“These are just technologies. Using them does not make you modern, smart, moral, wise, fair, or decent. It just makes you able to communicate, compete, and collaborate farther and faster.” – The World is Flat, Thomas L. Friedman

“Technology has the shelf life of a banana.” - Scott McNealy

“For the first time in history, we’re preparing kids for a future that we cannot clearly describe.” - David Warlick
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Objectives

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Transform learning spaces and create virtual spaces to allow for the effective use of 21st Century skills and tools to improve technology proficiency and prepare all Jeffco students to be successful members of a global learning community.

Objective 2 .................................................................................................................................. 9
Achieve educational and organizational transformation that improves sustainable educational outcomes through strengthened partnerships between schools and central departments that harness the power of individual expertise throughout the organization creating individualized learning opportunities for all.

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**Executive Summary**

District-wide advancement of technology is imperative to Jeffco Public Schools’ students, parents, community and staff. Technology has become a necessary and effective tool for instruction, staff effectiveness, student achievement, parent involvement, community outreach and the ability of our graduates to compete in the global marketplace.

Jeffco staff completed the original version of this Technology Plan (the Plan) in 2008 to serve as a three-year guide for the district. Each version of the Plan focuses on the strategies and work to be accomplished over the next twelve to eighteen months, with some items spanning up to three years. The Plan is designed to be a living document with regular updates that take into account technology changes and/or funding challenges. The Plan is also designed to keep pace with rapidly changing technology and provide a framework for planning, implementing, evaluating and re-planning our technology-related work.

The Jeffco Schools Technology Plan is designed to meet six key objectives:

1) Transform learning spaces and create virtual spaces to allow for the effective use of 21st century skills and tools to improve technology proficiency and prepare all Jeffco students to be successful members of a global learning community.
2) Achieve educational and organizational transformation that improves sustainable educational outcomes through strengthened partnerships between schools and central departments that harness the power of individual expertise throughout the organization creating individualized learning opportunities for all.
3) Ensure the effective use of technology to facilitate communication with staff, community and students.
4) Ensure existing systems deliver efficient service and useful information to support end-to-end business processes.
5) Ensure there is technology equity for students and staff.
6) Ensure that infrastructure technology resources are accessible, flexible and cost-effective to support the expanding needs of the educators and students.

The original 2008 draft of the Plan was the result of the work of several groups that met to provide input, ideas and feedback. The groups included:

- Jeffco Schools Technology Convocation participants
- District Technology Visioning Committee
- High School Site Technologists
- District Technology Steering Committee
- Division of Instruction (now referred to as Educational Research and Design)
- Support Services, Business Services and Human Resources
- Information Technology Department

During the spring and summer of 2013, a team consisting of principals, teachers and staff from Educational Technology Services and Information Technology reviewed the objectives and edited the plan to reflect milestones that have been met and to adjust...
measurements and action plans. The overall focus and strategy were not altered, but modifications were made.

**The Technology Plan Purpose**

This Technology Plan articulates a common district vision. The Plan identifies the strategies for the use of technology in promoting guaranteed and viable curriculum standards and for developing critical thinking skills that are essential for academic and workplace success.

The single most important factor in determining the success of technology in the classroom is a teacher who is able to effectively use technology in instruction. By ensuring equitable and efficient use of existing and emerging technologies, Jeffco schools will succeed in providing a quality education that prepares all children for a successful future.

**The Technology Plan Rationale**

In today’s world, all organizations must plan for the use of technology. Following are some key drivers for the development of the Plan:

- Technology is vital to teaching and learning for the 21st century.
- Technology can no longer be considered a separate course; technology is a tool for all learning.
- Technology must be transparent in every classroom and integrated throughout the curriculum.
- All students in grades K – 12 must be supported with access to technology tools.
- Teachers and students should be equipped with current technologies that make learning interesting, motivating and relevant to the real world.
- Staff should have adequate tools for teaching and managing information.
- Technology should be accessible and in working order day for teaching and learning.

**The District Mission and Strategic Plan Goals**

_District Mission:_ To provide a quality education that prepares all children for a successful future.

Jeffco Public Schools creates a Call to Action. The Call to Action describes the district's mission, goals, objectives, and strategies. It also includes performance indicators that will provide feedback on our progress.

**Strategic Plan Goal A:**

All students graduate prepared for continued learning and the world of work in the 21st century.

**Strategic Plan Goal B:**

All employees are accountable for a high performing organization.

The Technology Plan is a primary contributor to the district’s Call to Action.
The Technology Plan Identified Needs
The essential needs to be addressed by the Technology Plan are predominantly based on the National Educational Technology Standards “Essential Conditions” (1) (see appendix 2) and are listed below:

- Shared vision among all stakeholders
- Empowering leaders to effect change
- Implementation planning
- Consistent and adequate funding
- Equitable access to technology
- Skilled staff members
- Ongoing professional learning
- Technical support
- Curriculum and digital resources are aligned
- Individualized learning opportunities
- Engaged communities
- Policies, financial plans and accountability measures

(1) NETS Essential Conditions – 2012

Technology Plan Implementation Responsibilities
The responsibility for implementation of the Plan rests with the District Technology Steering Committee (DTSC). The Chief Information Officer, Chief Technology Officer, Executive Director of Educational Technology, Chief Academic Officer and Chief Financial Officer will carry out the strategies in the Plan based on guidance from DTSC.

The Technology Plan Evaluation Process
The District Technology Steering Committee will utilize one of its regular annual meetings to review the Technology Plan. The Plan includes measurements of progress for each objective and indicator. The CIO, CTO and Executive Director of Educational Technology will facilitate this review process with the District Technology Steering Committee and other staff members.
Objective 1 - Transform learning spaces and create virtual spaces that allow for the effective use of 21st century skills and tools to improve technology proficiency and prepare all Jeffco students to be successful members of a global learning community.

