Issue Brief

EMPIRE CENTER

Rebooting 'Smart Schools'

The need to debug New York's 2014 bond act

by Ken Girardin and Noah Duell

In November 2014, New York voters approved the Smart Schools Bond Act, which authorizes up to $2 billion in state general obligation borrowing to finance school district purchases of computers and other classroom technology; improve schools' high-speed and wireless internet links; install "high-tech smart security features" in school buildings; and build new classrooms for pre-kindergarten programs and to replace temporary classroom structures.

Based on our review of the bond act's implementation so far, the Smart Schools grant-making process has been sluggish and haphazard, reflecting the program's overly broad standards and goals. For example:

- In addition to the interactive whiteboards, computer servers, and laptop, tablet and desktop computers specifically authorized by the bond act, the first round of approved Smart Schools technology purchases has included a wide range of other equipment, such as printers, cameras and video camcorders—as well as furniture and, in at least one district, sport watches.
- School districts aren't necessarily required to submit full "sustainability" plans for their expensive technology investments—only to check a box on a form certifying that they have such plans. The same check-the-box exercise is required for school districts to demonstrate they will properly account for technology purchases and inventories.
- Despite guidelines promising quarterly meetings, the state's Smart Schools oversight panel met just six times in the 33 months following the bond vote. Out of the $2 billion total authorization, about $322 million (16 percent) has been committed, of which $35 million had been spent through fiscal 2017. The first Smart Schools bonds aren't scheduled for issuance until March 2018.

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The slow rollout is actually good news—because it means state officials still have the opportunity to debug and reboot the Smart Schools program.

While the broad voter-approved borrowing and spending authorization (see below) has the force of law, the implementing language and guidelines can and should be revisited.

Before any more Smart Schools money is committed, borrowed, or spent on classroom technology, state officials need to thoroughly assess how New York schools are already using such technology—and whether it is actually helping children learn better.

The Board of Regents and the Legislature should identify those tech investments most likely to improve educational outcomes. The findings should be translated into more rigorous Smart School application and funding guidelines—giving taxpayers more assurance that the funds will be spent wisely.

Unfortunately, it's too late to fix the fundamental flaw in the Smart Schools program: the bond act effectively will put New Yorkers more deeply in debt to pay for things their current tax dollars already had been funding out of the state's annual operating budget—including computers likely to be obsolete before the bonds are paid off.

The Birth of a Bond Act

"[L]et's invest in the future, let's reimagine our classrooms for the next generation, let's have the smartest classrooms in the nation because our children deserve nothing less than the best.

"Let's go to the people of this state, let's be bold, let's go to them in November with a bond referendum with a smart schools initiative. Let's invest $2 billion in providing the technology of tomorrow today to bring our classrooms up to speed.

"What this new technology means [is] that every child learns at his or her own pace. The students get the skills they need to succeed within the 21st century economy, they have access to advanced courses, parents and teachers can communicate and teachers can access the assistance and training that they need.

"It is not going to be about growing the bureaucracy. It's going to be about helping students. It is going to be used for equipment such as laptops, desktops, tablets, infrastructure upgrades and high-speed broadband.

"There will be strict eligibility for the use of funds and each district must submit a technology plan for approval by the state."

—Governor Andrew Cuomo
State of the State Address, Jan. 9, 2014

1. BACKGROUND

School technology funding had been a low priority for the state Board of Regents and other education groups before the bond act proposal first appeared—out of the blue—in Governor Andrew Cuomo's January 2014 State of the State address.

Just a few weeks earlier, the state Board of Regents had submitted its annual school aid recommendations to the governor and the Legislature. As of 2013-14, New York's total elementary and secondary school aid budget of about $21 billion included $37 million in "hardware and technology aid," which school districts can use to finance the lease or purchase of computer equipment. In requesting a total aid hike of $1.3 billion (6.2 percent), the Regents sought just $1 million more in hardware and technology aid, plus a new allocation of $50 million for "enhanced technology and textbook aid," which was linked primarily to the cost of implementing new Common Core tests.

Two weeks after his State of the State address, Cuomo included the Smart Schools Bond Act in his 2014-15 Executive Budget submission to the Legislature (see box on page 2). Still, the proposal was barely mentioned in testimony by the state education commissioner and the leaders of various education advocacy groups.

More than technology

Between the bond act's unveiling by Cuomo in January and its final adoption by the Legislature as part of the state budget in March, the scope of programs eligible for funding expanded significantly. While his State of the State remarks had focused solely on classroom technology, budget legislation submitted by Cuomo weeks later also called for using Smart Schools bond money to build pre-kindergarten classrooms.[1]

The final budget bill significantly expanded the potential use of bond act funds to include replacement of "classroom trailers with permanent instructional space"—a clause designed mainly to address a longstanding issue in New York City, where more than 7,000 students were being taught in temporary trailers as of the spring of 2014.[2] The installation of "high-tech security features in school buildings and on school campuses" was also added to the original list of approved uses.

