In the following brief, Hanover Research reviews the technology plans used in six top-performing school districts.
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EXECUTIVE SUMMARY AND KEY FINDINGS

In this research brief, Hanover Research provides Madison Metropolitan School District with information on high-quality technology plans used in other school districts. For each technology plan profiled in this brief, we provide a brief overview of the structure and format of the plan, an outline of main goals and targets, and examples of specific strategies related to technology use in classrooms, curriculum integration, and professional development.

METHODOLOGY

The districts included in this report were the top five winners in the Center for Digital Education’s most recent Digital School District’s Survey. Winning school districts were recognized for their “use of technology to govern the district, communicate with students, parents, and the community, and to improve district operations.” Awards are given in three different size categories, but for the purpose of identifying districts similar in size to Madison Metropolitan, we focused specifically on the top five large-sized districts (12,000 students or more). For reference, individual winners in this size category are shown in the figure below.

2013 Top Ten Winners – Large-Sized Districts

<table>
<thead>
<tr>
<th>RANK</th>
<th>DISTRICT</th>
<th>STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roanoke County Public Schools</td>
<td>Virginia</td>
</tr>
<tr>
<td>2</td>
<td>Forsyth County Schools</td>
<td>Georgia</td>
</tr>
<tr>
<td>3</td>
<td>Fayette County Schools</td>
<td>Georgia</td>
</tr>
<tr>
<td>4</td>
<td>Township High School District 214</td>
<td>Illinois</td>
</tr>
<tr>
<td>5 (tie)</td>
<td>Northwest Independent School District</td>
<td>Texas</td>
</tr>
<tr>
<td>5 (tie)</td>
<td>Prince William County Public Schools</td>
<td>Virginia</td>
</tr>
<tr>
<td>6</td>
<td>Rowan-Salisbury School System</td>
<td>North Carolina</td>
</tr>
<tr>
<td>7 (tie)</td>
<td>Clark County School District</td>
<td>Nevada</td>
</tr>
<tr>
<td>7 (tie)</td>
<td>Colorado Springs School District 11</td>
<td>Colorado</td>
</tr>
<tr>
<td>7 (tie)</td>
<td>Savannah-Chatham County Public School System</td>
<td>Georgia</td>
</tr>
<tr>
<td>8</td>
<td>Cherokee County School District</td>
<td>Georgia</td>
</tr>
<tr>
<td>9 (tie)</td>
<td>Richmond County School System</td>
<td>Georgia</td>
</tr>
<tr>
<td>9 (tie)</td>
<td>Frederick County Public Schools</td>
<td>Maryland</td>
</tr>
<tr>
<td>10 (tie)</td>
<td>Littleton Public Schools</td>
<td>Colorado</td>
</tr>
<tr>
<td>10 (tie)</td>
<td>Klein Independent School District</td>
<td>Texas</td>
</tr>
</tbody>
</table>

KEY FINDINGS

- Most technology plans use a format that includes a combination of narrative (describing the current state of technology use in the district, the process of revising the plan, and professional development offerings, among other themes) and specific objectives and strategies in bulleted outline or grid form. Some districts omit the narrative and focus only on data, though it seems to be more common to describe different processes and themes rather than only present achievement or technology use data.

- All of the districts included in this brief expressed their commitment to using technology in the classroom to improve student learning, particularly with regard to closing achievement gaps. Furthermore, all of the districts are committed to providing staff with the professional development necessary to integrate technology into the classroom. Both of these aspects of technology plans are highlighted in the goals and strategies as well as the narrative sections of the technology plans.

- Technology plans typically describe a process for continuously updating the goals and strategies based on changing needs, emerging technologies, and other factors that could impact a technology plan’s relevance over time. Though the plans were written with a three- or five-year timeline in mind, they are generally accepted to be working documents that may be revised as necessary over the course of the plan’s use.
ROANOKE COUNTY PUBLIC SCHOOLS (VA)

Roanoke County Public Schools describes its 2010-2015 technology plan as “a road map for the successful implementation of technology to serve all aspects of our mission” and “a link between the strategies outlined in the Roanoke County Public Schools Comprehensive Plan and the goals and objectives contained in the Educational Technology Plan for Virginia: 2011-15.” The district’s technology plan follows the same five areas of concentration as the Educational Technology Plan for Virginia, which include Environment, Engagement, Application, Tools, and Results:

- Physical and virtual environments that are used in innovative ways to support learning activities;
- Engagement of students through technology, reflecting learning styles, cultural backgrounds, and personal interests;
- Application of technology tools for communication and creative problem solving;
- Technology tools used to extend student capabilities to perform functions that would be difficult, if not impossible, without technology; and
- Results that not only meet accountability requirements, but also include real-time assessments that inform instruction must be employed to address 21st Century skills and knowledge.

Though the bulk of the 2010-2015 Educational Technology Plan is made up of actions (goals, objectives, strategies, and measures/evaluation strategies), a sizable portion of the plan is written in narrative form, describing the process for constructing the technology plan, the vision for technology use in the district, the ongoing process for planning effective use of technology, the needs assessment used to modify technology programs, and future directions for the technology plan. The budget and timeline, the Acceptable Use Policy, and the Internet Safety Plan are provided in the plan’s appendices.

Goals described in the plan are both long-term and short-term, and the whole plan undergoes “continuous evaluation to determine the status of each goal.” This continuous evaluation and revision process ensures that the plan is updated as necessary to cover “emerging technologies and changing student needs.” The planning and revision process is illustrated in the following figure.

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3 Ibid.
4 Bulleted points taken verbatim from: Ibid., p. 3.
5 Ibid.
6 Ibid., p. 15.
For each identified goal, the technology plan outlines specific strategies for meeting each goal, as well as objectives, measures, and responsible personnel. Individual goals and objectives presented in the plan include:  

- **Goal 1**: Provide a safe, flexible, and effective learning environment for all students  
  - Objective 1.1: Deliver appropriate and challenging curricula through face-to-face, blended, and virtual learning environments.  
  - Objective 1.2: Provide the technical and human infrastructure necessary to support real, blended, and virtual learning environments.  
  - Objective 1.3: Provide high-quality professional development to help educators create, maintain, and work in a variety of learner-centered environments.  

