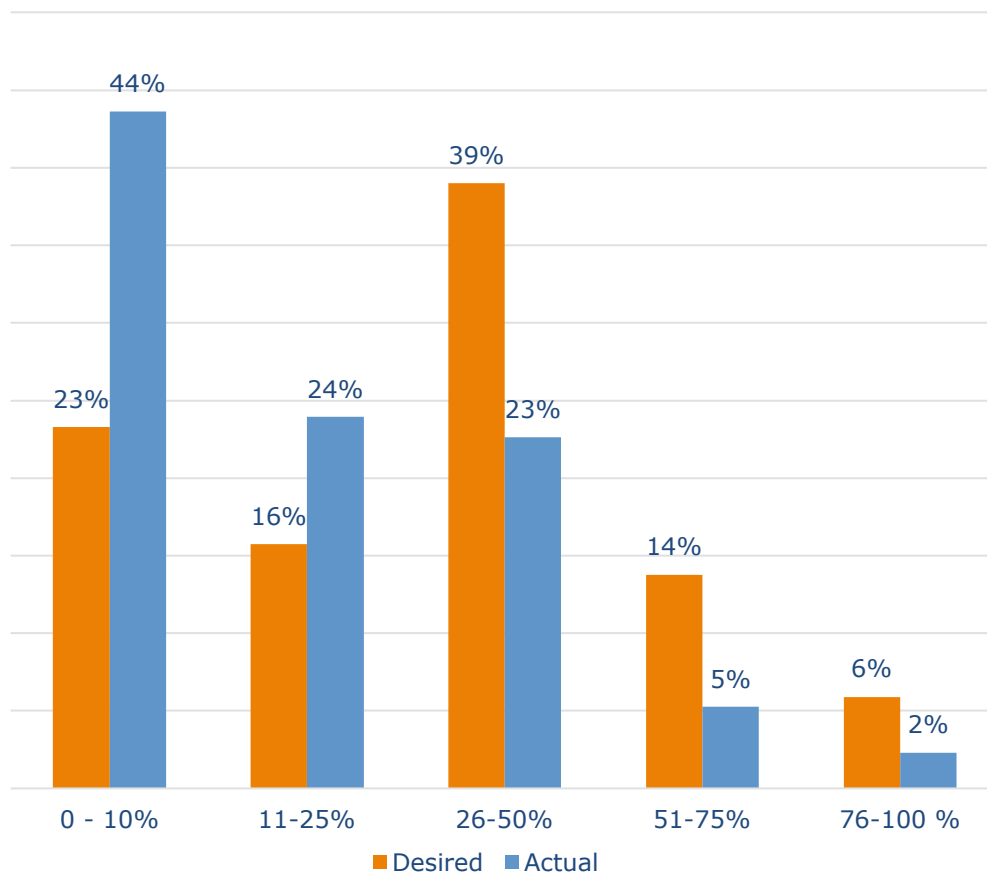- Other

2% 13%
5%
21%
59%

Responsibilities

The majority of respondents (63%) are responsible for both educational and administrative technology. This compares to 13% who are only responsible for administrative technology and 4% who are only responsible for instructional technology. The remaining respondents (14%) have responsibilities other than those defined on the survey. These responsibility breakdowns have been roughly the same since the survey was originally deployed in 2013. While the categories of responsibilities have similar breakdowns, these results should not be interpreted to mean that IT Leader roles haven't changed. The scope and complexity within those categories has expanded to include more 1:1 deployments, more digital content, more systems needing to interoperate, and more cybersecurity methods to be implemented.