Expectations

**District Leadership will** –
- Monitor district-wide expectations for student technology and information proficiencies.
- Offer differentiated opportunities for staff development at all levels, including online, blended and face-to-face.
- Model usage of the tools that teachers are using in the classroom.
- Lead effectively and improve learning for an increasingly digital world by being proficient in the ISTE National Educational Technology Standards for Administrators:
  - Visionary Leadership
  - Digital-Age Learning Culture
  - Excellence in Professional Practice
  - Systemic Improvement
  - Digital Citizenship

**Administrators will** –
- Monitor district-wide expectations for technology use in classrooms.
- Assure adequate technology-based tools and resources are available to support learning in a digital world.
- Provide sufficient time for staff to plan and learn how to effectively use technology.
- Use technology tools and informational resources to support effective communication and decision making.
- Model usage of tools teachers are using in the classroom.
- Lead effectively and improve students’ preparation for an increasingly digital world by being proficient in the ISTE NETS for Administrators:
  - Visionary Leadership
  - Digital-Age Learning Culture
  - Excellence in Professional Practice
  - Systemic Improvement
  - Digital Citizenship

**Teachers will** –
- Use technology as an essential component of their instructional practice.
- Revise instructional practice to incorporate digital learning skills and strategies.
- Model the use of technology and information.
- Use tools and informational resources to improve collaboration and self-direction.
- Promote student use of technological tools by demonstrating understanding and mastery of the ISTE National Educational Technology Standards for Students.
- Teach effectively and improve learning for an increasingly digital world by being proficient in the ISTE National Educational Technology Standards for Teachers:
  - Student Learning & Creativity
  - Digital-Age Learning Experiences and Assessments
  - Digital-Age Work & Learning
  - Professional Growth & Leadership
  - Digital Citizenship & Responsibility

**Indicator 1.1 -- Students are technologically literate, demonstrating the knowledge, skills, and resources to be successful in an increasingly complex global and digital society.**

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student technology proficiency data will increase from year-to-year as measured by voluntary technology skills assessment available at each grade level.</td>
<td>Student Technology Proficiency Assessment through Schoology.</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

Jeffco Technology Plan [6] Objective 1
1. Educational Research and Design team with Teacher Librarian Leadership team, will establish a set of grade level expectations using ISTE NETS that define technology proficiency in Jefferson County.

2. Educational Research and Design with support training of grade level proficiency ISTE NETS in order to build capacity for school based staff.

3. Facilitate a partnership between teacher librarians and classroom teachers to allow for better collaboration on ways to infuse technology into curriculum.

4. Provide ongoing training to all teacher librarians that helps them educate staff and students regarding global citizenship, effective research practice, and safe use of digital content.

5. Encourage sharing of best practice lessons in order to build a Library Showcase Website that allows students and teachers to demonstrate their technology proficiency as we increase collaboration across the District.

6. Educational Research and Design will add into CCAP reference for the infusion of technology to support learning.

**Indicator 1.2 – Increase and promote online and blended learning opportunities and resources are provided to all students.**

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 100% of secondary schools will report that they offer fully online or blended learning opportunities in all core content areas.</td>
<td>End of Year Principal Leadership Survey and Schoology user statistics by role</td>
</tr>
<tr>
<td>• By the beginning of 2014 - 2015 school year, 100% of our licensed teachers will have an online presence using Schoology, Google Sites or other technology tools that are used to provide multiple opportunities to improve the communication, collaboration and problem solving skills of their students.</td>
<td>End of Year Principal Leadership Survey and Schoology user statistics by role</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Provide a district definition of online and blended learning.

2. Collaborate with all secondary schools to increase the number of students participating in blended learning opportunities.

3. Collaborate with Jeffco’s Budget Department to review the process for funding Virtual Academy part-time students.

4. Continue to develop and implement professional development for licensed staff teaching in online and blended environments.

5. Develop and launch a blended learning best practices course for teachers with strands focused on various curriculum areas and grade bands. This course will show teachers how to blend online instruction to increase student engagement, allow for more strategic differentiation, and identify the best instructional strategies to improve student achievement.

6. Provide online, blended, face-to-face, and self-paced learning opportunities to help students and teachers effectively use Schoology.

7. Revise all online Social Studies courses to align to new CAP and Common Core Standards. (English, Chemistry, Physics and Biology alignments were completed during 2012-13).
8. Work with schools to create best practices for providing online and blended learning opportunities when there is reduced access to technology at home.

**Indicator 1.3 -- Mobile technology and Bring Your Own Device practices and policies are integrated into all Jeffco schools.**

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 100% schools will report that they have a Bring Your Own Device policy in place and allow students at appropriate times to utilize Mobile Technology to support their learning.</td>
<td>End of Year Principal Leadership Survey</td>
</tr>
<tr>
<td>• 100% of schools utilizing mobile technology will report that they are aware of resources that support classroom implementation</td>
<td>End of Year Principal Leadership Survey</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Educational Research and Design will create multiple training programs consisting of online and face-to-face learning to support the use of mobile technology in classrooms.

2. A cross department team including members of Educational Research and Design, school-based staff and Information Technology will study and report to Cabinet the benefits of implementing a one-to-one initiative to increase student achievement and define a personalized learning approach for the district.

3. Educational Research and Design will create/use Schoology collaborative groups to provide current information on mobile technology integration best practices and ideas. To strengthen communication, staff members will work to consolidate resources into locations.

