



Technology Product Management Models

District Technology Leadership Forum

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1) Executive Summary

Key Observations

Centralize technology product management to align technology purchases with district infrastructure and priorities and to prevent redundant purchases. Centralization, however, can also stifle experimentation and technology innovation. Administrators at all profiled districts pursue a centralized approach to technology product management. Central, district-level administrators all oversee technology product adoption (e.g., funding, approval) to some extent. Contacts at profiled districts report that this approach ensures that schools do not implement technology products that contradict district priorities. However, the degree of centralization varies significantly across profiled districts. For example, district administrators at **District B** chose an almost completely centralized approach to minimize redundant technology purchases and prevent adoption of technology products that do not fit district technology infrastructure. Administrators at **District D** diffuse some technology purchasing (e.g., instructional software) and implementation power to individual schools to encourage school-level technology innovation.

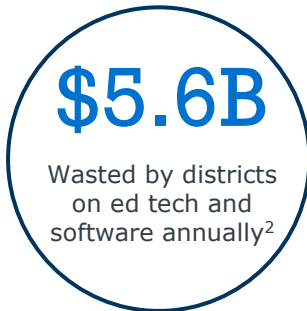
Rely on one or two district-wide learning management systems (LMSs) rather than decentralized, school-specific systems. Administrators at all profiled districts rely on one or more central, district-wide LMSs. Contacts report that district-wide LMSs allow administrators to distribute standardized online lessons and digital textbooks to teachers at all schools, increase district technology staff's ability to support the LMS (i.e., address teacher concerns or technical questions), and house district-wide teacher and staff professional development modules.

Standardize the review process for new and existing technology products. To move toward a more centralized technology product management model, administrators should develop a district-level technology approval process to track all technology products in use at the district. District administrators who wish to provide more school-level flexibility (e.g., administrators at **District D**) should—at minimum—implement a technical checklist for all new technology products to ensure compatibility with districtwide infrastructure (e.g., network, 1:1 devices). District-level Digital Curriculum Support Specialists perform the technical checks for software at **District D**. District administrators who wish to ensure technology products promote student learning and align with the district's curriculum (e.g., administrators at **District B**) implement a curricular alignment review process alongside a technical review process. District-level curricular and technology staff at **District B** conduct this review.

No profiled district successfully maps technology products to the curricular standards they address nor automates assignment of technology products to address student skill gaps. Some profiled districts have made progress toward these goals. For example, administrators at **District C** employ the software [Atlas](#), which integrates with the district's LMS (Canvas) to map specific units, assessments, and lessons to the curricular standards they address. Profiled districts that prioritize aligning district curricular standards to technology products to address student skill gaps require teachers to act as intermediaries between the data identifying a skill gap on a specific curricular standard and the appropriate technology product or module to address the gap.

2) Introduction

Motivation



Technology Product Mismanagement Causes Budgetary, Communication, and Compatibility Issues

Technology product mismanagement can cost districts hundreds of thousands of dollars. A 2019 study by the education technology firm Glimpse K12 tracked \$2 billion worth of district spending and found that administrators and teachers do not use roughly two-thirds of all software product licenses.¹ This large amount of waste stems from four key factors:

1. Lack of effective teacher training on existing technology products
2. Poor communication between district-level technology administrators about available technology products, which can lead to overlapping purchases or subscriptions to the same product across schools within the district
3. Technology purchases incompatible with existing district infrastructure
4. Unclear expectations for who evaluates, manages, and purchases technology products

This report profiles and compares technology product management models from districts with a record of superior technology performance (e.g., two profiled districts won awards for technology innovation) to explore how these districts address the above four factors. Additionally, districts that deploy personalized or standards-based learning may encounter greater challenges when managing their technology products due to a heavier reliance on online curricular software. Thus, this report also discusses how profiled districts align curricular standards and technology products (i.e., how districts match purchased technology products and digital content with the curricular standards they support). Four out of the five profiled districts employ standards-based learning for grades K-5.