All three of the major categories eligible for funding under the final version of the bond act—computer technology, building construction and security improvements—were already being funded out of the state's annual operating budget. As noted, school computer purchases were supported through the hardware and technology category of the aid formula. School building aid alone came to $2.7 billion as of 2013-14—and under the governor's 2013 gun control initiative, the SAFE Act, schools also became eligible for significantly enhanced building aid to finance security improvements.

Once the bond act had been placed on the ballot, Cuomo appointed a Smart Schools Commission "charged with advising the State on how to best invest the Governor's proposed $2 billion."[3] The three commission members chosen by the governor included Eric Schmidt, executive chairman and former CEO of Google—which, along with Apple, clearly would be one of the two biggest corporate beneficiaries of a massive added investment in school technology in New York.

Consumer Watchdog, a California-based non-profit advocacy group, labeled Schmidt's appointment a "conflict of interest" and filed a (subsequently dismissed) complaint over the matter with the state's Joint Commission on Public Ethics.[4] After a series of public symposiums and other events, which served mainly to promote passage of the bond act, the Commission published a 53-page report[5] less than a week before votes would be cast.

The bond proposition received only lukewarm support from the Board of Regents,[6] the New York State School Boards Association and ma-

Is more classroom tech a 'smart' investment?

The primary purpose of New York's Smart Schools Bond Act was "to provide access to classroom technology and high-speed internet connectivity to equalize opportunities for children to learn." But the bond act's underlying premise—that simply providing better access to classroom technology and the internet will actually boost learning outcomes—has been subject to considerable debate among education researchers. Consider:

- Computer-assisted reading and math instruction programs have little or no effect on learning, according to two large-scale studies conducted within the past decade under the of the U.S. Education Department's research institute.[a]
- A 2012 meta-analysis of results from 84 studies found that technology had yielded "a positive, though small, effect." The same analysis found that "the types of supplementary computer-assisted instruction programs that have dominated the classroom use of educational technology in the past few decades may not be producing educationally meaningful effects in reading for K-12 students," and "the higher the methodological quality of the studies [focused on computer-assisted programs], the lower the effect size."[b]
- A 2015 Organization for Economic Cooperation and Development (OECD) study concluded: "Most countries that invested heavily in education-related IT equipment did not witness an appreciable improvement in student achievement over the past 10 years."[c] The OECD study included the startling finding that "students who use computers moderately at school tend to have somewhat better learning outcomes … [B]*ut students who use computers very frequently at school do much worse, even after accounting for social background and student demographics."* [emphasis added]
- A 2016 study of introductory classes at West Point, conducted by researchers at MIT, found test scores were significantly higher among students in classrooms and lecture halls where computer use was *prohibited*.[d] While this study was focused on a college environment, it has obvious potential implications for secondary school classrooms as well.

To the extent that there is any strong academic consensus on classroom technology, it's that hardware acquisition alone is not an educational panacea—or as the 2012 meta-analysis put it, "there is no magic in the machine."[e]

Researchers agree the effectiveness of computer-assisted programs depends ultimately on software design as integrated with overall curricula and learning plans—and also, crucially, professional development of teachers who must use the technology. Yet, in keeping with Governor Cuomo's original rhetoric and the marketing campaign surrounding the bond issue, the Smart Schools Bond Act is focused primarily on acquisition of "technology"—as if acquiring hardware and high-speed internet access is enough by itself to raise achievement levels in reading or math.

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[a] Campuzano, L., Dynarski, M., Agodini, R., & Rall, K. (2009*) Effectiveness of reading and mathematics software products: Findings from two student cohorts.* Washington, DC: Institute of Education Sciences, and Dynarski, M., Agodini, R., Heaviside, S. N., Carey, N., Campuzano, L., Means, B., et al. (2007), *Effectiveness of Reading and Mathematics Software Products: Findings from the First Student Cohort.* Washington, DC: Institute of Education Sciences

[b] Cheung, A., & Slavin, R., (2012) The Effectiveness of Educational Technology Applications for Enhancing Reading Achievement in K-12 Classrooms: A Meta-Analysis, Johns Hopkins University.

[c] OECD (2015), Students, Computers and Learning: Making the Connection, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264239555-en.

[d] Carter, S., Greenberg, K., & Walker, M., (2016) *The Impact of Computer Usage on Academic Performance: Evidence from a Randomized Trial at the United States Military Academy*, MIT Department of Economics, School Efectiveness & Inequality Initiative, Workng Paper #2016.02.

[e] Ibid., Cheung & Slavin.

jor public education groups.[7] Stronger backing came from the New York State United Teachers union, which committed $200,000 to its own push for support of the bond proposal.[8] In conjunction with Cuomo's re-election campaign, the New York State Democratic Committee sponsored a statewide voter mailing supporting the bond act, which was also highlighted in one of the governor's own campaign commercials.[9]

There was no organized opposition to the bond act—although questions and concerns cited by the Empire Center, as well as the Citizens Budget Commission, were echoed in more than a dozen newspaper editorials urging a "no" vote. Noting the lack of demonstrated need for new funding already covered by existing operating aid categories, the Empire Center's analysis also emphasized these points:

Smart schools funding will boost recurring operating costs. Computer equipment purchased with bond money requires full-time technical support—either from additional staff specialists or contractors—as well as ongoing teacher training. Schools that choose to build pre-K classrooms must hire staff for these programs. New high-tech security needs to be monitored and maintained by new security personnel. These additional costs require local taxes to fund increased school budgets.

