Beverly Hills
Unified School District

Technology Plan:
Reimagining Learning
2016-2019

The Beverly Hills Unified School District
Board of Education

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BHUSD Technology Advisory Committee Members

StakeHolders		
Name	**Position**	**Site**
Jocelyn Bresnick	Teacher & Technology Committee Chair	El Rodeo School
Kim Combs	Parent	Horace Mann
Fidel Coronel	Beverly Vista/Horace Mann	IT Specialist
Michelle Dar	Principal	Hawthorne School
Edward DeGuia	Beverly Hills High School	IT Specialist
Christian Fuhrer	Principal	Beverly Vista
Karthik Gopinathan	Senior Network Administrator	District Office
Ryan Guinto	IT Specialist	El Rodeo/ Hawthorne
Nancy Heim	Parent	
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Ann-Marie Fine	Teacher	Beverly Hills High School
Steve Kessler	Superintendent	District Office
Amanda Kort	Teacher & Technology Committee Chair	Hawthorne School
Pamela Kramer	Technology Teacher	El Rodeo School
Bernadette Lucas	Director of Technology	District Office
Karla Mulholland	Teacher	Hawthorne School
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Dr. Steven Rubenstein	Teacher & Instructional Technology TOSA	Beverly Hills High
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Michelle Stradford	Teacher	Horace Mann School
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Anthony Talbert	Senior Systems Administrator	District Office
Dr. Jennifer Tedford	Chief Academic Officer	District Office

Table of Contents

I. Executive Summary

The Beverly Hills Unified School District understands the importance of preparing its students to succeed in a globally competitive world. Indeed, one of the most important characteristics of a BHUSD education, as described in the District's Mission Statement, is its use of "state-of-the-art technology."

The District is committed to using technology to help students become leaders in knowledge creation and innovation. Three different references have largely been used (NETS, ISTE Standards for Students, and NETP) to develop this document. The action items included in this plan are inspired by the call to action laid out in the NETP.

The District is charged with providing students with an education that well prepares them for college, career, and life. A robust integration of instructional technology and transformational teaching and learning that it allows are necessary to meet this imperative. Should students not have access to meaningful technology experiences in the classroom, they will not be competitive in today's and tomorrow's worlds.

BHUSD elementary students currently achieve technology skill outcomes through weekly sessions with a credentialed technology teacher, in which students participate in technology-based lessons integrating both core curriculum concepts and technology skills. Additionally, many elementary teachers integrate technology throughout the curriculum.

BHUSD middle school students currently participate in an elective program, and high school students hone their skills through regular class work and specialized elective programs. There is also a middle school STEM program that focuses on project-based, integrated learning outcomes steeped in technology.

We have also launched a Tablets for Learning program that emphasizes 21st Century learning skills: creativity, critical thinking, collaboration, and communication. Digital Citizenship will now be integrated into the instructional program based on a K-12 scope-and-sequence. The Digital Citizenship Initiative begins September 2016 and will become an integral component of the instructional program at all grade levels. The initiative will result in District-level Common Sense Media Certification by Spring 2017.

As the District seeks to advance its technology initiative, the following competencies will be emphasized:

- Critical thinking skills
- Exceeding student standards
- Computational thinking
- Personalized learning
- Creativity
- Innovation
- Divergent thinking

In order to support our students in mastering and leveraging these competencies, BHUSD will leverage innovative technology solutions. One such solution is a Learning Management System (LMS) which will provide the framework and support for teachers to design, curate, and monitor learning and for students to engage in interactive learning that is personalized to their individual needs.

Findings and conclusions related to progress made and plans for the future shall be regularly summarized and reported to the Board of Education.

II. Timeline

August 2016 - June 2019

Since 1982, the Beverly Hills Unified School District has worked to infuse its schools with the best available technology tools. Our first technology plan was submitted to the Board of Education in 1983 with revisions and renewals in 1986, 1989, 1992, 1996, 1997, 2001, 2004, 2010, and 2013. Due to the accelerated evolution of technology and increased sophistication of tools and methods, the District recognizes the need to continually revisit our plans for technology utilization. However, over the past 20 years, each of our technology plans has been built upon its predecessor, and we hold true to the premise that our primary goal is to prepare students for a world which increasingly depends on and is transformed by technology.

Our proposed technology plan will guide our use of instructional technology for the next three years, from August 2016 through June 2019. With rapid changes continuing to occur in technology and the penetration of technology into virtually every field and career path available to our students, our historical approach should be accelerated and amplified to prepare our students for success.

III. Introduction & Framing

This plan is meant to serve as a roadmap for District leadership and school sites to facilitate the meaningful integration of instructional technology. The expectation is that schools sites will use The District Technology Plan to create and implement their individual site plans. The BHUSD will engage in ongoing professional development, discussion, and dialogue in order to manifest the vision, mission, and goals of this plan.

Educators and community members recognize that advances in technology are at the heart of pervasive changes in our world. Our world is evolving and changing at a pace never before imagined and with unpredictable outcomes. While past generations could rely on known skill sets to thrive in our society, today's learners and tomorrow's citizens require a flexible skill set that allows them to navigate and harvest from vast oceans of information. Now more than ever, our students require expert skills in Collaboration, Communication, Critical Thinking, Creativity (The 4 Cs), and Computational Thinking. This plan also places great value on students developing skills in design thinking and divergent thinking.

We will address the essential conditions for effectively using tools of modern technology to support Integrated Instructional Technology, Personalized Learning, the 4 Cs, Digital Citizenship, and Computational Thinking. The LMS will serve as the core of the instructional program.

Not only are these skills requisite for academic and career success in K-12 and beyond, but providing these skills is essential to our mission to provide our students the tools needed to thrive both professionally and personally. Technology offers transformative possibilities that must be threaded throughout a student's learning experience.

The Beverly Hills Unified School District is committed to being a leader in instructional technology integration so that its students have access to the state-of-the-art, cutting-edge technology resources along with the knowledge and skills to use these tools in a meaningful way. This plan is meant to inform and frame our strategy while establishing a clear pathway to achieve "lighthouse" quality instructional technology standards integration.

The National Educational Technology Plan (NETP) compels schools to be "incubators of exploration and invention. Educators should be collaborators in learning, seeking new knowledge and constantly acquiring new skills alongside their students. Education leaders should set a vision for creating learning experiences that provide the right tools and supports for all learners to thrive" (National Technology Education Plan, p. 1). If supported, the BHUSD Technology Plan will meet this challenge.

Our charge requires collaborating and learning within a community of educators and instructional technology leaders (locally, nationally, and globally). With this in mind, the *"BHUSD Technology Plan: Re-imagining Learning" has been developed in the context of the following professional publications:

- National Education Technology Plan (NETP)
- "Empowering Learning: A Blueprint for California Education Technology 2014-2017"
- California Education Technology Task Force Recommendations, August 2016
- The International Society for Technology in Education (ISTE) Standards for Students
- Partnership for 21st Century Skills
- "North Carolina Digital Learning Plan: Digital Learning Progress Rubric, Version 2" prepared by the Friday Institute for Educational Innovation
- California Content Standards

In addition, this plan is based on extensive research and data collection. The results of the research phase of the plan writing include:

1) Ten specific three-year goals that seek to bring the highest quality of technology integration and its benefits to BHUSD students are outlined later in the plan.
2) Specific action steps/ strategies to accomplish these goals and
3) Identified measures to assess and evaluate the effectiveness of these strategies.

The plan has been organized based on the following key dimensions of proven effective instructional technology initiatives:

1) Collaborative Leadership, Community, & Culture
2) Learning, Curriculum, & Assessment
3) Teaching
4) Infrastructure & The Digital Ecosystem
5) Funding & Resources
6) Operations & Structures

Each of these sections includes:

a) A connection to the NETP and/ or Future Ready Schools in order to ground the plan in best practice;
b) A connection to the corresponding BHUSD technology goals; and
c) Specific, measurable strategies (action steps) to accomplish the goals.

The six dimensions are woven together in an intricate tapestry. Therefore, most goals are connected to several dimensions. Understanding how one dimension impacts another is key to bringing about the success of this plan.

The plan also includes graphics that provide a visual representation of its many concepts and themes.

Plan Assessment & Evaluation

Assessing the implementation of this plan is crucial. The following mechanisms will be used to assess the impact of this plan:

- Research partnership with area university for a long-term study to assess the effectiveness of implementation
- Annual administration of BrightBytes survey & evaluation of year-over-year progress
- Annual assessment using "North Carolina Digital Learning Plan: Digital Learning Progress Rubric, Version 2" prepared by the Friday Institute for Educational Innovation
- Local Control Accountability Plan (LCAP)
- Future Ready Schools Assessments http://futureready.org/

Annual evaluation of the plan will result in modifications and updates to achieve continuous improvement.

