Smart IT

Strategic Technology Planning and Management

a CoSN leadership initiative

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Foreword

Stressed Information Technology budgets are not a new issue as K–12 schools across the nation have notoriously small technology budgets compared to other sectors. As states and schools better recognize the need for a robust technology infrastructure for digital learning and assessment initiatives, tight budgets are weighed against overall cost-savings afforded by increasingly workable technologies.

Nonetheless, the focus on near-term solutions to patch immediate needs makes effective implementation and support of educational technology increasingly difficult. Schools continue to operate as they always have, making short-term decisions without evaluating proper implementation and long-term effects.

A closer look at the economic outlook for districts and schools with insight into today's challenges and opportunities from educational technology and legislative experts point to at least a few comprehensive approaches to make the most of limited technology dollars now and in the future.

Indeed, according to the second annual CoSN K-12 IT Leadership Survey, budget constraints and lack of resources is a top concern, with 47% reporting that budgets are not adequate to meet school board expectations. Unfortunately, one of the top strategies given for dealing with inadequate funding includes simply delaying replacements or deferring maintenance—not a smart move when changing the culture of teaching and learning is also a top desire, and when 83% report that digital materials will account for over 50% of education resources in the next three years.

CoSN's SmartIT Leadership Initiative provides strategic recommendations as well as immediate cost saving actions for the smart CTO. There are several smart ways to address the cost of technology. SmartIT addresses these opportunities with practical information and interactive tools to respond confidently and thoughtfully to budget challenges. Your district can be prepared to deal with keeping your technology programs intact, and positioning your district to run a smarter, stronger, and more cost-effective technology — and education — operation in the long run.

While every school district has its unique issues and challenges, in this SmartIT paper, we provide four areas to consider as you move through your processes: demonstrating a return on investment,

The SmartIT initiative reflects the ongoing priority for technology leaders to strategically plan and manage IT investments by providing tools and resources that focus on:

▪ **Student Outcomes & Budget Management:** Making technology core to the teaching and learning mission to increase student achievement even as budgets shrink.

▪ **Total Cost of Ownership:** Understanding the direct and indirect costs of implementing and maintaining computing devices and related infrastructure, using those costs to articulate the effects of proposed changes and to reduce operational costs.

▪ **Value of Investment:** Evaluating proposed projects through cost/benefit analysis to understand and articulate the financial and non-financial benefits of projects in terms that allow stakeholders to understand the value of the investment.

▪ **Sustainable Computing:** Protecting the environment, reducing waste, and lowering district energy expenditures through responsible computer purchasing, energy use, disposal and use of computers.

>> See more at SmartIT.

saving money through sustainable practices, connecting and aligning financial leadership with technology leadership, and finally, some smart tips to guide you forward in the coming year.

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What is SmartIT?

An initiative to help superintendents, budget officers, chief technology officers (CTOs)/district technology leaders master tight budgets and effectively support needs with appropriate strategic decisions — that is SmartIT. Standing still is not an option. School technology programs and replacement cycles — with all the proven benefits they offer to educators and students—continue to be woefully underfunded. But plunging through the budget balancing act without careful thought and decision making isn't the solution either. Short-term budget cuts could set the stage for long-term fiscal and educational setbacks. Such constraints, then, actually present not just challenges, but also tremendous *opportunities* to strengthen technology investments, operations, programs, plans, staff and results. SmartIT will help technology leaders move forward in various key areas with tools and resources that enlighten and guide your efforts in a way that makes sense for your circumstances. SMART IT will ultimately assist you in achieving greater operational efficiency, management, sustainability and smart investment choices and accomplishing your district goals and purposes.

INVESTMENT

Demonstrating Ed Tech ROI

"Show me the *ROI of technology in education, and then I will support your budget,"* says the chair of your school board. *"Business shows the Return on Investment for technology, why can't our district?"* Believe it or not, this is an increasingly common question.