Classroom technology purchased with bond funds will be outdated or unusable before the debt is paid off. New York's state constitution prohibits the issuance of debt "for a period longer than that of the probable life of the work or purpose for which the debt is to be contracted, or in the alternative, the weighted average period of probable life of the works or purposes for which such indebtedness is to be contracted."[10] The Smart Schools law assigns probable life of eight years to classroom technology and security improvements; 20 years to "community connectivity" projects; and 30 years to building projects, and allows the duration of Smart Schools bonds to be set as a weighted average of those categories.

Eight years is the same depreciation period assigned by the state Office of General Services to

Proposal 3 of 2014

The SMART SCHOOLS BOND ACT OF 2014, as set forth in section one of part B of chapter 56 of the laws of 2014, authorizes the sale of state bonds of up to two billion dollars ($2,000,000,000) to provide access to classroom technology and high-speed internet connectivity to equalize opportunities for children to learn, to add classroom space to expand high-quality pre-kindergarten programs, to replace classroom trailers with permanent instructional space, and to install high-tech smart security features in schools. Shall the SMART SCHOOLS BOND ACT OF 2014 be approved?

Final Totals and Share of Ballots Cast:
Yes — 1,921,054 (62%)
No — 1,180,581 (38%)

Blank/void ballots — 823,355

laptop computers and other "data processing" equipment for purposes of valuing government assets. However, it is beyond the more realistic five-year depreciation schedule that the federal Internal Revenue Service allows private taxpayers to use in writing off "computer and peripheral" purchases.[11]

The practical experience of most computer users would suggest that, for laptops or tablets assigned to elementary and secondary school students, even five years would be a stretch. The bottom line is that much if not most of the technology purchased with Smart Schools bond money will be obsolete or worn out long before the bonds are paid off.

If such concerns ever crossed the minds of voters, they didn't prevent the bond act from winning approval by a 62-to-38 percent margin in the November 2014 general election, as shown on page 5. Slightly more than one-fifth of all voters failed to mark any preference on the bond issue, which appeared on the back of paper ballots.

2. HAPHAZARD IMPLEMENTATION

State law approved as part of the 2014-15 budget legislation established the implementation process for the Smart Schools Bond Act.[12] To receive funding, school districts are required to submit Smart Schools Investment Plans (SSIPs) for approval by the Smart Schools Review Board. (See the Appendix for a summary of other guidelines.)

Chaired by the state budget director, the panel includes the state education commissioner and the chancellor of the State University of New York (SUNY), whose formal role in elementary and secondary education is otherwise limited to authorizing charter schools.

The investment plans must describe the expenditures to be supported by Smart Schools funding. They are to be submitted online by school districts via the New York State Education Department's online Business Portal.[13] Education Department staff are meant to review the plans prior to submitting them for consideration by the Smart Schools Review Board.

https://www.greatneck.k12.ny.us/GNPS/Pages/technology/LVSMARTTV.JPG

In April 2015, the State Education Department posted an implementation guidance document stating that the Business Portal Application was "under development and will launch on or before June 15, 2015."[14] But the actual launch did not occur until August 14, 2015, nine months after bond act passage.[15] The Smart Schools Review Board did not approve the first set of Smart School Investment Plans until May 2016 – a year and a half after bond act passage.