Pages six to 12 of this report outline how five profiled districts (**District A, District B, District C, District D, and District E**) manage technology products. Next, **pages 13 to 19** outline technical and network integration considerations for different management models. Lastly, **pages 20 to 22** discuss how profiled districts deploy tech products to address student learning gaps in specific curricular standards.

1) Michelle Davis, "K-12 Districts Wasting Millions by Not Using Purchased Software, New Analysis Finds," *Market Brief* (blog), May 14, 2019, <https://marketbrief.edweek.org/marketplace-k-12/unused-educational-software-major-source-wasted-k-12-spending-new-analysis-finds/>.
2) Davis.

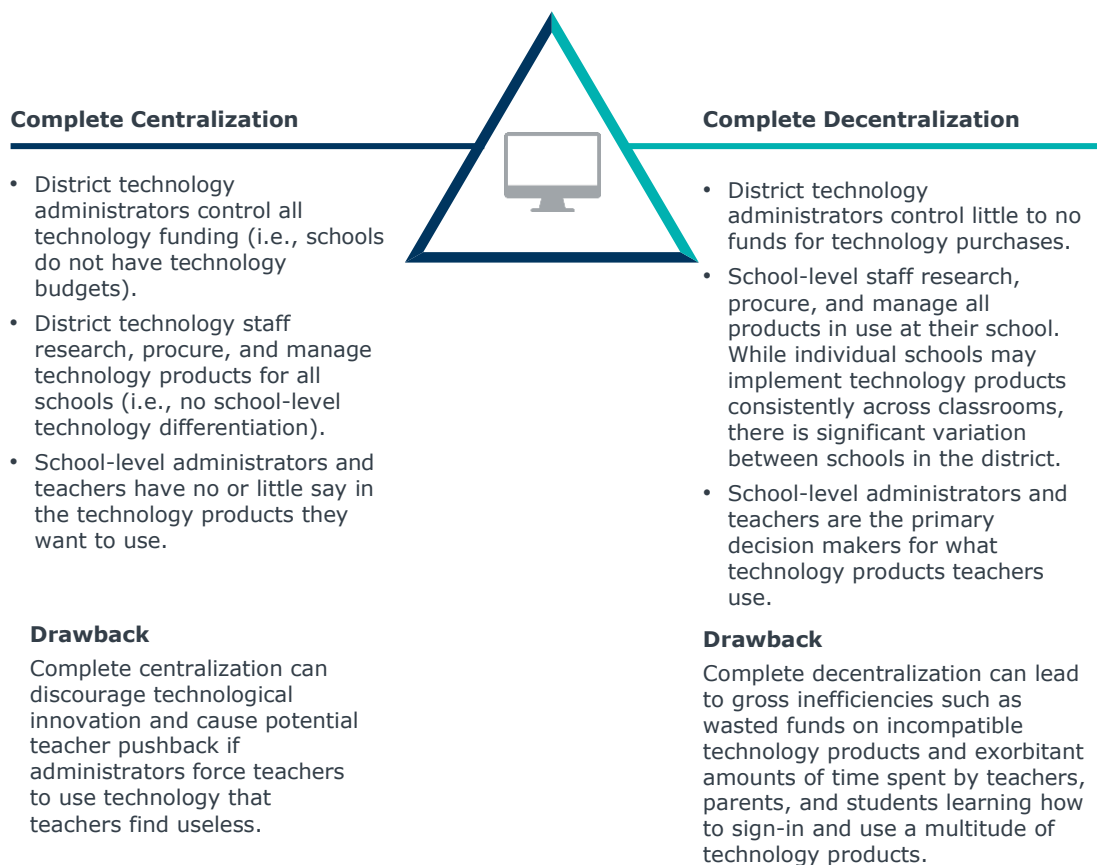
3) Management Models

Centralization Spectrum

Districts Centralize Technology Product Management, but to Varying Degrees

District technology administrators must choose to what extent they wish to monitor and control the technology products in use across the district. Administrators often view this choice as a binary decision between complete centralization or complete decentralization. This binary offers two inadequate choices, however. District technology administrators should not ask “should our district be centralized or decentralized?” Instead, they should ask “how much centralization or decentralization does our district need?”