Primary Job Responsibility

- Person in charge of both instructional and administrative tech.
- Person in charge of administrative tech. only
- Person in charge of instructional tech. only
- Person responsible for tech. of a specific dept, division, or school other than above
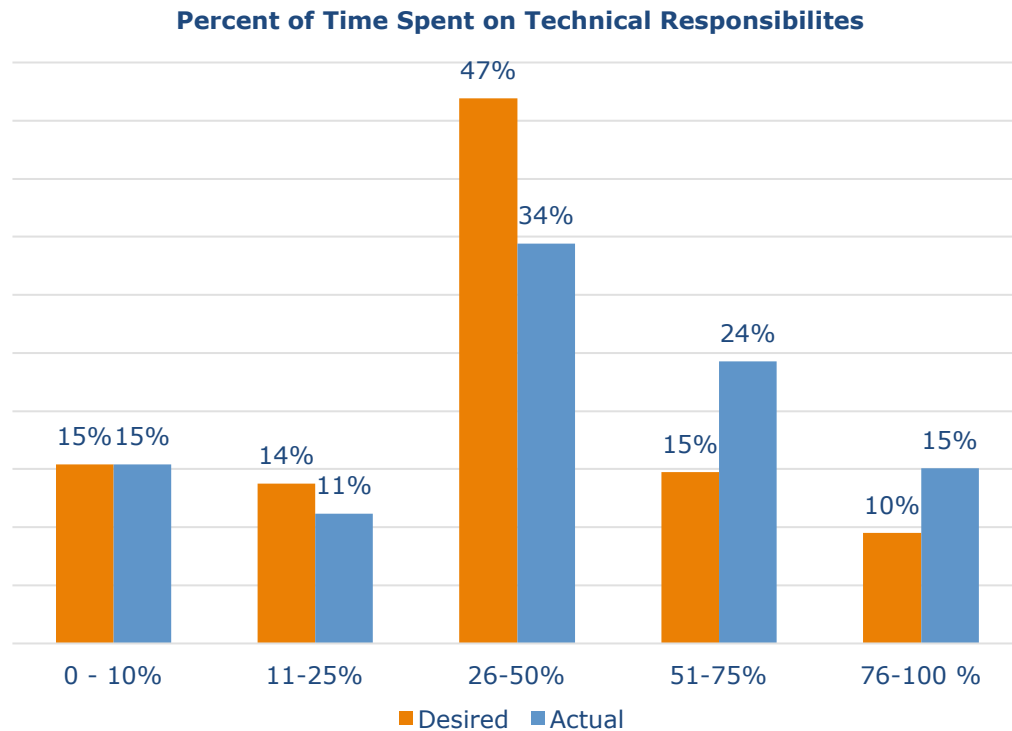- Other

6% 14%
4%
13%
63%

Respondents were asked to compare how they'd like to spend their time against how they actually spend their time. When looking at instructional responsibilities, there is a clear disconnect. The majority of respondents (59%) want to spend more than a quarter of their time on instructional responsibilities compared to just 30% that do. Of those spending the least amount of time (10% or less), almost half feel it is insufficient. The desire to spend more time on instructional responsibilities was also highlighted in an open response section of the survey. Many respondents commented about the lack of time for instructional aspects of their role. "Working with students", "being in the classroom," "classroom visits," "personal engagement with students and teachers," getting "a first-hand view" and "more time to be able to connect directly with student learning outcomes," were common sentiments expressed.

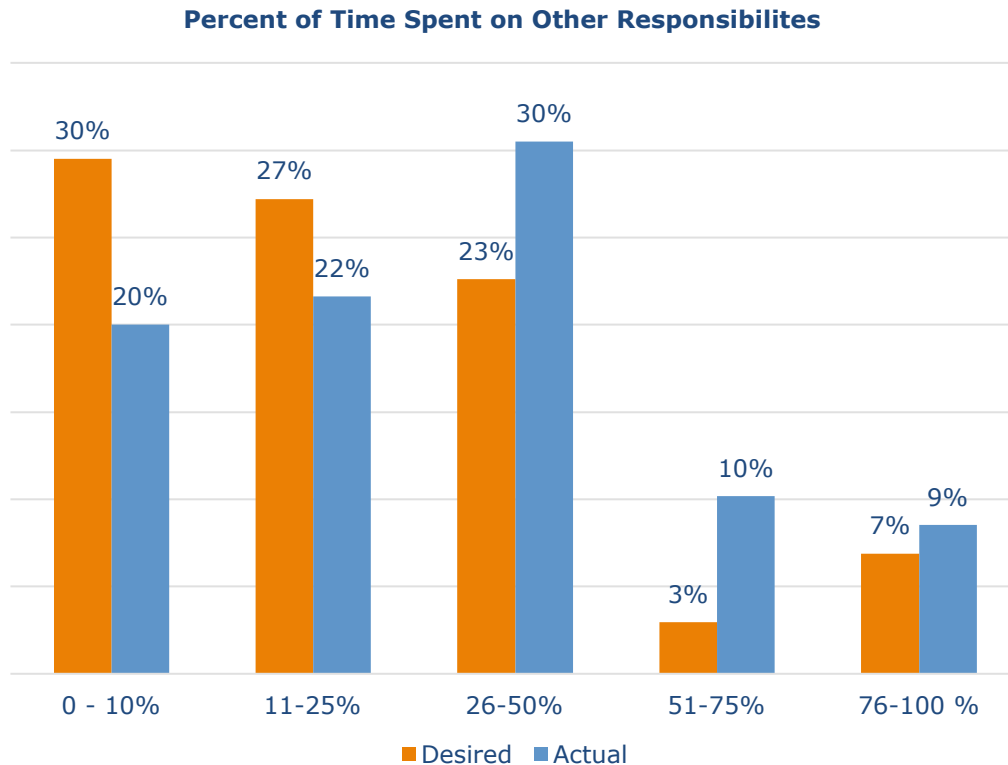**Percent of Time Spent on Instructional Responsibilites**