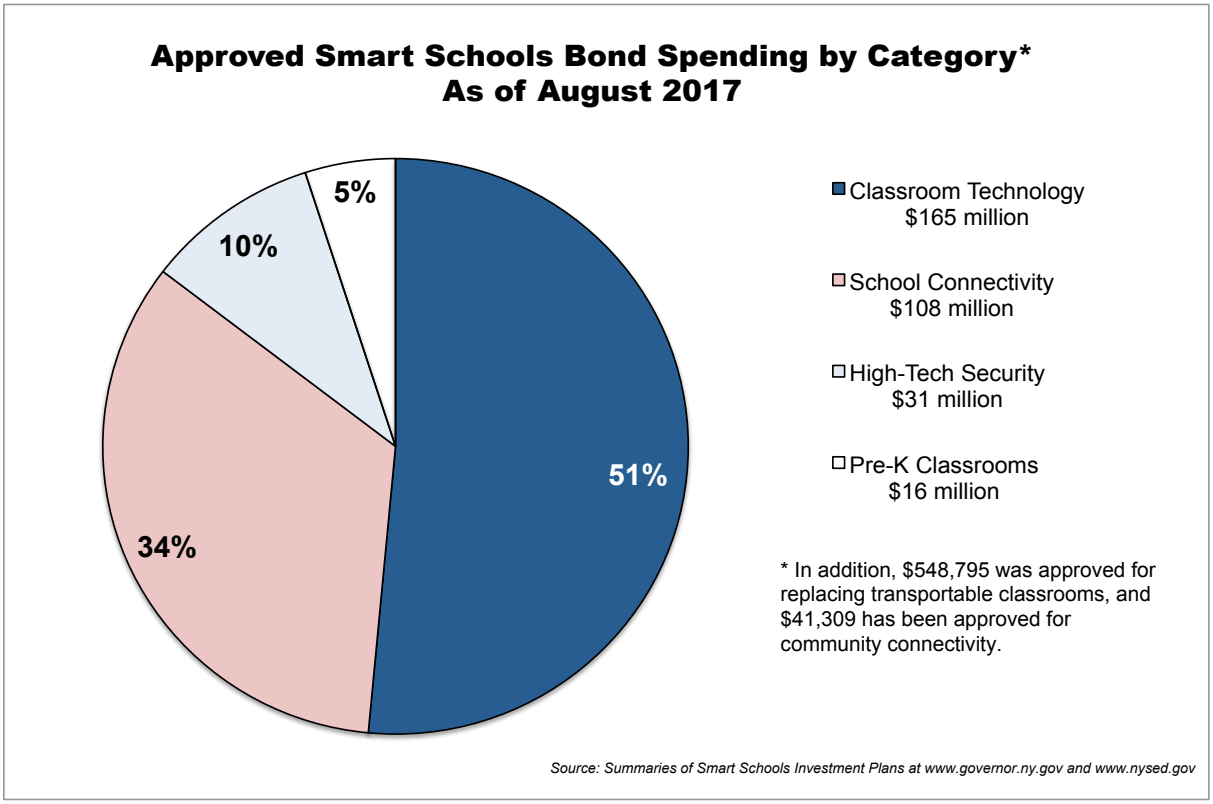
The state Education Department's implementation guidance documents also indicated that the Review Board would "meet quarterly to review and approve Smart Schools Investment Plans."[16] To date, though, the Board has met six times—monthly from May to July 2016, once in January 2017, and twice in July 2017.

An average of five-and-a-half weeks elapsed between the first three meetings. A period of five-and-a-half *months* elapsed between the third and fourth meetings and six months elapsed between the fourth and fifth meetings. Only 10 days passed between the fifth and sixth meeting (which had a two-item agenda).

The pattern of irregular scheduling and lengthy delays have created additional hurdles to efficient administration of the program. The Schalmont School District, for example, waited so long for approval that by the time its plan was reviewed, the prices of the laptops had changed and the district needed to submit a revised plan.[17]

Through the July 24, 2017, meeting, the Board had approved 326 plans from 281 school districts—fewer than half of the 675 eligible districts in the state. Another 13 plans were approved for special education providers who are also eligible to use Smart Schools funding.The funding for the plans approved by the Board totals $321,895,123—about 16 percent of the $2 billion Smart Schools Bond Act.

As shown below, just over half the approved plans involve the acquisition of classroom technology, which by law includes but is *not* limited to "interactive whiteboards, computer servers, and desktop, laptop and tablet computers."These plans call for purchasing tens of thousands of desktop, laptop and tablet com-



Tech gone wrong: Good examples of bad examples

The dubious track record of binge spending on school technology was among the concerns voiced by the Empire Center and others prior to the November 2014 referendum.

The growing list of cautionary examples include the following:

New York City— Pre-bond act spending on computer technology by the New York City Department of Education drew the attention of City Comptroller Scott M. Stringer. A December 2014 audit of ten NYC DOE locations found "more than 1,800 computers were unaccounted for or missing entirely and nearly 400 laptops and tablets were found unpacked and unused."[a] In July 2017, Comptroller Stringer's follow-up investigation concluded that NYC DOE "has not improved its inventory controls over computer hardware." A sampling of nine sites found 35 percent of approximately 14,000 machines were not properly accounted for.[b]

Los Angeles, CA—In August 2015, the L.A. Unified School District abruptly suspended its plans to put an iPad in the hands of every student by 2016, after hardware went missing and students were found to be accessing inappropriate online content. [c]

Hoboken, NJ—In 2014, Hoboken schools abandoned a three-year-old, federally funded program offering laptops to all high school students after encountering high costs for educational and security software, as well as ongoing maintenance headaches. A systems engineer recalled: "We bought laptops that had reinforced hard-shell cases so that we could try to offset some of the damage these kids were going to do. I was pretty impressed with some of the damage they did anyway. Some of the laptops would come back to us completely destroyed."[d]

Fort Bend, TX—The Fort Bend independent school district shelved a $16 million iPad initiative in 2013.[e] A subsequent audit found the district's technology push had "unrealistic goals, insufficient planning and project management, lack of consistency with existing [district] curriculum development standards, and poor contract management practices."[f]

Guilford, NC—North Carolina's third largest school system, based on Greensboro, pulled the plug on its computer tablet initiative not long after it began. The district spent $3.2 million in federal grant money to purchase 15,000 tablets, but after only a week, the district had to withdraw 300 broken or otherwise defective tablets. By the next week, the district reported that 1,500 tablets had broken screens in addition to 175 faulty chargers. After a charger melted, the district suspended the use of the devices.[g]

