

DeKalb County School District Technology Plan

Inspire • Achieve • Excel

Final Version

July 16, 2015



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1 Introduction

1.1 Executive Summary

The DeKalb County School District (DCSD) strives to be acknowledged as a high-performing organization that embeds an accessible and engaging 21st Century Learning Environment for all students. It is our intent to promote the ubiquitous integration of technology tools that will not only support relevant and personalized learning, but also develop and nurture adaptable skills for all students. Consequently, success will be defined by how well this learning environment produces globally competitive students prepared for higher education, work, and life-long learning in a rapidly changing society. A mission this significant and impactful requires DCSD to continue extensive evaluation and planning as it pertains to the district's educational technology infrastructure and tools.

During the Fall of 2014, DCSD organized a Technology Advisory Committee to lead the development of an effective and actionable technology plan for the years 2015 - 2018. The purpose of the Technology Plan is to provide a roadmap that communicates to all stakeholders how DCSD will use technology tools to support an engaging 21st Century Learning Environment in all schools. See Appendix B for a listing of the committee members.

From late 2014 to mid-2015, the Technology Advisory Committee (the committee) hosted round table discussions and focus groups with various stakeholders to learn first-hand what each group thought was crucial as it pertained to the technology offered and needed within DCSD. Stakeholder participation included students, parents, administrators, teachers, the DeKalb business community and higher education institutions. The Technology Advisory Committee then used this feedback from all stakeholders to develop a vision for technology use in DCSD. Once a shared vision was established, the committee was then prepared to collaborate with internal DCSD divisions to evaluate the district's current technology infrastructure and identify gaps that could impede the realization of the shared vision. Five themes emerged as areas of concern during this gap analysis: Anytime Anywhere Access, Infrastructure Enhancements, Business Systems Integration, Communication Enhancements and Professional Learning. The committee addressed each theme by developing clear, concise, and aggressive goals and strategies that will ensure the realization of the district's shared vision for technology use.

This technology plan is the result of these extensive discussions as well as analysis and evaluation of the feedback gathered. It is the district's intent that this work will guide DCSD through the implementation of this technology plan for the next three years.

1.2 Mission of DCSD

The mission of DCSD is to ensure student success, leading to higher education, work, and life-long learning. In the DCSD strategic plan, our core beliefs guide us to always focus on teaching and learning with a goal of embedding an equitable and accessible 21st Century Learning Environment. This learning environment should be supported by the use of emerging technologies throughout the curriculum.

1.2.1 21st Century Teaching and Learning

Being globally competitive in a rapidly changing society requires students to be able to navigate, analyze, and evaluate constant streams of information with the intent of solving real-world problems. This reality demands an evolution of teaching and learning from merely focusing on content-memorization to learning strategies that solve problems. In other words, students need to be taught how to think as opposed to what to think.

“Technology makes instructional activities fun and engaging, so technology can improve our learning experience.”

DCSD Student

In a 21st Century Learning Environment (21CLE), students should have opportunities to develop critical thinking skills through problem-based learning and authentic assessments.

As teachers provide continuous feedback and guidance, students will be empowered to take control of their learning which allows them to personalize their learning experience. Continuous access to digital content and tools as well as the ability to communicate and collaborate are organic components to an engaging learning environment in the 21st century. Equally important to the success of this learning experience is the absence of barriers affected by time, place, and learning modalities.

21st Century Learning Environment Initiative (21CLE)

DCSD has included several initiatives in the district’s strategic plan to ensure impactful uses of technology that increases student achievement. The DCSD 21CLE initiative specifically focuses on providing students with the same experiences and skills necessary to be globally competitive digital citizens. The framework for this initiative addresses the themes and adaptive skills needed to support rigorous and relevant learning. Strategies addressing teaching, learning, and assessment are also addressed along with critical supporting technology tools. The DCSD 21CLE framework can be found in Appendix A.

