What Will We Do?

1. **Kickoff & review list of technology project recommendations;** confirm meeting schedule. *March 7th*

2. **Explore 3 Categories of DPS technology needs.** *April 6th*
   a. Gain further insight into **Student Safety & Improved Services for Families,** **Ops. Efficiencies & Internal Cust. Svc. Improvements,** and **IT Infrastructure & System Modernization** technology projects;
   b. Gather committee input re: highest/lowest priorities through discussion and dot voting activity

3. **Visit a school;** see classroom technology in action. *April 20th, 7:30-9:30 am*
   a. Hear from school leaders, educators, and students about importance of technology and their needs
   b. Discuss recommended **student technology implementation approach** and other **Personalized Learning & Great Teachers in Every Classroom** technology needs.
   c. Gather committee input re: highest/lowest priorities through ranking/scaling discussion

4. **Coordinate with Mill-Levy Sub-committee** regarding the student technology recommendation and conduct group review/discussion on opportunities discussed to date. *April 25th*

5. **Refine overall technology recommendation.** *May 2nd*
   a. Review refined recommendation options that include gathered committee input.
   b. Discuss approach to obtain **balance between Ops needs and Academic needs.**
   c. Prepare for 5/9 presentation to the full CPAC.
# Technology Sub-Committee Meeting Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
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<tbody>
<tr>
<td>2016</td>
<td>CPAC #1</td>
<td>CPAC #2</td>
<td>CPAC #3</td>
<td>CPAC #4</td>
<td>CPAC #5</td>
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<tr>
<td></td>
<td>(Feb 17)</td>
<td>(Feb 29)</td>
<td>April 14</td>
<td>May 9</td>
<td>May 23</td>
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<td>Sub #2</td>
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<td>Sub #5</td>
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<tr>
<td></td>
<td>March 7</td>
<td>April 6</td>
<td>April 20th</td>
<td>April 25th</td>
<td>May 2nd</td>
</tr>
</tbody>
</table>
Agenda

● Public Comment *(placeholder)* 5:30-5:40 pm

● Potential Technology Projects 5:40-6:20 pm
  ○ Prioritization Input Gathered to Date 5 min.
  ○ Discussion / Share Out / Additional Questions 20 min.
  ○ Recommendation Refinement Direction 15 min.

● Mill Levy Override Technology Recommendation 6:20-7:00 pm
  ○ Review 10 min.
  ○ Co-meeting with MLO Subcommittee (cafeteria) 20 min.

● Wrap Up & Next Steps 7:00-7:10 pm

● Appendix
<table>
<thead>
<tr>
<th>Investment Category</th>
<th>Prioritized Projects Included</th>
<th>Low $ Estimate</th>
<th>High $ Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personalized Learning &amp; Great Teachers in Every Classroom</td>
<td>Student Technology - <strong>$22M - $32M</strong>, IMS/LMS Implementation, Assistive Tech for Special Education Students, SLO/SPF Enhancements/Continuation, Student Library Resources Digital Curricula/Content, Personalized Learning tools for ELLs, LEAP/LEAD Enhancements, Teacher Prof Learning Toolkits</td>
<td>$30.2M</td>
<td>$43M</td>
</tr>
<tr>
<td>Facilities Infrastructure</td>
<td>Electrical Upgrades Necessary Resulting from Student Technology Investments</td>
<td>$2.8M</td>
<td>$2.8M</td>
</tr>
<tr>
<td>Student Safety &amp; Improved Services for Families</td>
<td>Intercom/Camera/Alarm/Bus Video System Replacement, Communication &amp; Translation Tools for Families, Online Fee Payment for Families, Transportation Tech (Zonar) Tablet Implementation, Improved Online SchoolChoice</td>
<td>$4.6M</td>
<td>$6M</td>
</tr>
<tr>
<td>Operations Efficiencies &amp; Internal Customer Service Improvements</td>
<td>Physical Network Infrastructure, ELA Ops Improvement, HR Systems Improvements (Recruiting, On/Off-boarding), Tablet Support for Breakfast in the Classroom</td>
<td>$5.2M</td>
<td>$8.1M</td>
</tr>
<tr>
<td>IT Infrastructure &amp; System Modernization</td>
<td>Wireless Network / DC-Network Infrastructure, Improved Cyber Security Tools &amp; Identity Access Mgmt., ERP Optimization, Time Entry System, Primary/Secondary Data Center Backup Generator, Integrated Building Automation System</td>
<td>$19.6M</td>
<td>$27.4</td>
</tr>
</tbody>
</table>
| Project Resources                                       | Implementation (10%) O
| Oversight/Accountability (5%)                           | $8.9M                                        | $12.7M         |
What questions do you need DPS to answer to gain your support for this recommendation?