Desired and actual rates are more in-sync when looking at technical responsibilities. They are equal (15%) for respondents who want to spend, and actually spend, 10% or less of their time on technical responsibilities. Slightly more (14% versus 11%) wish to spend between 11-25% of their time on tech versus what they actually spend. As in the instructional responsibilities category, the sweet spot for percentage of time is 26-50%. Although only a third (34%) spend

that amount of time, 47% would like to. Almost two-fifths (39%) spend more than half their time on technical responsibilities compared to a quarter (25%) who want to do so.

Percent of Time Spent on Technical Responsibilites

The majority (57%) of respondents would like to spend 25% or less of their time on responsibilities other than technology and instruction. Of those, almost a third (30%) feel these other responsibilities should account for a tenth or less of their time. Only 23% of respondents feel the 26-50% range is sufficient, as compared to 30% that actually spend that amount of time. Only a tenth of respondents feel responsibilities other than technology or instruction should account for more than 50% of their time, compared to 19% who do more than 50%. Overall, these results indicate that respondents think that other responsibilities take up too much of their time.

Percent of Time Spent on Other Responsibilites

	0 - 10%	11-25%	26-50%	51-75%	76-100 %
Desired	30%	27%	23%	3%	7%
Actual	20%	22%	30%	10%	9%

■ Desired ■ Actual

Salaries

More than a quarter (28%) of respondents chose not to provide their salary information. This high opt-out rate is similar to the 2017 rate of 23%, which was a significant jump from the prior year's 2% opt-out rate.

The increase in the percentage of respondents choosing not to share their salary information directly correlates to two survey changes that were made in 2018. The first was a change to how the salary question was asked— instead of a salary range, respondents were asked to enter their specific salary. The second was a change in how we deployed the survey—surveys were sent to specific IT Leaders. This new method enabled us to limit responses to one per district. However, that meant responses were no longer anonymous. While only aggregated data is used for this report—CoSN does not see or access any personally identifiable information—this lack of anonymity appears to be a key factor in the increase of respondents choosing not share this information.

Because of decreased participation in the salary question on the survey, we are not completely confident in these results. However, it appears that salaries are increasing for those in the lowest salary bracket.

Salary	2017	2018	2019
Under $70K	29%	15%	10%
$70K-99,999	32%	29%	27%
$100K-129,999	25%	22%	23%
$130K-159,999	8%	9%	7%
$160K-200K	3%	2%	4%
More than $200K	Less than 1%	Less than 1%	1%
Did not provide	2%	23%	28%

About the IT Department

Full-Time Employees (FTE)

A question was added about staffing levels for the various job functions across the entire technology department to get a more complete understanding of IT department staffing. Respondents were asked to align people into the provided categories, recognizing that there may not be a perfect fit for every staff member. No option for "other" was provided. For staff with roles that encompassed more than one function, respondents were instructed to split FTE between those functions. For example, a full-time staff member who equally splits their time between Internal Networks and Hardware Support would be recorded as .5 FTE for each function.