4. Educational Research and Design will provide face-to-face training as well as self-paced and facilitated Schoology courses to support their work in creating/implementing technology enhanced classrooms.

5. District policy will be adjusted to support Bring Your Own Device policies at all Jeffco Schools.

6. Educational Research and Design will work with schools/principals to help them to align individual school policies to the district policies.

7. Mobile Device Readiness websites will be created to facilitate communication to staff, students, and community members.
Objective 2 – Achieve educational and organizational transformation by improving sustainable educational outcomes through strengthened partnerships between schools and central departments that harness the power of individual expertise, thereby creating individualized learning opportunities for all.

**Expectations**

**District Leadership will** –
- Clearly communicate technology and ISTE National Educational Technology Standards expectations for all staff.
- Provide multiple professional development opportunities for staff to acquire and develop technology skills in a variety of ways.
- Model effective use of technology in professional practice.
- Continue to partner with CDE and other organizations to build systems that bring all the resources, data, and information that teachers need into one technology system.

**Administration will** –
- Demonstrate proficiency in ISTE National Educational Technology Standards for Administrators.
- Set expectations for staff and use progress monitoring to demonstrate the effective use of technology relevant to their role.
- Provide professional development opportunities for staff to increase their skills.
- Model effective use of technology in professional practice.

**Teachers will** –
- Demonstrate proficiency in ISTE National Educational Technology Standards for Teachers.
- Participate in professional development opportunities to increase their skills.
- Model effective use of technology in professional practice.

**Indicator 2.1 – Jeffco staff understand the essential technological proficiencies aligned to their work and district expectations.**

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% of principals will report that they and their staff are aware of technology proficiency standards for teachers, as outlined in the ISTE NETS for teachers, and have had opportunities to attend online or face-to-face training sessions to increase their proficiency.</td>
<td>End of Year Principal Leadership Survey</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Provide resources and rubrics for teachers to assess their level of technology proficiency along with next step suggestions to point teachers to relevant training and professional development opportunities.
2. Communicate the ISTE NETS for Teachers, Administrators, and Coaches to all administrators, teachers and coaches.
3. Expand the role of the Customer Learning Center to provide more face-to-face training opportunities for staff members who are working towards improved technology proficiency.
### Indicator 2.2 -- All staff seamlessly integrate technology into their professional practice to engage, enrich, monitor, and develop student learning and achievement.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 100% of principals will report that through the integration of technology tools, teachers have adjusted classroom environments to allow for more collaboration, communication, creativity and problem solving among students and between students and teachers.</td>
<td>End of Year Principal Leadership Survey</td>
</tr>
<tr>
<td>• 100% of schools will report that professional development that identifies best practices for integrating technology tools in instruction is being provided at their school.</td>
<td>End of Year Principal Leadership Survey</td>
</tr>
</tbody>
</table>

#### Action Plan for Indicator

1. ISTE NETS will be embedded into C-CAP by January 2014.
2. Create online training to provide continued support and training for teacher librarians and high school technology coordinators to ensure ISTE NETs are effectively integrated and implemented throughout the school and curriculum.
3. Create training to help teachers understand and use digital books, Google Hangout, web tools, and other technology resources (SmartBoard, iPads, Smart Response clickers, etc.) to create multimedia rich learning environments that engage all students.
4. Provide training to help teachers create problem-based learning experiences connected with CCAP that provide students with more ownership of their learning. Examples may include author visits, digital communication with other schools in order to make connections between Jeffco teachers and teachers around the world.
5. Provide communication to help principals understand best practices for integrating technology into their classrooms and to help them gain support from stakeholder groups such as PTA and building Collaborative Decision-Making committees for the integration of technology tools.
6. Provide training opportunities to demonstrate examples of how to integrate technology within Jeffco’s curriculum.

### Indicator 2.3 – Technology-based professional development opportunities are available to all staff through a variety of formats.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 100% of schools will report that staff has access to various forms of professional development, including online facilitated, online self-study, online tutorials and face-to-face instruction.</td>
<td>End of Year Principal Survey, relevant courses offered listed on the Professional Development and IT Training Center websites and digital resources available on Employee Connections tool support pages.</td>
</tr>
<tr>
<td>• 100% of secondary schools will report that professional development opportunities are available for staff to incorporate blended/online learning into their face-to-face classroom.</td>
<td>For the second target, we proposed: End of Year Principal Survey, relevant courses offered as listed on the Professional Development and Training and at IT Training Center websites, and report from Ed. Tech Services on blended learning school trainings completed.</td>
</tr>
</tbody>
</table>
Action Plan for Indicator

1. Identify teachers in key locations at all levels across the district to be trained as experts in technology integration areas of greatest need who will become future trainers. (Model after SMART Power Users’ Group (SPUGs))

2. Identify model classroom(s) (a combination of online and actual) across the district that showcase the potential of fully integrated technology and deep content-rich collaboration and dialogue among teachers, students, and the global community.

3. Collaborate with all parts of Educational Research and Design to create professional development that meets the needs of Jeffco staff members in the 21st Century and incorporates the national standards for staff development and makes connections with iPD, Leading Student Change days and Leading Student Achievement days.

