# From Forty-to-One to One-to-One:

# Eliminating the Digital Divide and Making Equity Actionable

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**Abstract**

*This article shows how the adoption of technology may serve as a catalyst for deeper, systemic reforms. This article shares a local case of organizational learning in which a midsize California urban school district faithfully acted on a technology goal nested in its strategic plan. Through this experience, the school district demonstrated various organizational behaviors worth considering when implementing a large-scale technology initiative. First, the San Leandro Unified School District (SLUSD) provides evidence of an organization adopting technology and eliminating the digital divide to make the concept of equity actionable for students, families, and staff. Second, this case portrays how the structural, tangible changes brought forth through technology adoption in an entire school district can serve as a foundation for more complex reforms. Third, SLUSD's story exemplifies how sustaining technology success can be attained through an intentional collaborative partnership at the local level.*

**The Case**

Transforming a K-12 school system into an equitable institution presents one of the most vexing challenges to educational leaders. The list of issues to address and of the organizational components to engage may run endlessly. This article only narrates the journey of a local school system in the Bay Area, serving nearly 9,000 students and addressing organizational change focused on technology.

It is a story that began in the fall of 2013. That year, the San Leandro Unified School District found itself in a position similar to that of many midsize urban school districts in the state of California—in urgent need of key systemic improvements while simultaneously embracing some of the most dramatic national and state reform efforts. These mandated reforms included the adoption of the Common Core State Standards, new online state assessments, and the implementation of the Local Control Funding Formula. In 2013, the SLUSD demonstrated limited professional development for both teachers and administrators, a student-to-computer ratio of 40 to one, a generally poor technology infrastructure, and a failed attempt by the district's central administration to build a collaborative relationship with the teachers' union. In addition, as is the case of many urban school districts serving diverse, socioeconomically disadvantaged populations, the school district faced limited funding, despite slight increases in California state revenues.

In order to launch the needed systemic improvements, the school board worked closely with senior central office leaders to develop a strategic plan focused on five goals to be accomplished within a 3-year cycle. Unlike many strategic plans that last anywhere from five to 10 years, the plan developed by the board and district leadership team worked from the tenet that a shorter cycle with actionable, attainable goals would help improve district culture, elevate morale, and yield better outcomes for students. Essentially, we wanted for the SLUSD to experience a sense of success quickly and from there to move forward through deeper, sustainable phases within a continuous improvement cycle.

**Technology as a Strategic Goal**

In order to gain momentum through visible and tangible changes, while at the same time striving to close the students' opportunity gap, one key goal of the five set forth by the strategic plan consisted of an intentional yet broad goal of overhauling the district's technology landscape. Unlike other systemic reform efforts, technological development delivers more concrete, observable results. In other words, our central assumption was that eliminating the digital divide could provide tangible evidence of what equity looks and feels like in action, beyond empty words.

With this proposed 3-year cycle, it was clear to us that a successful implementation of our theory of change—i.e., achieving a tangible transformation around technology and eliminating the digital divide—would formidably position the district to attain the relational trust, credibility, and respect necessary to implement all the other complex improvements needed to attain equity, which would be less visible and would probably take longer. Consequently, SLUSD developed a laser-like focus on technology.

We assumed that in order to disrupt the existing technological inequities, we had to relentlessly work on enhancements beginning right away in that year of 2013. Technology had historically been a low priority within the SLUSD. Back then, the district did not even have a

technology plan or an allocated budget. The minimal staff responsible for technology was not only overworked, but also in charge of severely antiquated hardware and software systems and platforms. Both Internet bandwidth and Wi-Fi access performed at unreliable low levels and were very limited. And again, we had one fairly outdated computer for every 40 students. We wanted to build a one-student-to-one-computer ratio, and to achieve this goal, changing the old, minimally functional servers and networks was a must.

## The Funding Challenge

Since 2013, state policy makers and the government of California provided some restoration of existing funding levels prior to the last recession. This financial support took place in addition to one-time funds allocated to districts across the state. Both funding streams formed the financial basis to launch the latest state reforms, but against a national backdrop in which the state of California still lagged considerably behind in per-pupil spending compared to most states of the Union. As the mandated state reforms permeated the local entities, California educational leaders found they had to prioritize and choose between the long list of programs, initiatives, and unfunded mandates to transform schools.