1.3 Stakeholder Feedback and Expectations

Extensive feedback was gathered from various stakeholders (students, administrators, teachers, parents, DeKalb Business and Higher Education communities) for insight and guidance in preparing this technology plan. The goal was to understand the vision of how these groups see technology being used throughout the DeKalb County School District. As an overall summary, the stakeholders envisioned:

- Access to a modern digital learning environment and enhanced virtual learning opportunities
- Integrated technology solutions to enhance communication
- Equitable access to devices and robust wireless network
- Community engagement necessary to support a shift to a digital learning environment
- Multiple, deliberate and continuous opportunities to learn about technology for everyone

1.3.1 Student Feedback

Students are deeply engaged with technology, but they provided feedback expressing that they use technology for fun activities, and do not always know how to leverage technology to learn.

Students believe that mobile devices can enhance learning because mobile devices provide greater access to current and relevant digital textbooks, resources and collaborative tools. They also stressed that learning resources need to always be available – anytime and anywhere, and they agreed that mobile access and the ability to collaborate with teachers will allow them to produce more quality work.

Furthermore, students have the expectation that their teachers are knowledgeable enough to utilize technology tools in the learning process, and their concerns included available access to technology and a wireless network that worked consistently. They are also curious to see how mobile device access will change the physical learning spaces allowing for more collaboration.

1.3.2 Administrator Feedback

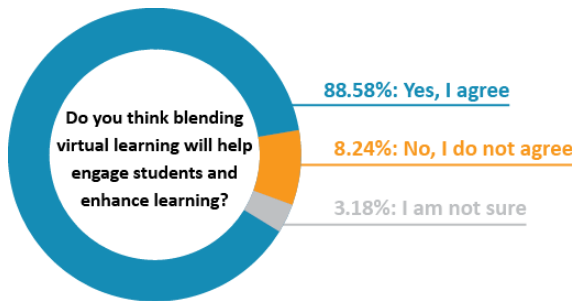
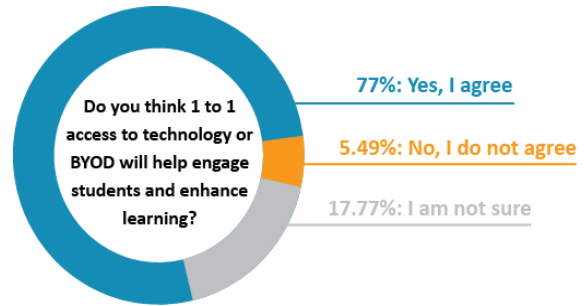
The DCSD school administrators have a broad overview of the opportunities and challenges that technology can bring to DCSD. Administrators were asked how technology can support the goals and objectives set forth by DCSD. In response, administrators agreed on three primary areas of focus: access, professional development and communication.

Area of Focus	Opportunity	Challenge
Access	Improvements to access require the district to enhance capabilities to utilize multiple devices to access the network, furthering rigorous and diverse learning.	The challenge with access is integrating security that meets standards but doesn't impede instruction.
Professional Development	Administrators suggested having tiered learning programs, a technology mentor at each school and targeted technology training on early-release days.	DCSD has the challenge of ensuring all teachers, resource staff, and administrators are properly trained to use and integrate technology appropriately.
Communication	Internal and external communication that is clear concise technology tools needs to be leveraged to enhance communication with all internal and external DCSD stakeholders.	Instructions on the use of technology, rules and regulations, and interaction with all stakeholders on the technology programs initiated will be a significant undertaking for DCSD as the program is developed and enhanced.

1.3.3 Teacher Feedback

Teachers from across DeKalb County participated in a survey regarding technology and its impact on student learning and success. Teachers were represented from all levels: elementary (43%), high school (31%), middle school (23%), and other (3%).

The majority of teachers agreed that 1 to 1 access to technology and Bring Your Own Device (BYOD) programs would engage students and enhance learning.

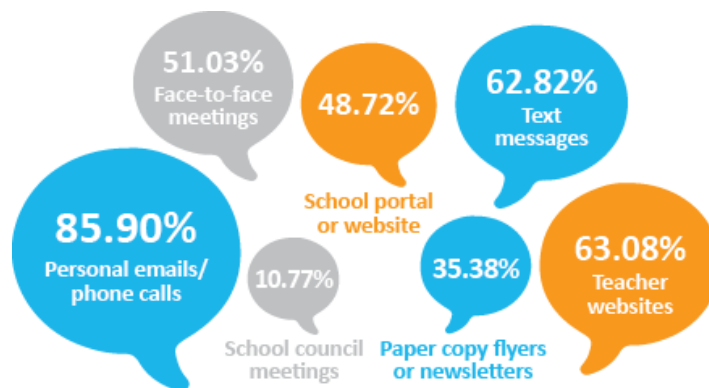


Teachers then agreed that blending virtual learning opportunities will help engage students and enhance learning. The results of the stakeholder surveys show that overall students, teachers and administrators believe that technology can be used to positively impact the learning opportunities in DeKalb County Schools.