Given today's fiscal environment in which budget constraints and lack of resources are top of list for school system CTOs, such a discussion is certainly pertinent. CoSN's 2014 second annual K-12 IT Leadership Survey found that **47% of school district IT leaders report that budgets are not adequate to meet school board expectations.**
So, how do you even begin to answer your school board chair? When it comes down to it, how does the savvy Chief Technology Officer demonstrate the technology project is worth the investment?
In schools the discussion should be around value of investment (VOI), not *return on investment* (ROI), a business term calculated by measuring benefits in dollars to the top or bottom line of the business. Our public schools are not profit-driven entities and do not measure their success in financial terms. The business of schools is learning. School system leaders need to understand their educational goals and how technology will support those goals – in

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other words, they need to understand their total cost of ownership (TCO). They also need to demonstrate the value of investment (VOI). Finally, with technology projects that save money or improve efficiency, leaders do need to demonstrate a business-focused return on investment.

But, how do you measure investments in technology that are focused on educationally critical, yet qualitative benefits? For example, most school districts have a long-range Strategic Plan with goals like:

- Increasing student achievement
- Increasing student engagement
- Improving attendance and behavior
- Attracting and retaining staff
- Developing 21st century skills for students
- Decreasing drop-out rates for at-risk students
- Engaging parents and communities

CoSN firmly believes it is possible and important to measure qualitative benefits.

For help in accomplishing this, it is important to take advantage of the resources around you, and often that includes reaching out to the players on your larger team to develop a working relationship. According to a March 2013 article, Making Your CFO Your BFF, working collaboratively with your Chief Financial Officer will enhance the likelihood of success for the technology department. (See below

for excerpt) Calculating your TCO and VOI is where you should start with your "best friend forever".

The CoSN VOI methodology

Information on VOI in education can be found on the CoSN website. www.cosn.org/voi
This approach can be used to evaluate the comparative costs and benefits of two or more projects competing for the same funding, to sell a project internally, to articulate the costs and benefits of the project to constituents, and to later determine whether a project should be sustained. The steps to follow when performing a Value of Investment assessment include:

Determine Cost. The first step is to understand the cost of the technology initiative over the life of the project – the project Total Cost of Ownership (TCO). The concept behind TCO is to determine all of the costs involved in securing and operating a networked computing environment. These costs need to be identified in order to be more effective in articulating the effects of proposed budget changes and in determining ways of operating more efficiently.

Initial purchases, training and implementation costs must be amortized or annualized, and ongoing costs must be added in. For example, to do this for a projected one-to-one initiative, initial amortized costs could include devices over four years, yearly

network upgrades for broadband capacity, and initial teacher training over four years. Unbudgeted but real costs include indirect labor which is the hidden cost of time spent by users in training and handling technology problems. Typically these unbudgeted costs are as large as or even larger than the direct costs. CoSN has provided a free **Project Cost Estimator** to help you to identify and summarize all of these costs.

Calculate Anticipated Savings and Revenues. Most projects, even those focused on qualitative benefits such as student achievement, have some cost savings. There may also be some anticipated increase of revenues based on higher attendance, grants or state/federal aid. The **Project Cost Estimator** allows you to identify and apply infrastructure and support savings to the project cost, and the **VOI Project Benefits Worksheet** will help you to identify other dollar savings, user productivity enhancements and increased revenue, and apply them as benefits. Qualitative benefits, such as student achievement or the political value of increasing community support, should be stated in measurable terms as completely as possible.

Measure (Score) "Qualitative" Benefits. Since the business of schools is education and schools operate for the public good, many or most of the benefits of implementing technology cannot be

measured in terms of dollars; we call these *qualitative* benefits. For these to be considered benefits they must directly or indirectly affect the school or district strategic plan - mission, goals and mandates. CoSN has provided a **VOI Project Benefits worksheet** to help you to identify and apply these qualitative benefits with the following:

a. Determine school/district goals and assign a relative importance to each
b. Align anticipated project benefits with the appropriate goals
c. State the anticipated project benefits in measurable terms
d. Agree on the effect of each benefit on applicable goals. A total qualitative benefits score is calculated
e. Enter probability of success; the total qualitative score is multiplied by the probability of success for a risk-weighted benefits score.

The sample chart (*next page*) shows how to assign the relative importance to each measurable goal.

Compare Projects. For each project you now have a cost and a benefits score. A higher score indicates a bigger project benefit; so for each project, Score÷Cost=Bang-for-the-Buck. The project with highest Bang-for-the-Buck provides the most value for the expenditure.