- **Goal 2**: Engage students in meaningful curricular content through the purposeful and effective use of technology.  
  - Objective 2.1: Support innovative professional development practices that promote strategic growth for all educators and collaboration with other educators, experts, and students.  
  - Objective 2.2: Actualize the ability of technology to individualize learning and provide equitable opportunities for all learners.  
  - Objective 2.3: Facilitate the implementation of high-quality Internet safety programs.  

- **Goal 3**: Afford students with opportunities to apply technology effectively to gain knowledge, develop skills, and create and distribute artifacts that reflect their understandings.

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7 Bulleted points taken verbatim from: Ibid., pp. 9-15.
Objective 3.1: Provide and support professional development that increases the capacity of teachers to design and facilitate meaningful learning experiences, thereby encouraging students to create, problem-solve, communicate, collaborate, and use real-world skills by applying technology purposefully.

Objective 3.2: Ensure that students, teachers, and administrators are ICT literate.

Objective 3.3: Implement technology-based formative assessments that produce further growth in content knowledge and skills development.

Goal 4: Provide students with access to authentic and appropriate tools to gain knowledge, develop skills, extend capabilities, and create and disseminate artifacts that demonstrate their understandings.

Objective 4.1: Provide resources and support to ensure that every student has access to a personal computing device.

Objective 4.2: Provide technical and pedagogical support to ensure that students, teachers, and administrators can effectively access and use technology tools.

Objective 4.3: Identify and disseminate information and resources that assist educators in selecting authentic and appropriate tools for all grade levels and curricular areas.

Goal 5: Use technology to support a culture of data-driven decision making that relies upon data to evaluate and improve teaching and learning.

Objective 5.1: Use data to inform and adjust technical, pedagogical, and financial support.

Objective 5.2: Provide support to help teachers disaggregate, interpret, and use data to plan, improve, and differentiate instruction.

Objective 5.3: Promote the use of technology to inform the design and implementation of next generation standardized assessments.

Examples of additional information provided for two objectives that pertain specifically to curriculum integration and professional development are shown below.

Objective 1.1: Deliver appropriate and challenging curricula through face-to-face, blended, and virtual learning environments.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Measures/Evaluation Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expand virtual course offerings available through the Roanoke County Public School Virtual High School</td>
<td>The RCPS Program of Studies Guide</td>
</tr>
<tr>
<td>Expand dual enrollment offerings by leveraging higher education partnerships</td>
<td>Describe efforts to expand dual enrollment offerings</td>
</tr>
<tr>
<td>Re-focus our efforts in design of our virtual learning environment to create a stronger connection between real and virtual classrooms</td>
<td>RCPS Tech Advisory Committee and virtual learning focus group minutes. Staff and student surveys</td>
</tr>
</tbody>
</table>
### Objective 2.1: Support innovative professional development practices that promote strategic growth for all educators and collaboration with other educators, experts, and students

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Measures/Evaluation Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitate the development and delivery of professional development opportunities that incorporate peer coaching, mentoring, online training, and reflective practices.</td>
<td>RCPS Professional Development Calendar, staff surveys</td>
</tr>
<tr>
<td>Provide ongoing training for administrators and curriculum supervisors in the effective use of technology and collaborative learning tools</td>
<td>RCPS Professional Development Calendar, staff surveys</td>
</tr>
<tr>
<td>Support administrators and curriculum supervisors in the evaluation of meaningful technology practices that enhance instruction</td>
<td>RCPS Professional Development Calendar, RCPS Technology Continuum Evaluation Tool</td>
</tr>
</tbody>
</table>
FORSYTH COUNTY AND FAYETTE COUNTY (GA)

The technology plans for the second and third ranked districts, Forsyth County Schools and Fayette County Schools, are both reviewed in this section. Both districts are located in Georgia and use the same basic model for their technology plans:

- Vision for Technology Use
- Current Reality
- Communication and Marketing
- Professional Development
- 8th Grade Technology Literacy

The technology plans of the two districts are examined in further detail in the profiles below.

FORSYTH COUNTY SCHOOLS (GA)

The Forsyth County Schools Three-Year Technology Plan is written in narrative form, describing the five main elements listed above. The plan indicates that “The school district will display a belief that technology is imperative to the work of students and adults and will provide the resources necessary for an effective and efficient operation to achieve results.”

At the beginning of the technology plan, the district introduces five goals for strategic planning:

- Goal #1: Increase all student achievement while expanding educational opportunities.
- Goal #2: Recruit, develop and retain a highly qualified workforce.
- Goal #3: Enhance educational programs through increased community involvement.
- Goal #4: Communicate effectively both internally and externally.
- Goal #5: Pursue and secure alternate funding and resources while maximizing operational efficiency

Throughout the technology plan, these goals are further examined through a comprehensive review of the strategies, benchmarks, evaluation methods, funding sources and amounts, and responsible parties to ensure that each goal is achieved. A sample of the strategies identified under Goal 1 are included in the following figure.

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9 Bulleted points taken verbatim from: Ibid.
## Sample Strategies for Goal 1