1.3.4 Parent Feedback

Parents of children in over 125 schools across DeKalb County participated in the parent survey. The feedback from parents showed that the vast majority of students have access to a computer at home for schoolwork and Internet access. When asked how they preferred to receive information from teachers or school, the three top categories were technology-based: personal email or phone calls, text message and teacher websites with electronic messages. This evolution is important to know as DCSD communicates with parents.

“I think technology can be wonderful but I want to make sure that it's not a substitute for hands on learning with a teacher or parent.”



How would you prefer to receive information from your child's teacher or school?

Overall, parents are supportive of technology being a strong component of our everyday lives. They were generally in favor of technology to support learning, but did express concerns for

technology replacing teaching. DCSD thereby needs to be aware of these challenges and limitations as technology is being used in the classroom for learning.

1.3.5 DeKalb Business Community and Higher Education Feedback

Feedback from the business and higher education communities was pivotal in understanding expectations of DCSD graduates for future employment and pursuit of higher education. Insights from the roundtable discussions with communities included:

- People are more plugged into the digital world, but tuned-out from their immediate environment; thus, creating a lack of empathy. Schools should provide technology skills which are standard in 21st Century society, but also mirror society by teaching students to learn within an environment they will be in after completing school.
- People struggle to work collaboratively and solve problems. Education should train risk-takers and support creativity wherever possible.
- Younger people tend to be task-driven rather than people-driven. Students need to learn to balance tasks and people skills as soft skills are just as important as hard skills.
- Students need to develop habits of independence, work ethic and commitment, and have opportunities to be flexibility and to adapt to the various learning styles.

In order to provide opportunities for DeKalb students and graduates, the DeKalb business community can provide mentoring and internships, offer training workshops (IT, repairing computers, interviewing and resume building) and provide certifications for various manufacturers in the area.

1.4 Vision for Technology Use

Ultimately, the shared vision for the technology plan must support the mission and goals of the DeKalb County School District. The Technology Advisory Committee ensured this foundation was in place while incorporating best practices for 21st century teaching and learning along with stakeholder feedback. As a result, DCSD's shared vision for technology use will require us to:

- Foster an engaging environment that facilitates enhanced teaching and learning, innovation, communication, collaboration and operational efficiency in alignment with the DeKalb County School District's strategic plan
- Provide a collaborative learning environment that utilizes leading technology to engage stakeholders, reflect the rigor of content standards and prepare students to be successful and competitive in the 21st century global society
- Develop and maintain business systems that support the DCSD learning environment
- Provide the opportunity to access a learning environment that extends beyond the schools through the use of technology, engaging the entire DCSD community

The purpose of the DCSD Division of Information Technology is to support this vision by providing a customer service oriented team of professionals dedicated to the seamless integration and implementation of technology across the district. The division's philosophy is to expand the walls of the classroom by providing access to information and programs anytime, anywhere for anyone in a 21st Century Learning Environment.

2 Current Reality

2.1 Overview of our Technology Infrastructure

The goal of the DeKalb County School District is to provide the technology to support a 21st Century Learning Environment and equitable access to all students. In order to continuously evaluate progress towards this goal, data was collected from all DeKalb County Schools and Centers, from March 3 to April 16, 2015, as required by the Georgia Department of Education. The following sections provide an outline of the district technology infrastructure and services.

2.1.1 Network and Infrastructure

Fiber-Optic Wide Area Network

DCSD currently utilizes a wholly-owned fiber optic-based wide area network (WAN) to connect our schools to the Internet. Network connection speeds are 600 times faster and Internet access speeds are 14 times faster than the previous frame relay network. One of the greatest benefits of DCSD owning its own fiber network is the ability to increase intranet/Internet speeds by installing new equipment to support the enhanced bandwidth.