Evaluate Results. Once your project has been implemented, you have an opportunity to objectively review actual costs and benefits versus

Understanding the costs and assessing the value of proposed technology projects is vital if you the technology leader want to have credibility with your school board, CFO, superintendent and community.

the projected costs and benefits. This will allow you to concisely respond to the project skeptics. Since the anticipated costs and benefits were stated in measurable terms, the actual results can be measured:

a. Actual costs versus anticipated costs
b. Actual savings or revenues versus anticipated savings revenue
c. Actual measurable benefits versus anticipated benefits

District Goal	Importance 1 to 10	Project Goals	Effect on District Goals*	Score
Perform in the top 25% of schools in the state	7	Raise control group std math scores from 45 to 60	4	49
		Raise control group std reading scores from 51 to 60	3	
Keep students in school through graduation	5	Increase graduation rate from 87% to 95% (Can't measure for 4 yrs)	9	45
Prepare students for workforce and college success	8	90 % of graduates will have the following 21st century skills…	5	40
Provide equal opportunity for all students	9	Provide each student with a computer and internet access	3	72
		Close the gap on minority std test scores in math from 12 points to 5 points	2	
		Decrease drop-out of minority students from 20% to 5%	2	
		Close the gap on students with disabilities standard test scores in math from 12 points to 5 points	1	
TOTAL PROJECT SCORE				**206**

* Total less than or equal to 10

The Bottom Line

Understanding the costs and assessing the value of proposed technology projects is vital if you the technology leader want to have credibility with your school board, CFO, superintendent and community. Clearly it takes work even with the CoSN's tools. But, the reward in doing this is a concise understanding of the projected benefits and informed decision-making, and the ability to answer your school board chair when asked about the technology investment.

IMPACT

Sustainable Tech, Saving Money

In a cost-sensitive environment, there's nothing that sounds better than doing the right thing and saving money, all in the same action. To that end, "green technology" or sustainable strategies can both lower the carbon impact of your school systems technology and also positively affect your budget. CoSN defines "green computing" around three areas: Purchase/Disposal; Energy Use; and, Reducing Waste. All three are part of a

comprehensive green strategy described in greater detail at www.cosn.org/greencomputing There are growing public concerns over how technology is using energy and thus, creating greenhouse effects and toxic waste by improper disposal. Districts have a responsibility to set a positive example, demonstrating how they are dependable stewards for the future in protecting the environment while conserving funding. These trends are forcing education leaders to address green IT issues as a matter of conscience, budget and political value.

Smart purchase & disposal

Purchasing green technology is a great way to get started. The goal is to buy devices with recycled content, minimal toxins, energy efficient electronics and manufacturing processes. EPEAT (Electronic Product Environmental Assessment Tool) is a system to help purchasers in the public and private sectors evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes.

Given the constant churn of new devices and their relatively short lifespan, having a green strategy to dispose of e-waste is critical for school district technology leaders. Major vendors have programs and trade-ins. Many school districts are now moving to leasing vs. purchasing which places the burden of disposal on the vendor. There are also independent recycling programs that are typically local. Finally, a

number of watchdog agencies, such as e-stewards, list and monitor e-waste disposal organizations. Many schools participate in nonprofit programs to refurbish devices that still have some use and donate those to lower income families to help bridge the digital divide. http://www.cosn.org/GreenComputing

Reducing energy use

While school districts often spend considerable time exploring the cost of end user devices and servers, the much larger long-term cost of technology is ongoing energy use. One of the largest costs of operating a school system after personnel is utility bills. Technology leaders may not focus on this cost since energy bills are paid through ongoing operational facilities budgets whereas device purchases are often thought of as one-time costs. Smart technology leaders understand that lowering energy costs provide savings year after year. When purchasing, it is important to ensure that your devices are energy efficient. Districts can save considerable money and energy in the data center (or server room) and with efficient end user computing. To compute potential savings, CoSN's free energy use calculator is a great place to start and will get the favorable attention of your Finance Office.

Datacenters consume 10 to 100 times more energy per square foot than typical office/classroom space.

If you are keeping old HVAC units alive, it may be prudent to do a TCO (Total Cost of Ownership) assessment on the payback of a more efficient HVAC.

Of the 45% of IT datacenter power requirements, only 30% of that is processor – and the server is actually doing nothing over 80% of the time. Active processing actually uses only 2 to 3 percent of the datacenter energy use. Any means of reducing the number of servers, either by consolidation, virtualization or migrating to cloud services has a multiplied effect on reducing electrical power needs.