Results show that Programmer and Communications Specialist roles are the least likely to be staffed internally, with zero FTE rates of 64% and 52% respectively. They are followed by the Instructional Coach, with more than a third (35%) reporting they do not staff this position. Hardware Support Specialist is the best-staffed position, with the majority (55%) of respondents reporting two or more FTEs. With 47% reporting two or more FTEs, Application Support Personal is next best-staffed position. Across the board the highest staffing percentage within each category is 1—1.9 (less than two FTEs for each function). Almost half (47%) of districts staff at that level for Internal Network Management.

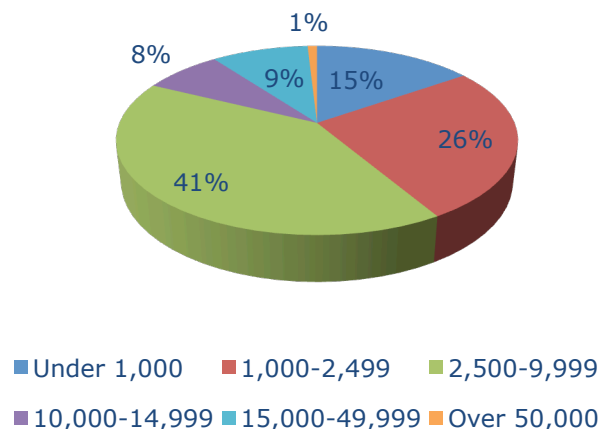| FTE	Instructional Coach	Programmer	Application Support personnel	Internal Network Manager	Communications Specialist	Hardware Support Specialist
0	35%	64%	14%	9%	52%	6%
.01-.9	13%	12%	19%	21%	18%	16%
1-1.9	18%	14%	25%	47%	24%	23%
2-3	17%	6%	23%	14%	3%	22%
4-8	10%	3%	12%	3%	2%	19%
9-20	5%	1%	3%	1%	1%	10%
More than 20	3%	0%	4%	4%	1%	4%

Staffing Levels

Evaluations of staffing adequacy are fairly consistent with those of the prior year. Though very few respondents report overstaffing (1% or less) in any category, a majority continue to report staffing is adequate in all categories—including those reporting they are able to get to critical areas despite being busy. Aligning with the FTE results, those functions that tend to have the most staff—IT application support and infrastructure support—have the best staffing adequacy ratings. When combining response rates for "matched to needs" and "adequate but we are very busy," the category with the highest adequacy rate (89%) is "Install IT applications," closely followed by "Maintain IT applications," with 87%. The only other category with more than four-fifths is "Maintain network systems adequately," with 81% reporting staffing is adequate. Unfortunately, more than third of respondents can't get to critical areas that are the most student facing— "Implementing new technology (34%) and "Integrating technology into the classroom (38%). While the 38% "Integrating technology into the classroom" rate reflects an improvement, down from 43% the prior year who were unable to get to critical areas, "Implementing new technology" experienced a setback. Those who are unable to address critical areas increased from 29% in 2018 to 34% this year.

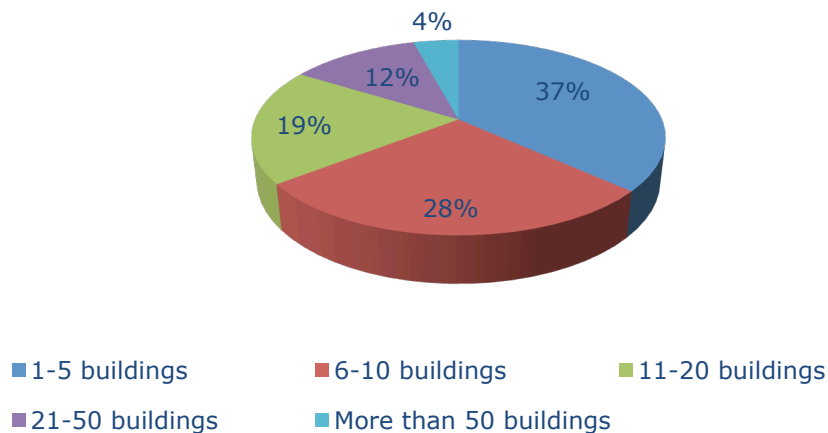| Activity / Responsibility	We are stretched too thin and can't get to critical areas	Staffing is adequate but we are very busy	Staffing is matched to needs	Over-staffed
Effectively support the needs of the district/school	23%	54%	22%	1%
Meet your department's yearly objectives	21%	55%	23%	1%
Maintain network systems adequately	18%	47%	34%	1%
Install IT applications	11%	50%	39%	0%
Maintain IT applications	13%	52%	35%	0%
Plan for new technology	26%	52%	21%	1%
Implement new technology	34%	50%	16%	0%
Integrate technology into the classroom	38%	43%	18%	1%