Industry-Standard Data Center

The DCSD wide area network (WAN) is organized into three core sites and 16 head-end sites that are connected at 10 Gbps bandwidth. Every school is connected to a head end at 1 Gbps bandwidth. Security components prevent unauthorized access to the network. The three central sites hold all of the district-level instructional and business applications. The main site is a fully-functional data center located at the district's technology center. Through virtualization technology, we have deployed over 65 VMWare ESX servers, which are servicing over 450 virtual servers across the entire school district.

Network Connectivity

All of our schools and centers have wired and wireless access with one wireless access point to every two classrooms being the district standard. DCSD has implemented a Connect Your Technology program in two schools which allows students to bring their own technology for educational purposes. DCSD wireless devices are configured with encryption information that allows access through the wireless infrastructure to the Internet. Some sites also offer "Guest" access so visitors can obtain a wireless connection for their devices. Our wireless network environment is continually being expanded to better support the use of mobile technology in DCSD's 21st Century Learning Environment.

Web Filtering

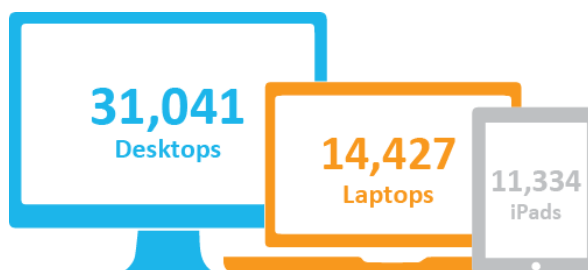
As a part of being CIPA compliant, DCSD uses two policy servers and eight web filters that provide safe and fast access to websites while blocking inappropriate content. The district also utilizes a firewall to control incoming and outgoing network traffic based on applied rule sets for securing data and other sensitive information from malware attacks and hackers.

Communications Infrastructure

DCSD’s telecommunications infrastructure provides telephone access to personnel in each school and center, including mobile classrooms. The robust telecommunications infrastructure provides a foundation for future growth of the district. This encompasses over 13,000 telephones, 15,000 voice mailboxes, 400 smart phones and 400 cell phones. Sixty percent of the telephones use Voice over Internet Protocol (VoIP). The telecommunications platform also includes an in-house automated calling platform which provides the capability to rapidly send voice calls, SMS messages and email messages to DCSD parents, students and other stakeholders.

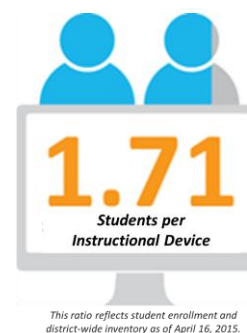
DCSD has expanded its communications infrastructure which not only includes managing the District's Website, but using a content management system to standardize and facilitate the management of school websites as well. DCSD also leverages digital communications tools such as social media applications and official mobile applications to push relevant information to stakeholders.

2.1.2 Workstations, Devices and Peripherals



Workstations and Devices

There are currently 31,041 desktops, 14,427 laptops and 11,334 iPads in use for instructional purposes within DCSD. All PC workstations have an operating system of Windows 7 or above. Although the vast majority of computers are Windows based, the District does have Macintosh workstations running OSX 10.7 and higher. All iPads are running iOS7 or higher. To ensure equitable access, DCSD is continually increasing the computer/device to student ratio. Currently, there is one district instructional device per 1.71 students. This ratio considers desktops, laptops, and iPads as instructional devices and reflects student enrollment and inventory as of April 16, 2015.



Interactive Whiteboards

Interactive whiteboards are a standard component of DCSD classrooms. Each of the 5,837 identified instructional classrooms have been equipped with interactive whiteboards. Additionally, each school is provided with one or more sets of interactive student response systems. The response systems are hand held response devices that allow each student to answer questions that are presented on the interactive boards.

2.1.3 Digital Resources and Productivity Tools

All purchased workstations come preinstalled with Windows 7, Internet Explorer 9 and the Microsoft Office 2013 Professional Suite, including a word processor (Word), spreadsheet (Excel), presentation tool (PowerPoint), database (Access) and organization and collaboration tool (OneNote).

DCSD transitioned to Office 365 as the district’s email and communication tool. Every DCSD staff member and all students in grades K through 12 have Office 365 accounts. These accounts support file storage and sharing.