Another key opportunity is being more efficient with cooling. Do you need to put on a coat when you walk into your datacenter? Current server technology can run in a much warmer environment than their ancestors. Yet in many cases, we still hang on to the old beliefs about cooling.
Tips for cooling data centers:

- Focus the cooling on processors.
- If you have raised floors, make sure that cables are not blocking air flow.
- Since warm air rises, cool from above.
- In cooler climates, it may pay to pull in outside air.

Modern HVAC and heat exchanger units are more efficient than their predecessors. If you are keeping old HVAC units alive, it may be prudent to do an ROI (Return on Investment) assessment on the payback of a more efficient HVAC. The same is true for assessing investing in a more efficient Power Supply. Server consolidation or virtualization has been a hot trend for school districts over the past several years. If you haven't done this already, you should explore

how some modest upfront investments will generate long-term and ongoing savings. As a technology leader, this will make you new friends in the finance office. (see later section on *Making Your CFO Your BFF*).

Virtualization can also be taken to the desktop (Virtual Desktop Infrastructure or VDI), where the user has a keyboard, display and mouse, while the actual processing takes place on a server (thin client) or through a box to a single PC. These thin client devices typically use about 20% of the energy used by a full PC. Virtualization in its many forms is further defined in CoSN's *EdTechNext* report on *Computing Performance Virtualization*, available free for CoSN members. http://www.cosn.org/knowledge-center

Energy waste

For well over a decade, CoSN has worked on calculating the TCO of technology (see *Forget ROI, the Future of Technology Investment Is All About Value* above). We have found that one of the biggest areas for school savings and green technology strategies is around printers/printing. "Cheap" ink jet printers may have a low upfront cost but are considerably more expensive to run than centralized network printers. With the move to more digital content, staff should be encouraged to minimize overall printing. This is a strategy that is both good for the environment and for your bottom line.

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TIP: Set the default of your printers to 'duplex' (double-sided printing) which reduces paper usage.

There are also many network tools that manage and shut down end user computers (see Sidebar #3), as well as control building HVAC, video conferencing and creating more paperless operations.

Further methods

Reducing travel through electronic means is another energy and time saving approach to reducing resource consumption. While a virtual field trip may not be as good as actually being there, students can "go" anywhere in the world with video conferencing and video streaming. Think also of the amount of gas and time required for students and their parents to drive to school to register for classes. Why not do this online? Also, with proper helpdesk and network-based tools, technician travel and time can be reduced significantly through central problem determination and resolution.

Gain Recognition for Being Green

Why not be recognized for leading green computing and district conservation measures? CoSN and Electronic Product Environmental Assessment Tool (EPEAT) developed a green computing certification program. If you feel comfortable with implementing the tips for purchase/disposal, reducing energy usage, and using computers to reduce waste, then certification is really straight forward. CoSN and

Smart Education Networks by Design

Advances in technology make it possible for students to experience personalized learning anytime and anywhere. But this can only take place if our school systems have well designed networks that support an increasing number of devices. What are the ideal ways to replace or update existing networks, develop and support the new generation of network infrastructure, and provide reliable and secure access? The Smart Education Networks by Design (SEND) Initiative provides resources and guidance surrounding these issues. CoSN is grateful for the generous support of Qualcomm Technologies, Inc., Cisco, Comcast, ENA, Ipswitch and Presidio. See more at: **http://www.cosn.org/smartednetworks**

EPEAT will provide a certificate and green certification logos for your website and other communications in recognition for your efforts. Join other leading school districts that are going green at www.cosn.org/greencomputing. Evaluate systems and areas of support; develop use of technology business cases, each one leading to one of five courses of action recommended by technology research firm Gartner:

- Continue as you have been.
- Refocus your technology resources on particular areas at the expense of others.

■ Consolidate the number of business units supporting or offering technology services or support where there is redundancy.
■ Initiate best practices, even if they require an upfront investment.
■ Eliminate services, solutions or other interventions that are of dubious value.

This process requires involvement on the part of stakeholders living with the processes being evaluated, and whose support for action is required.