We chose to address the technology gap even when the money was still seriously limited. Our strategy coincided with top-down state accountability tests that required us to change our assessments from being paper based to being completely online. It was, however, up to each local school district to figure out how to jumpstart funding for technology and how to sustain these efforts beyond the initial adoption.

In our case, at the SLUSD, it would have been difficult to meet state mandates successfully given the conditions outlined above: a ratio of 40 students to one device and sorely poor technological infrastructure. Moreover, we did not have enough funding sources to implement the changes necessary for a systemic upgrade. But most importantly, beyond the state accountability tests, SLUSD knew that without funding for a complete transformation of the district's technology landscape, other changes—outlined in our strategic plan, as well as in other key initiatives—would simply become impossible.

Additionally, we knew that creating equitable outcomes for the SLUSD's culturally and linguistically diverse student population would remain a nebulous concept as long as our limited technology remained intact. If we did not succeed in this systemic change, we would collectively face an insurmountable barrier to joining the 21st century. Too many other aspects of district improvement would be threatened, and even worse, too many excuses for not improving would dominate the conversation. Thus, we determined that the funding challenge needed to be resolved. We and the local community leaders knew that an innovative solution to the funding conundrum—to simultaneously engage the school district's needs and respond to the state mandates effectively—had to take central stage.

## A Funding Solution Through Partnership

The district's leadership team swiftly took action as it remained fiercely dedicated to executing the technology goal of the strategic plan. Therefore, we conducted an assessment of exactly what would be needed to implement our vision for technology. Through an intense and expedited program evaluation, the leadership determined that the district could launch a systemic technology improvement plan with an initial five-million-dollar fund. The SLUSD leadership

team learned about the Qualified Zone Academy Bond (QZAB), a program that allowed school districts to apply for funds at a very low interest rate. The program, however, required school districts to demonstrate a commitment to enhance their curricula to better prepare students for college and to better train the workforce through innovation of facilities and technology. Furthermore, the program expected school districts to work with a 10% matching partner supporting the attempted improvements.

In the SLUSD, the QZAB program had the potential to be transformational, and here is why. Timing can instigate change. While SLUSD was learning about the QZAB program and its funding model, the city of San Leandro was facing its own technology challenges. Essentially, we benefitted from this contextual timing. The rapid technology boom centered in San Francisco over the last two decades made this city too expensive and an extremely competitive place in which to live and locate a company. San Leandro, as other surrounding cities in the Bay Area have done, attempted to market its less expensive location compared not only to San Francisco but to Oakland as well. Innovative companies could get more out of their dollars, and at the same time stay closely connected to the industry's networks.

The city of San Leandro possessed another advantage to offer the industry: a long-standing technology software company, OSIsoft, which has served as an anchor of innovation and technology in our city. Equally attractive was the city's 18-mile stretch of broadband network around downtown that provides high-speed Internet. With a global technology powerhouse company nested in the community, and the city's newly laid fiber loop, the school district undoubtedly enjoyed an advantage in its efforts to link up with a partner. We felt that disrupting the patterns of inadequate state funding was clearly within our reach.

With timing on our side, we formed a triangulated partnership between the city, a private sector technology company, and the school district. SLUSD applied for the QZAB funding with the matching support of OSIsoft. The school district received an initial five million dollars needed to launch the technology infrastructure enhancements. In 2013, the SLUSD and the City of San Leandro worked collaboratively to establish a connection to the city's fiber loop. The purpose was having fast, reliable Internet access in every single school. The partnership with the city helped to expedite obtaining permits for the construction projects required for the upgrades. The QZAB funds provided the resources to support the key projects.

## Successful Systemic Improvements

By 2016, the SLUSD was experiencing the envisioned success. The infrastructure enhancements implemented across the district included (a) a 10-gigabit connection to the City of San Leandro fiber loop, (b) a Meraki Wi-Fi access point in every classroom, and (c) a 40-gigabyte Brocade internal network.