Updates

The Chief Academic Officer (CAO) and the Director of Technology (DOT) will prepare an annual update to the BHUSD community. This update will document and provide data on the effectiveness of implementation. The update will be presented annually during a May Board meeting and as requested by the Board.

IV. Context

National and Global Context

The District will use three national and international bodies of knowledge/ standards to frame this plan:

- **The National Education Technology Plan (NETP):** The Federal Office of Technology developed comprehensive plan to guide communities, districts, and schools in developing sound technology plans.
- **The International Society for Technology in Education (ISTE) Standards for Students 2016:** provide global student standards to develop the necessary 21st

Century competencies our students will need to thrive and lead in a global economy.

- **The National Educational Technology Standards (NETS) 2007:** developed by the ISTE, these standards provide specific technology skills and competencies. The 2017 ISTE Standards (mentioned above) enhance the NETS the ISTE. Standards for Students and the NETS work in tandem.

The NETS, ISTE Standards for Students, and NETP are referenced throughout this document. The District has implemented the NETS 2007 since their inception and will continue to do so. The ISTE Standards for Students 2016 will now be integrated (along with the NETS) in order to fully prepare students to compete, thrive, and lead on a global stage. The NETP provides a high-level roadmap to fully implement the ISTE Standards for Students and the NETS.

The national instructional technology landscape is constantly evolving and expanding. New technology-embedded strategies allow educators to meet the individual needs of students in ways previously unconceived. The focus now is learning enabled by technology (Future Ready Learning: Reimagining the Role of Technology in Education," p. 1). In other words, learning that previously could not be imagined, now is real. The use of instructional technology is so critical to learning today that in December 2015, Congress authorized the Effective Use of Technology Act (Title IV A) of Every Student Succeeds Act. Charged with the responsibility of preparing our community's students for success, it is incumbent upon this administration to expertly leverage of the research and technology available to us.

The purpose of instructional technology is to provide students, teachers, and administrators with resources that will enable learning that emphasizes the following:

- Critical thinking skills
- Exceeding student standards
- Computational thinking
- Personalized learning
- Creativity
- Innovation
- Divergent thinking

These skills are necessary for students to thrive in any environment, through any transition, academic or professional. Learning environments that allow our students to master these critical skills are foundational to their ability to succeed. In order to provide these learning environments, key components must be in place. As identified by The National Education Technology Plan, these pieces are: teaching, learning,

assessment, leadership, and infrastructure. Please see **"Fitting the Pieces Together" (p. 12)**.

The question is not, "Should technology be used to enable and empower teaching and learning? Instead, our question is, "How do we use technology to enable and empower teaching and learning?"

There is no doubt that our students will engage globally in all aspects of their lives. In fact, they do today every time they read or post to a blog, engage in an interaction on social media, participate in an online game or challenge, or even just allow their personal devices to connect with the physical locations they visit. Succeeding on the global stage requires a complex skill set that will allow our students to:

- Adapt to diverse cultures
- Consider and value divergent perspectives
- Curate and evaluate vast amounts of information
- Produce (not just consume) information
- Navigate at the local, national, and global levels
- Relate to others with empathy
- Actively seek solutions as informed citizens
- Take calculated risks in order to remain competitive

School offers the unique opportunity to develop these sensibilities through the use of instructional technology. Technology provides solutions that are inconceivable without it. The aforementioned skill set can be honed in an educational setting through the ISTE standards.

The ISTE Standards for Students provide the language for these skills. They are are:

I. **Empowered Learner:** Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
II. **Digital Citizenship:** Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
III. **Knowledge Constructor:** Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves.
IV. **Innovative Designer:** Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

V. **Computational Thinker:** Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

VI. **Creative Communicator:** Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

VII. **Global Collaborator:** Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

The District has developed a set of goals and standards and aligned them with the 2007 National Educational Technology Standards (NETS). There are several technology standards from which student outcomes are derived, including Basic Operations and Concepts; Social, Ethical and Human Issues; Technology Productivity Tools (including Word Processing, Spreadsheets, and Databases); Technology Communication Tools (including Multimedia Authoring/ Presentations/ Graphics); Informational Literacy Tools; and Technology Problem-Solving and Decision-Making Tools (including Internet/ Research and Email).

tech.ed.gov/netp

http://www.iste.org/standards/standards/for-students-2016

State Context

Many districts throughout California have committed considerable resources to instructional technology with the expressed goal of using technology to reimagine teaching and learning. Several comparable school districts studied have successfully integrated technology. These schools can be referenced in Appendix C.

The State of California Department of Education commissioned a Task Force to research and make recommendations for K-12 organizations in regard to instructional technology. The recommendations were made in the context of an ever-changing world that requires:

- Deft technology skills,
- The ability to curate and create knowledge; and
- Global competencies such as computational thinking, collaboration, communication, creativity, and critical thinking.

Local Context

The Beverly Hills Unified School District understands the importance of preparing its students to be college and career ready in a globalized economy. Indeed, one of the most important characteristics of a BHUSD education, as described in the District's Mission Statement, is its use of "state-of-the-art technology."

The District is committed to providing its students with an education that allows them to compete, thrive, and lead on a local, national, and global level. The effective use and integration of technology into daily tasks is key to supporting students in becoming knowledge architects who possess a robust skill set that enables them to continuously open and expand opportunities professionally and personally.

The International Society for Technology in Education (ISTE) (www.iste.org) provides a scope and sequence for technology skill develop and outcomes for every grade. ISTE recognizes that technology outcomes often develop over time. Elementary students achieve these outcomes through:

(a) weekly sessions with a credentialed technology teacher, in which students participate in technology-based lessons integrating both core curriculum concepts and technology skills

(b) through daily integration of technology in the classroom.

Digital Citizenship

The Cyber Safety and Digital Literacy Week program will sunset in Fall 2016. Digital Citizenship will now be taught in an integrated manner based on a scope and sequence (Appendix B) intended to provide students with consistent, ongoing instruction in making sound decisions in a digital world and developing a constructive online presence. This scope and sequence is based on the instructional recommendations of Common Sense Media (www.commonsense.org) .

District Technology Advisory Committee (TAC)

TAC is responsible for monitoring progress with regards to the BHUSD Technology Plan. TAC will meet monthly to review the plan and progress made and to identify needs and implementation plans in order to ensure that the Technology Use Plan goals are achieved. Findings and conclusions related to progress made and plans for the future shall be summarized and reported to the Board of Education quarterly.

Parent Teacher Associations (PTAs)

It is significant to note that the site PTAs have largely funded site devices through fundraising efforts and site budget prioritizing. Because the schools raise various amounts of funding and allocate those funds differently, student to device ratios vary between the five sites. This plan seeks to remedy the challenges that result from access and equity imbalances.

Current State

The Beverly Hills Unified School District provides every classroom, library, and office with Internet access and at least 1 multimedia computer connected to the Internet. All six school sites in the District (four K-8, one comprehensive secondary, and one alternative secondary) have access to multiple computer labs and/or mobile computer labs that teachers use to integrate technology into the curriculum. All schools also have a variety of additional technology resources, including digital still and video cameras, media carts, smart boards, and color laser printers.

The District continues to develop programs allowing teachers and students to use tablet technology, and hope to have at a minimum 2:1 tablets available at all of our K-8 schools by the 2019 school year. iPad and Chromebooks carts are now available at two of our K-8 schools and plans are being developed to add iPads carts to the remaining two K-8 schools. In addition to District technology, one school is piloting a bring your own device (BYOD) program to decrease student computer ratio. Ideally, iPads will be used for project-based, 21st Century learning that emphasizes creativity, critical thinking, communication, and collaboration.

In addition to technology embedded within regular core curriculum, each student in the District has access to technology tools during the school day through a rich program of specialized instruction. Students in grades K-8 participate in progress-monitoring assessments in reading and math using an adaptive computer assessment program. Data from this program is instantly available to teachers to help guide instructional decisions. English language learners in the high school as well as students who participate in the intervention program also will participate in these computer assisted assessments. In grades 1 through 5, every student receives formal, hands-on instruction in the use of technology once a week in a computer lab from a credentialed technology teacher who works with classroom teachers to integrate core curriculum with technology skills.

Additionally, students have access to digital content through the online library, MackinVia. Students are also encouraged to access the public library digital archives to download books, videos and other media. Students in special programs (Title I, Title III) receive access to other computer assisted instruction including Lexia, Accelerated Reader, Math Facts in a Flash and/or Success Maker. These programs instruct, assess, and provide data on student growth and instructional needs. In grades 6-8, students may elect to take one-semester digital arts and Yearbook courses.