Instructional software applications support both local school and district-level initiatives and are available for use in all schools and centers at appropriate grade levels. DCSD procures a variety of instructional software applications and digital resources licenses available as resources to schools and centers based on specific instructional needs. This list of instructional software applications can be viewed at the on the district's website:

<http://www.dekalb.k12.ga.us/instructional-software-programs>

DCSD also has a variety of applications that support administrative functions. Infinite Campus is the district’s Student Information System and electronic grade book. The district’s Instructional Data Management System provides teachers with access to school and student data, including benchmark and standardized assessment results.

2.1.4 Technology Support

Several levels of support personnel within the Division of Information Technology provide technology troubleshooting. The Support Center is the first point of contact for all users when there is a technical problem that cannot be resolved at the local schoolhouse level. Upon analysis, the Support Center staff utilizes a help desk call management system to escalate issues through first and second level support for every school and center. DCSD's Information Technology Support Center receives over 95,000 technical service requests per year via Web-based application and phone.

2.2 Technology Professional Learning and Resources



2.2.1 DCSD Technology Academy

The DCSD Technology Academy is a professional learning community designed to proactively meet the technology learning needs of the district. The goal of the Technology Academy is to provide staff with awareness and integration skills that complement the 21st Century Learning Environment. The professional learning experiences in the Technology Academy promote awareness, facilitate integration and



encourage expansion. The Technology Academy is aligned to International Society for Technology in Education (ISTE) technology standards for teachers and administrators, the Teacher Keys Effectiveness System standards and identified district initiatives. Delivery is designed to model best practices by providing courses in a variety of formats, including face-to-face, online and blended learning environments.

2.2.2 Instructional Technology Program

DCSD's Instructional Technology Program facilitates the research and evaluation of innovative technology tools with the intent to utilize those tools to provide targeted professional development and support through training, modeling, coaching and resource development. There are currently five instructional technology specialists and one instructional technology liaison providing support for all schools and departments as it pertains to the district's technology initiatives. In addition to providing professional development and support, DCSD also supports a yearly technology and vendor fair where students and vendors present computer and video projects as well as the latest technology tools to the DCSD community.

2.3 Gap Analysis/Review

As the Technology Advisory Committee collected feedback from stakeholders, crafted a shared vision for technology use, and evaluated the district's existing technology infrastructure, five themes emerged as areas of concern for future technology use. These themes are summarized in the following sections.

2.3.1 Anytime Anywhere Access

Students need continuous and flexible access to instruction, assessment, resources and tools to be successful in an engaging and rigorous student-centered learning environment. Administrators, teachers and staff also need continuous and flexible access to the administrative and business systems necessary to develop, monitor and support this 21st Century Learning Environment (21CLE). Parental access to relevant resources will also empower them to expand their child's learning environment and experiences.

To provide anytime anywhere access to a 21CLE beyond the physical schoolhouse and traditional hours of operation, the district must:

- Procure and standardize digital tools and instructional resources necessary to support and extend teaching and learning, considering ISTE standards and 21st CLE
- Procure digital tools that provides access to the district's curriculum
- Optimize continuous and flexible access to all data and information that support the district's data protocol process
- Procure business applications that expand district capabilities and improve operational effectiveness
- Ensure equitable access to a secure and robust network

2.3.2 Infrastructure Enhancements

Infrastructure enhancements focus primarily on network connectivity and security, and then devices, digital resources and applications. The goal of infrastructure enhancements is to ensure consistent, reliable and equitable access to a 21st Century Learning Environment.

In order to support this continuous access, the district will need to continue to improve the network infrastructure by extending and ensuring safe, reliable and robust connectivity. These improvements include:

- A mobile strategy that provides support for increased access to devices and resources critical to the personalization of learning
- Increased bandwidth and monitoring of the network
- A disaster recovery program that ensures recovery and continuation of vital technology infrastructure and systems
- Enhanced security and safety monitoring processes

2.3.3 Business Systems Integration

The need for updated and integrated business systems was echoed across the district in schools and offices. Improved workflow will increase operational effectiveness of the district's processes. DCSD business systems integration optimization includes:

- Cross-platform Integration and communication between systems including but not limited to HR, Finance, Purchasing, and Warehouse (commonly known as Enterprise Resource Planning or ERP)
- Integrated dashboards or decision support systems for monitoring performance measures and conducting data analysis
- Paperless records management system to provide more effective management of documents and information

2.3.4 Professional Development

Professional development is of great importance to provide and manage a 21st Century Learning Environment for students. It is clear from all stakeholders that increased access to professional development can impact effectiveness.