GETTING STARTED BEING GREEN

7 Things to Remember When Purchasing

1. Check vendor "Green-ness" through EPEAT (Electronic Product Environmental Assessment Tool)
2. Buy Energy Star only (ability to standby and hibernate)
3. Verify for Minimal toxic content at The Center for Clean Products and Clean Technologies
4. Remember that LCD displays use 30 watts vs. CRT that use 80 watts
5. Only purchase printers with power saving & duplex options
6. Invest in fewer and larger storage capacity
7. Minimize packaging & documentation copies for bulk purchases

3 Things to Do For Disposal

1. Investigate and set up responsible vendor or independent disposal program
2. Donate good working computers and related equipment
3. Don't become an e-waste site for someone else

4 Tips to Turn It Off for Big $ Impact
1. Remotely turn off power supply and power strips
2. Encourage users to enable and use the existing power-management capabilities of their PCs
3. Use management software that deploys logon scripts that control power-management settings
4. Implement a computer power-management policy locally or across the school LAN

PEOPLE

Making the CFO Your BFF

We know the importance of framing technology spending discussions around demonstrating the value of investment, and the cost-savings involved in choosing sustainable technology. Now, let's address a common frustration that so many CTOs have: *What is it that enables some school districts to always find the financial resources for technology, while other (perhaps most) districts never truly get beyond vision statements?* Increasingly, the evidence points to the importance of building a strong partnership between the Chief Financial Officer (CFO) and Chief Technology Officer (CTO). That partnership seems to be the "secret sauce" that can go a long way to enable a digital transformation. In today's language, how do you make your CFO Your Best Friend Forever (BFF)?

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This challenge is not education sector-specific. A search of technology publications across all industries quickly provides an avalanche of evidence that the lack of a line between the CFO and CTO is a major problem in other sectors as well. (See sidebar) Typical complaints from the financial side of the house include:

- Inability to align technology to the mission of the organization (which in education must be learning).
- Failure to show the value of investments in technology.
- Lack of a common language and over reliance on techno-geek when communicating about technology.

Similarly, there are grumblings from frustrated CTOs who can't get the resources to implement their visions because the CFO is implementing across-the-board cuts or doesn't see value of new technology investments.

We could go on with a litany of other challenges and complaints from both perspectives, but let's focus on what some innovative school district CTOs are doing to change that situation. Key leaders in the Consortium for School Networking (CoSN), as well as the Information Systems Committee of ASBO International, the Association of School Business Officials, were recently asked a simple question: *What works in building an effective CFO/CTO partnership?*

Building trust

Ed Zaiontz, a recently retired CTO of Round Rock ISD near Austin, Texas, actually reported to the CFO. In his situation, building a personal relationship was absolutely key, *"I went to lunch with the CFO on a regular basis - once every 2 weeks or so. This gave me an opportunity to make sure he/she was up to speed on technology initiatives,"* Zaiontz writes.

Ray Eernisse, Chief Information Officer at Francis Howell R-III School District, MO also stresses the personal, as well as professional connections. He writes, *"The great relationship I have with my CFO starts by having dinner every month with our partners/spouses. On the professional side, I attend his monthly meeting with his department leaders and provide updates on IT projects involving Finance. We share articles of interest in both of our areas of responsibility. When we speak to groups we each reference the others work. For example, if he is speaking about ways to use resources more efficiently, he references my work on managed print services. This shows mutual respect and interdependency."*

Vince Humes, Director of Technology Solutions and Services at the Northwest Tri-County Intermediate Unit, PA reinforces this need for building trust but

Many businesses will offer incentives to finalize purchases before the end of a fiscal quarter. Alert the purchasing department that you are working on a 'deal'.

cautions, *"I wish I could say there is one definitive thing that a CTO can do to make the relationship work with the CFO. The reality is it takes concentration at every turn to make it successful. In my situation it has worked because we are completely honest with each other on financial matters."*

Demonstrating value of IT

Rich Kaestner, CoSN's expert on Smart IT points out, *"One key to a powerful partnership with your finance department is changing the view of IT from cost center to 'productivity center'. This is absolutely essential during tight budgetary times to move from slashing technology, to investing in technology."*

A great way to help the CTO do this is by using CoSN's free Project Cost Estimator that is part of our Value of Investment project. The VOI initiative helps school leaders better understand the costs and benefits of proposed technology related projects.

Humes says that his CFO has embraced his use of CoSN's TCO and VOI models and she identifies potential solutions when funding issues arise. In turn, Humes says that Technology Solutions focuses on keeping the financial systems running picture perfect.

Beyond just the CFO/CIO

Zaiontz also advises that while the CFO/CTO relationship is essential, in a large district it's also important to have a very good working relationship with many other business officials. On a day to day basis the CTO may need to work with the budget department, payroll department, etc.