Technology Product Management Model Archetypes



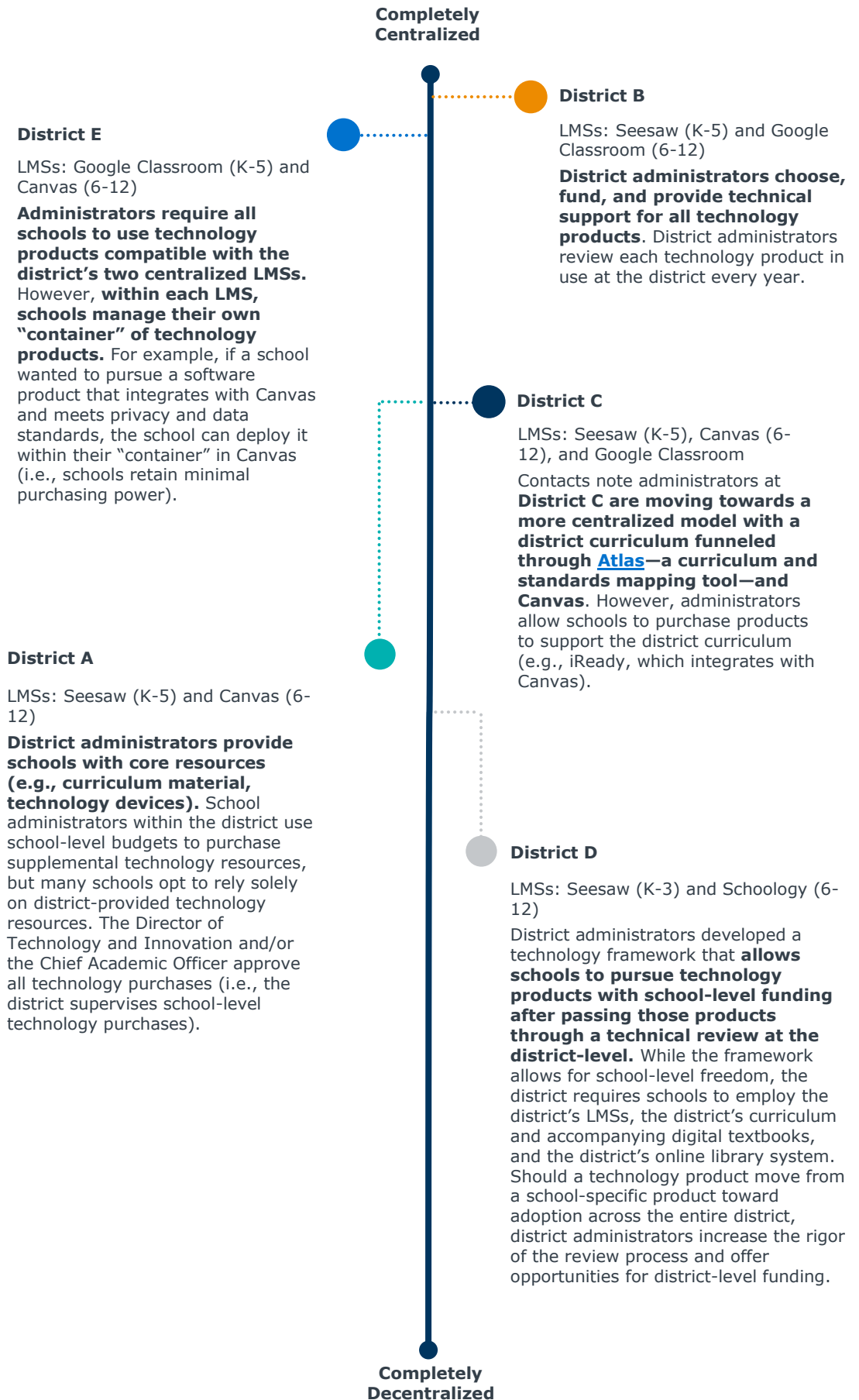
All profiled districts self-identified as taking a more centralized approach to technology product management. Taking a more centralized approach allows districts to:

- Prevent adoption of technology products that contradict district priorities,
- Reduce school-level technology inefficiencies (i.e., avoid wasting money on technology products that do not work),
- Gain awareness of all the products across the district by requiring district approval—to varying degrees—for all technology products, and

- Ensure students in all schools across the district can access the technology products they need to succeed (i.e., address equity concerns).

District technology administrators do, however, implement differing degrees of centralization. For example, administrators at **District B** manage their technology products similarly to the “complete centralization” option above. Conversely, administrators at **District D** allow for significant school-level management of technology products while still imposing some district-level requirements.

The Technology Product Management Centralization Spectrum



Decision to Centralize or Decentralize

Let District Priorities Guide the Degree of Centralization for Technology Product Management

Administrators at all profiled districts have different technology and district-level priorities and thus weigh these benefits differently. The below graphic (**page 10**) can help administrators identify their most desired benefits from a technology product management model. For example, if administrators wish to prioritize ease of use and innovation, they might consider developing a technology product management model akin to **District E**, in which schools manage their own “containers” within a centralized LMS. If administrators wish to prioritize technology compatibility with existing district resources, they might consider a management model similar to **District B**, in which every paid technology product goes through a district approval process each year.

Determine Level of Centralization by Most Desired Benefits

Benefits of More Decentralization

Innovation



If principals and/or teachers want to try out a new piece of technology, they can do so without bureaucratic hurdles.

At **District D**, contacts report that some decentralization encourages school experimentation with curricular technology. At **District E**, school ownership of containers within the centralized LMS provides schools the opportunity to try new products—so long as they integrate with the LMS.

Instructor Trust/Buy-In



If principals and teachers can weigh in on the technology products they use, they may feel more enfranchised and thus be more likely to use instructional technology products.

At **District D**, contacts report that allowing schools to select and implement technologies with their own budgets improves teacher and principal engagement with instructional technology.

Benefits of More Centralization

Cost Savings



If district administrators manage and approve all technology products, they can reduce redundant technology products across schools (e.g., district administrators can eliminate simultaneous school subscriptions to the same product, saving funds).

Contacts at both **District A** and **District B** stress that centralized management of technology products allows the district to save funds.

Technology Compatibility



District administrators can ensure—through a standard approval process—that new technology products function with the district's existing technology infrastructure (e.g., student laptops, district LMSs).

Contacts at both **District A** and **District B** note centralized management ensures technology purchases integrate with the district's technology infrastructure.

Ease of Use



A centralized system (e.g., a single SIS and a single LMS connected via single sign-on) can make it easier for students, parents, teachers, and administrators to access curriculum, lessons, student data, and grades.

Contacts at **District B** note that a centralized technology product management model makes it easier for students, parents, teachers, and administrators to navigate technology products.

Equity



If district administrators centrally manage technology products, then they can ensure all students across the district can access instructional technology products. Centralized technology product management can also provide access to technology products at schools with poorer students.

Contacts at both **District B** and **District C** highlight that a centralized technology product management model ensures *all* students at the district can access effective instructional technology.

District Curriculum



District administrators can distribute the district-level curriculum (i.e., digital textbooks and lessons) to teachers across the district and provide support for instructional tools teachers use.

Contacts at **District C** note that their transition to a centralized technology product management model was, in part, to support the distribution of the district's new guaranteed, viable curriculum.

Profiled Districts Implement District-Wide Learning Management Systems (LMSs) Regardless of Their Degree of Centralization

For more information on LMS selection and implementation, see EAB's brief [LMS Selection and Implementation](#).