The district needs to provide professional development that:

- Promotes awareness and job-embedded uses of technology tools that increases staff efficacy
- Models and facilitates integration of technology tools into teaching and learning
- Empowers teachers, administrators, and staff to manage their professional learning needs
- Guides administrators to monitor and support progress of staff

2.3.5 Communication

Improving internal and external communication within our school district is one of the strategic goals for DCSD. The general stakeholder consensus is that DCSD needs to continue to make improvements in the ability to communicate information in a clear, concise and timely manner.

The improvements for internal and external communication that need to be made are:

- Optimization of current digital tools to organize and provide equitable access to information and data
- Create standards for content organization, efficiency and timeliness of information dissemination

3 Goals and Strategies



3.1 Anytime Anywhere Access

Goal: Provide equitable access to a 21st Century Learning Environment anytime, anywhere and at any pace.

DCSD Strategic Plan Goal Area 1: Student Success with Equity and Access

Strategies

- Provide support for a variety of blended and online learning opportunities for students (per Senate Bill 289¹), staff and parents by implementing a district-wide learning management system (LMS)
- Implement a management tool and process for reviewing and adopting technology tools and digital content that support instruction
- Implement district-wide instructional benchmarks for teachers to ensure they are using and modeling digital tools with the students
- Provide equitable and simplified access to digital tools and resources by implementing a student portal

¹ The Georgia Department of Education is recommending school district obtain and deliver online learning. http://gosa.georgia.gov/sites/gosa.georgia.gov/files/SB289_Report.pdf

- Improving equitable and personalized access to the devices, the Internet and digital resources in alignment with 21st Century Learning Environment
- Move toward 1 to 1 access (1 student per device), by increasing DCSD offered devices and BYOD opportunities
- Increase participation of students on existing Technology Advisory Committee

3.2 Infrastructure Enhancements

Goal: Enhance secure, efficient and reliable connectivity to the DCSD technology infrastructure.

DCSD Strategic Plan Goal Area 5: Organizational Effectiveness and Efficiency

Strategies

- Increase district bandwidth
- Increase wireless access
- Upgrade software and hardware to monitor WAN/LAN to maintain optimum network access by students and staff
- Upgrade WAN/LAN switches to provide fast access to Internet
- Maintain CIPA compliance
- Enhance end-point security
- Implement processes for tracking, measurement and refinement of the network
- Develop and implement Disaster Recovery Plan in accordance with DCSD's business continuity strategy
- Provide better remote access capabilities from outside of DCSD
- Provide equipment to support the needs of higher speed interactive devices (e.g., eBooks, tablets, video conferencing units)
- Develop streamlined onboarding (BYOD) criteria evaluation process
- Assess and revise district IT policies

3.3 Business Systems Integration

Goal: Ensure seamless and intuitive integration of systems that support the core business operations of DCSD.

DCSD Strategic Plan Goal Area 5: Organizational Effectiveness and Efficiency

Strategies

- Upgrade and integrate district business and student systems to support electronic data sharing
- Procure and implement an Enterprise Resource Planning (ERP) system that will effectively and easily track information across all departments and business functions

- Provide business intelligence tools for analyzing and reporting data to help make smarter operational and instructional decisions

3.4 Professional Learning

Goal: Enhance professional development for all staff to address the effective use of technology.

DCSD Strategic Plan Goal Area 3: Staff Efficacy and Excellence

Strategies

- Procure and implement a district-wide Learning Management System (LMS) that will provide ongoing access to professional learning experiences
- Procure and implement professional management tools that will provide ongoing access to deliver and manage DCSD's professional learning plan
- Develop and implement a professional development plan that addresses technology competencies and literacies for integration and expansion
- Identify and train technology coaches for each building for further support and model 21st Century teaching, learning and assessment
- Create an online professional learning community for teachers to share strategies using technology in the classroom

3.5 Communication Enhancements

Goal: Enhance internal and external communication among all stakeholders to provide clear, concise and relevant information.