[a] See Comptroller's press release, Dec. 2, 2014. http://comptroller.nyc.gov/newsroom/comptroller-stringer-audit-reveals-thousands-of-computers-and-tablets-lost-and-unused-at-the-department-of-education/
[b] See Comptroller's follow-up audit report FN17-098F, July 19, 2017. http://comptroller.nyc.gov/reports/follow-up-audit-report-on-the-department-of-educations-oversight-of-computer-hardware-purchased-through-the-apple-inc-and-lenovo-inc-contracts/
[c] "L.A. Unified halts contracts for iPads," *Los Angeles Times*, Aug. 25, 2014. http://www.latimes.com/local/education/la-me-deasy-ipads-20140826-story.html
[d] "Why Hoboken is throwing away all of its student laptops," WNYC News, July 29, 2014. http://www.wnyc.org/story/why-hoboken-throwing-away-all-its-student-laptops/
[e] Fort Bend school district shelves iPad program, Houston Chronicle, October 3, 2013. http://www.houstonchronicle.com/news/education/article/Fort-Bend-school-district-cancels-iPad-program-4867456.php
[f] Review of Fort Bend Independent School District's iAchieve Program, Gibson Consulting Group, September 2013. https://www.documentcloud.org/documents/805310-fort-bend-iachieve-report-by-gibson-consulting.html
[g] Guilford school district's tablet woes raise questions, *Greensboro News-Record*, October 8, 2013.

puters—including 6,720 laptops (at a cost of over $5 million) for the Niagara Falls School District alone.

One third of the plans involve improvements to "school connectivity," which involves the purchase (or, most often, upgrading) of computer servers and Wi-Fi routers that provide links to individual devices. Ten percent of approved funding is for school security, including improved electronic locking and surveillance technology; 5 percent will be used to build classrooms for pre-kindergarten classes.

Another 190 proposed plans with spending totaling $978 million (48.9 percent of total available bond act funding) have been submitted for review and await approval. Among pending applications is New York City's proposal to allocate its $783 million allotment, including $300 million to replace portable classrooms, $273 million for school and community internet connections, $110 million for classroom technology, and $100 million for pre-kindergarten classrooms.[18]

3. THE LURE OF FREE MONEY

In contrast to existing state financing programs for housing, economic development and infrastructure, the Smart Schools Bond Act did not set up a competitive process design to steer funding to the most effective or innovative uses of bond dollars. Rather, the legislation creating the program used an allocation formula based on each district's share of the major "base aid" formulas—notably excluding building aid.[19] In the months leading up to the bond vote, this approach allowed the Cuomo administration to effectively pre-announce the funding amounts available to every school district in the state.

By guaranteeing a set level of available funding for each district, the Smart Schools Bond Act allocation scheme also encourages school boards to seek funds regardless of need; even if a district has just completed a round of equipment purchases with support from the existing hardware and technology aid, it nonetheless can apply for bond act money to invest in even *more*. After all, why not?

https://www.rcsdk12.org//cms/lib/NY01001156/Centricity/Domain/11438/IMG_3161.JPG

Indeed, the Smart Schools Investment Plans of some school districts demonstrate that they were well ahead of the state in taking steps to advance school technology even before the bond act was first proposed.