"Many businesses will offer incentives to finalize purchases before the end of a fiscal quarter. Alerting the purchasing department I am working on a "deal" and we need their help to expedite the purchase order to meet the deadline", advises Zaiontz.

Susan K. Givens, CFO at Masconomet Regional School District, MA, reminds us that in many small school districts, like hers, the IT director (technical) and the Technology Coordinator (teaching & learning) report to finance. While that increases the collaboration, it also raises additional challenges at the strategic level.

Governance challenges

For this CFO/CTO partnership to really work, the CTO needs to be a peer colleague. Being part of the school district cabinet level is essential to realize technology's potential to personalize learning. Ironically, this is similar to the evolution of school finance. Just a few decades ago, every school district had bookkeepers and accountants, but few had chief financial officers. Eventually, superintendents and school boards realized that finance is a strategic initiative and they needed personnel with those financial leadership skills. We are now at a similar point with education technology.

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Unfortunately, many districts are not yet viewing technology as a strategic asset and we have an enormous IT governance challenge. According to US Department of Education statistics, only 51% of districts reported employing a full-time individual responsible for educational technology leadership. Even in large districts of 10,000 or more students, nearly 20% do not have a full-time technology leader. In medium sized districts, one third of the schools do not have such a full-time position. The statistics for this position by poverty concentration are very troubling—in wealthy districts with less than 10% free and reduced lunch, 60% have a full-time technology leader. That number drops to 47% in districts with more than 20% free and reduced lunch. These statistics are alarming considering the universal role technology plays in our society. Our nation's schools must ensure that they have technology leaders who are able to align how students learn today with what will be expected of them in the future they'll inherit.

Bottom-line: For technology leaders that want to have the resources to implement transformational technology, make your CFO your BFF.

7 Tips to make your CFO your BFF

1. Take your CFO on a tour of classrooms powerfully using technology so they can see the impact of technology on learning.
2. Go to lunch with your CFO (or dinner or golfing)… or just talk, and do it regularly.
3. Understand how your CFO views technology. It is unlikely he/she has the same depth of experience or views as the CTO.
4. Make cross team connections between IT and Finance departments, especially with newer r members of the finance team who may have more familiarity with technology.
5. Help your CFO understand how emerging technologies and trends like "Bring Your Own Device" and new mobile technologies can personalize leaning and extend learning beyond the classroom. Encourage them to read the annual *NMC Horizon K-12 report* that identifies key emerging technologies for learning.
6. Don't start technology initiatives without understanding the total cost of ownership. See CoSN's *Taking Total Cost of Ownership to the Classroom*. www.cosn.org/tco
7. Frame the conversation around the *Value of Investment*

For more information

Setting up a CFO Trust Fund provides a great overview from the higher education publication Campus Technology. See check list of what the CIO needs from the CFO, and vice versa.

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If you don't know about the ITIL, it's the most widely-accepted approach to IT service management in the world.

[Building a Successful CIO-CFO Relationship: 7 Tips for CIOs](#)

[Getting the CFO-CIO Relationship "Right"](#), CFO Journal from Wall Street Journal by Deloitte

[The Boss and You: A Survival Guide](#), CIO Magazine provides a list of articles on CIO/CFO relationships

PROCESS
5 Tips for SmartIT Right Now

Demonstrating the value of investment to those who need to see it, making sustainable choices resulting in cost savings, and forging relationships with the financial leadership in your district are all excellent ways forward. But how do you take what sounds like great advice, and begin to put that theory into practice? How does all of this really translate into action? In conclusion, we asked some smart leaders — technology-savvy district technology leaders and CTOs — for their best ideas to get off to a great start.

1. Improve IT efficiency and effectiveness
Efficiency and effectiveness are where the 'rubber meets the road'. Focus on it and you can

demonstrate value to your superintendent and improve the bottom-line.

Tony Inglese, Certified Education Technology Leader (CETL), is CTO in the Batavia, IL school district set out to:

- Cut severe or major incidents and problems by 50%
- Increase on-time resolution to 82% (up 12%)
- Reduce the number of support tickets submitted annually by nearly 20%
- Increase customer satisfaction rating to 97% (up 2%)

He accomplished this in two years by tapping into the Information Technology Infrastructure Library (ITIL) and implementing their change management processes for continuous improvement.