Which projects are the highest priority from your perspective?

Which projects are the lowest priority from your perspective?

Which projects do you recommend we adjust +/- potential funding amounts to support the subcommittee’s priorities?

What other information do you need, if any, to better respond to these questions?
Prioritization Considerations - How does the investment...

- Contribute to the realization of the Denver Plan 2020 goals?

- Support the following:
  a. Operational efficiency?
  b. Student safety?
  c. Student achievement?
  d. Educator effectiveness?
  e. Parent engagement?
  f. Student engagement?

- Balance estimated cost with anticipated benefits?

- Balance cost across total target investment of $60-80M?
What We’ve Heard from You: Discussion

● 3/7 Kickoff
  ○ The group was excited to talk about student technology and how we can get it in the hands of the most kids in the most equitable way.
  ○ Participants highlighted the need to address underlying technology operations/infrastructure in order to support our vision.

● 4/6 Categories 2, 3, and 4 Projects (Student Safety & Improved Svcs. for Families, Operations Efficiencies & Improved Internal Customer Svcs., Infrastructure & System Modernization)
  ○ “These are all good ideas.”
  ○ The reality of current state in some of our operations clarified the need for some of the projects (e.g., Transportation Nav Tablet, HR/Finance improvement/optimization opportunities for staff).
  ○ Some projects seemed more Facilities-based than Tech focused (e.g., IBAS system). Why are they part of our recommendation?

● 4/14 Full CPAC
  ○ How would projects impact charter schools? How would $ be allocated equitably?
  ○ Which projects would propel us forward vs. those that support our ability to simply keep pace?

● 4/20 Category 1 Projects (Personalized Learning & Great Teachers in Every Classroom)
  ○ We should be doing everything we can to move most/all of our students/schools up the maturity curve toward 1:1 take-home implementation.
  ○ How do mobile devices or bring-your-own device models fit with the recommended student tech investment?
What We Heard from You: Priorities

Higher Priority
- Student Technology
- Assistive Technology for Students with Special Needs
- Physical Network Infrastructure (Dark Fiber Build-out)
- Transportation Navigation Tablet
- Wireless Network Replacement

Medium Priority
- All Others

Lower Priority
- Personalized Professional Learning Teacher Toolkits
- Integrated Building Automation System (IBAS)
- Breakfast in the Classroom - Mobile POS Devices
- Online Fee Payment System

A participant in the 4/14 Full CPAC Committee Mtg. left specific notes about the need and importance of this potential investment.
What Do You Want to Share with Each Other?

- What were some of the questions you had when discussing the investment opportunities?
- How have you been weighing options?
- What did you hear from the departments, teachers, or students that you want to share with your group?
Recommendation Refinement Direction

- We set an original funding target for the technology recommendation at $60-80M (~10-15% of the total). In order to present a reasonable proposal to the full CPAC, while ensure sufficient funding for highest impact, where do you want to land in that range?
  - Should we stay near the low end, further scaling some projects down within the $67M recommendation?
  - Should we increase the overall recommendation upward, further scaling some projects up closer to $80M?
  - Do we do both, scale some funding recommendations up and others down?

- What is the rationale?

- What 2 options would you like to see for our work session on 5/2?
  - $65M, $70M, and/or $75M?
  - Which projects scaled up? Which scaled down?

- How do we begin to tell the story to the full committee?
Mill Levy Override
Technology Recommendation

The Technology Subcommittee will meet with the MLO Subcommittee in the Manual Cafeteria.
ProjectRED finding 7: Schools must incorporate technology into daily teaching to realize the benefits. The daily use of technology in core classes correlates highly to the desirable education success measures (ESMs). *Daily technology use is a top-five indicator of better discipline, better attendance, and increased college attendance.*

Mooresville Graded School District increases student engagement and outcomes as a result of 1:1 initiative.

ProjectRED Finding 3: 1:1 schools employing key implementation factors outperform all schools and all other 1:1 schools.

ProjectRED Finding 6: Online collaboration increases learning productivity and student engagement.

In Hamilton County Schools, grades using blended learning in Math outpaced their expected gains by 169%, compared to non-blended grades that outpaced their expected gains by 120%. In reading, grades using blended learning outpaced their expected gains by 130%, compared to non-blended grades that outpaced their expected gains by 107%.
DPS has provided previous funding to schools for technology investments in the form of:

- 2012 Bond and Bond Premium funds for classroom technology
  - Original 2012 Bond - $125 per pupil (K-12), $62.50 per pupil (ECE)
  - Premium Allocation - $25 per pupil

- 1998 & 2012 Annual Mill Levy Funds = $67 per pupil (ECE-12)

- School leader discretion for use of these funds coupled with variability among schools obtaining other funding (grants, parent committee donations, etc), has resulted in a reasonable amount of technology in our schools and variation in the amount and quality of technology available and in use by schools.
Current State of Student Tech in DPS

NOTE: Data pulled from device management systems - margin of error not yet determined - known to be missing some devices not yet enrolled in MDM system
Bond Proposal: Continue investing in technology for all students and build proof points for 1:1 take-home implementation.