**Goal 1: Increase all student achievement while expanding educational opportunities.**

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Benchmark</th>
<th>Evaluation Method</th>
<th>Funding Source/ Amount</th>
<th>Person Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foster innovative practice</td>
<td>Design and expand educational opportunities and experiences for students that will eliminate the achievement gap between subgroups and meet the needs of all learners.</td>
<td>Maintain the learning management system (ANGEL) to provide an infrastructure for the instructional framework of our school system.</td>
<td>Pending availability of funds, $340,000 annually from general operating funds</td>
<td>Dir of Instructional Technology &amp; Associate Supt for Academics and Accountability</td>
</tr>
<tr>
<td>Ensure a high performing culture</td>
<td>Design and expand educational opportunities for students that will eliminate the achievement gap between subgroups and meet the needs of all learners.</td>
<td>Receive a 46% discount through Erate funding on Internet Access.</td>
<td>Pending availability of funds, $325,000 annually from general operating funds</td>
<td>Chief Technology and Information Officer</td>
</tr>
<tr>
<td>Foster innovative practice</td>
<td>Utilize the Engage ME instructional framework outlining standards-based classroom expectations, tools for monitoring classroom curriculum and instruction, as well as a teacher growth and development model tied to student achievement.</td>
<td>Advanced the district’s grading and reporting work to address grading of students with disabilities, specifically in the areas of 4th and 5th grade standards-based reporting using ANGEL to distribute information and professional learning.</td>
<td>Pending availability of funds, $240,000 annually from general operating funds</td>
<td>Dir of Elementary Education/ Dir of Instructional Technology</td>
</tr>
<tr>
<td>Develop core competencies</td>
<td>Utilize the FCS Graduate Profile to align and enhance opportunities to develop student’s core competencies (academic and personal) from kindergarten through graduation.</td>
<td>Assess students’ 21st century skills by implementing an assessment for 8th graders (aligned to NETS-S and Graduate Profile) and direct professional learning resources to strengthen areas of needed improvement.</td>
<td>Pending availability of funds, $240,000 annually from general operating funds</td>
<td>Director of Instructional Technology</td>
</tr>
</tbody>
</table>

In order to support the growth of students and teachers across the numerous goals and strategies, the district outlines a vision to provide rigorous academic courses along the “FCS Online Learning Continuum,” which ranges across the spectrum of instructional methods that involve technology. As depicted on the following page, this continuum ranges from instructional technology in traditional “brick and mortar” schools to completely online education and individualized online learning supports.
The district uses the learning management system ANGEL Learning System in all schools to allow students to access digital content to support traditional instruction. The technology plan notes that Forsyth County Schools was the first district in the southeast to adopt a large-scale blended learning model. The learning management system allows teachers and students to work collaboratively, and “teachers are able to utilize this system to organize units of inquiry and map them to standards; they can also create learning games, communicate with students, and develop assessments related to those units.”

In the realm of virtual learning, the plan notes that the district opened a full-time online high school in 2010. Finally, when discussing personalized learning, the district received an Investing in Innovation Fund grant, and plans to use the funds to eventually develop a personalized online “Learner Plan” for every child enrolled in the district.

The section of the technology plan on the “current reality” describes the current state of access to technology within the district, technology use for instructional/administrative uses and parent/community uses, and a gap analysis of student test scores, access to technology, and technology integration in classrooms. In an effort to close achievement gaps, the district ensures that all schools and classrooms have equal access to technology such as interactive whiteboards.

Further, the district has identified that “there is a need for further work on moving away from teaching from traditional textbooks towards more project-based, student-centered learning,” as discovered by numerous classroom observations and walk-throughs. The proposed solution is that “Both online and face-to-face learning and professional

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10 Ibid., p. 3.
development are valued. All instruction must be based on standards, and students need to have opportunities to use mobile technology.”

The section on professional development describes actions taken in the district to ensure that instructional staff are effectively integrating technology into the classrooms. Individual campuses submit a professional learning plan each year that aligns to school improvement goals, while the Office of Instructional Technology also offers professional learning initiatives. Specific actions include the “spectrum for measuring authentic classroom technology integration,” Internet safety guidelines and procedures, and professional learning course offerings. These courses focus on popular topics, such as Bring Your Own Technology initiatives, project-based learning, and collaborative learning with online tools.

The district also created an online tool to assist administrators in evaluating teachers and identifying necessary professional development.

Of the previously examined district goals, Goal 2 focuses on professional development of staff: “Recruit, develop and retain a highly qualified workforce.” While reproducing the benchmarks and evaluations methods for each component of this goal is beyond the scope of this report, the district’s plan outlines the role of technology in the following general strategies:

- Create and maintain an atmosphere of respect among stakeholders;
- Foster a culture of opportunity;
- Provide progressive and relevant professional development;
- Build system capacity to support schools; and
- Continue to build upon leadership development and support.

**FAYETTE COUNTY SCHOOLS (GA)**

Fayette County Schools’ Three-Year Technology Plan also follows the same basic structure as Forsyth County Schools, with some slight differences. The plan outlines the vision of technology in the district:

- Technologies to be integral to teaching, learning, and leading this district
- Teachers who are informed, fearless users or modern technologies
- Students who have access to technology when and where they learn

Similar to Forsyth’s technology plan, Fayette’s plan includes three main goals and the accompanying strategies, actions, timeline, funding source, and responsible parties. The three main goals of the technology plan are:

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11 Ibid., p. 9.
12 Ibid., pp. 19-20.
Goal #1: Appropriately integrate technology into the curriculum, instruction, and assessment so our students will be capable of living and working effectively, responsibly, and productively in a global environment.

Goal #2: Use technology services for the efficient operation of all functions of the Fayette County School System.

Goal #3: Plan for the future within the district using technology resources and by ensuring those resources remain as modern as practical.

The technology plan further outlines annual measurable objectives, as displayed in the figure below. These objectives “are accepted as the strategic, operational, and daily direction for technology services within the district.”

### Annual Measurable Objectives of the Technology Plan

- Provide applications integrated into a sequenced and organized curriculum.
- Share “best practices” for using available applications/resources/technologies to ensure achievement for all students.
- Collaboratively with Curriculum and Instruction, identify and recommend applications for integration into instruction and assessment.
- Ensure student accessibility to technology resources.
- Develop and maintain a process for evaluation of applications to assist in solving curricular, instructional, and assessment issues.
- In conjunction with Curriculum and Instruction, assist in the use of technology to differentiate and reinforce higher order skills.
- Using the Technology Committee, ensure sufficient resources to achieve the district’s goals while maintaining fiscal responsibility.
- Evaluate and implement modern technologies into the district’s community communications.
- Support professional learning using modern technologies.
- Assist in developing and directing professional learning for the integration of modern technologies.
- Model the application and integration of modern technologies in the community of learning.
- Develop policies and procedures, which once implemented, will facilitate the district’s vision for technology.
- As necessary, bring national, state, regional, and local resources to bear on technology issues impacting teaching, learning, and leading.
- Facilitate the timely and accurate reporting of students and district assets to the appropriate regional, state, and national education agencies.