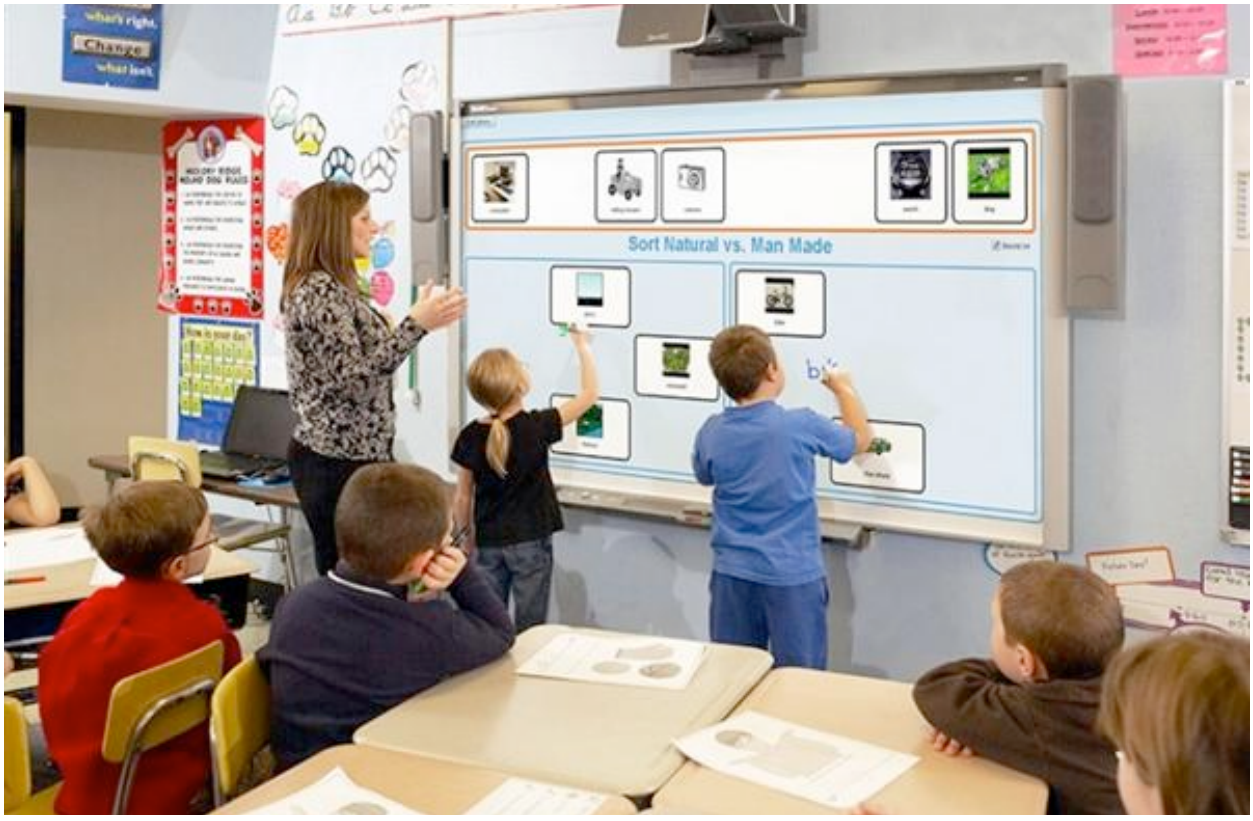
For example, through a capital construction project approved in 2012, the Lancaster Central School District had completed a "major technology infrastructure upgrade" by the summer of 2014, expanding its bandwidth to meet federal standards for classroom connectivity[20] and purchasing 1,800 laptop computers for classroom use two years before the bond act was passed. While Lancaster plans to use bond act funds for additional laptops to "increase our student to device ratio," the district will spend more than 70 percent of its allocation ($2.1 million) on construction of eight new classrooms for pre-K students.[21]

Other districts, meanwhile, have been inspired to gild their tech lilies. For example, the rural Chenango Forks schools' existing one-gigabit internet broadband connections exceed by an order of magnitude the current Federal Communications Commission (FCC) guidelines calling for 100-megabit connections for every 1,000 students.[22] But that didn't stop the district from requesting $706,583 for connectivity upgrades, including $186,200 to equip schools with 10-gigabit fiber connections—enough bandwidth to let all 700 students at the district's largest school stream *two* high-definition videos simultaneously.

Hilton Central School District, already offering double the FCC-recommended bandwidth, will spend $1.6 million to produce sufficient bandwidth to simultaneously service 90 wireless devices per classroom of 30 students—i.e., three devices per student.[23]

Pushing the "tech" envelope

The Empire Center's sampling of board-approved plans also found spending that stretches the definition of smart school technology.[24]



https://www.whiteplainspublicschools.org/cms/lib/NY01000029/Centricity/Domain/1756/Classroom%20Technology%201.jpg

For example:

Furniture -- Putnam Valley Central School District's plan includes three "Motiv Love Seats" at $950 each, two "Motiv Tables" at $480 each, ten "Activity Tables" at $330 each, five "Motiv Armless Chair[s]" at $665 each, 15 "Table[s] with Laminate" at $530 each, five "Cafe Table[s]" at $530 each, 15 "Swivel Stool[s]" at $95 each, and 40 "Contemporary Chairs" at $60 each.[25]

Sport Watches – South Lewis Central School District's plan includes purchase of 25 "Polar Phys Ed Watch[s]" at $140 each, in addition to 49 "VR [virtual reality] goggles" at $300 each and six "FM audio systems" at $1,000 each.[26]

Milling Machine – the Albany City School District's plan includes purchasing a replacement for a 15-year-old "CAD/CAM milling machine," justified on the grounds that the machine allows students to use computer coding used in the computer-assisted design and manufacturing field.[27] But no further specifics were offered on the type of machine that will be purchased, or what it will cost.

Laser Engraver – York Central School District's plan includes a $25,000 "laser engraver" in addition to a $21,000 3-D printer.[28]

Lessons Learned?

Tech-buying binges have been spectacular flops in some districts around the country, including Los Angeles, which had to pull the plug on an ambitious plan to equip every student with an iPad (see page 8). As *Wired* magazine later put it, "Learning from LA's mistakes… is critical to ensuring that already resource-strapped schools won't continue spending precious funding on misguided programs."[29]

It's not clear, however, that New York's program has adequate safeguards to ensure that similar failures are avoided here.

New York's program requires that the Smart Schools Investment Plans submitted by school districts illustrate that they are meeting "Keys to Success for Achieving a Smart School" as outlined in the New York Smart Schools Commission report.[30] Schools must show that their technology facilitates differentiated learning (i.e., instructional plans geared to the needs and capabilities of individual students); strengthens communication between students, parents, and teachers; expands equal access; and focuses on STEM (Science, Technology, Engineering, and Math) skills.