A middle school STEM program was implemented to extend the pathway to middle school students. This program focuses on project-based, integrated learning outcomes steeped in technology. Beginning in the 2017-2018 school year, middle school students also will experience an integrated approach to technology in their content courses.

Once the middle school STEM program was established, BHUSD also has implemented a kindergarten-to-high school STEM pathway. BHHS has also implemented a medical sciences pathway.

During the 2015 - 2016 school year, the STEM pathway was extended to the elementary grades. The STEM coursework integrates elements of project-based learning and use of technology to plan, collect data, and present as well as instruct. Use of technology in this STEM pathway allows students to access, explore, and express ideas in ways that would not be possible without it.

Students are expected to enter high school with eighth grade technology skills as defined by the BHUSD Technology Skills Matrix that will be shared in Fall 2016 (based on ISTE recommendations), and they have the opportunity to take elective courses designed to develop more specialized skills and proficiencies (e.g., graphic design, print

layout, architectural design, computer programming, etc.). During the 2015-2016 school year, the High School acquired 400 additional laptops in order to level the equity and access for all high school students.

Each school provides students with access to technology before and after school in the school libraries. In addition to the libraries' regular school hours, each library is open for extended hours after school one or two days per week.

During the 2014-15 & 2015-16 school years, the GATE program offered access to technology through the enrichment program, which was provided through STAR Education and Planet Bravo. During the 2015-16 academic year, the Beverly Hills Recreation and Parks Department facilitated fee based coding classes for students at each of the elementary schools.

Current Hardware and Software Use

All teachers in the District are expected to integrate technology into their curriculum. The District has developed technology standards that all students are expected to master, with a goal of student proficiency in the use of technology and information literacy skills before the end of 5th grade.

Students participating in our middle school technology courses and STEM program will graduate with progressively more advanced technology, problem solving, cognitive, and collaborative skills developed through project-based learning. High school students taking programing or graphic design courses will develop those skills further yet. The District's libraries and computer labs are integral to all students' access to technology.

Throughout the District, teachers regularly schedule the use of labs for daily classroom instruction. The District has many software applications available for students and teachers. Teachers use a variety of applications at all grade levels to achieve District outcomes. The District provides, on all District computers, access to the Internet, filtering software, email, Internet browsers, word processing software, spreadsheet software, presentation software, and database software.

Each site also provides resources that include online research databases, online encyclopedias, textbook software, web page authoring software, electronic grade books, and a wide variety of specialized, age-appropriate software resources for each grade level. The District and school sites provide a variety of additional technology tools, including tube and flat panel televisions, VCR/DVD players, LCD projectors, digital video and still cameras, tape recorders with multiple headphones for activity centers, overhead projectors, and assistive technology for students with special needs (e.g., Alpha Smart notebooks, etc.)

Server Infrastructure

The District has approximately 25 servers that function various roles such as Security and Access Control, File Services, Email and Spam, and Print Services. All District servers are centrally located at the District Data Center. All staff and students in the District have available their own secure network folder on a centralized District server. The District has an e-mail server for staff use. All staff members have an active email account. Each staff member who has a primary office or classroom location has his or her own voice mail account.

Existing Internet, WAN, LAN, & Wireless

All computers have Internet connectivity, online learning resources, and basic software applications. The District provides access to District-wide e-mail, student information, and business services to the appropriate users. A joint powers agency between the City of Beverly Hills and the District provides the District access to the City's Metropolitan Area Network (MAN). All school sites are connected to the District Office via the MAN at 1Gbps. The High School connects to the District Office with a direct fiber optic cable. The City of Beverly Hills also provides the District's Internet access via the MAN at 200 Mbps. All schools have newly data communications equipment (switches and routers) which provides 1Gbps connectivity to the classroom at all K-8's and 100 Mbps at the High School. All sites throughout the District connect to the Internet through the District's Internet content filter for usage logging and CIPA compliant web browsing.

Site	Wireless	LAN	WAN	Internet
Beverly Hills High Schools	Basic	100 Mb	1Gb	Shared 200 MB internet with the all school sites
Beverly Vista School	Basic	1Gb	1Gb	Shared 200 MB internet with the all school sites
El Rodeo School	Basic	1Gb	1Gb	Shared 200 MB internet with the all school sites
Hawthorne School	1:1	1Gb	1Gb	Shared 200 MB internet with the all school sites
Horace School	1:1	10Gb	1Gb	Shared 200 MB internet with the all school sites
Moreno School	Basic	1Gb	1Gb	Shared 200 MB internet with the all school sites

Existing Electronic Learning Resources

All current textbooks in Mathematics, History/Social Science, and Science have an electronic component. Students can access their textbooks online. Supplementary and intervention resources can be accessed online, and formative and summative assessments can be taken online. Teachers can give assignments and communicate with students and their families online as well. All teachers can utilize web-based gradebook software to provide current progress information and to communicate about daily assignments, classroom activities, and other relevant information.

Existing Technical Support

The District has designated a teacher on special assignment to provide technical leadership and a professional development program has been initiated. The technology TOSA has developed a forum for communicating uses of technology resources. All K-8 schools have at least one full-time teacher who also serves as the school's technology educator. The District needs additional resources and resource time to support professional development components. The current resources are limited in their ability to provide services to all sites.

The District IT Services Department consists of one Systems Administrator and three Information Technology Specialists. The District also utilizes the services of two consultants who work as a Systems Engineer and a Network Engineer.

Replacement Policy

According to our annual technology device count as of August 2016 , the District currently has 2,809 computers being used for instruction-related purposes, for a District-wide student-to-computer ratio of 2.88:1. All schools use a combination of District and site funds to procure computers, peripherals and software. Evaluating computer resources is an essential component of the Beverly Hills Unified School District's technology program. The number and age of BHUSD's computers are relevant considerations.

Site	Number of Students	Number of Devices	Approximate Average Age of Devices
Beverly Hills High Schools	1518	1,200	4 years
Beverly Vista School	732	355	4 years
El Rodeo School	638	400	4 years
Hawthorne School	620	500	4 years
Horace School	544	347	4 years

Moreno School	7	5	4 years

V. Mission, Vision and Beliefs

The mission of Beverly Hills Unified School District is to inspire and empower each student to achieve academic excellence, embrace social and individual responsibility, and lead with integrity. To these ends, Beverly Hills Unified School District provides dynamic and enriching educational opportunities, collaborative community partnerships, and challenging and supportive learning environments.

Based on current research, state standards, and the BHUSD Superintendent's strategic plan, the Beverly Hills Unified School District vision is focused on effective instruction that prepares all students for a 21st Century Global Community. The BHUSD vision is based on the following core beliefs:

- All students deserve the opportunity to achieve his or her potential.
- A challenging curriculum and high expectations lead to greater achievement.
- Outstanding, highly trained and dedicated personnel are critical to student achievement.
- Individuals are accountable for their behaviors and actions.
- Community involvement is essential for successful schools.
- Safety of every person is paramount.

To these ends, **six instructional areas** of focus are recommended for 2016-2019:

- **GOAL 1:** Best Practice Instruction - Research-Based (SP # 1 & 4)
- **GOAL 2:** 21st Century Curricula Implementation: Standards-Based, Interdisciplinary For Improved Achievement (LCAP/SP #1)
- **GOAL 3:** Intervention strategies for subgroup achievement (LCAP #1)
- **GOAL 4:** Character education to improve safety and connectedness (LCAP #2)
- **GOAL 5:** 21st century pedagogy: design thinking strategies for increased problem-solving skills and achievement (SP #4)
- **GOAL 6:** Integrated Technology for Increased Engagement and Achievement (SP #4)

VI. BHUSD Technology Data Collection

In order to build this plan, the District embarked on an extensive data collection phase during the 2016-2017 school year. The data collection includes the following:

- BrightBytes Assessment (conducted annually beginning Spring 2016)
- BHUSD Director of Technology's Assessment

- Infrastructure Study conducted by Noron Advisors, LLC
- “North Carolina Digital Learning Plan: Digital Learning Progress Rubric, Version 2” prepared by the Friday Institute for Educational Innovation

BrightBytes Data Summary (Spring 2016)

268 teachers responded to the survey
2,543 students responded to the survey
787 parent responded to the survey

Domain	Key Data Points
21st Century Learning	51% of students are asked to collaborate online with classmates at least monthly 77% of teachers spend less than 3 hours per year teaching digital citizenship 17% percent of students are asked to write online at least monthly 44% of students are asked to identify and solve authentic problems using technology at least monthly 40% of teachers ask their students to complete online assessments at least monthly 75% of teachers use assistive technology use it with students at least monthly
Professional Development (teachers responding)	62% of teachers find foundational technology skills easy to perform 51% of teachers readily utilize online skills 43% of teachers find multimedia tasks easy to perform. 20% of teachers responded that they are highly knowledgeable about digital citizenship skills 75% of teachers feel that technology enhances learning and their daily lives 71% of teachers can solve their own tech problems