4. Develop a resource bank of lessons that model and exemplify technology integration within content curriculum.

Indicator 2.4 -- Technology systems are available anytime/anywhere to all staff and students to provide data and instructional resources to promote customized learning environments for all students.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Functional Specifications Document (FSD) is delivered to and accepted by Jeffco by November 30, 2013</td>
<td>Core Team meeting notes</td>
</tr>
<tr>
<td>• Design Specifications Document (DSD) is delivered to and accepted by Jeffco by March 31, 2014</td>
<td>Core Team meeting notes</td>
</tr>
<tr>
<td>• Training and access to new IEP system is provided to all staff members who are required to use tool.</td>
<td>Training logs and IEP system logs</td>
</tr>
<tr>
<td>• C-CAP Phase II implemented on time.</td>
<td>Project meeting notes</td>
</tr>
</tbody>
</table>

Action Plan for Indicator

1. Prepare for the release of the classroom dashboard through completion of the FSD, DSD and phase I of the project.

2. ERD and IT will collaborate to develop and implement technology systems to ensure the tools are available for teachers in support of CDE mandated initiatives.

3. Prepare for the 2014 release of the new IEP system (Enrich) by conducting a review and providing training for early adopters.

4. Provide access to new IEP system (Enrich) and training for all instructional staff members in spring and summer of 2014.

5. ERD and IT will collaborate to develop, communicate and implement a process that formalizes the path for adoption of new technology tools.

6. Complete C-CAP Phase II project on-time.

7. Educational Research and Design, in partnership with Information Technology and Jeffco’s purchasing program, will review programs that allow parents to purchase technology that can bring anywhere/anytime learning opportunities to students.
8. Information Technology and Educational Research and Design will provide ongoing review and support for the use of social media tools as a means to communicate and collaborate with school stakeholders and outside experts.
Objective 3 – Ensure the effective use of technology to facilitate communication with staff, community and students.

**Expectations**

**District Leadership will** –
- Promote the effective use of technology tools to facilitate communication between schools, staff, parents and community.
- Move toward more integrated enterprise web presence and data sources.

**Principals will** –
- Possess an understanding of district communications tools and promote regular use of these tools for communication within schools and to parents.

**Teachers will** –
- Update events, assignments, and grades in applicable systems (Campus, Schoology, web sites, newsletters, etc.) in a timely manner based on school standards.
- Utilize the access to student data and schedules to facilitate communications.
- Leverage technologies to foster collaboration between teachers and students; teachers and parents; and between students.

**Students will** –
- Access information on assignments, grades, events, and schedules via available tools.
- Utilize technology tools to aid with content creation and collaborative efforts.

**Parents will** –
- Utilize district communication tools to stay informed of district news, school events, and student information.
- Utilize technology tools to participate in student collaborative efforts.
- Encourage increased student performance by utilizing technology to collaborate with district staff.

**Indicator 3.1** – The district provides collaboration and information sharing capability for staff and students.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>District supported tools for collaboration, including document sharing, blogging, calendars, etc., will be available</td>
<td>Implementation and support plans are created and executed</td>
</tr>
<tr>
<td>Employees will have a tool that allows them to publish interactive surveys, forms and other data gathering tools</td>
<td>Google Forms will be the supported tool for standard interactive surveys and forms</td>
</tr>
<tr>
<td>Employees who utilize social media web tools will do so in a professional and appropriate manner.</td>
<td>Employees who use social media tools will align the use of this technology with policy GBEE</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Provide ongoing training and support for Google Apps for Education tool set.
2. Phase out existing legacy tools and explore new tools to enhance collaboration and information sharing.

**Indicator 3.2** – The district provides a cohesive and professional web presence based on the needs of the community, parents, students and employees.
### Measurable Targets

- A consistent district branding (colors, logos, look and feel, templates) and user experience (navigation, menus, search, etc.), will be implemented across all public and internal district sites and pages.

- For the purpose of increasing ease of use for our community, a set of minimum site requirements will be determined by the district’s Communications department and communicated to all schools.

- All web sites will reside on servers or services centrally manageable by Jeffco Information Technology.

- User access will be centrally managed using automated processes or an assigned team responsible for this process.

- Sites, pages and content will be developed with a focus on intended audience (role).

- All web “updaters” across the district will have reliable access to only the pages or content they are responsible for maintaining.

- Web updaters/developers will have tools that are appropriate for the level of technical expertise they are expected to possess.

| Standard templates and guidelines are developed and implemented for school sites, internal employee site(s), external/community site(s). |
| Communications will be sent out twice per year reminding school and district sites of the requirements. |
| Web team to conduct regular audits to ensure administrative access to all school sites. |
| Enhancements will be made to existing processes to set up new user access, update and remove outdated user access, on any/all web servers. |
| Content is current, old content is removed (expired or manually removed). |
| Sites, pages, content are audience-focused. |
| All “updaters” and developers of sites, pages and content have the access and tools they need to do their job. |

### Action Plan for Indicator

1. Per board policy, Communications will lead the effort to provide design, content and style guidelines for all sites and pages. These will be in compliance with district policy, and consistent with district branding.

2. Communications and Information Technology will work together to develop an ongoing support plan to ensure that the web presence is monitored, maintained and stays relevant to the needs of community, parents, students and employees.

3. The Communications team will lead the work to optimize the district website for mobile devices.

4. IT and Communications will examine the worthiness of building a mobile app for the district site.
Objective 4 - Ensure existing systems deliver efficient service and useful information to support end-to-end business processes.