DCSD Strategic Plan Goal Area 2: Stakeholder Engagement

DCSD Strategic Plan Goal Area 4: Internal and External Communication

Strategies

- Provide training/support to school administrators and webmasters to provide updated and current webpages
- Increase communication through App, Social Media and District Website
- Provide parents online access to student academic progress, activities and curricular standards
- Provide access to online training and support on various district initiatives and relevant topics
- Provide digital tools that support various languages
- Mandate cyber safety and digital citizenship training for all district staff

3.6 Evaluation and Monitoring

To ensure overall success, key performance indicators will be monitored continuously throughout the duration of the technology plan period. Formal evaluations of progress will be completed and reported in yearly increments – Year 1, Year 2 and Year 3.

4 Communication and Marketing

Effective communication and collaboration amongst all stakeholder groups will be key to the successful adoption and implementation of the Technology Plan Goals. Initially, focus groups were formed and stakeholder meetings held to include internal school/department staff, students, parents and community members to inform, get buy in and participate in development of this three-year plan. Moving forward, the Technology Advisory Committee will continue to use a variety of communicative methods and opportunities to promote and educate all stakeholders on the district's Technology Plan. These methods and opportunities include, but are not limited to:

- DCSD Communications Department will coordinate press coverage of technology-related news and updates
- DCSD staff will make presentations at forums and conferences regarding technology integration throughout the district
- Parent centers throughout the district will hold classes in the use of technology for families and citizens in the community beyond the school day
- Technology information will be communicated through the DCSD website which is updated regularly with current information
- Educational Access Channel (Cable Television) – PDS 24 will share updates on technology information
- District will communicate via social networks (i.e., Facebook.com, Twitter.com)

DCSD WebPages with technology-related information:

<http://www.dekalb.k12.ga.us/> (DCSD Website)

<http://www.dekalb.k12.ga.us/mis/> (Division of Information Technology)

<http://its.dekalb.k12.ga.us> (Instructional Technology)

<http://www.dekalb.k12.ga.us/mis/telecom/> (Telecommunications)

<http://www.dekalb.k12.ga.us/communications> (Communications Department)

<http://www.dekalb.k12.ga.us/parent-resource-centers> (Parent Resource Centers)

Appendix A.

21st Century Learning Environment Framework

The purpose of this framework is to provide a supporting structure and guidance for technology integration into the curriculum. This shared vision is based on research as well as District stakeholder beliefs.

Themes

Students must be exposed to instruction that moves learning well beyond a focus on memorizing and understanding content. In order to be successful global citizens, students need exposure to 21st Century interdisciplinary themes along with the content which prepares them to think at a higher level. These themes are:

- Global Awareness
- Civic Literacy
- Environmental Literacy
- Health Literacy
- Financial, Economic, Business and Entrepreneurial Literacy

Skills

Students need adaptive skills that prepare them for success in a global society. These skills include the ability to effectively:

- Communicate and Collaborate
- Research and Evaluate Information
- Think Critically and Solve Problems
- Practice Digital Citizenship
- Select Appropriate Technology Tools for Tasks

Teaching

What does teaching look like in the 21st Century?

The teacher must transition from being the conduit of all knowledge to more of a “Guide on the Side” where they are helping students build their own learning experiences. Teaching in a 21st Century Learning Environment requires:

- Interactive and student-focused instruction with student-driven activities
- Authentic learning activities centered around real-world problems and issues
- Blended Learning approaches that support the individual student

- Interdisciplinary units integrating 21st Century Themes
- Flexible digital rich environments that model effective use of digital tools and resources

Learning

What does learning look like in the 21st Century?

Students must be given opportunities to collaborate and construct their learning as opposed to merely consuming it from the teacher. In our globally connected society, learning must expand well beyond the classroom. Learning in a 21st Century Learning Environment requires:

- Smaller group and personalized instruction
- Collaboration with peers (*in classroom, across the state or even globally*) to solve relevant, rigorous, and real-world problems and/or issues
- Inquiry or Project-based explorations that are hands-on and research-driven
- Student-driven instruction and evaluation (*e.g., helping teacher to design rubrics and lessons*)
- Selecting emerging technologies to communicate their ideas and demonstrate knowledge (*e.g., classroom blogs, wiki*)
- Publishing of digital content and work (*e.g., presentations, spreadsheets, graphic design*)

Assessment

What does assessment look like in the 21st Century Learning Environment?