	73% of teachers easily learn new technologies
Curriculum (students responding)	37% of students find foundational technology skills easy to perform 49% of students readily utilize online skills 71% of students find multimedia tasks easy to perform. 10% of students responded that they are taught digital citizenship skills at least monthly 66% of teachers feel that technology enhances learning and their daily lives 64% of teachers can solve their own tech problems 89% of teachers easily learn new technologies
Technology Support	33% of teachers rate the quality of tech support for problems disrupting instruction as excellent or above average 29% of teachers perceive the quality of internet speed at school to be excellent or above average 16% of students are part of a student technology support team 30% of teachers rate the quality of LCDs or interactive whiteboards at school as excellent or above average 21% rate the quality of devices at school as excellent or above average 43% of teachers receive instructional technology planning within a week of their request
Supervisory Report	26 of teachers feel recognized for using technology in their teaching more than half the time 41% of teachers report that technology is a topic at department or grade-level meetings more than half the time

	30% of teachers report that technology is part of classroom observations or visits more than half the time 27% of teachers believe that school internet filters get in the way of learning more than half the time
Infrastructure at School	77% of teachers can get devices for their students 29% of teachers report report high quality internet speed 50% of teachers report a typical student to computer ratio of 2:1 or 1:1 79% of teachers have access to a computer for their own use all the time at school
Infrastructure at Home	98% of students have access to the internet at home 97% of students have access to a device at home 52% of students share that device 99% of teachers have access to the internet at home 98% o teachers have access to a device at home 38% of teachers share that device

The information gathered during the data collection phase resulted in key findings. Those key findings were translated into recommendations. Please see the table below.

Key Needs (Findings) from Data Analysis	
Ensure access and equity	**Recommendation 1:** Establish a clear, well-communicated vision regarding instructional technology in the context of the District's instructional plan, goals, and initiatives. This technology plan attempts to meet this recommendation.

	Recommendation 2: Create a plan that identifies specific resources and strategies to bring equity and access to all BHUSD students (regardless of school site and individual school fiscal resources) in regard to instructional technology. Access is defined as opportunities for students to (a) engage in an instructional environment that is facilitated by a teacher who practices highly effective integrated instructional technology practices and (b) use technology hardware and software in meaningful, robust ways. This resource plan should include a 3 to 5-year refresh cycle. **Recommendation 3** : Ensure that every site has a high-functioning Technology Advisory Committee (that is a sub-committee to the Instructional Leadership Team)
System-wide instructional practices and structures should be implemented in order to meet the individual needs of students.	**Recommendation 4:** Implement a Learning Management System (LMS) so that students and teachers may engage in a highly collaborative learning environment that includes the following components: online learning communities, open source materials, assessment tools, interactive digital content, etc. **Recommendation 5:** Use instructional technology to create ***personalized learning*** environments that facilitate student ***agency***. **Recommendation 6:** Provide professional development to all K-5 teachers so that instructional technology is integrated into daily instruction and throughout the content areas.

	Recommendation 7: Create and implement a data dashboard that provides real-time information to students, teachers, administrators, and parents regarding student achievement and instructional progress
Earmark technology funding source(s)	**Recommendation 8:** Work with the Chief Business Officer to identify District-level funding sources for instructional technology and the infrastructure needed to support it.
Design and implement robust professional development and support plan for teachers and administrators	**Recommendation 9:** Create a personalized professional development and support plan for teachers and administrators. **Recommendation 10:** Allocate Instructional Technology TOSAs at the following level: ● 2 per K-8 site (1 TOSA/ Grades K-5, 1 TOSA/ Grades 6-8) ● 2 TOSAs at the High School
Design and implement engaging parent education on integrated technology	**Recommendation 11:** Continue parent education sessions.
Manage the cultural shift	**Recommendation 12:** Implement a robust, coordinated change management plan to support a District-wide integrated instructional technology initiative.
Provide additional on-site technical support in schools, in alignment with inventory and age of hardware.	**Recommendation 14:** Provide 1 FTE of technical support at each site
Improve District infrastructure	**Recommendation 14:** Enhance and modernize the District's technical infrastructure so that students and teachers have access to a consistent, reliable, robust state-of-the-art infrastructure.

Redesign District Technology Department staffing structure to provide technical support that allows for (a) the timely resolution of technical challenges in a manner that greatly minimizes or eliminates disruptions to instruction caused by technical challenges and (b) creative, proactive planning to meet the needs of schools	**Recommendation 15:** Create and establish funding for a Technology Department staffing plan that meet individual school site and District needs

The aforementioned recommendations resulted in the following technology goals:

BHUSD Goal 1: (Integrated Instructional Technology)
Ensure that all teachers utilize technology consistently and transparently in planning and designing lessons, delivering instruction, and assessing and analyzing student learning in alignment with and to exceed the state content and ISTE standards.

BHUSD Goal 2: (Leveraging the Power of Technology for Knowledge Construction, Creativity, and Innovation)
Ensure that all students acquire technology and information literacy skills through the use of technology integration into the core curriculum in grades K-12 as outlined by ISTE.

BHUSD Goal 3: (Digital Citizenship)
Students will learn about digital citizenship and the appropriate and ethical use of technology.

BHUSD Goal 4: (1:1 Device Ratio)
Establish a 1 device: 1 student ratio. Facilitate a 24/ 7 learning environment which allows students to take home their school-issued devices.

BHUSD Goal 5: (Learning Management System)
Establish an assessment and record keeping system that will track multiple measures of student performance; allow staff to analyze student performance on individual, classroom, grade level/department, school-wide, District-wide levels, and state/federal assessments; and continue to facilitate effective teacher interventions for students. This goal will be achieved through the implementation of a Learning Management System (LMS)and data dashboard.

BHUSD Goal 6: (Home/ School Communication Empowered by Technology)
Ensure that all teachers and administrators utilize technology, including updated web sites, online grade book posting (as appropriate), and email and voicemail to improve two-way communication between home and school. In other words, “To remain globally competitive and develop engaged citizens, our schools should weave 21st century competencies and expertise throughout the learning experience.” (NETP, p. 8)

BHUSD Goal 7: (Professional Development & Support)
Provide all teachers and administrators with the professional development and support they need to successfully accomplish the goals of the technology plan. It is important to note that professional development will emphasize the following for the duration of this plan:

- organizational culture
- common vision
- common language
- technology-empowered instruction
- technology-enhanced assessment
- utilization of open source learning materials
- personalized learning (for students, teachers, and administrators).

BHUSD Goal 8: (Infrastructure)
Continued enhancements of network infrastructure, technical support, hardware, and software to allow teachers and other staff members to effectively implement the goals of the technology plan.

BHUSD Goal 9: **(Equity & Access)**
Allocation and distribution of adequate resources to technology in order to bring about equity and access between and within all five BHUSD school sites.

BHUSD Goal 10: (Associated District Policies)
Identify, research, write, and seek Board approval for Board policies and Board policy amendments needed in the context of advancing instructional technology.

In order to achieve the aforementioned goals will be realized by developing key dimensions:

- Collaborative Leadership, Community, & Culture
- Learning, Curriculum, & Assessment

- Teaching
- Infrastructure & The Digital Ecosystem
- Funding & Resources
- Operation & Structures

The table below summarizes the relationship between the goals and key dimensions.