<table>
<thead>
<tr>
<th>Expectations</th>
</tr>
</thead>
</table>
| **Information Technology will** –  
  • Review all new technology requests in relation to existing systems capability before considering new solutions.  
  • Develop skill sets so additional modules and/or bolt-on applications can be provided for existing systems to meet district needs.  
  • Implement better integration tools to facilitate faster integration.  
|  
| **District Leadership will** –  
  • Review existing systems capability before investigating new systems.  
  • Reinforce that new requests will be matched to existing system capabilities. Support the consolidation of redundant systems.  
  • Provide support and resources to implement integration tools.  
  • Support the identification of data stewards and enterprise data sources in support of the district Data Governance initiative.  
|  
| **Staff will** –  
  • Review existing systems capability before investigating new systems.  
  • Process transactions in a timely manner to facilitate faster information flow between systems.  
|  

**Indicators 4.1 – Current systems capabilities are fully utilized to meet new needs, reduce the number of district systems, and maximize efficiency and effectiveness of enterprise systems and district operations.**

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>All new technology requests will be compared to existing systems capabilities to determine whether current solution meets the need. Where capability does not exist, requests will be compared to solutions available from current technology vendors or that can be developed under approved enterprise platforms.</td>
<td>Completed Project Charter/Information Technology Work Request</td>
</tr>
<tr>
<td>All system upgrade projects will include a fit/gap analysis phase to determine if current customizations can be merged into present system capabilities.</td>
<td>Completed Fit/Gap Analysis Documentation</td>
</tr>
<tr>
<td>Duplicate functionality or systems that have been implemented to enable a single business process will be reduced</td>
<td>Service Catalog</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. As part of Jeffco’s project management process, utilize the Information Technology Work Request form and/or Project Charter to ensure the project has been reviewed in accordance with indicator targets. Ensure that a business case analysis is performed on all major Information Technology projects.  
2. Identify and document all system customizations for use during system upgrades. Documentation will be updated as fit/gap analysis is performed.
3. Identify business processes and supporting systems used across the District. Develop a roadmap that phases out the use of duplicate or legacy systems in favor of standard enterprise systems and platforms. Implement project roadmap.

**Indicator 4.2** – Tools and processes are implemented that allow for timely handoff of enterprise information between district systems.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data consistency and accuracy will be increased across enterprise systems to support end-to-end business processes.</td>
<td>Implemented Event-Driven Enterprise Application Integration (EAI) Platform (Hermes) and documentation</td>
</tr>
<tr>
<td>• Manual data re-entry will be reduced while timeliness of data in downstream systems is improved.</td>
<td>Implemented Integration Console Tool</td>
</tr>
<tr>
<td>• Integration requirements for all newly implemented technology systems will be improved.</td>
<td>Implemented Event-Driven EAI Platform (Hermes) and documentation</td>
</tr>
<tr>
<td></td>
<td>Completed Technology Integration Plan</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Socialize the current Enterprise Application Integration (EAI) solution capability and plan to facilitate data integration between systems.
2. Identify and document enterprise data flows through business processes. Define integrations (new and existing) that are required to synchronize data between systems. Create a roadmap for the Hermes platform that prioritizes integration work for enterprise systems including PeopleSoft, Campus, Google, Horizon, Schoology, Enrich and the Classroom Dashboard. Implement project roadmap.
3. Create Enterprise Data Gathering and Reporting (EDGR) operational data store to facilitate data cleansing and reporting.
4. Document integration events and data messages for each data publisher/subscriber. Ensure integrations meet system requirements.
5. Create and implement a Hermes Administrative Console Tool to assist Information Technology in supporting organizations in troubleshooting data integration issues.
6. Publicize existing and planned integration capabilities to increase awareness of integration impacts on technology selection.
7. Create Integration Plan template to be used as a required deliverable for all new technology implementations. Train all project managers and business analysts in required deliverables.
**Indicator 4.3** – Data management practices are applied to enhance business processes and communications and improve enterprise reporting to make informed business decisions.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data consistency and re-use across enterprise systems will be increased to support end-to-end business processes and enterprise analytics.</td>
<td>Implemented Data Dictionary with shared data elements</td>
</tr>
<tr>
<td>• Ownership of enterprise data will be increased.</td>
<td>Defined Data Stewards</td>
</tr>
<tr>
<td>• Data quality at time of entry in source system will be increased.</td>
<td>Implemented Data Dictionary with shared data elements</td>
</tr>
<tr>
<td></td>
<td>Business data owners are cognizant of downstream effects of data</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Through the Data Governance Initiative, identify and document shared data entities across the organization. Work with Information Technology and business data owners to determine source systems and stewards of enterprise data.

2. Implement an enterprise data dictionary to capture and maintain enterprise metadata. Work with business data owners to reconcile incompatible terminology into a single data dictionary providing agreed upon definitions and properties for each data element.

3. Work with business data owners to understand and optimize data entry practices to increase operational efficiencies and decrease application support costs. Utilize change request process for enhancements to data quality.
Objective 5 – Ensure technology equity for students and staff.

Expectations

**District Leadership will** –
- Support and review technology expectations, goals, and targets with staff.
- Hold all employees accountable for the effective use of technology.
- Participate on district-wide technology committees.
- Review Educational Technology Access Plans (ETAP) submitted by schools yearly.

**Information Technology will** –
- Support and review technology expectations, goals, and targets with staff.
- Assist with technology planning meetings for schools.
- Review and provide input on school technology plans (ETAP).
- Assist and communicate to schools on ETAP planning activities.
- Review Tech Equity Reports annually.

**Administrators will** –
- Participate on district-wide technology committees.
- Complete ETAP planning template yearly and review with staff and parents.
- Monitor and ensure that all staff accomplishes goals and expectations.

**Teachers will** –
- Participate on school technology committees.
- Provide opportunities for students to utilize technology.
- Advocate technology needs for their students.