ITIL is the most widely-accepted approach to IT service management in the world. ITIL provides a cohesive set of best practice, drawn from the public and private sectors internationally. Interestingly, ITIL was started as an actual library by the United Kingdom's government in the 1980's and was built around a process-model based view of controlling and managing operations credited to W. Edwards Deming and his plan-do-check-act (PDCA) cycle.

Another approach is to use Key Performance Indicators (KPI) defined as a set of quantifiable measures that an organization uses to gauge or compare performance in terms of meeting their strategic and operational goals. KPIs may be

different in every organization – and organizational KPIs may be different than department KPIs. Steve Young of Judson ISD in San Antonio developed an in house metrics tracking system to try to sharpen his teams understanding and attention to data in IT operations. He created a Key Performance Indicator (KPI) Dashboard. While the purpose of this effort was more about data awareness, the effort for this 2014 school year has saved over $96,000 at the campus level and $54,000 at the department level as of early October.

Before instituting the KPI initiative, these were typical conversations with IT staff:

Q: How many guests are we seeing on the wireless networks at the high schools?
A: I don't know – we can't identify this easily

Q: What is the trend in our help desk tickets and our ability to service help desk tickets?
A: There are a lot open……

Young says the purpose of the effort was to create an easy to understand visual representation of metrics and KPIs and make it very simple for staff to update data from their silos. The idea is to integrate and automate data analysis from a few key systems and share this data publicly. He didn't want to make IT staff mini-data clerks or data analysts, but rather to spark an interest and conversations about the data.

The KPI ColdFusion web application allows employees to quickly enter in metrics from their silo where data is displayed in a rotating slide format on web page. Most data is displayed historically for identifying trends or patterns. While IT staff can pull this up on their desktop at any time, the main way to increase visibility was to place a large publicly rotating digital sign so that staff see it several times a day, and other district staff and vendors see it when they visit the IT department.

See a demo of the Judson ISD KPI Dashboard
http://www.judsonisd.org/apps/kpi/index.cfm

2. Don't Forget About Security
If you have been reading about major one-to-one deployments, one theme keeps coming up: security. Think about the security breach that Los Angeles USD experienced when hundreds of students hacked their new iPad deployment. It got national news coverage – and not the kind you want. Two key strategies are needed to avoid this situation.

First, you need a solid plan to address network security. A great place to start is CoSN's Cyber Security for the Digital District http://www.cosn.org/cybersecurity resources which include a self-assessment checklist, cyber security rubric and security action plan or planning template. Resources focus on four critical infrastructure

components: management, technology, business continuity and stakeholder/end-user.

Second, when something bad happens (and it will), remember to take a deep breath and think "teachable moment". If you have done the first strategy, you can show your administration and the public that you have done what you can to mitigate risk. Frankly even high security organizations have the same problem– just ask the National Security Agency. Kids have a lot of time and energy to devote to hacking systems that adults tell them they can't have access — which is another reason for a solid Acceptable Use Policy — or better, a Responsible Use Policy outlining student and faculty responsibilities when on the school network. http://cosn.org/aupguide Make this a teachable moment. In fact, some districts rehabilitate student hackers by using them to help identify security breaches in the system. When hysteria hits, keep your cool and use the moment.

3. It's about bandwidth and network design
CoSN recent national survey of nearly 470 school districts on E-rate and Bandwidth www.cosn.org/eratesurvey found that 99% of districts say they will need additional Internet bandwidth and connectivity in the next 36 months.
More troubling, 43% of the school districts indicated than *none* of their schools can meet the goal of 100Mbps of internet access per 1,000 students

today. This goal has been advocated by the State Education Technology Directors Association1 (SETDA), the LEAD Commission Blueprint2 and adopted by President Obama's ConnectED vision. Only one quarter of districts responded that 100% of their schools meeting the goal.

All CTOs need to keep a close eye on bandwidth needs to ensure that a lagging network isn't getting in the way of learning.

The CoSN survey also showed that most school networks are not able to support broadband due to problems with wireless access points, internal connections/wiring, and the backbone in the school LAN.

57% of districts do not believe their school's wireless networks have the capacity to currently handle a 1:1 deployment. There also is a geographic digital divide with lower wireless classroom access available in rural schools. Only 51% of rural elementary schools have wireless access to 100% of their classrooms and 8% have no wireless access. While suburban and urban schools have slightly better coverage for wireless access no district reports more than 71% of their schools with all the classrooms having wireless access. Regardless of geography, almost 1/3 of the schools reported lacking wireless access in some classrooms.