Key Dimension	Aligned Goal
Collaborative Leadership, Community, & Culture	BHUSD Goal 1: Integrated Instructional Technology BHUSD Goal 2: Leveraging the Power of Technology for Knowledge Construction, Creativity, and Innovation BHUSD Goal 3: Digital Citizenship BHUSD Goal 4: 1:1 Device Ratio BHUSD Goal 5: Learning Management System BHUSD Goal 6: Home/ School Communication Empowered by Technology BHUSD Goal 7: Professional Development & Support BHUSD Goal 8: Infrastructure BHUSD Goal 9: Equity & Access
Learning, Curriculum, & Assessment	BHUSD Goal 1: Integrated Instructional Technology BHUSD Goal 2: Leveraging the Power of Technology for Knowledge Construction, Creativity, and Innovation BHUSD Goal 3: Digital Citizenship BHUSD Goal 5: Learning Management System BHUSD Goal 7: Professional Development & Support BHUSD Goal 9: Equity & Access
Teaching	BHUSD Goal 1: Integrated Instructional Technology BHUSD Goal 2: Leveraging the Power of Technology for Knowledge Construction, Creativity, and Innovation BHUSD Goal 3: Digital Citizenship BHUSD Goal 5: Learning Management System BHUSD Goal 7: Professional Development & Support BHUSD Goal 9: Equity & Access
Infrastructure & The Digital Ecosystem	BHUSD Goal 4: 1:1 Device Ratio BHUSD Goal 5: Learning Management System BHUSD Goal 8: Infrastructure
Funding & Resources	BHUSD Goal 8: Infrastructure BHUSD Goal 9: Equity & Access
Policies & Procedures	BHUSD Goal 8: Infrastructure BHUSD Goal 9: Equity & Access

VII. Collaborative Leadership, Community, and Culture

"Taking full advantage of technology to transform learning requires strong leadership capable of creating a shared vision of which all members of the community feel a part. Leaders who believe they can delegate the articulation of a vision for how technology can support their learning goals to a chief information officer or chief technology officer fundamentally misunderstand how technology can impact learning. Technology alone does not transform learning; rather, technology helps enable transformative learning. The vision begins with a discussion of how and why a community wants to transform learning. Once these goals are clear, technology can be used to open new possibilities for accomplishing the vision that would otherwise be out of reach. Moving to learning enabled by technology can mean a shift in the specific skills and competencies required of leaders. Education leaders need personal experience with learning technologies, an understanding of how to deploy these resources effectively, and a community-wide vision for how technology can improve learning."[1]

Leaders throughout the organization must focus on key areas in order to bring about a successful technology integration initiative. The International Society for Technology in Education defines the following areas as The Essential Conditions.

Condition	Description
Shared Vision	Proactive leadership develops a shared vision for educational technology among all education stakeholders, including teachers and support staff, school and district administrators, teacher educators, students, parents and the community.
Empowered Leaders	Stakeholders at every level are empowered to be leaders in effecting change.
Implementation Planning	All stakeholders follow a systematic plan aligned with a shared vision for school effectiveness and student learning through the infusion of information and communication technology (ICT) and digital learning resources.
Consistent and Adequate Funding	Ongoing funding supports technology infrastructure, personnel, digital resources and staff development.
Equitable Access	All students, teachers, staff and school leaders have robust and reliable connectivity and access to current and emerging technologies and digital resources.
Skilled Personnel	Educators, support staff and other leaders are skilled in the selection and effective use of appropriate ICT resources.

Ongoing Professional Learning	Educators have ongoing access to technology-related professional learning plans and opportunities as well as dedicated time to practice and share ideas.
Technical Support	Educators and students have access to reliable assistance for maintaining, renewing and using ICT and digital learning resources.
Curriculum Framework	Content standards and related digital curriculum resources align with and support digital age learning and work.
Student-Centered Learning	Planning, teaching and assessment all center on the needs and abilities of the students.
Assessment and Evaluation	Teaching, learning, leadership and the use of ICT and digital resources are continually assessed and evaluated.
Engaged Communities	Leaders and educators develop and maintain partnerships and collaboration within the community to support and fund the use of ICT and digital learning resources.
Support Policies	Policies, financial plans, accountability measures and incentive structures support the use of ICT and other digital resources for both learning and district/school operations.
Supportive External Context	Policies and initiatives at the national, regional and local levels support schools and teacher preparation programs in the effective implementation of technology for achieving curriculum and learning technology (ICT) standards.

More detailed information about each essential condition is available at ISTE Essential Conditions

In order to meet the aforementioned goals, this plan establishes the following action steps. Additionally, items below are pending budget allocation and Board of Education approval.

Legend for Tables That Follow

Board of Education	= BOE
Chief Academic Officer	= CAO
Chief Business Officer	= CBO
Chief Human Resource Officer	= CHRO
Director of Technology	= DOT
Director of Student Services	= DOSS

Director of Facilities	= DOF
Teacher on Special Assignment	=TOSA

The action items below focus on technology goals to share vision managing change, collaborative leadership, developing culture, establishing common language, educator professional development, and parent education.

Action/ Strategy	**Timeline**	**Responsible Person(s)**	**Evaluation Tool**
Create and communicate a shared vision for instructional technology	Pending Board Approval, November 2016	Superintendent, CAO, DoT, Principals	BrightBytes Assessment Site Technology Plans NC Digital Learning Plan: Digital Learning Progress Rubric (site level / district level) Future Ready Schools District Leadership Self-Assessment
Create District and school site TACs	District TAC - Complete School Site TACs - by November 2016	Principals Technology Comm Chairs	Future Ready Schools District Leadership Self-Assessment
Develop, implement, and monitor a culture shift to support the system wide implementation and integration of instructional technology	2016-2019 *Ongoing*	DoT Teachers Principals Parents Students Community	Annual BrightBytes Assessment Strategic Plans to Support Change PD Evaluations / Feedback Future Ready Schools District Leadership Self-Assessment
Design, implement, and	2016-2019	CAO	BrightBytes Assessment

monitor an ongoing personalized, job-embedded professional development plan for administrators		Director of Technology Principals	Site Technology Plans NC Digital Learning Plan: Digital Learning Progress Rubric PD Evaluations / Feedback Future Ready Schools District Leadership Self-Assessment
Design, implement, and monitor an ongoing personalized, job-embedded professional development plan for teachers	2016-2019	CAO DOT Principals TOSAs District TAC Site TACs	BrightBytes Data Site Technology Plans PD Evaluations / Feedback NC Digital Learning Plan: Digital Learning Progress Rubric
Design, implement, and monitor an ongoing parent education program	2016-2019	DoT Principals TOSAs	BrightBytes Data Session Evaluation / Parent Feedback
Identify and hire TOSAs at the following ratio: 1/ K-5 1/ 6-8 2/ HS Should budget become available	2017-2018	CAO DoT Principals	BrightBytes Data PD Evaluations Classroom Observation Tool (non-evaluative)
Develop and implement a meaningful Digital Citizenship plan.	Implement Fall 2017	DoSS Teachers DoT Principals	BrightBytes Data BHUSD becomes a Common Sense Media Certified District after three schools apply for and become Common Sense

			Media Certified schools
HR solicits input from the DoT to include interview questions to assess prospective teachers' and administrators' competencies with instructional technology integration.	~~Fall 2016~~ Ongoing	Chief Human Resources Officer *Site Administrators* DoT	Future Ready Schools District Leadership Self-Assessment
Continue collaboration with the City of Beverly Hills to pursue shared resources and services	Ongoing	Superintendent CAO DoT CBO	

VIII. Learning, Curriculum & Assessment

According to the, National Education Technology Plan (NETP): To be successful in our daily lives and in a global workforce, Americans need pathways to acquire expertise and form meaningful connections to peers and mentors. This journey begins with a base of knowledge and abilities that can be augmented and enhanced throughout our lives. Fortunately, advances in learning sciences have provided new insights into how people learn.[1]

Technology can be a powerful tool to reimagine learning experiences on the basis of those insights.

Historically, a learner's educational opportunities have been limited by the resources found within the walls of a school. Technology-enabled learning allows learners to tap resources and expertise anywhere in the world, starting with their own communities.

The following are five ways technology can improve and enhance learning, both in formal learning and in informal settings.

1. Technology can enable personalized learning or experiences that are more engaging and relevant.

2. Technology can help organize learning around real-world challenges and project-based learning using a wide variety of digital learning devices and resources to show competency with complex concepts and content.

3. Technology can help learning move beyond the classroom and take advantage of learning opportunities available in museums, libraries, and other out-of-school settings.

4. Technology can help learners pursue passions and personal interests.

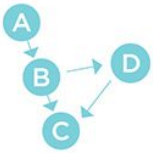
5. Technology access when equitable can help close the digital divide and make transformative learning opportunities available to all learners.

Measuring learning is a necessary part of every teacher's work. Teachers need to check for student understanding, and parents, students, and leaders need to know how students are doing overall in order to help them successfully prepare for college and work. In addition to supporting learning across content areas, technology-enabled assessments can help reduce the time, resources, and disruption to learning required for the administration of paper assessments.[2] Assessments delivered using technology also can provide a more complete and nuanced picture of student needs, interests, and abilities than can traditional assessments, allowing educators to personalize learning.

Through embedded assessments, educators can see evidence of students' thinking during the learning process and provide near real-time feedback through learning dashboards so they can take action in the moment.[3] Families can be more informed about what and how their children learned during the school day. In the long term, educators, schools, districts, states, and the nation can use the information to support continuous improvement and innovations in learning. (National Education Technology Plan, December 2015)

FUTURE OF ASSESSMENT

The shift from traditional paper and pencil to next generation digital assessments enables more flexibility, responsiveness, and contextualization.