**Indicator 5.1 – Equal access to technology (hardware and software) is available for all students and staff.**

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% of schools will have a current technology plan on file in the ETAP planning tool.</td>
<td>Report number of schools with technology plans in the ETAP planning system.</td>
</tr>
<tr>
<td>ETAP staff and site-based technology support staff will assist schools and departments in developing their ETAP Plans.</td>
<td>Technology survey results from schools.</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Complete ETAP plan every 2 years with budget estimates.
2. Develop and deliver training for site-based technologists.
3. Monitor and modify technology equipment asset tracking system.
### Indicator 5.2 – Systematic technology refresh process ensures technology is current and meets staff and student needs.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Technology equipment and software specifications will be reviewed and published.</td>
<td>A joint Information Technology-Educational Technology Services report submitted to District Technology Steering Committee.</td>
</tr>
<tr>
<td>100% of school ETAP plans will be reviewed yearly to assure technology is systematically being refreshed based on submitted plans.</td>
<td>Review of school ETAP plans on an annual basis by Information Technology. Results presented to District Technology Steering Committee.</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Information Technology and Educational Research and Design review district standards yearly.
2. Submit ETAP technology report annually based on data gathered from ETAP plans.

### Indicator 5.3 – Dependable technology support is provided to all schools and departments.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site support technology models will be reviewed annually to provide appropriate support to schools and departments</td>
<td>Quarterly work order resolution statistics reported</td>
</tr>
<tr>
<td>Self-service and knowledge-based tools that can diversify our support portfolio will continue to be explored.</td>
<td>Quarterly work order ticket customer feedback review with Information Technology Leadership.</td>
</tr>
<tr>
<td>Provide relevant and current technology training for site-based technologists including face-to-face, web-based, and on-site training.</td>
<td>Technology survey results of site-based technologists training delivery reported to District Information Technology Leadership.</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Complete technology assignments and territory revisions before start of school each year.
2. Continue to utilize knowledge-base and chat-support options.
3. Continually communicate plans announcing new support tools and methods to all end users.
### Indicator 5.4 – Equal access to advanced technologies is provided district-wide.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• New technologies will be filtered and reviewed by the Educational Technology Services and Information Technology groups.</td>
<td></td>
</tr>
<tr>
<td>• New technologies will be reviewed if necessary prior to being incorporated into the Educational Technology Access Plan and made available for purchase by schools.</td>
<td></td>
</tr>
<tr>
<td>• ETAP web site will be updated to assure schools are made aware of resources for ETAP planning.</td>
<td></td>
</tr>
<tr>
<td>Educational Technology Services and Information Technology group researches and reports progress to District Technology Steering Committee.</td>
<td></td>
</tr>
<tr>
<td>All new technology pilot plans are reviewed and approved by Educational Technology Services and Information Technology groups.</td>
<td></td>
</tr>
<tr>
<td>Information Technology and Educational Technology Services jointly communicate to the schools via DTSC, teacher librarians, and other communication tools.</td>
<td></td>
</tr>
</tbody>
</table>

### Action Plan for Indicator

1. Create cross-functional teams of Information Technology, Educational Technology Services, and school staff to review new technologies as needed.
2. Continue the process to explore new technologies.
3. Maintain the process of discovery and testing when exploring all new technologies.
4. Revise ETAP planning template as needed to incorporate new technologies.
5. Communicate all related information to all staff.
Objective 6 – Ensure that infrastructure technology resources are accessible, flexible and cost-effective to support the expanding needs of the educators and students.

<table>
<thead>
<tr>
<th>Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information Technology will</strong> –</td>
</tr>
<tr>
<td>● Securely design and implement highly available enterprise services.</td>
</tr>
<tr>
<td>● Supply the appropriate infrastructure capacity to meet normal and peak demands in order to ensure availability.</td>
</tr>
<tr>
<td>● Offer new technologies to meet the changing needs of the district.</td>
</tr>
<tr>
<td>● Adopt strategies that encourage and accept consumerization of technology and mobility access to diverse applications and learning systems</td>
</tr>
<tr>
<td>● Increase capacity of school-based staff to troubleshoot lower-level hardware and software issues through self-help pages, video tech tips, cross-training, etc.</td>
</tr>
<tr>
<td>● Expand the Information Technology ecosystem to enable better collaboration with multiple operating systems and platforms</td>
</tr>
<tr>
<td><strong>Principals and Administrators will</strong> –</td>
</tr>
<tr>
<td>● Provide guidance and input on school/department technology utilization and needs for enterprise services.</td>
</tr>
<tr>
<td>● Ensure staff accountability for appropriate use of enterprise systems and services in accordance with established district policies.</td>
</tr>
<tr>
<td><strong>Teachers and Staff will</strong> –</td>
</tr>
<tr>
<td>● Provide guidance and input on school/department technology utilization and needs for enterprise services.</td>
</tr>
<tr>
<td>● Ensure student/staff accountability for appropriate use of enterprise systems and services in accordance with established district policies.</td>
</tr>
<tr>
<td><strong>Students will</strong> –</td>
</tr>
<tr>
<td>● Be accountable for appropriate use of enterprise systems and services in accordance with established district policies and the student handbook.</td>
</tr>
</tbody>
</table>

**Indicator 6.1 –** District infrastructure exhibits high system availability and business continuity (Availability Management).

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>● All district-wide enterprise systems will achieve a 99.5% or better service-hour availability and usability.</td>
<td>Quarterly reports of actual uptime of district enterprise services provided to district leadership, including the Board of Education.</td>
</tr>
<tr>
<td>● 85% of Information Technology key customers will rate IT service availability as “good”, “very good” or “excellent.”</td>
<td>Technology survey results of Information Technology key customers.</td>
</tr>
<tr>
<td>● Information Technology will work in support of implementing the Comprehensive Business Continuity Plan and will incorporate a viable Disaster Recovery Plan for all critical applications.</td>
<td>Regular updates regarding Presentation of Business Continuity/DR Plan made to District Technology Steering Committee, BOE and Cabinet.</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Build and maintain the technology infrastructure for the data center, schools, and administrative sites with the highest possible capability to prevent and recover from service interruptions.
2. Maintain vendor contracts with a 24-hour response time for hardware, and a 2-hour response time for high impact/high severity network issues.
3. Maintain an automated system to monitor and demonstrate that critical enterprise Information Technology services are functioning correctly, and to provide 24/7 alerts if the service is not functioning correctly.