**Description:** Provide a base per pupil allocation for student technology to all schools. Additionally, provide district-managed schools with the opportunity to apply for a competitive grant for a 1:1 student technology implementation program. Grants to be evaluated based upon criteria such as ProjectRED's success factors, ISTE Standards, and/or school technology need, school leader vision for technology, readiness for digital transformation, willingness/ability to meet school level requirements for technical support, etc.

**Benefits:**
- Provides technology allocation to all schools
- Increases access to student technology overall
- Aligns with DPS philosophy of school autonomy and flexibilities
- Enables ability to build proof points and quantify demand for 1:1 model
- Increases student engagement, attendance, and outcomes for 1:1 schools

**Assumptions/Concerns:**
- Competitive process for Opt-in model may generate more interest than can be supported
- Will not fully resolve inequities of tech access by school
- Assumes low-cost devices (i.e. Chromebooks) for students and teachers
**At $23M, this model supports:**
- $100/pp for all K-12 students
- 25% of all 6th-12th graders with the opportunity to opt-in to 1:1
- 50% allocation to refresh

<table>
<thead>
<tr>
<th>Cost Factor / Lever</th>
<th>$23M PPA + Competitive Opt-In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Pupil (K-12) Allocation Amount</td>
<td>$100/pp</td>
</tr>
<tr>
<td></td>
<td>$8.9M</td>
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<tr>
<td>Per Pupil (ECE) Allocation Amount (or exclusion)</td>
<td>$0/pp</td>
</tr>
<tr>
<td></td>
<td>$0M</td>
</tr>
<tr>
<td>Teacher Allocation (for 1:1 schools)</td>
<td>$300/Teacher in 1:1 (650 Teachers)</td>
</tr>
<tr>
<td></td>
<td>$.2M</td>
</tr>
<tr>
<td>% of Students/Schools supported for Opt-In Option &amp; grade level eligibility</td>
<td>25% 6th - 12th graders; district-managed schools (7,700 students)</td>
</tr>
<tr>
<td></td>
<td>$1.5M</td>
</tr>
<tr>
<td>Implementation Support</td>
<td></td>
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<tr>
<td></td>
<td>$3.8M</td>
</tr>
<tr>
<td>Refresh Cycle Included for PPA and 1:1 (none, partial, or total)</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>$5.1M</td>
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<tr>
<td>Contingency</td>
<td>15%</td>
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<td>$2.8M</td>
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</table>
Bond Proposals: $2M Digital Warehouse of K-12 Curricula & $500k Student Library Resource System

**K-12 Curricula Description**: Evaluate and implement a menu of offerings across subject areas to make available for all grades and subject areas. Begin to increase digital content and evolve instruction methods in support of available digital content.

**Benefits**:  
- Increased content options that align with Colorado Academic Standards that allow more flexibility in innovative learning models  
- Ability to have content that is up-to-date  
- Provide additional opportunities to support College and Career readiness  
- Create more equitable access to materials

**Assumptions/Concerns**:  
- Will not fully fund replacement of all needed content areas.  
- Assumes selected content meets District technical standards.

**Library Resource System Description**: Select and implement a technology solution to integrate all digital and print student resources, with single-sign on, and to allow sharing and curation of content across classrooms/school, district.

**Benefits**:  
- New system would be designed for K-12 and have flexibility to meet the needs of different schools and their needs (e.g. calendar flexibility for check-in / out of books)  
- New system would allow federated searching to increase ease of use for students and teachers could curate digital content resources to share  
- Potential to use new system for asset management of technology and print textbooks  
- New K-12 system would require less user-expertise and skill to navigate (very helpful with few librarians and high turnover)  
- Controlled social networking environment for ebooks which increases students' desire to read. Students share what they are reading, make recommendations to peers, and rate eBooks.