	TRADITIONAL	NEXT GENERATION
TIMING	 After learning	 Embedded in learning
ACCESSIBILITY	 Limited	 Universally designed
PATHWAYS	 Fixed	 Adaptive
FEEDBACK	 Delayed	 Real Time
ITEM TYPES	 Generic	 Enhanced

tech.ed.gov/netp

In order to meet the aforementioned goals, this plan establishes the following action steps. Additionally, items below are pending budget allocation and Board of Education approval.

The action items below focus on technology goals to maximize student learning to prepare them for a future not yet imagined through project-based learning, collaborative learning and personalized learning. The effect of these approaches on student achievement will be measured via real-time assessments.

Action/ Strategy	**Timeline**	**Responsible Person(s)**	**Evaluation Tool**
Identify and implement core content (that aligns with and exceeds state standards) that includes an interactive digital component	2016-2019	CAO Coordinator of Special Projects DoT	RFP Specifications
Select a Learning Management System (LMS)	2016-2017	CAO DoT	BrightBytes Data
Pilot LMS System	Fall 2017	DoT Principals	BHUSD Pilot Evaluation Tool
Implement LMS district wide	Spring 2018	Director of Technology Principals	BrightBytes Assessment Student Achievement data (formative and summative) Teacher Feedback Usage Statistics
Identify instructional software and resources in ELA and Math that allows for personalization	2016-2019	CAO Coordinator of Special Projects	BrightBytes Data Student Achievement data (formative and summative)

		Director of Technology	
Develop, implement, and monitor a Digital Citizenship scope-and-sequence that spans K-12	2016-2019	DoSS DoT Principals Teachers	BrightBytes Data BHUSD becomes a Common Sense Media-Certified District after three schools apply for and become Common Sense Media Certified schools by February 2017
Integrate project-based learning	2017-2019	CAO DoT Principals	BrightBytes Data Student Achievement data (formative and summative)
Curate resources that allow students and teachers to interact with peers and experts from around the world.	2016-2019	DoT TOSAs Teachers	LMS usage data BrightBytes Data
Curate resources that foster: increased use of games and simulations, new ways to connect physical and virtual interaction with learning technologies, interactive 3-dimensional imaging software, and augmented reality (AR) as a new way of investigating our context and history	2016-2019	DoT TOSAs Teachers	BrightBytes Data
Identify software and technology that support teachers in meeting the needs of special populations (English Learners, Students with Special Needs, GATE, etc.)	2016-2019	DoT Coordinator of Special Projects TOSAs	Student Achievement data (formative and summative) BrightBytes Data

		Teachers	
Create protocols for teachers and administrators to evaluate technology resource worthiness	2016-2017 Ongoing	DoT TOSAs	
Select and implement assessment methods that are multidimensional, on-demand, timely, and formative	2016-2017	CAO Coordinator of Special Projects DoT	Student Achievement data (formative and summative) BrightBytes Data
Develop a system that provides students with feedback and validation from experts in the field and strengthens the relevance of assessments by allowing students to make connections between their learning and the real world. (State recommendation)		CAO DoT	Student Achievement (formative and summative) BrightBytes Data
Implement modern, personalized 21st Century assessments by providing essential technology/ infrastructure and educator professional development with standards and summative computerized adaptive assessments. (State recommendation)		CAO Coordinator of Special Projects DoT	Student Achievement data (formative and summative) LMS Usage Data BrightBytes Data
Educators, administrators, parents and students have access to real-time individual student data		CAO DoT	LMS Usage Data

IX. Teaching

The NETP states, "When carefully designed and thoughtfully applied, technology can accelerate, amplify, and expand the impact of effective teaching practices. (p. 3)"

Technology offers the opportunity for teachers to become more collaborative and extend learning beyond the classroom. Educators can create learning communities

composed of students; fellow educators in schools, museums, libraries, and after-school programs; experts in various disciplines around the world; members of community organizations; and families. This enhanced collaboration, enabled by technology offers access to instructional materials as well as the resources and tools to create, manage, and assess their quality and usefulness. To enact this vision, schools need to support teachers in accessing needed technology and in learning how to use it effectively. Although research indicates that teachers have the biggest impact on student learning out of all other school-level factors, we cannot expect individual educators to assume full responsibility for bringing technology-based learning experiences into schools.[1,2,3,4,5] They need continuous, just-in-time support that includes professional development, mentors, and informal collaborations. In fact, more than two thirds of teachers say they would like more technology in their classrooms,[6] and roughly half say that lack of training is one of the biggest barriers to incorporating technology into their teaching.[7]

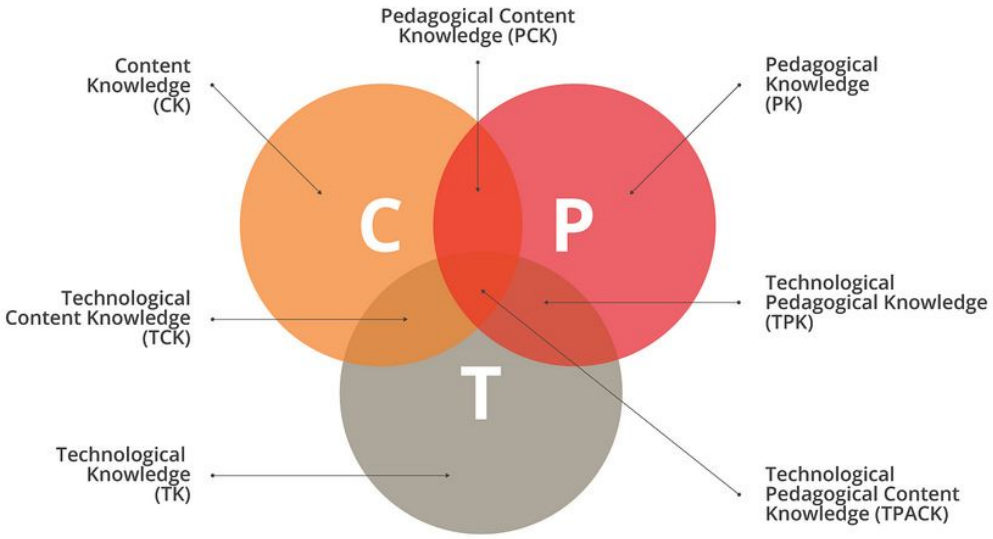
(National Education Technology Plan, December 2015)

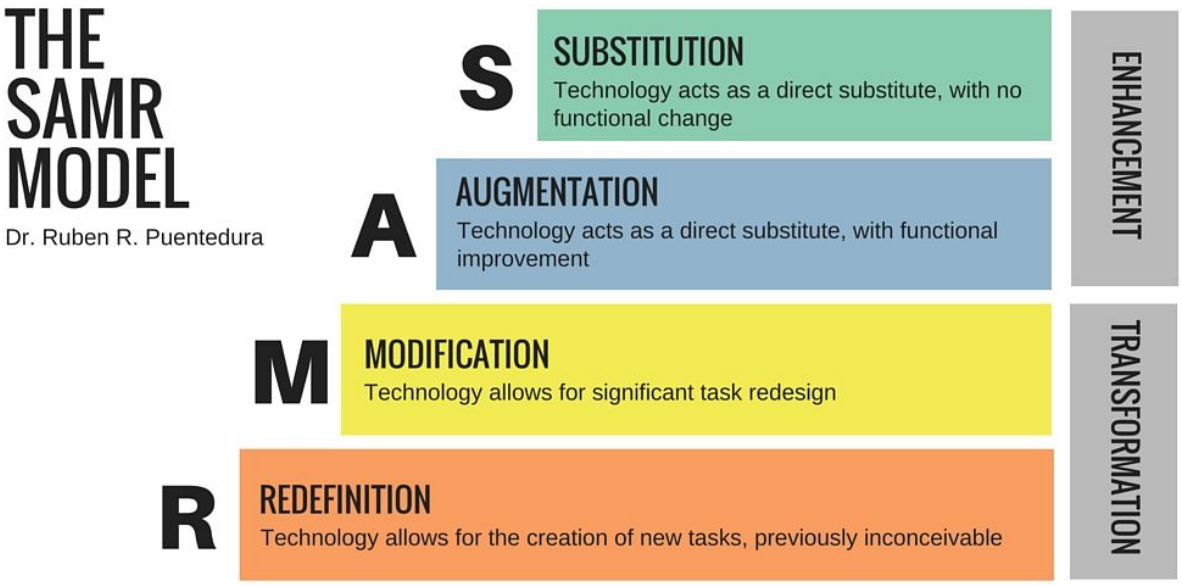
In order to bring about an organizational culture shift that allows for a highly successful instructional technology integration, BHUSD must examine the evolving teaching roles and expectations. The NETP offers suggestions to frame the reimaging of teaching:

1. Educators can collaborate far beyond the walls of their schools.
2. Educators can design highly engaging and relevant learning experiences through technology.
3. Educators can lead the evaluation and implementation of new technologies for learning.
4. Educators can be guides, facilitators, and motivators of learners.
5. Educators can be co-learners with students and peers.
6. Educators can become catalysts to serve the underserved.