4. Develop, test and maintain disaster recovery plans for disaster recovery tier level 0-3.

5. Conduct annual or semi-annual testing of the Disaster Recovery Plan.

6. Migrate from legacy wireless infrastructure to accommodate growth in mobile devices (1-1 / BYOD).

7. Chief Technology Officer will co-chair semi-annual business continuance committee with designate from Business Support Services.

8. Migrate from legacy PBX telephone system to modern Unified Communications system by 2014.

## Indicator 6.2 – All users have equal access to reliable and appropriate infrastructure.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>● 100% of all schools and administrative sites will have a guest wireless network</td>
<td>Annual audit of current wired/wireless capability of all Jeffco facilities</td>
</tr>
<tr>
<td>to permit un-authenticated guest access to the Internet.</td>
<td>is performed and presented to Cabinet, Information Technology leadership</td>
</tr>
<tr>
<td>● Revised security plans and processes will be developed and implemented for district</td>
<td>and the District Technology Steering Committee (DTSC).</td>
</tr>
<tr>
<td>network operations to include Internet filtering, intrusion detection, wireless</td>
<td>Wireless infrastructure dashboard to monitor school wireless environment,</td>
</tr>
<tr>
<td>security, virus protection, and firewalls.</td>
<td>creating &quot;on-demand&quot; services</td>
</tr>
<tr>
<td>● A safe learning environment will be provided that fosters innovation and creativity</td>
<td>Annual security audit results submitted to Chief Financial Officer.</td>
</tr>
<tr>
<td>for students and staff.</td>
<td></td>
</tr>
</tbody>
</table>

## Action Plan for Indicator

1. Evolve the district standard 802.11 b/g wireless network to improve network throughput at district sites with newer 802.11 technologies to meet the demands of staff and students.

2. Develop and begin implementation of revised security plan.

3. Facilitate Information Technology security workshops for schools and parents on care, ethics and appropriate use guidelines.

4. Adopt technology consumerization and mobility standards, thereby becoming more open to leveraging personally owned devices and external services.
**Indicator 6.3** – Current enterprise services are managed and sized to meet the district’s growth and needs.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% of district-wide technology systems will have a scalable architecture to allow expansion with minimal disruption.</td>
<td>Annual reviews performed by the Chief Technology Officer to ensure all district-wide technology systems are scalable.</td>
</tr>
<tr>
<td>District-wide technology systems capacity will be monitored</td>
<td>Quarterly report by Chief Technology Officer to Cabinet, Board Of Education and Information Technology Leadership team on the status of the district-wide technology systems capacity monitoring plans.</td>
</tr>
<tr>
<td>100% of district-wide technology systems will have future usage projections prepared on a semi-annual basis.</td>
<td>Quarterly report by Chief Technology Officer to Information Technology Leadership team on the status of the district-wide technology systems capacity monitoring plans.</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Ensure all new systems have a scalable architecture prior to purchase and implementation.
2. Review current capacity report baseline of WAN (wired & wireless networks) as well as circuit capacity (QMOE) and the Internet, and budget for potential bandwidth increases.
3. Work with educational and administrative support teams, schools, and departments on current and projected district-wide enterprise technology system usage.
4. Create documentation that shifts the responsibility of managing data capacity from Information Technology to a partnership between Information Technology and the end user.
5. Monitor and report usage of bandwidth for business and educational purposes.
6. Develop and communicate plan to manage District bandwidth during peak cycles (Traffic prioritization).
**Indicator 6.4** – Enterprise infrastructure services are managed to economically meet present and future technology needs.

<table>
<thead>
<tr>
<th>Measurable Targets</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>● 100% of all new system RFPs will include evaluation criteria that give preference to web-based versus client-based software products.</td>
<td>All issued RFPs will include criteria that incorporate web/cloud based services.</td>
</tr>
<tr>
<td>● A comprehensive Capability Management Plan will be developed for all district-wide technology systems including storage, network, and physical plant.</td>
<td>Forward-looking technology architecture plan updated annually with reports provided to Information Technology Leadership.</td>
</tr>
<tr>
<td>● A district plan will be developed to provide a road map for cloud and mobile device readiness (MDR).</td>
<td>Plan for cloud and mobile device readiness (MDR) is presented to District Technology Steering Committee.</td>
</tr>
</tbody>
</table>

**Action Plan for Indicator**

1. Explore, evaluate and recommend for or against new technologies and processes and their integration into the current district enterprise.
2. Develop a plan for implementing new technologies for the district.
3. Create and update a technology architecture plan.
4. Add future technology trends and initiatives to meeting agendas with education and administrative customers.
5. Review Information Technology project request processes to ensure that all initiatives (projects) are registered in the project database and prioritized on an annual basis.
6. Communicate Infrastructure roadmap (cloud and mobile device readiness (MDR))
Appendix 1

Technology Plan

Benchmarks
1. Creativity and Innovation
   Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
   a. Apply existing knowledge to generate new ideas, products, or processes
   b. Create original works as a means of personal or group expression
   c. Use models and simulations to explore complex systems and issues
   d. Identify trends and forecast possibilities

2. Communication and Collaboration
   Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
   a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
   b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats
   c. Develop cultural understanding and global awareness by engaging with learners of other cultures
   d. Contribute to project teams to produce original works or solve problems