The district also began to close the digital divide by quickly moving away from the 40-students-to-one-computer ratio to a two-to-one ratio within 18 months of the transformative efforts, until it finally attained the goal of the one-to-one ratio before the three-year deadline. As computers arrived in the classrooms, we simultaneously upgraded the staff's hardware. Since the SLUSD expected students to learn and to create by being digital citizens using technology, we sought for all the school district's employees to enjoy full access to the same world-class standard of digital capacity. All administrators, teachers, and support staff gained access to the new devices, so that the organization as a whole could work more efficiently and effectively in

its instructional delivery, business operations, community engagement, and communication endeavors.

Thus, the SLUSD successfully executed the infrastructure changes and made substantial gains deploying all the devices. At the same time that the district actualized equitable access to technology hardware in all the PK-12 schools, it did the same across programs: general education, special education, and bilingual classrooms. Moreover, the school district formally adopted a blended learning suite of platforms enabling teachers to tailor technology to a variety of purposes. The district also adopted the Google suite for both staff and students. By identifying software programs, piloting them, and then scaling them through a formal adoption process, the district's technology and data teams could now more effectively offer appropriate support to students and to the district's personnel, as opposed to the random, decentralized, and unsupported programs that existed in the past.

Lastly, while the transformations in infrastructure, hardware, and software were being launched, the district engaged the workforce at a higher intensity level than in the past. We carried this engagement for two reasons: First, the technology department became part of the instructional division and was moved out of the business division. This organizational restructuring allowed for programmatic leaders, who better understood both school operations and the classroom, to influence the technology deployment process. Second, the strong proficiency in technology integration of the professional development and curricular team was critical. The district's leadership capacity to integrate technology was broad and deep, rather than confined to a small group of "techies." Indeed, individuals in key positions, even at the senior management cabinet level, showed organizational technology leadership and were thus capable of modeling technology integration in varied ways.

Yet, SLUSD's staff experienced growing pains. The potent, accelerated changes within the organization's technology landscape required the staff to be adaptive and open, and resistance seemed inevitable, even if it would rise and fall. Nevertheless, the district leadership team put systems in place to support the staff, recognizing that resistance formed part of the adoption process. No panicking, no aborting, and no abandoning the strategic focus on technology occurred. Instead, the leadership listened to the existing concerns and made the necessary adjustments to move forward.

Throughout these transformative changes, and beyond the three years they lasted, professional development on technology integration remained a focus for administrators, teachers, and all support staff. On the one hand, instructional coaches supported organizational learning on technology integration across the district. On the other hand, the administrators increased their own levels of proficiency and expertise to better support the staff at the local school site level and to continue to foster a model of leadership. Furthermore, the district initiated the Technology Educator Consultant Program, in collaboration with the teachers' union. This program advocated the notion that teachers learn best from their colleagues. The district selected approximately 40 teachers across all schools to learn all the adopted platforms, so that they would serve afterwards as site experts. Staff would rely on them to deal with day-to-day issues as well as for ongoing professional learning experiences.

Persistence, acceptance, and a willingness to listen to concerns played pivotal functions as the staff wrestled with the changes. Senior management staff modeled the use of technology regularly, thus conveying the idea that everything being asked of the staff was also asked of the organizational leaders. Essentially, everybody stretched, but these practices ultimately helped to build trust and mutual respect among all of us.

In sum, during the 3-year cycle we attained the following:
- Completed all technology infrastructure upgrades;
- Integrated student Google Accounts across the district;
- Improved integration of technology across K-12 classrooms;
- Integrated technology in spaces outside of the classroom, such as offices and facilities;
- Improved use of technology to communicate with parents and the community;
- Purchased devices and a differentiated technology setup that would better meet the needs of the youngest learners in PK-3 classrooms;
- Created a one-computer-to-one-student learning environment for the entire SLUSD population;
- Upgraded technology for various employee groups.

## Impact on Performance

It might be premature to claim a direct positive correlation between the technology transformations we produced and improved student outcomes. However, for the purposes of organizational learning, it is worth noting some of the quick wins the district is currently experiencing.