The “current realities” section of the technology plan focuses on network capabilities, hardware adoption, administrative and parent/community integration, student literacy, staff readiness, and personnel and resources, as well as a lengthy subsection on the current state of technology integration in the classroom and professional development to enhance this process. The plan notes that “District teachers now have access to modern instructional

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15 Ibid., p. 2.
16 Ibid., p. 3.
technology tools and with all teachers meeting the instructional technology requirements, we must shift from learning about technology to learning how our students learn with the digital tools available to them.”

This section of the technology plan further offers a number of scenarios of technology use in the classroom, demonstrating how the technology enhances teacher instruction and student learning when implemented properly. The plan notes that “the challenge over the next three years will be to ensure responsible use of the available technologies by students.”

The technology plan emphasizes the district’s commitment to providing staff with professional development. This includes collaboration with instructional technology specialists and media specialists to review the Georgia Performance Standards for Technology Integration and plan instruction to further technology literacy. The technology plan notes that “Lessons and activities that support technology integration standards and coordinate with appropriate sections of the curriculum in all grade levels and subject matter are required.”

In addition to the three main goals identified above, the district’s Professional Learning Department has its own strategic plan that lists strategies for training educators in effectively integrating technology into the classroom. Technology and professional learning are intertwined, as the Director of Professional Learning serves on the Strategic Technology Committee, and the Director of Technology Services is on the Professional Learning Steering Committee. The technology plan provides a sample of strategies from this strategic plan, shown below.

### Sample Strategies for Goal 1

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>BENCHMARK</th>
<th>EVALUATION METHOD</th>
<th>FUNDING SOURCE/AMOUNT</th>
<th>PERSON(S) RESPONSIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide professional learning opportunities for school based instructional technology specialists</td>
<td>Monthly meetings to exchange best practices in the application of technology to teaching and learning</td>
<td>Observation instrument, application to classroom instruction, involvement in responsible use of technology resources by students</td>
<td>Local instructional Funds ($1K)</td>
<td>District Instructional Technology Specialist</td>
</tr>
<tr>
<td>Attendance at GaETC by 95% of school based instructional technology specialists</td>
<td>Percentage of school based technology specialists. Increase in attendance by school based teams</td>
<td>School based and local funding ($15K)</td>
<td>District Instructional Technology Specialist and Professional Learning Coordinators, Principals</td>
<td></td>
</tr>
</tbody>
</table>

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17 Ibid., p. 4.
18 Ibid., p. 7.
19 Ibid., pp. 19-20.
## Goal: Appropriately Integrate Technology into Curriculum, Instruction, and Assessment so Our Students will be Capable of Living and Working Effectively, Responsibly, and Productively in a Global Environment

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>BENCHMARK</th>
<th>EVALUATION METHOD</th>
<th>FUNDING SOURCE/AMOUNT</th>
<th>PERSON(S) RESPONSIBLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue 21st Century Technology Leaders Course</td>
<td>Training of school based cadre</td>
<td>Training completed by Aug 2011. Initial assessment of integration, observation instrument</td>
<td>Title IID Formula ($3.5K)</td>
<td>District Instruction Technology Specialist and Professional Learning Coordinators, Principals</td>
</tr>
<tr>
<td></td>
<td>Training of Grade Level Teams</td>
<td>Instruction begins Sep 2011. Initial assessment of integration, observation instrument</td>
<td>Local School Funds ($1K)</td>
<td>District Instruction Technology Specialist, Principals, Curricular Coordinators</td>
</tr>
<tr>
<td></td>
<td>Appropriate technologies to teaching reading and mathematics</td>
<td>Appropriately integrate available technologies into reading strategies</td>
<td>Observation instrument, improvements on district benchmark(s)</td>
<td>Local funding of IST/ILT ($100K)</td>
</tr>
<tr>
<td></td>
<td>Apply the ISTE NETS to the integration of technology to the curriculum</td>
<td>ISTE NET(S) integrated into lesson plans</td>
<td>Observation, lesson review and improved technology literacy scores on 8th grade assessment</td>
<td>School based and local funding ($1.5K)</td>
</tr>
</tbody>
</table>
Township High School District 214 (IL)

Township High School District 214’s Technology Integration Plan comprises three major sections. The first section, Data and Analysis, provides an overview of report card data, assessment data, and technology development data to establish the current state of student performance and access to and use of technology in the district. The second section, Action Plan, describes three phases of actions and strategies in support of the district’s main goal of continuous growth among each NCLB subgroup’s performance in reading, English, math, and science. The final section, Plan Development, Review, and Implementation, describes district policies regarding the use of technology in classroom instruction.

The district’s vision statement regarding technology includes the following:

Our community of learners will develop the 21st century skills of inventive thinking, effective communication, high productivity, and digital-age literacy to create innovative solutions to real world problems. We will facilitate the growth of all individuals to use technology effectively and ethically so they become capable of functioning in and contributing to our diverse society and global community. We will educate all learners to use technology to efficiently locate, analyze, synthesize, [and] evaluate information and then communicate concepts from their own perspectives.

To support this vision, the district outlines the following three components:

- **Telecommunications**: We will use podcasting, teleconferencing, videoconferencing, and distance learning to provide new avenues of learning. We will use VOIP to increase communications for administrative and life safety purposes, utilize a broadcast notification and email listserv system for communication with parents and all stakeholders.

- **Instructional Technology**: Is used throughout the curriculum by incorporating interactive whiteboards, mobile devices, cloud computing technology, online subscriptions, a learning management system (Moodle), and use of a video distribution system to enhance instruction.

- **Information Technology**: We will use technology to process and distribute information via electronic conferences, research data, and student information system (School Logic), content management system, electronic grade book, and email in support of student achievement goals.

As noted, the technology plan details all components and metrics of student achievement in the district in the first section. The second section then responds to these data by offering three stages of goals and activities to improve student learning. For example, the first

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21 Ibid., p. 3.
identified goal is: “Based on a current composite growth score of 4.2, each NCLB subgroups average EPAS (Educational Planning Assessment System) growth will surpass that of the previous cohort by 10% annually in reading, English, math, and science until growth from EXPLORE to ACT exceeds 6 points within three years.”