Exhibit: check-the-box planning

An excerpt from the state's Smart Schools Investment Plan template

12. **To ensure the sustainability of technology purchases made with Smart Schools funds, districts must demonstrate a long-term plan to maintain and replace technology purchases supported by Smart Schools Bond Act funds. This sustainability plan shall demonstrate a district's capacity to support recurring costs of use that are ineligible for Smart Schools Bond Act funding such as device maintenance, technical support, Internet and wireless fees, maintenance of hotspots, staff professional development, building maintenance and the replacement of incidental items. Further, such a sustainability plan shall include a long-term plan for the replacement of purchased devices and equipment at the end of their useful life with other funding sources.**

☐ By checking this box, you certify that the district has a sustainability plan as described above.

13. **Districts must ensure that devices purchased with Smart Schools Bond funds will be distributed, prepared for use, maintained and supported appropriately. Districts must maintain detailed device inventories in accordance with generally accepted accounting principles.**

☐ By checking this box, you certify that the district has a distribution and inventory management plan and system in place.

The state's investment plan template[31] includes this requirement, which was among those identified as crucial in the Smart Schoools Commission report:

> "To ensure the sustainability of technology purchases made with Smart Schools funds, districts must demonstrate a long-term plan to maintain and replace technology purchases supported by Smart Schools Bond Act funds. This sustainability plan shall demonstrate a district's capacity to support recurring costs of use that are ineligible for Smart Schools Bond Act funding such as device maintenance, technical support, Internet and wireless fees, maintenance of hotspots, staff professional development, building maintenance and the replacement of incidental items. Further, such a sustainability plan shall include a long-term plan for the replacement of purchased devices and equipment at the end of their useful life with other funding sources."

But to comply with this requirement, school districts apparently are not required to actually submit a sustainability plan to the state. Instead, as shown in the Exhibit on the bottom of Page 11, they need to—literally—check a box. The state's template takes the same "check-the-box" approach to ensuring that "devices purchased with Smart Schools Bond Act funds will be distributed, prepared for use, maintained and supported appropriately," and they will "maintain detailed device inventories in accordance with generally accepted accounting principles."

Futher Smarts Schools funding approvals for technology investments should be suspended to allow more careful consideration of the issue by the Legislature and the Board of Regents.

Despite these minimal requirements, some state-approved plans did offer at least some evidence of planning. The Byram Hills Central School District, for example, pilot-tested several interactive whiteboards before selecting the type it will purchase with bond act money.[32] But this approach was the exception rather than the rule

Even assuming the best intentions by box-checking school officials, it's unclear how many districts actually are prepared to "maintain and replace" bond-funded technology purchases, or to exercise financial rigor in controlling inventory and managing computer assets.

CONCLUSION

Equipping today's students with the skills to succeed tomorrow is clearly a goal deserving the attention of New York's state and local school policymakers and administrators. Unfortunately, the 2014 Smart Schools Bond Act was undertaken without a thorough assessment of the need for additional equipment, the instructional value of classroom computers, or the pitfalls of huge spending on school technology.

The downside to the state's implementation of the Smart Schools Bond Act is that it has been sluggish and haphazard.

The upside is that the slow start offers the opportunity to halt and reboot New York's Smart Schools program.

While voter approval of the bond act *authorized* borrowing of up to $2 billion for this purpose, it did not *require* that all the money be raised or spent. Nor did it lock in place the implementing language of the statute.

Beyond any irreversible initial funding commitments, further program approvals for Smart Schools technology investments should be suspended to allow more careful consideration of the issue by the Legislature, the governor and the Board of Regents.

The non-technology portions of the program—financing pre-K classrooms and replacing temporary classroom structures—could continue, although they should be more closely integrated with the existing annual building aid formula, through which $2.7 billion a year already flows to districts on the basis of need.

School and community "connectivity" projects should be examined more closely with respect to districts' existing bandwidth capacity—and actual needs.

At a time when the state is promoting shared services and consolidation, Smart Schools' district-level approach to technology overlooks the importance of the state's Board of Cooperative Education Services (BOCES) infrastructure, which could be harnessed to address questions about how technology-based curricula are developed and how equipment is supported. The existing BOCES Regional Information Center (RIC) model provides technical support for a range of district- and school-level functions, and could be embraced to reduce long-term costs for programs created with Smart Schools funds.

To the greatest possible extent, short-term assets such as computers should be paid for out of current operating revenues, and borrowing should be reserved for longer-lived assets such as buildings and infrastructure.

Before committing another dollar of state bond act funds to school technology purchases, the Legislature must direct the Education Department to conduct the comprehensive assessment of school technology that should have been performed before the 2014 proposal proceeded.

The study should include:

- Statewide review of the extent to which classroom technology has been acquired and used in New York schools.
- Assessment of extent to which hardware, software, curriculum, and teacher training have been integrated.
- Stronger requirements and more transparent compliance with standards assuring the sustainability of Smart School initiatives and accountable for the technology assets purchased with bond act money.
- Strategies to effectively coordinate and leverage state, federal, and private funding for school technology.