School System Demographics

The majority of respondents (59%) work in districts with enrollments of 2,500 or more, including the largest segment of respondents (41%) who work in districts with student populations of 2,500-9,000. Districts with enrollments of 1,000-2,499 comprise the next largest segment of respondents with 26%. Respondents working in districts with less than 1,000 students comprise 15%. The 2019 breakdowns roughly align with prior year survey results, except for percentage of respondents from the largest districts (over 50,000 students), just 1% as compared to 11% the prior year.

Responses by Enrollments

1%
8%
9%
15%
26%
41%

■ Under 1,000 ■ 1,000-2,499 ■ 2,500-9,999
■ 10,000-14,999 ■ 15,000-49,999 ■ Over 50,000

To add another measure of job scope and school system complexity, a new question about the total number of buildings in the school district was added to this year's survey. Respondents were asked to include administrative and other non-school buildings in their count. A large majority (65%) of respondents support between 1-10 buildings, including 37% that support five buildings or less. Nineteen percent (19%) support 11-20 buildings and 12% 21-50 buildings. Only 4% have a building count of 50 or more.

Number of Buildings in the District

■ 1-5 buildings   ■ 6-10 buildings   ■ 11-20 buildings
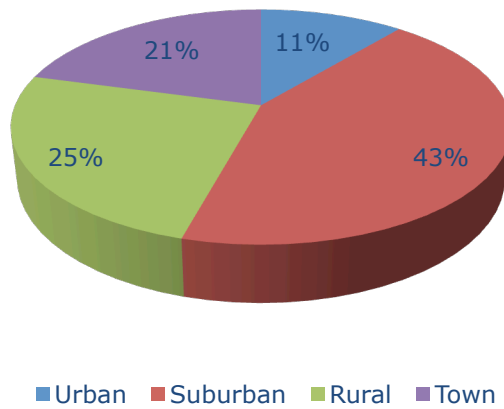■ 21-50 buildings   ■ More than 50 buildings

The largest segment of respondents work in suburban districts, accounting for 43%. A quarter (25%) of respondents, the next largest group, work in rural districts. A fifth (21%) work in towns and 11% in urban areas. As in the prior year, these breakdowns show an over representation of suburban and urban districts and an under representation of rural districts. Although rural districts comprise the majority (53%) of all districts, their student populations are less than a fifth (19%) of all enrollments[11]. Conversely, urban districts enroll 30% of all students though they only account for 5% of districts. Suburban districts enroll the most students (40%).[12]
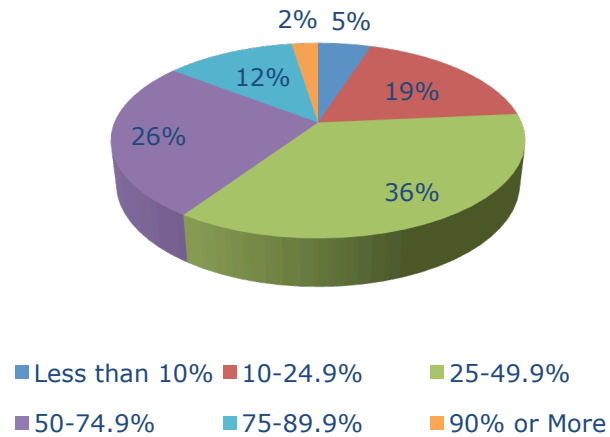
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[11] https://nces.ed.gov/surveys/ruraled/tables/a.1.a.-1.asp

[12] https://nces.ed.gov/pubs2018/2018052/tables/table_04.asp

Metropolitan Status

- Urban 11%
- Suburban 43%
- Rural 25%
- Town 21%

Districts in which more than 75% or more of their students are low-income comprise 12% of survey respondents. Low poverty districts (25% or less of students are of low income) comprise 24%. More than one-third (36%) of respondents represent districts where low-income students represent between 25 and 50%.