In response, the district outlines strategies with corresponding activities in the four areas of curriculum and instruction, professional development, parent and community involvement, and technology development. As an example, the first strategy related to curriculum and instruction is to “Provide students with differentiated instruction and new avenues of learning based on the Illinois State standards using technology resources, targeting subgroup populations.” Example activities include:

- Use Compass Learning Odyssey, which is a research based curriculum and available from home, to enhance the subgroup student’s learning, reduce failure, provide at-risk students with personalized instruction and increase student achievement.
- Continue the use of Skills Tutor to provide at-risk students and those students functioning below grade level with personalized instruction and increase student achievement.
- Continue to develop teacher course pages in Moodle that provide class information, resources, and documents students may need to expand learning beyond the classroom.22

In the area of technology deployment, the related strategy for the main goal is: “Provide equitable access to technology by managing a wide range of technology tools and software with necessary policies and procedures to provide a safe and rich learning environment for students and all stakeholders.” Corresponding activities include increasing bandwidth capacity, providing needed telecommunications, updating software, and sustaining support resources for the Compass Learning Odyssey.

Strategies and corresponding activities are also identified around this same goal for professional development. These components will be reviewed later in this section. Further, strategies and activities are identified for parent and community involvement. These will not be examined in this report, but can be found in the technology plan.

A January 2012 update to the 2011 technology plan includes a review of strategies to increase the use of technologies in instruction and supports to ELL students and low income subgroups of students. Looking specifically at activities related to curriculum integration, the technology plan lists the following action steps to improving instruction to these students through the use of technology:23

- Acquire ELL language proficiency, reading and mathematics online courseware for district wide implementation

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22 Ibid., p. 61.
23 Ibid., pp. 88-89.
Explore adaptive online testing as part of tracking ELL student performance in mathematics and reading
- Initiate monitoring and tracking of student performance using ACCESS and EPAS
- Use Mastery Manager to monitor and track student performance for program improvement
- Ensure Academic Technology Coordinator support for specified uses of technology by ELL staff

The main indicator for success of these action steps is “improved student performance in sub-groups annual average EPAS growth,” using the following measurement indicators:
- Student pre-post performance on adaptive online tests
- EPAS growth reports
- ACCESS reports
- Student performance on classroom assessments
- Best practices in online repository

As previously noted, professional development activities and strategies related to technology are aligned to larger student achievement goals. For example, the previously examined goal was: “Based on a current composite growth score of 4.2, each NCLB subgroups average EPAS (Educational Planning Assessment System) growth will surpass that of the previous cohort by 10% annually in reading, English, math, and science until growth from EXPLORE to ACT exceeds 6 points within three years.”

The first identified strategy related to professional development is: “Targeting at-risk populations and NCLB subgroups, teachers will differentiate instruction using technology resources, expand parental communication through their course pages and online grading system.” The corresponding activities include:
- Based on NSCD standards, provide workshops for teachers, principals, administrators, library media personnel, and support staff on the use of the online digital curriculum system, Compass Learning Odyssey.
- Based on NSCD standards, provide training to teachers and support staff on the use of the new online grading system.
- Expand the “blended” course offering opportunities which teach teachers new Web 2.0 skills, the use of Moodle, and integrating technology into the curriculum.\(^{24}\)

The district conducts a survey of teachers to determine their professional learning needs related to technology in the classroom. The district increased the number of technology-related workshops from seven to 16, after finding that large percentages of teachers still need support in instructional technology. As noted above, the district has further developed

\(^{24}\) Ibid., pp. 62-63.
several blended courses for teachers that meet twice in person with the majority of work completed online. These courses “are not skill building by design, rather designed to help teachers become more productive and accelerate student achievement.” Topics for these courses included quality of teaching, delivery of service, communication, questioning, student engagement, providing feedback, and flexibility and response.25

The following chart demonstrates the surveyed areas in which teachers requested additional assistance in using technology in the classroom.26

<table>
<thead>
<tr>
<th>TYPE OF SUPPORT</th>
<th>PERCENT OF TEACHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Want to update their tech knowledge, such as Web 2.0</td>
<td>34%</td>
</tr>
<tr>
<td>Need help developing assessment strategies for technology use</td>
<td>22%</td>
</tr>
<tr>
<td>Need help managing/tracking learning by using technology</td>
<td>19%</td>
</tr>
<tr>
<td>Need help designing lessons/projects using technology</td>
<td>20%</td>
</tr>
<tr>
<td>Need basic hardware/software help</td>
<td>5%</td>
</tr>
</tbody>
</table>

In the 2012 update focused on ELL students and low income subgroups of students, the technology plan lists action steps for improving staff technology skills, with the ultimate goal of “average EPAS growth surpassing that of the previous cohort by 10 percent annually.”27

- Support/provide appropriate general technology literacy training to strengthen technology use by ELL staff
- Support/provide lesson design, lesson management/assessment training for use of specified online ELL courseware
- Support/provide workshops focused on use of student performance data for ELL program improvement.

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26 Ibid., p. 27.
27 Ibid.
NORTHWEST INDEPENDENT SCHOOL DISTRICT (TX)

Northwest Independent School District’s Technology Plan is more data-oriented than other plans included in this brief, and includes very little narrative. The plan comprises five main sections: Executive Summary; Needs Assessment; Goals, Objectives, and Strategies; Budget; and Evaluation.28

In the executive summary, Northwest ISD outlines the mission of the technology plan:

…the district will ensure that students, teachers and staff have access to and an understanding of technology-based tools, enabling them to gather, manage, analyze, evaluate, produce, and present information. Instructional staff members will model the integration of technology into all curricular areas... Technology will be seamlessly integrated with curriculum to ensure student acquisition of skills for researching, managing and presenting information.29

The needs assessment section of the technology plan describes the process of assessing the district’s needs regarding technology, using STaR Chart data, principal interviews, district surveys, and a review of curriculum scope and sequence.30 Using these measures, the district evaluates the use and future needs of the technology infrastructure, computer replacement and growth projections, 1:1 computing programs, technology replacement, and other aspects of technology use.