The study findings should be delivered to the Legislature by the fall of 2018, to serve as the basis for shaping more carefully crafted implementing legislation for the program starting in 2019-20.

Further, the Education Department should be given a mandate, along with sufficient funding, to commission an independent, large-scale, multi-year randomized control trial to determine the influence of learning technologies on learning outcomes in elementary and secondary school grades.

In the absence of assurances that Smart School projects will be effective, sustainable and accounted for, the fundamental flaw of the Smart Schools program remains the financial soundness of long-term borrowing for short-term assets.

As noted above, whether in the form of whiteboards, laptops, tablets or Wi-Fi routers, much of the technology purchased by Smart Schools Bond Act funds is bound to become obsolete within the eight years allowed for bond payoffs—without even considering the rough usage such equipment is likely to receive from any typical group of school children.

Sound financial practice requires short-term assets to be purchased and maintained with regularly budgeted operating funds rather than long-term borrowing. In fact, New York's school aid includes money for instructional technology and software: a total of $122 million during fiscal 2018.[33]

The annual impact of the Smart Schools Bond Act will cost even more. Assuming the current statutory language leads to a weighted average bond maturity of 20 years, the $2 billion in borrowing would translate into added debt service costs of $145 million—on top of the existing technology aid.

Critiquing a state bond issue that refinanced highway infrastructure to cover road maintenance costs, former Assembly Republican Leader Clarence D. Rappleyea said, "You don't mortgage the house to paint it."[42] By the same token, the state shouldn't resort to long-term borrowing to pay for cyclical upgrades of worn or outdated computer technology.

As New York State's leaders make their next decisions about when to borrow and what to borrow for, that advice deserves to be heard and heeded.

A final flaw of the program is its focus on acquiring technology, rather than improving educational outcomes. As Smart Schools is now structured, districts will be able to draw down millions for technology upgrades without ever determining whether their investments actually improved learning. That needs to change. School districts should be required to establish benchmarks for measuring whether the bond funding produces better results.

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ENDNOTES

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APPENDIX

"Questions and Answers on the Smart Schools Bond Act"*

Q: What types of projects would be eligible for funding?

A: Bond proceeds may be used for capital projects to:

- Acquire learning technology equipment or facilities, including but not limited to interactive whiteboards, computer servers, and desktop, laptop, and tablet computers;
- Install high-speed broadband or wireless internet connectivity for schools and communities;
- Construct, enhance, and modernize educational facilities to accommodate pre-kindergarten programs and to provide instructional space to replace classroom trailers; and
- Install high-tech security features in school buildings and on school campuses, including but not limited to video surveillance, emergency notification systems, and physical access controls.

Q: What is the Smart Schools Review Board?

A: The Smart Schools Review Board is a statutorily-created panel comprised of the Chancellor of the State University of New York, the Director of the Budget, and the Commissioner of Education, or their respective designees.

If the Smart Schools Bond Act is approved by voters, the Smart Schools Review Board is tasked with issuing guidelines regarding the Smart Schools Investment Plans that districts will be required to submit for approval. These guidelines will include any required components of the Smart Schools Investment Plans, as well as more details regarding the timeline for plan submission and any additional spending parameters.

Q: How will a school district apply for and receive the Smart Schools funding?

A: As outlined above, each district must submit a Smart Schools Investment Plan to the Smart Schools Review Board for approval. The Smart Schools Review Board may approve the plan, reject the plan, or return the plan to the school district for modifications.

Once the Smart Schools Investment Plan is approved, the school district will be eligible to begin receiving grant funds, up to the amount of its Smart Schools allocation amount, to reimburse costs of the approved projects. The State Education Department will administer the grant funds.

Q: Is there any requirement for public input into a school district's proposed use of the Smart School funds?

A: Yes. School districts are required to consult with parents, teachers, students, community members, and other stakeholders.

Q: Can a school district amend or update its Smart Schools Investment Plan after it has been approved?

A: Yes, a school district may amend or update its Smart Schools Investment Plan. However, any such amendments must first be submitted to the Smart Schools Review Board for approval, and will not take effect unless and until approval is granted.

Q: Will a school district's Smart Schools allocation expire if it is not used within a certain period?

A: No, a district's Smart Schools allocation does not need to be used by a certain date. If the allocation is not used in one school year, it can be carried over to the next school year.

Q: Can a school district use spending from its Smart Schools allocation as the local share to generate other State School Aids, such as Building Aid?

A: No, expenditures from the Smart Schools allocation may not be used to generate other types of State School Aid.

Q: How will the process for loaning Smart Schools technology to non-public school students work?

A: Any classroom technology purchased by a school district with Smart Schools funding must be made available, upon request, to students attending non-public schools within the same school district. This requirement is consistent with the existing practice of loaning computer hardware purchased with State school aid to nonpublic students. This loan requirement does not apply to other categories of Smart Schools spending.

Districts are required to make these loans on an equitable basis to non-public students within the district. This loan requirement is capped, in each district, at $250 multiplied by total non-public school enrollment.

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* Excerpted from 11/94 pre-vote post at www.governor.ny.us.