Evaluating learning must evolve from multiple-choice tests that merely show a student understands the content to assessing a student's ability to analyze, evaluate and solve problems using the content. Assessment in a 21st Century Learning Environment requires:

- Authentic and real-world assessment (*e.g., performances, project-based tasks*)
- Peer-based evaluations and self-reflections
- Varied formative and summative assessments aligned with content (*e.g., digital assessments, performance-based rubrics*)
- Multiple assessment opportunities integrated throughout the unit (*e.g., providing multiple opportunities to evaluate learning and for students to reflect on their learning*)

Teaching Tools and Resources

Core resources and tools necessary to support a 21st Century Learning Environment are:

- Teacher/Student Workstations with Internet Access
- Presentation Devices (*i.e., Interactive Whiteboards, Digital Projectors*)
- Wireless Connectivity
- Learner Response Devices
- Web Conferencing Capability and Devices (*i.e., Skype, Web-Cams*)

- Mobile Devices and Learning Labs (i.e., Tablets, Laptops)
- Multimedia Devices (i.e., Microphones, Document Cameras, Video Cameras)
- Productivity Software (i.e. Microsoft Office)
- Digital Content & Interactive Textbooks
- Collaborative Software & Interactive Web Tools (i.e. Blogs, Wikis, Google Drive, Office 365)
- Student, Classroom & School Data Collection, Management & Reporting Software (e.g. IDMS, Universal Screener)
- Learning Management System
- Job-embedded Professional Development and Coaching

The list above is not an exclusive list. However, these are the basic tools needed to support this framework in any environment. As the district's needs and technology tools evolve, this list will evolve as well.

For More Resources on 21st Century Teaching, Learning, and Skills

- **P21:** <http://www.p21.org/about-us/p21-framework>
- **ISTE NETS:** <http://www.iste.org/standards>
- **SETDA:** <http://www.setda.org/web/guest/NETP>
- **ATC21S:** <http://atc21s.org>

Appendix B. Technology Advisory Committee

Trenton Arnold, Regional Superintendent
 Rashdah Bahar, Technology Initiatives
 Gary Brantley, Chief Information Officer
 Ernest Brown, Business Community Leader
 John Brown, Human Resources
 Cynthia Bricton, Interim Deputy Superintendent
 for Curriculum and Instruction
 Dr. Morcease Beasley, Executive Director for
 Curriculum and Instruction
 Dr. Kia Billingsley, Principal
 Johnathon Clark, Research, Assessment, and
 Grants
 Dr. Kyia Clark, Principal
 Brittany Cunningham, Principal
 Monika Davis, Instructional Technology
 Rosalind Dennis, Educational Media &
 Instructional Materials
 Daniel Drake, Facilities & Planning
 Faye French, Applications Development
 Allyson Gevertz, Parent
 Marisa Greenlee, Enterprise Systems
 Dr. Kathleen Howe, DeKalb Online Academy
 Tanya Mason, Teacher
 Dr. Donald Mason, Principal
 Lynda Mauborgne, Principal
 Dr. Daniel McGuire, Principal
 Melanie McLendon, Student Information
 Systems
 Michelle Penkava, Parent

Alexander Riley, Transportation
 Joseph Swing, Technical & Support Services
 Natalie Terrell, Project Management
 Vasane Tinsley, Student Services
 Charlie Whitehead, School Nutrition & Support
 Matthew Williams, Planning/GIS
 Student Advisory Representatives
 Teacher Advisory Representatives

A Special Thank You to our Business Community and Higher Education Panelists:

Kelly Barnes, CEO of ICN
 David Harrington, VP of Sales for Google
 John Matelski, CIO of DeKalb County
 Government
 Tim Prince, Director of Marketing for Virtucom
 Jenny Tang, CEO of Virtucom
 Gina Gavin, Georgia Perimeter College
 Dr. Shuguang Hong, Georgia State University
 Gordon Moore, Georgia Institute of
 Technology
 Dr. Michael Nitsche, Georgia Institute of
 Technology
 Shelly-Ann Williams, Georgia State University
 Dr. Jo Williamson, Kennesaw State University