The technology plan provides a grid of the four main goals and their corresponding objectives, as well as various strategies, the status, the timeline, person(s) responsible, and evidence for each objective. Goals and objectives are outlined below.31

- **Goal 1: Utilize technology as a gateway to academic achievement, innovative curriculum integration, and accessibility today and in the future.**
  - Objective 1.1: The district will strive to ensure that 100% of students achieve academic success integrating technology in all curricular areas.
  - Objective 1.2: 100% of schools will be accountable for integrating technology into all subject areas/curricula.
  - Objective 1.3: The district will ensure that 100% of schools have standardized software and hardware to enhance innovative instructional strategies.
  - Objective 1.4: the district will continue to cooperate and support the Innovative Teaching Grant program funded by the Northwest ISD Educational Foundation.
  - Objective 1.5: The district will transform the learning environment through relevance, engagement, and choice.
  - Objective 1.6: Promote a climate and culture within NISD that maximizes the core beliefs and vision of the district.

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29 Ibid., p. 2..
30 Ibid., p. 5.
31 Ibid., pp. 11-25.
Goal 2: Develop growth in educators to integrate technology into the curricula including achieving proficiency in SBEC Technology Standards.
  - Objective 2.1: 100% of Instructional staff will be expected to implement and teach the Technology Application TEKS in conjunction with the integrated technology requirements in the core curriculum TEKS.
  - Objective 2.2: 100% of staff will be encouraged to transform educational practices to include collaborative environments and other specialized curricula.
  - Objective 2.3: 100% of instructional staff will be accountable for meeting SBEC standards for technology literacy and administrators will be encouraged to meet ISTE standards.

Goal 3: Improve communication to enhance data-driven decisions utilizing student records, community partnerships, parental awareness and involvement, and other support services.
  - Objective 3.1: All schools (100%) will utilize technology as a tool to communicate, access, and maintain student records.
  - Objective 3.2: All instructional staff are required to deliver information electronically to communicate with parents and the community.
  - Objective 3.3: Designated support staff will utilize electronic productivity tools in information reporting and decision-making processes.

Goal 4: Improve Local and Wide Area Networks, enhance or make available additional services through server, network and desktop operating system upgrades, and provide services for new campuses.
  - Objective 4.1: 100% of campuses will have access to fiber optic Wide Area Network and Local Area Network.
  - Objective 4.2: Continue to update 100% of Network and Desktop Operating Systems.
  - Objective 4.3: Plan and implement a sufficient technology infrastructure for all renovated and new campuses.
  - Objective 4.4: Implement centralized web-based applications.
  - Objective 4.5: Upgrade and consolidate server farm to improve services.
  - Objective 4.6: Assist departments and campuses with Business Process Management improvements.
  - Objective 4.7: Professional development for paraprofessional and auxiliary staff.

Examples of information provided for specific objectives pertaining to curriculum integration and professional development are provided below.

**Objective 1.1:** The district will strive to ensure that 100% of students achieve academic success integrating technology in all curricular areas.

<table>
<thead>
<tr>
<th>STRATEGY</th>
<th>TIMELINE</th>
<th>EVIDENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1: Implement instructional software that develops Texas Essential Knowledge and Skills for academic achievement.</td>
<td>Ongoing</td>
<td>Software evaluation, pilot programs, purchasing records, TAKS scores</td>
</tr>
<tr>
<td>1.1.2: Provide opportunities for students in grades 2-8 to apply for a position in a TechnoCamp.</td>
<td>Spring-Summer 2011</td>
<td>TechnoCamp enrollment records</td>
</tr>
<tr>
<td>STRATEGY</td>
<td>TIMELINE</td>
<td>EVIDENCE</td>
</tr>
<tr>
<td>----------</td>
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</tr>
<tr>
<td>1.1.3: Assess students in grades 2, 5, and 8 their mastery of the Technology application TEKS.</td>
<td>Grades 2 and 5: Fall and Spring; Grade 8: end of year</td>
<td>Elementary portfolio submissions; grade 8 test results</td>
</tr>
<tr>
<td>1.1.4: Coordinate with local communications companies to establish a partnership for students to apply for an educational rate on internet services.</td>
<td>2011-2012</td>
<td>Established plans and commitments; internet in homes</td>
</tr>
<tr>
<td>1.1.5: Initiate pilot programs for emerging technologies to use with identified groups in an attempt to raise test scores.</td>
<td>Ongoing</td>
<td>Purchase orders, lesson plans, improved scores</td>
</tr>
</tbody>
</table>

**Objective 2.3: 100% of instructional staff will be accountable for meeting SBEC standards for technology literacy and administrators will be encouraged to meet ISTE standards.**

<table>
<thead>
<tr>
<th>STRATEGY</th>
<th>TIMELINE</th>
<th>EVIDENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3.1: Provide online technology proficiency classes for all professional personnel</td>
<td>Ongoing</td>
<td>Enrollment records</td>
</tr>
<tr>
<td>2.3.2: Provide staff development opportunities for all staff members before, during, and after school hours.</td>
<td>Ongoing</td>
<td>Enrollment records</td>
</tr>
<tr>
<td>2.3.3: Incorporate PDAS provided in the online software module as the appraisal system, and use alternative appraisal instruments for non-instructional or paraprofessional staff.</td>
<td>Annually</td>
<td>Completed PDAS evaluations</td>
</tr>
<tr>
<td>2.3.4: Encourage district and campus personnel to attend conferences such as TCEA, TxDLA, as well as regional technology integration conferences.</td>
<td>Annually</td>
<td>Conference registrations</td>
</tr>
</tbody>
</table>

As demonstrated, the technology plan outlines specific strategies and actions for improving professional learning and teachers’ understanding and use of technology. The plan establishes the importance of professional development for ensuring effective use of technology into instruction, noting that “professional development is a key element in ensuring the effective use of technology in instruction and operations.” The district expects all staff to be proficient in using technology for instruction and other daily activities, and offers various supports, including “district technology training workshops, online handouts and tutorials, just-in-time support, institutions of higher education,” and more. The district requires that staff achieve level one proficiency in the first year of employment, and level three proficiency after three years of employment.\(^{32}\)

\(^{32}\) Ibid., p. 3.
PRINCE WILLIAM COUNTY PUBLIC SCHOOLS (VA)

Although Prince William County Public Schools and Roanoke County Public Schools are both located in Virginia, the two districts use completely different formats and structures for their technology plans. Prince William County Public Schools uses very little narrative in its plan outside of the executive summary and instead presents different goals and targets in grid format. The plan is organized into five main themes, which include Integration, Professional Development, Connectivity, Educational Applications, and Accountability.