Percentage of Low Income Students in District

- Less than 10% 5%
- 10-24.9% 19%
- 25-49.9% 36%
- 50-74.9% 26%
- 75-89.9% 12%
- 90% or More 2%

In Closing

Summary

IT Leaders contend with the perennial challenges of budget constraints, absence of resources, lack of time, insufficient PD, and siloed departments. Those problems are cited in the survey results every year. In addition to these on-going issues, IT Leaders face new challenges emerging as a result of ever-changing technology and policies. For example, the BYOD strategies that several years ago, were considered key to solving districts' equipment budget issues, are much less relevant in today's world of inexpensive devices. Enabling online assessments, once a key aspect of an IT Leader's job, is no longer significant. These initiatives have been supplanted by new technology imperatives such as the pressing need to improve interoperability and thwarting cyber threats. In addressing the myriad issues related to managing a district's digital ecosystem, IT Leaders have not lost sight of the big picture as evidenced in the responses to survey questions about responsibilities and, most notably, in so many unsolicited comments in the open answer section. Despite the technical nature of their roles, teachers and students are the driving forces for IT Leaders. As expressed by one respondent, the goal is "moving teaching and learning forward towards student achievement."

About CoSN

CoSN is the premier professional association for school system technology leaders and represents over ten million students nationwide. The mission of CoSN is to empower educational leaders to leverage technology to realize engaging learning environments. Visit cosn.org or call 866-267-0874 to find out more about CoSN's focus areas, annual conference and events, advocacy and policy, membership, and the CETL™ certification exam.

About Our Sponsor

The Ed-Fi Alliance is a nationwide community of leading educators, technologists, and data advocates connecting student data systems in order to transform education. A not-for-profit organization founded in 2012, by the Michael & Susan Dell Foundation, Ed-Fi aims to boost student achievement by empowering educators with real-time, comprehensive insight into every student.

Ed-Fi technologies streamline data management in school districts and states across the country. By allowing schools to integrate data previously siloed within disconnected tools and software—and organizing it through a single, secure data standard —Ed-Fi solves one of the country's most perplexing educational challenges: how to get a complete, accurate view of individual student achievement, so that every student can receive the support they need when they need it most.

About Our Partners

MDR is a full-service school and community engagement partner. A division of Dun & Bradstreet, MDR is a different kind of integrated marketing services agency that combines rich data with unique digital, creative, and branding capabilities. They have been connecting brands through data and marketing services to educators, youth and parents for 50 years. MDR's database and digital communities, including EdNET, SchoolData, WeAreTeachers, WeAreParents and School Leaders Now enable brands to connect with educators.

Forecast5 Analytics provides interactive data analytics solutions to schools, covering a spectrum of organizational performance areas. The Forecast5 platform includes cloud-based business intelligence software, an analytics platform that connects a district's disparate student datasets into one system, a financial forecasting engine, interactive data visualizations, and a Google Maps-based tool for geospatial projects. More than 1,500 school districts across the country are using Forecast5 tools to maximize their data insights.

About Survey Report Author:

Paula Maylahn is an education industry consultant with thirty-five years' experience across the K-20 spectrum. She currently serves as the project director for CoSN's interoperability initiatives and serves on CoSN's Standards and Interoperability Committee. Paula is a contributing author on two books, "The Experts' Guide to the K-12 Market" and "The Experts' Guide to the Postsecondary Market", and authored the publication, "Interoperability: Definitions, Expectations, and Implications." Paula chairs the education council of the United Design Guild where she also serves as a member of the board. She is a council member of the Women's Education Project, former board member of the Education Division of the Software & Information Industry Association, and a former executive council member of the PreK-12 Learning Group of the Association of American Publishers.