The district's culture has improved. The full execution of the changes in the technology goal and all the associated key initiatives—e.g., infrastructure, hardware, software, and professional development—has laid a phenomenal foundation for deeper transformation. The district now can count on large-scale evidence to prove that when it identifies a goal in its strategic plan, it can certainly implement the change process from start to finish. This simple but important organizational outcome of getting something done provides us with a sense of confidence, accomplishment, and success. SLUSD is benefitting from these qualitative impacts on the organization's culture, which is cemented, let's repeat it, with a stronger sense of trust and mutual respect throughout its ranks.

SLUSD has also demonstrated quantitative progress on California's new accountability indicators. As a district on the move and committed to closing the opportunity gap for its diverse student population, SLUSD demonstrated positive results in 2015–2016. According to the new California dashboard, SLUSD has performed at the yellow performance level for academic progress in mathematics and English Language Arts, for English learner progress, and for suspensions. In terms of graduation rates, SLUSD performed at the green level. Additionally, districts are ranked at the county level according to the number of subgroups in each school district that perform at the lower levels, which are identified as orange and red. This ranking is locally referred to as the equity report. Despite being the most diverse school district, with one of the highest rates of free and reduced-price lunch, the district ranked sixth out of 16 districts in the county on this report. It appears as if SLUSD is beginning to defy the trend of perpetual low performance in high poverty schools.

## Now What?

SLUSD may be content with the initial burst of improvement thus far described and therefore may begin slowing down the change process. However, slowing down is exactly what we are choosing *not* to do. Certainly, the district leaders understand that they have mostly achieved technical and structural accomplishments. Wheatley's (2006) framework for change management

describes change as occurring at a deeper, more sustainable level when organizations pay close attention to variables like relationships, information, and identity.

SLUSD has thus far laid a strong foundation focused on tangible structural change; this initial change now positions the district to move to a deeper level of technology integration and adoption. The district may now begin to use technology in its relationships to share information and to build a stronger organizational identity. It now can appropriately ask itself critical questions like the following:

1) What relationship exists between the changes we have made and students' academic performance?

2) How will staff use technology integration to transform educational outcomes for students?

3) How will staff utilize technology to create access to enriching learning experiences that take students beyond the classroom walls?

4) How can technology integration in the district more equitably prepare students for the post-secondary world of college and career?

5) How can technology use shift from a passive fruition to one promoting greater productivity and creativity for students and staff?

SLUSD knows that in order to truly get a return on this massive investment of human resources, fiscal resources, community capital, and time, it will need to integrate technology at a deeper level by answering some of those questions. As Kleiman (2000) states in his outline of the myths about technology in K-12 schools, the idea that "equity can be achieved by ensuring that schools in poor communities have the same student-to-computer ratios as schools in wealthier communities" (p. 6) is simply not true, nor enough of an expectation. Instead, our high expectations emphasize that equity and the elimination of the digital divide occur when a school district like ours implements technology as a tool to promote the competencies highlighted in the Framework for 21st Century Learning (2007), which include critical thinking, problem solving, decision making, creativity and innovation, communication and collaboration, and research and information fluency. We are convinced that this technology integration will manifest in equitable outcomes at the post-secondary level we seek for our historically marginalized students, making them college and career ready.

In sum, SLUSD seeks to systematically implement technology integration, so that students relate to content through instructional initiatives like project-based learning, civic engagement, collaborative work, performance assessment, and personalized learning, through which students can become proficient in the competencies that will make them globally competitive. Lastly, it is through this application of technology in the day-to-day pedagogical occurrences within the classroom and in the district's approach to doing business that SLUSD offers an example of how the tool of technology can transform the educational lives of students and genuinely eliminate the digital divide that plagues so many school systems. Most importantly, this case does really demonstrate how the connections made through meaningful, purposeful partnerships can support school district technology reform efforts in ways unimaginable. In fact, school districts like SLUSD may come to learn that partnerships exist as the long-term, sustainable method for eliminating the digital divide.

## Acknowledgments

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