Half of school buildings have, in part, older and slower wiring (Cat5 and Cat3) that will not carry data at broadband speeds.

26% of districts are using slower copper or 2.3% wireless backbones in their school LAN. The backbone in a school LAN provides the high speed connection from the point that broadband enters the building to connecting points throughout the building. Like a major vein or artery to the heart, the backbone must be well designed to be able to collect and distribute data at high speeds or the entire system fails.

It is time for every district technology leader to think holistically about their school network -- from the big pipe to the school door, to the internal connections, from the Wi-Fi to the end user device.

4. Defining beneficiaries for new services & seeking their support

Is your district implementing or considering a "Bring Your Own" and/or a district-provided one-to-one initiative? Are you feeling the pressure for infrastructure upgrades to enable high stakes online assessments? Clearly, there is no lack of demand for funding new IT projects. Indeed, according to the 2014 CoSN K-12 IT Leadership Survey, one of the top two challenges facing school system CTOs is budget constraints/lack of resources.

If your district views IT as a cost center, then IT is charged with figuring how to allocate the IT budget to cover these projects. However, IT isn't an entity unto itself; in fact, IT is a service organization to others in the district. IT provides equipment, software, implementation and support to help other departments be more efficient and effective, and to enhance student learning and community relationships.

TIP: For 2014, take a look at your project list and ask, "Who is the major beneficiary of each project?" If the project is worth doing, the department benefiting should be willing to include in their budget to get it done. In the business world they formalize IT as a service process with a charge-back system, as do some K-12 education service agencies. While a charge-back system may be further than your district wants to go, seeking budget help from those who will benefit may be the partnership needed to get things done.

5. Fine-tune your skills

Finally, the greatest thing that holds back school systems from smart IT is the lack of human technology leadership. You and your team are the greatest IT assets. You can develop the skills you need and connect with your peers by using CoSN's Framework of Essential Skills of the K-12 CTO (www.cosn.org/Framework). You can also make it a personal goal to become a Certified Education Technology Leader (CETL)™, the aspirational national certification that demonstrates to your

staff, superintendent, and other stakeholders that you have mastered the knowledge and skills needed to define the vision for and successfully build 21st century learning environments in your school district (www.cosn.org/Certification).

As John Dewey said, "*If we teach today's students as we did yesterday's, we are robbing them of tomorrow.*" Let's use the coming weeks and months to get smarter about IT.

CoSN and T.H.E. Journal have provided a series of articles on Smart IT that are full of other great ideas:

Making the CFO Your BFF (March 2013)

Forget ROI, Here's the 5-Step Tech Investment Plan Districts Should Be Using (June 2013)

6 Tips for Smart IT in 2014 (December 2013)

How Green Tech Can Save You Green (November 2013)

7 CTOs Discuss 'The Incredible Shrinking Budget' (March 2013)

Additional references include:

CoSN 2014 K-12 Leadership Survey

SETDA, The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs (2012)

LEAD's National Education Technology Initiative: A Five-Point Plan (2013)

ConnectED: President Obama's Plan for Connecting All Schools to the Digital Age (2013)

SmartIT Checklist:

- ☐ *Determine cost.*
- ☐ *Calculate anticipated savings and revenues.*
- ☐ *Measure (score) "qualitative" benefits.*
- ☐ *Compare projects.*
- ☐ *Evaluate results.*
- ☐ *Consider sustainable strategies*
- ☐ *Make the CFO Your BFF.*
- ☐ *Improve IT efficiency and effectiveness.*
- ☐ *Include security.*
- ☐ *Understand bandwidth needs & network design.*
- ☐ *Define beneficiaries for new services & seek their support.*
- ☐ *Fine-tune your skills.*

References and Resources

1. "E-Rate and Broadband Survey 2013." CoSN (Consortium for School Networking), October, 2013.

2. "The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs." State Educational Technology Directors Association, May, 2012.

3. "Privacy and Children's Data: An Overview of the Children's Online Privacy Act and the Family Educational Rights and Privacy Act." Berkman Center for Internet & Society at Harvard University, November, 2013.

Acknowledgements

SmartIT
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