For each target, the plan provides a grid of information including strategic plan goals and objectives, the reality of the current state of this target, the needs gap, individual strategies to achieve the goal (including the person or persons responsible, the timeline for completion, and resources), and relevant progress measures.

The five main themes included in the technology plan and their goals and targets are outlined below.

INTEGRATION

- Goal I: Improve teaching and learning through the appropriate use of technology.
  - Target I: Administrators have a vision and plan for technology use and integration.
  - Target II: School leaders provide support for integration of technology into instruction.
  - Target III: Leaders can effectively evaluate instructional uses of educational technology.
  - Target IV: Technology integration partnerships are established among educational technology stakeholders.
  - Target V: Teachers effectively integrated instructional technology.
  - Target VI: Teachers collaborate to improve and enrich instruction using technology.
  - Target VII: Teachers use technology-based intervention strategies to improve student achievement.
  - Target VIII: Teachers understand and model the acceptable use of technology in teaching and learning.
  - Target IX: Students routinely use technology in a variety of learning activities across the curriculum.
  - Target X: Students will have information literacy skills.
  - Target XI: Student learning and achievement will be enhanced through the effective integration of technology.
  - Target XII: Student learning and achievement will be enhanced through the use of advanced technologies.
  - Target XIII: Computer/Technology Standards of Learning are fully integrated across all curriculum areas.

Target XIV: Instructional personnel meet Technology Standards for Instructional Personnel.
Target XV: Students meet Computer/Technology Standards of Learning.

Goal II: Improve Division-wide equity in the implementation of technology-enhanced teaching and learning.
  - Target I: Educators and students have access to technology to support instructional goals.
  - Target II: Appropriate technology-based instructional strategies are used for students with unique needs.

PROFESSIONAL DEVELOPMENT

Goal I: Establish partnerships for identifying and delivering effective technology training to assist educators as they help students achieve high academic standards.
  - Target I: Educator training programs reflect preservice coursework and experiences that include effective approaches to integrating technology into K-12 education.
  - Target II: A variety of classes, training, and resources pertaining to integrating technology effectively are available for staff development.
  - Target III: Technology leadership activities are provided to K-12 educational technology stakeholders.

Goal II: Administer grant programs and financial assistance initiatives that support implementation of educational technology integration.
  - Target I: Grant programs and alternative sources of funding that support educational technology are administered.
  - Target II: Teacher education institutions, businesses, organizations, and private entities become partners in the implementation of technology-related grants focusing on technology integration.

Goal III: Establish and maintain Instructional Technology Resource Teacher (ITRT) in school division.
  - Target I: Site-based ITRT are available to all schools.
  - Target II: Staff development models and activities that are designed for site-based ITRT are available for all K-12 schools.

CONNECTIVITY

Goal I: Ensure that all public schools have access to integrated instructional and administrative services across interoperable high-speed networks.
  - Target I: Every instructional and administrative area in every school has a sufficient number of network connections to support the high bandwidth requirements of current and future instructional and administrative applications.
  - Target II: All schools are connected through a wide area network with sufficient bandwidth to accommodate instructional and administrative needs.
  - Target III: Each school local area network has a reliable high-speed access to the Internet capable of supporting instructional and administrative applications and initiatives.
  - Target IV: An integrated suite of instructional and administrative applications supported by a standards-based enterprise architecture for K-12 schools is in place.
Goal II: Ensure sufficient support for ongoing, reliable network operations.
- Target I: Adequate support personnel are in place to operate and support the K-12 school technology infrastructure.
- Target II: Support personnel for K-12 school infrastructure have appropriate technical skills.
- Target III: School systems have customer support systems in place to address technical problems in a timely and efficient manner.
- Target IV: School divisions plan for the total cost of ownership associated with K-12 technology.

Goal III: Provide leadership and resources to promote efficient procurement of infrastructure, including the identifications and procurement of emerging technologies.
- Target I: The K-12 school technology procurement process is efficient and cost effective.
- Target II: School divisions are regularly informed about emerging technologies for instruction and administration.

Goal IV: Ensure that school divisions have in place network security, filtering, and disaster recovery plans.
- Target I: Policies, procedures, and technologies are in place to ensure that computing resources are secure and recoverable.
- Target II: School divisions maintain an up-to-date Acceptable Use Policy and effectively use network filtering solutions.
- Target III: School divisions have appropriate and effective network and data security policies and systems.

EDUCATIONAL APPLICATIONS

Goal I: Improve teaching and learning through the appropriate use of network-accessible educational applications.
- Target I: Teaching and learning resources that effectively support the Virginia Standards of Learning have been identified, communicated, and developed.

Goal II: Promote and develop web-based applications, services, and resources.
- Target I: All schools are participating successfully in the Virginia web-based SOL Technology Initiative.
- Target II: School divisions use web-based applications for state data collections, warehousing, and reporting.
- Target III: Use of a common set of data definitions allows standard communication and interpretation of student information.
- Target IV: Every school has an efficient, automated library media center connected to the Internet and networked to appropriate learning areas.
- Target V: School divisions have strategies for providing community access to school-based technology and applications.