3. Research and Information Fluency
   Students apply digital tools to gather, evaluate, and use information.
   a. Plan strategies to guide inquiry
   b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
   c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
   d. Process data and report results

4. Critical Thinking, Problem Solving, and Decision Making
   Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
   a. Identify and define authentic problems and significant questions for investigation
   b. Plan and manage activities to develop a solution or complete a project
   c. Collect and analyze data to identify solutions and/or make informed decisions
   d. Use multiple processes and diverse perspectives to explore alternative solutions
5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

a. Advocate and practice safe, legal, and responsible use of information and technology
b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
c. Demonstrate personal responsibility for lifelong learning
d. Exhibit leadership for digital citizenship

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

a. Understand and use technology systems
b. Select and use applications effectively and productively
c. Troubleshoot systems and applications
d. Transfer current knowledge to learning of new technologies

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National Educational Technology Standards (NETS) Project
“Essential Conditions”

National Educational Technology Standards (NETS)
“Essential Conditions” (1)
Essential Conditions

Necessary conditions to effectively leverage technology for learning:

**Shared Vision**
Proactive leadership in developing 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 empowered to be leaders in effecting change.

**Implementation Planning**
A systemic 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 to support technology infrastructure, personnel, digital resources, and staff development.

**Equitable Access**
Robust and reliable access to current and emerging technologies and digital resources, with connectivity for all students, teachers, staff, and school leaders.

**Skilled Personnel**
Educators, support staff, and other leaders skilled in the selection and effective use of appropriate ICT resources.

**Ongoing Professional Learning**
Technology-related professional learning plans and opportunities with dedicated time to practice and share ideas.

**Technical Support**
Consistent and reliable assistance for maintaining, renewing, and using ICT and digital learning resources.

**Curriculum Framework**
Content standards and related digital curriculum resources that are aligned with and support digital age learning and work.

**Student-Centered Learning**
Planning, teaching, and assessment centered around the needs and abilities of students.

**Assessment and Evaluation**
Continuous assessment of teaching, learning, and leadership, and evaluation of the use of ICT and digital resources.

**Engaged Communities**
Partnerships and collaboration within communities to support and fund the use of ICT and other digital resources for learning and in district school operations.

**Support Policies**
Policies, financial plans, accountability measures, and incentive structures to support the use of ICT and other digital resources for learning and in district school operations.

**Supportive External Context**
Policies and initiatives at the national, regional, and local levels to support schools and teacher preparation programs in the effective implementation of technology for achieving curriculum and learning technology (ICT) standards.

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Appendix 3

Technology Plan Updates
October 2013
During the spring and summer of 2013 a team consisting of staff from Education Technology Services and Information Technology reviewed each objective and edited the plan to reflect milestones that have been met and to adjust measurements and action plans. The overall focus and strategy were not altered, but modifications were made.

Major achievement milestones that have been reached during the life of the Plan include the following:

- **Objective 1:**
  - A full-time online school – Jeffco’s 21st Century Virtual Academy – was launched in the fall of 2009, a full year ahead of schedule, and provides service for 7th – 12th grade students.
  - Technology proficiency for Jefferson County 8th grade students increased each year from 2009 to 2011.

- **Objective 2:** In the 2013 *A Call to Action* Survey 100% of schools reported that their staff has access to professional development opportunities that support their use of technology to enhance their instruction.

- **Objective 3:**
  - The district’s external web site was reengineered with an improved focus on community, potential new employees and business partners. In addition, a new web support model was created that included the hiring of two web support staff to support both external- and internal-facing web applications.
  - During the 2012/13 school year, the district finished migrating all SchoolCenter web sites to Google Sites, thereby eliminating web hosting and maintenance costs.
  - In the summer of 2013, the district site was updated so that pages are automatically optimized to adjust to the screen size of mobile devices.

- **Objective 4:** Middleware has been implemented to automate the flow of data between major back-end systems, including PeopleSoft, Infinite Campus, Google Apps, and Schoology.

- **Objective 5:** The ETAP (Education Technology Access Plan) program is fully functional, and 100% of school ETAP plans are reviewed annually. In addition, a BFR provided initial funding for technology site techs for all of the district’s grade schools and middle schools.

- **Objective 6:** High speed fiber and wireless infrastructure has been implemented for all district schools and buildings as of May 2010, and district-wide comprehensive capacity monitoring tools are in place.

A number of significant action plans are in place, including:

- **Indicator 1.1:** Educational Research and Design team with Teacher Librarian Leadership team, will establish a set of grade level expectations using ISTE NETS that define technology proficiency in Jefferson County.

- **Indicator 1.3:** A cross department team including members of Educational Research and Design, school-based staff and Information Technology will study and report to Cabinet the benefits of implementing a one-to-one initiative to increase...
student achievement and define a personalized learning approach for the district.

- **Indicator 2.2**: ISTE NETS will be embedded into C-CAP by January 2014.

- **Indicator 2.3**: Collaborate with all parts of Educational Research and Design to create professional development that meets the needs of Jeffco staff members in the 21st Century and incorporates the national standards for staff development.

- **Indicator 3.2**: IT and Communications will examine the worthiness of building a mobile app for the district site.

- **Indicator 4.2**: Identify and document enterprise data flows through business processes. Define integrations that are required to synchronize data between systems.

- **Indicator 6.2**: Adopt technology consumerization and mobility standards, thereby becoming more open to leveraging personally owned devices and external services.

- **Indicator 6.4**: Communicate Infrastructure roadmap for cloud and mobile device readiness.

As Jeffco Schools continues to lead in the K-12 technology space, this plan will provide the framework and direction to move forward in a strategic fashion.