The District is in the process of building a common culture and language around instructional technology implementation. Common language provides educators to talk within and across sites about teaching and learning in a way that moves instructional technology integration from enhancement to transformation. This common language is rooted in The SAMR Model and The TPACK Model. The common language is essential to building a common culture; and, will facilitate attainment of the goals and action listed below.

TPACK





Model

In order to meet the aforementioned goals, this plan establishes the following actions steps. Additionally, Items below are pending budget allocation and Board of Education approval.

The action items below focus on technology goals to facilitate teaching that empowers teachers to meet the personalized needs of students.The action items emphasize educator professional development and support.

Action/ Strategy	Timeline	Responsible Person(s)	Evaluation Tool
Provide each teacher and administrator a District-issued device that is aligned with the individual site's technology plan	2017-2018	CBO DoT	Mobile Device Management Data
Design, implement, and monitor an on-demand, personalized instructional technology professional development plan for all educators	2016-2019	CAO DoT TOSAs	BrightBytes Assessment
Embed instructional technology professional development goals in the certificated evaluation process	2017-2018	Chief Human Resources Officer CAO DoT Principals	
Develop an instructional dashboard that allows teachers to assess students' individual data	Fall	CAO DoT	BrightBytes Assessment NC Digital Learning Plan: Digital Learning Progress Rubric Future Ready Schools Assessments
Take actions that encourage, support, and reward teacher's and administrator's use of	2016-2019	Board of Education Superintendent	BrightBytes Assessment NC Digital

technology to support current and emerging paradigms of learning (State)		CAO Principals	Learning Plan: Digital Learning Progress Rubric Future Ready Schools Assessments
Provide differentiated professional development to library/ media staff	2016-2019	DoT TOSAs	BrightBytes Assessment NC Digital Learning Plan: Digital Learning Progress Rubric Future Ready Schools Assessments Session Evaluations
All teachers demonstrate proficiency in the “NC Digital Learning Competencies”	2016-2019	Principals TOSAs Teachers	BrightBytes Assessment NC Digital Learning Plan: Digital Learning Progress Rubric Future Ready Schools Assessments Observation Tool Data (non-evaluative)

X. Infrastructure & The Digital Ecosystem

Preparing students to be successful for the future requires a robust and flexible learning infrastructure capable of supporting new types of engagement and providing ubiquitous access to the technology tools that allow students to create, design, and explore. The essential components of an infrastructure capable of supporting transformational learning experiences include the following:

1. *Ubiquitous Connectivity*
2. *Powerful Learning Devices*
3. *High-quality digital learning content*
4. *Responsible Use Policies (RUPs)*

(National Education Technology Plan, December 2015)

In order to meet the aforementioned goals, this plan establishes the following actions steps. Additionally, items below are pending budget allocation and Board of Education approval.

The action items below focus on building and sustaining a robust infrastructure that thoroughly enables technology empowered teaching and learning.

Action/ Strategy	**Timeline**	**Responsible Person(s)**	**Evaluation Tool**
Establish a minimum of 200 megabits per second of Internet bandwidth per 1,000 students.	2016-2017	Senior Systems Administrator Senior Network Administrator	
Internet Content Caching Capabilities	2016 - 2017	Senior Systems Administrator Senior Network Administrator	
10 Gb WAN & LAN connectivity	2016 - 2019	Senior Systems Administrator Senior Network Administrator	
Redundancy for Internet, WAN, Core LAN	2016 - 2019	Senior Systems Administrator Senior Network Administrator	
Campus wide wireless to support 1:1 initiatives	2016 - 2019	Senior Systems Administrator	

		Senior Network Administrator	
Identity and Access Management	2016 - 2019	Senior Systems Administrator Senior Network Administrator	
Staff 1 FTE IT Specialist per K8 site		DoT	
Staff 2 FTE IT Specialists for the High School		DoT	
All learning spaces are designed and furnished to provide flexibility for students to work individually and collaboratively. (Digital Learning Progress Rubric)		CAO CoF	

XI. Funding & Resource Allocations

Districts often are challenged financially when it comes to implementing technology initiatives and programs. Once a vision for the use of technology is in place, district superintendents and school leaders first should examine existing budgets to identify areas in which spending can be reduced or eliminated to pay for learning technologies. They also should consider all possibilities for creative funding of these programs. The following approaches are recommended for consideration as districts review their budgets and funding"

1. *Eliminate or Reduce Existing Costs*
2. *Partner with Other Organizations*
3. *Make Full Use of Federal Funds*
4. *Rethink Existing Staff Responsibilities*
5. *Ensure Long-Term Sustainability*

(National Education Technology Plan, December 2015)

Funding is a crucial component of the plan as it enables the realization of the action steps. Educational organizations are encouraged to re-examine instructional priorities and align budget priorities accordingly. If leveraging technology is a priority, The District and the schools sites must identify and protect consistent funding sources. The next

step is to establish Learning Return on Investments measures that make connections between expenditures and learning outcomes. Learning ROI is essential in assessing the impact of expended funds on student achievement.

In order to meet the aforementioned goals, this plan establishes the following actions steps. Additionally, Items below are pending budget allocation and Board of Education approval.

The action items below focus on establishing consistent, reliable, protected funding streams that evidence the organization's commitment to using technology to advance and amplify teaching and learning.

Action	Timeline	Responsible Person(s)	Evaluation Tool
Identify specific long-term funding sources for technology at the District level	2016-2017 Ongoing	CBO CAO Director of Technology	LCAP District Budget Analysis
Identify specific long-term funding sources for technology at the site and department level	2016-2017 Ongoing	Principals School Site Councils	Single School Plans
A routine and comprehensive replacement cycle exists for all devices and digital technology infrastructure			District Budget Analysis

XII. Policies and Procedures

Critical to the integration of technology is establishing clear and well-communicated student data privacy policies. Robust technology integration has boundless potential to enhance and improve teaching and learning. Real challenges accompany the benefits of technology. Creating processes and structures to protect student privacy is key to a successful and highly-effective system wide technology initiative.

(National Education Technology Plan, December 2015)

In order to meet the aforementioned goals, this plan establishes the following actions steps. Additionally, Items below are pending budget allocation and Board of Education approval.

The action items below focus on creating and maintaining structures to guide the integration of technology. These structures includes specific Board policies to guide and support stakeholders as they navigate a changing educational world. Additionally, the actions call on the District to establish a clear plan to protect students' data and privacy.

Action/ Strategy	Timeline	Responsible Person(s)	Evaluation Tool
Identify, write, and submit for Board approval key policies related to technology integration	2016-2019	DoT	BrightBytes Digital Privacy & Security Assessment NC Digital Learning Plan: Digital Learning Progress Rubric Future Ready Schools Assessments
Develop a robust student data privacy plan	2016-2017	DoT DoSS Systems Administrator	BrightBytes Digital Privacy & Security Assessment

XII. Final Thoughts

The world our students will inherit will be vastly different even than the one in which they exist today. That world would have been unimaginable to most adults who are now charged with preparing our students. So, the question becomes, "How do you prepare students for a world that does not yet exist and which few can predict or conceive?" The answer may be as simple as equipping our students with the skill set to thrive in any context. Technology offers unique and unreplicable ways to do just that. While the answer is simple, the solution is highly complex.

This plan is intended to offer a solution or path by bringing about innovative, divergent use of instructional technology in service to the strengths, needs, and interests of our

students. The plan is intentionally aspirational and ambitious because it seeks to further advance the academic success of our students through creative, innovative uses of technology so that our students may not only thrive in this yet to be conceived world, but lead and create it.

The implementation of this plan would also require innovative, collaborative leadership that challenges traditional practices. Supporting this plan means re-imaging the classroom experiences and embracing the possibilities of learning powered by technology. The implementation of this plan means continuing to embrace the change that has already begun in our own schools, neighbouring districts, the nation, and the world. The implementation of this plan means that BHUSD not only embraces the evolution of education, but leads it.

Should funding and District priorities facilitate the full implementation of this plan, BHUSD has the potential to serve as a model District for meeting and exceeding standards through the robust and highly effective integration of technology. .

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Collaborative Leadership, Community & Culture

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APPENDIX A
The Guiding Questions Matrix

The questions below were used to assess the instructional needs that drive technology planning. All instructional technology planning should begin with the instructional initiatives and foci of the organization.