Goal III: Offer digital learning opportunities at state and local levels.
- Target I: Web-based courses and staff development activities are provided.
- Target II: Schools are able to receive digital television broadcast signals and effectively utilize the enhanced capabilities.
ACCOUNTABILITY

- **Goal I:** Assess the value that information technology adds to teaching and learning environments.
  - Target I: Identify elements of technology integration that benefit the teaching and learning environment.
  - Target II: Readiness to integrate technology into teaching and learning has been assessed for each school.
  - Target III: Instructional technology integration has been assessed in schools and classrooms.
  - Target IV: Technology-rich environments and effective technology-based instructional strategies support student learning.

- **Goal II:** Provide appropriate decision support capabilities for all stakeholders.
  - Target I: Information systems provide comprehensive information about student learning progress.
  - Target II: Information systems interface to provide staff members the ability to use appropriate and effective data to make decisions.

- **Goal III:** Assess information technology literacy.
  - Target I: All students are technology literate.
  - Target II: All instructional personnel are technology literate.
  - Target III: All paraprofessionals and support staff are technology literate.
  - Target IV: Students meet expectations for technology utilization pertaining to their subject and grade level as described by school division technology plans.

- **Goal IV:** Ensure that level technology plans are consistent with the state technology plan.
  - Target I: School divisions will have technology plans that are consistent with the components of the state technology plans. All schools will have technology plans that are consistent with the components of their division technology plan.
  - Target II: All schools and school divisions will evaluate annually the progress and effectiveness of their technology plans.

The Integration section is the largest in the report and includes 17 separate goals related to technology integration and using technology in the classroom. Examples of the information provided for one target within the Integration group and one target in the Professional Development group are shown below.34

34 Ibid., pp. 10, 30.
Integration: Goal I, Target V

**INTEGRATION**

**Goal I:** Improve teaching and learning through the appropriate use of technology

**Target V:** Teachers effectively integrate instructional technology.

**Strategic Plan Goal:**
1. All students meet high standards of performance.
2. Increase the percent of students who meet or exceed achievement performance levels.
3. Reduce the achievement gap for students from all backgrounds.
4. Increase the percentage of graduates who are prepared to continue their education after high school.

**Reality:** Some teachers do not integrate technology effectively.

**Gap:** Additional professional development that focuses on technology integration training for K-12 teachers should be developed and implemented.

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>PERSON(S) RESPONSIBLE</th>
<th>TIMELINE</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide technology integration workshops for K-12 teachers</td>
<td>Instructional Technology Office</td>
<td>Ongoing</td>
<td>Online staff development catalog School Fusion Training materials</td>
</tr>
<tr>
<td>Develop additional technology integration workshops</td>
<td>Instructional Technology Office</td>
<td>Ongoing</td>
<td>School Fusion Training materials</td>
</tr>
<tr>
<td>Continue to provide technology integration resources on the Division website</td>
<td>Instructional Technology Office</td>
<td>Ongoing</td>
<td>School Fusion</td>
</tr>
<tr>
<td>Conduct Instructional Technology Resource Teacher professional development workshops</td>
<td>Instructional Technology Office</td>
<td>Ongoing</td>
<td>School Fusion Training materials</td>
</tr>
<tr>
<td>Offer Technology Showcase as forums for sharing technology integration strategies</td>
<td>Instructional Technology Office Information Technology Services</td>
<td>Spring 2011</td>
<td>Teachers and students Central Office staff Vendors</td>
</tr>
<tr>
<td>Assist with onsite school-based integration workshops</td>
<td>Instructional Technology Office ITRT</td>
<td>Ongoing</td>
<td>School Fusion Training materials</td>
</tr>
<tr>
<td>Collaborate with content area specialists to create technology integrated lessons</td>
<td>Instructional Technology Office Content Supervisors</td>
<td>Ongoing</td>
<td>PWCS Technology Competencies School Fusion Training Materials Current Literature</td>
</tr>
</tbody>
</table>

**Progress Measures:**
- Number of training events that focus on how to effectively integrate technology into the K-12 curriculum
- Number of teachers who receive training on how to effectively integrate technology into the K-12 curriculum
- Data from course evaluations
Professional Development: Goal I, Target II

<table>
<thead>
<tr>
<th>INTEGRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal I</strong>: Establish partnerships for identifying and delivering effective technology training to assist educators as they help students achieve high academic standards</td>
</tr>
<tr>
<td><strong>Target II</strong>: A variety of classes, training, and resources pertaining to integrating technology effectively are available for staff development</td>
</tr>
</tbody>
</table>

**Strategic Plan Goal: 4**- Faculty, staff, and leaders are qualified, high performing, diverse, and motivated

**Strategic Plan Objective: 2**- Provide ongoing professional development support for employees.

**Reality:**
- Some professional development and training materials reflect best practices for integrating technology into instruction.
- Access to training opportunities for integrating technology is provided.

**Gap:** Technology training materials and classes should be evaluated and updated as needed.

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>PERSON(S) RESPONSIBLE</th>
<th>TIMELINE</th>
<th>RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participate in NorthTIER Partnership online courses</td>
<td>Instructional Technology Office NorthTIER Partnership</td>
<td>Ongoing</td>
<td>EdTech Leaders Online; PBS online courses; IT masters program; Conferences</td>
</tr>
<tr>
<td>Make teachers aware of local graduate level instructional technology programs</td>
<td>Instructional Technology Office GMU instructors</td>
<td>Ongoing</td>
<td>Brochures, announcements</td>
</tr>
<tr>
<td>Offer face-to-face and online instructional technology professional development</td>
<td>Instructional Technology Office ITRT Professional Development Office</td>
<td>Ongoing</td>
<td>School Fusion; Training materials</td>
</tr>
<tr>
<td>Collect year end data from ITRT in reference to technology needs of teachers</td>
<td>Instructional Technology Office ITRT</td>
<td>Yearly</td>
<td>Responses from ITRT</td>
</tr>
<tr>
<td>Develop and implement courses based on year-end data</td>
<td>Instructional Technology Office</td>
<td>Yearly</td>
<td>Responses from ITRT; NETS; School Fusion</td>
</tr>
</tbody>
</table>

**Progress Measures:**
- Number of educational technology classes and certification programs available to educators
- Quality and availability of professional development activities and training materials as determined by course evaluation
- Course evaluations will reflect high quality instruction
PROJECT EVALUATION FORM

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