**Assumptions/Concerns**:  
- Assumes current budget will cover cost of software license fees  
- Concern that current system was designed for public libraries and does not meet the needs of students or teachers.
Supporting Mill Levy Proposal: $7.2M (Annual Funding)

$1.2M to be utilized centrally to fund 8-10 **Digital Coaches** + 1 Supervisory/District Integration role

$600k to be used centrally to fund **eBooks**

$840k to be used centrally to fund **Digital Curriculum**

$600k to be used centrally to fund **Professional Development**

$3.96M to be allocated **directly to schools** per pupil ($44/pp)

School must meet minimum required school technology rep (STR) time before funds can be used for other purposes. After minimum STR release time is met, schools can use remaining funds for:

-- Purchasing partially dedicated Site Support resources from DoTS
-- Student or teacher device replacement
-- Technology related staff (tech teacher, etc.)
-- Online content to personalize student learning

*If schools already meet minimum STR release time, then $44.00/pp is enough to replace 1 device per every 7 students each year (low cost devices). Assuming a 3 year refresh cycle and a 50% refresh allocation built into the bond, then this will be sufficient funding to maintain 94% of device counts resulting from 2016 bond for at least 6 years.*
Enable an increased number of Schools at 1:1 Ratio or Implementation from **34 schools to 77 schools**.

Enable an increased number of Students served with 1:1 Ratio or Implementation from **~15,500 students to ~43,500 students**.

Provide schools with **ability to refresh technology** for at least 6 years.

Build **12-20 whole school proof points** of Take Home 1:1 Implementation success and gather learning for other schools.

Build and fund **eBook/Digital Content library** on an annual basis.

Select and implement an **up-to-date Student Library Resource System** to load with new and existing content.

Expand **capacity of DPS teachers** to deliver digitally enabled lessons through PD, coaching, and support.
Questions??
Wrap-Up & Next Steps

DPS

- Distribute meeting notes and open Qs for next meeting.
- Incorporate this evening’s prioritization input into the Tech Bond recommendation.
- Provide pre-read materials to the subcommittee prior to our next meeting.

Subcommittee Members

- Send robin_stehle@dpsk12.org additional questions related to this evening’s discussion.
- Next Meeting - Monday, May 2nd, 5:30-7:30 pm @ Bruce Randolph School, All Purpose Rm (150)
Contact Information

- **Robin Stehle**, Deputy Chief Information Officer  robin_stehle@dpsk12.org
- **Sharyn Guhman**, Chief Information Officer  sharyn_guhman@dpsk12.org
- **Cheri Wrench**, Executive Director, Personalized Learning  cheri_wrench@dpsk12.org
- **Dustin Kress**, Manager of Bond & Mill-Levy Programs  dustin_kress@dpsk12.org
APPENDIX
Comparison of Student Technology Implementation Models - Outcomes

Outcomes

>1:1 Student to Device Ratio

*Devices deployed around their usage (e.g., labs) rather than assigned to students.*

- Exposure to use of tech for educational purposes
- Opportunity to build tech skills outlined in our district guidance

1:1 Student to Device Ratio

*Devices deployed around their usage (e.g., labs) rather than assigned to students.*

- Increased exposure to use of tech for educational purposes
- Increased variety of tech exposure
- Ability to integrate tech into most classroom activities
- Increased opportunity to build tech skills outlined in our district guidance

1:1 In School Implementation

*Students assigned a specific device while at school.*

- Ability to integrate tech into any classroom activity
- Proven positive impact on student engagement and student outcomes
- Increased student ownership of learning

1:1 Take Home Implementation (MyTech)

*Students assigned a specific device for the school year and allowed and encouraged to take the device home.*

- Best for support of student ownership of learning - Personalized Learning
- Supports anywhere, anytime learning
Anticipated Impact of 2016 Bond Investment in Student Technology

**Current State**

- **>1:1 Student to Device Ratio**
  Devices deployed around their usage (e.g., labs) rather than assigned to students.
  - 112 Schools

- **1:1 Student to Device Ratio**
  Devices deployed around their usage (e.g., labs) rather than assigned to students.
  - 34 Schools

- **1:1 In School Implementation**
  Students assigned a specific device while at school.

- **1:1 Take Home Implementation**
  Students assigned a specific device for the school year and allowed and encouraged to take the device home.
  - 1 School

**Future State**

- **>1:1 Student to Device Ratio**
  Devices deployed around their usage (e.g., labs) rather than assigned to students.
  - 45-65 Schools

- **1:1 Student to Device Ratio**
  Devices deployed around their usage (e.g., labs) rather than assigned to students.
  - 57-77 Schools

- **1:1 In School Implementation**
  Students assigned a specific device while at school.

- **1:1 Take Home Implementation (MyTech)**
  Students assigned a specific device for the school year and allowed and encouraged to take the device home.
  - 20 Schools
Questions from Last Meeting

- I like the idea of the 1:1 devices for the students and do have question on what do we do with students who leave the district. Do we then have to replace the equipment or are they going to turn it in so we can give another student for example? *There are some districts that have experimented with assigning continuously throughout a student’s HS career and then turning in at graduation, but they all typically need some level of reimagining/new apps/checks for wear etc. so the summer is a good opportunity to do that.*