Vision, Mission, & Core Values **Development of teacher knowledge and skill, increasing student engagement, providing challenging academic content** **Culture**					
Section 3 **Curriculum: *What Will Students Learn?***	**Section 42** **Teaching & Learning: *How Will Students Learn?***	**Section 5** **Leadership, Community, & Culture**	**Section 6** **Infrastructure: What *Resources Will Be Needed?***	**Section 7** **Funding: How Will This Be Financed?**	**Section 8** **Operation & Structures** ***How Will It Work?***
Standards & Curriculum	**Pedagogy & Instructional Strategies**	**Home/ School Connections**	**Infrastructure & Technology**	**Cost & Resource Management**	**Implementation & Sustainability**
Options & Resources	**Student-Centered Culture**		**Facilities & Materials**		**Structure & Change**
Assessments	**Professional Learning**				
Monitoring, Continuous Improvement, and Change Management through Shared Leadership					

Leadership, Community, & Culture	
ILT and Tech Committees	How will the ILT and Tech Committee exchange/ share information? What role does the Tech Committee Chair play on the ILT? To what degree is the site's Technology Plan in service of the School's Single School Plan and LCAP goals?
Change Management	● What are best models for change management in education?
Home/School Connections	● What expectations are there for each school in building parent participation and developing parent education? ● What central structures and resources are needed to support this? ● What safety concerns need to be addressed? ● Students' online safety: What are best practices for digital citizenship education? ■ This ties to Curriculum Workgroup 1 focus area ○ Students' physical safety for schools that choose a 24/7 model (BYOD or school-/District-provided devices) ■ Some schools within and outside of ITI have 24/7 models

Curriculum: What Will Students Learn? Content and Digital Citizenship	
Standards & Curriculum	• What elements are needed in District academic policies to support the core values of this plan? • Curriculum content is built on a foundation of state-adopted standards, with the goal of accommodating the expertise of our community and moving beyond standards. What types of curriculum content formats (e.g., print, digital, static, interactive) best support the core values and alignment with the Common Core State Standards? • How will curriculum formats and products be chosen? • How will digital citizenship be embedded? • What are the desired student learning outcomes?
Digital Citizenship	• Who is responsible for teaching digital citizenship? • What components of digital citizenship will be taught at what grade level and which department? • What is the timeline for each school to become Common Sense Certified? • What is the timeline for the District to become Common Sense Certified? • How will parents be fully included in digital citizenship education?
Options & Resources	• How will we ensure that access/learning opportunity gaps are closed through a variety of choices, so that the unique needs of each school community are met?
Assessments	• What types of assessments effectively measure student growth? • Do existing District assessments support our mission, vision, and core values? • Do District assessments need to change to support

	our vision, mission, and core values? ● How will data be gathered for student progress monitoring? ● What are best practices for a continuous formative assessment feedback loop?

Teaching & Learning: How Will Students Learn? Instruction, Culture, and Professional Development Learning Management System	
Pedagogy & Instructional Strategies	● What are the desired student learning outcomes? ● What are best practices for teachers' use of technology to support personalized learning, student creativity and achievement, and the other core values of this plan? ● How will success of implemented instructional strategies be measured?
Student-Centered Culture	● What are expectations for student involvement in planning and ownership of their own learning? ● What are best practices for students as leaders in education technology integration?
Professional Learning	● What professional development formats and structures (e.g., face-to-face, online interactive, online self-paced, blended; train-the-trainers, school-based coaching, school-based sessions, central sessions) best serve the needs of our teachers? ● What professional development is needed for administrators? ● How will District professional development opportunities align with the mission and core values of this plan? ● How will the District ensure that adequate supports and interventions are in place as schools transition to personalized learning?

	• How will success of professional learning be measured?

Infrastructure: What Resources Are Needed?	
Digital Learning Tools	• What digital learning tools do schools have? • What is the policy for purchasing tools and refreshing them over time? ◦ Is there a *minimum* student-to-digital learning tool ratio required as a baseline at each school, for any of the models to be doable?
Facilities & Materials	• What changes are needed in the ITD strategic plan? • What changes are needed for the technical support structure (for instance, to support technology use at home; or to set guidelines for support available in the event of BYOD) • What security measures are needed with infusion of technology in schools? • Are changes needed in facilities planning to support the vision, mission, and core values of this plan?

Funding: How Can We Make This Happen?	
Cost & Resource Management	• What funding is available from the District? • What other potential funding sources can be explored now and in the future (by the District and by schools)? • How can business, civic, and community-based partnerships (e.g., government agencies, institutions of higher education, business organizations, Internet service providers) help support the mission and core values of this plan?

Implementation & Communications:

How Will It Work?	
Implementation & Sustainability	● What is the timeline for the phase-in plan? ● What criteria should be used to give schools choices in digital learning tools? ● What template could support schools in developing a personalized learning plan enhanced by technology to reflect the core values of this plan? ● How will success of implementation be measured? ● What choice will schools have in terms of digital learning tools and integration models? ● How does the District interact with schools in providing support for instructional and operational readiness, and for initial implementation? How will schools build capacity to become self-sufficient? ● How will schools build capacity to become self-sufficient? ● How will the successes of students, teachers, and schools (and lessons learned) be shared?
Communications	● What are the roles of different District departments in implementing this plan? ● How will the District communicate and support schools in communicating around this plan and its implementation?

APPENDIX B
GLOSSARY OF TERMS

Agency in Learning: Learners with agency can "intentionally make things happen by [their] actions," and "agency enables people to play a part in their self-development, adaptation, and self-renewal with changing times." [cite source] To build this capacity, learners should have the opportunity to make meaningful choices about their learning and they need practice at doing so effectively. Learners who successfully develop this ability lay the foundation for lifelong, self-directed learning. (NETP, p. 8)

Computational Thinking (CT): a problem solving process that includes:

- Formulating problems in a way that enables us to use a computer and other tools to help solve them
- Logically organizing and analyzing data
- Representing data through abstractions, such as models and simulations
- Automating solutions through algorithmic thinking (a series of ordered steps)
- Identifying, analyzing, and implementing possible solutions with the goal of achieving the most efficient and effective combination of steps and resources
- Generalizing and transferring this problem-solving process to a wide variety of problems

These skills are supported and enhanced by a number of dispositions or attitudes that are essential to CT, including:

- Confidence in dealing with complexity
- Persistence in working with difficult problems
- Tolerance for ambiguity
- The ability to deal with open-ended problems
- The ability to communicate and work with others to achieve a common goal or solution

...computational thinking is a fundamental skill for everyone, not just for computer scientists. To reading, writing, and arithmetic, we should add computational thinking to every child's analytical ability.

(Computational Thinking: A Digital Age Skill For Everyone, Barr, David, et al., Learning & Leading with Technology, March/ April 2011)

Curation: Finding, and sorting content, recognizing patterns and distinctions within sources and organizing content into focused groupings. Curation requires higher-order thinking skills and can be deployed to display and share knowledge or creativity.

(Redefining Learning in a Technology-Driven World: A Report to Support Adoption of the ISTE Standards for Students," p. 8)

Learning Management System: software which will provide the framework and support for teachers to design, curate, and monitor learning and students to engage in interactive learning that is personalized to their individual needs. A LMS revolutionizes teaching and learning; and, is a core component of an instructional technology integration.

Personalized Learning: refers to instruction in which the pace of learning and the instructional approach are optimized for the needs of each learner. Learning objectives, instructional approaches, and instructional content (and its sequencing) all may vary based on learner needs. In addition, learning activities are meaningful and relevant to learners, driven by their interests, and often self-initiated. (NETP, p.7)

www.futureready.org further defines personalized learning as…

Under a personalized learning model, teachers, school staff and, as appropriate, other adults in these communities are given the time, tools and resources to:

- Understand each student's personal and academic background, strengths, interests, and needs.
- Help each student to achieve an understanding of him/herself along with a commitment to and ownership of his/her own learning. Work in concert with each student to shape his/her academic path and enrich his/her education.
- Provide each student with targeted instruction, practice, and support in areas where they are struggling, while ensuring they learn challenging academic content and skills.
- Create more flexible learning environments and opportunities inside and outside the classroom, including one-on-one, peer-to-peer, small group, and online instruction to help students master academic content and competencies.
- Connect each student to their local community and the world beyond the classroom by engaging them in real-world learning opportunities, such as internships, apprenticeships, hands-on projects, and global study.
- Use tools, technology, and data to enhance classroom instruction, assess individual students' progress, and jointly identify next steps for meeting their needs.

Researched Districts

http://www.fullertonsd.org/#gsc.tab=0

http://www.tustin.k12.ca.us/

http://www.rbusd.org/