District-wide LMSs allow administrators at profiled districts to distribute standardized online lessons and digital textbooks to teachers at all schools, increase the ability for district administrators to support the LMS (i.e., address teacher concerns or technical questions), and house standardized, district-wide teacher and staff professional development modules.

District-Wide LMSs In Use at Profiled Districts

LMSs	District (Grade-Levels)
Seesaw	District A (K-5) District B (K-5) District C (K-5) District D (K-3)
Google Classroom	District B (6-12) District C District E (K-5)
Canvas	District A (6-12) District C (6-12) District E (6-12)
Schoology	District D (6-12)

All profiled districts except one employ two LMSs, one for elementary students (K-5) and one for secondary students (6-12). The exception to this trend is **District C**, whose district administrators also employ Google Classroom to supplement their elementary and secondary LMSs. Administrators implement different LMSs for elementary students and secondary students because they find certain LMSs address the needs of students at different grade-levels more effectively. For example, contacts at **District B** note that they chose to adopt Seesaw for younger students—replacing Google Classroom—because district administrators and teachers value Seesaw's parent communication capabilities, a feature more important for younger students.

Administrators at **District E** articulate a requirement that technology products must integrate fully with the district's LMSs. Since administrators at **District E** manage all instructional software through the district's LMSs, teachers cannot implement technology products that administrators cannot house in the LMS. Administrators at **District E** note that adopting resources incompatible with the district-wide LMSs would require significant time, money, and technical maneuvering to get the product to work with the district's technical infrastructure.

Other profiled districts (e.g., **District A**) strongly recommend to teachers and principals that technology products integrate with district-wide LMSs but allow schools to implement non-compatible products in rare instances. For example, administrators may allow use of a technology product that all teachers already use even though it does not work well with the LMS to avoid causing teacher frustration.

Benefits of District-Wide LMSs

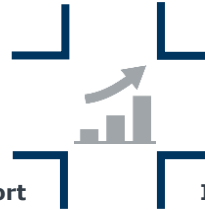
All contact districts house administrator, teacher, and staff professional development modules within their district's central LMS dedicated to secondary students. Employing a single LMS for professional development across the district saves schools funds and staff time compared to trying to maintain standard professional development modules across many different LMSs.

House and Track All Instructional Software

Administrators at **District E** require that all instructional software integrates with Canvas. This ensures that administrators can track all instructional software in use within the district by reviewing the contents of each school's LMS "container."

Distribute District-Wide Curriculum

Contacts note that as **District C** moves toward a district-wide curriculum, their district-wide LMS (Canvas) integrates with their curriculum mapping software (Atlas). Thus, administrators can push digital content associated with the district's standardized curriculum to all secondary schools through Canvas.



Improve Manageability and Support

Contacts at **District A** note that using only one or two district-wide LMSs allows district technology administrators to compile student data more easily from products that run through the LMSs because administrators retrieve data from fewer distinct systems. In addition, because technology administrators can focus on mastering fewer systems, they can more easily support technical issues with the LMS.

Increase Consistency of Training

Contacts at **District B** note that because administrators implemented a single LMS for secondary students, the technology department can provide universal trainings on a single LMS for all teachers and support staff in the district. Additionally, teachers or staff who teach in multiple schools do not need to learn multiple LMSs or track distinct log-ins.

Consider a Single Sign-On Launch Point in Conjunction with a District-Wide LMS to Provide a Single Launch Point for All Applications

All profiled districts employ the single sign-on launch point **Clever** to integrate disparate technology products. For example, contacts at **District C** note that while they manage three district-wide LMSs and primarily deliver curriculum through Canvas, students do not sign into Canvas but instead sign-in through Clever. Technology administrators may consider employing a single launch point—like Clever—to provide a single platform that students can use to sign onto all instructional software, even if the software does not integrate with the district-wide LMS.

4) Technology Adoption and Integration

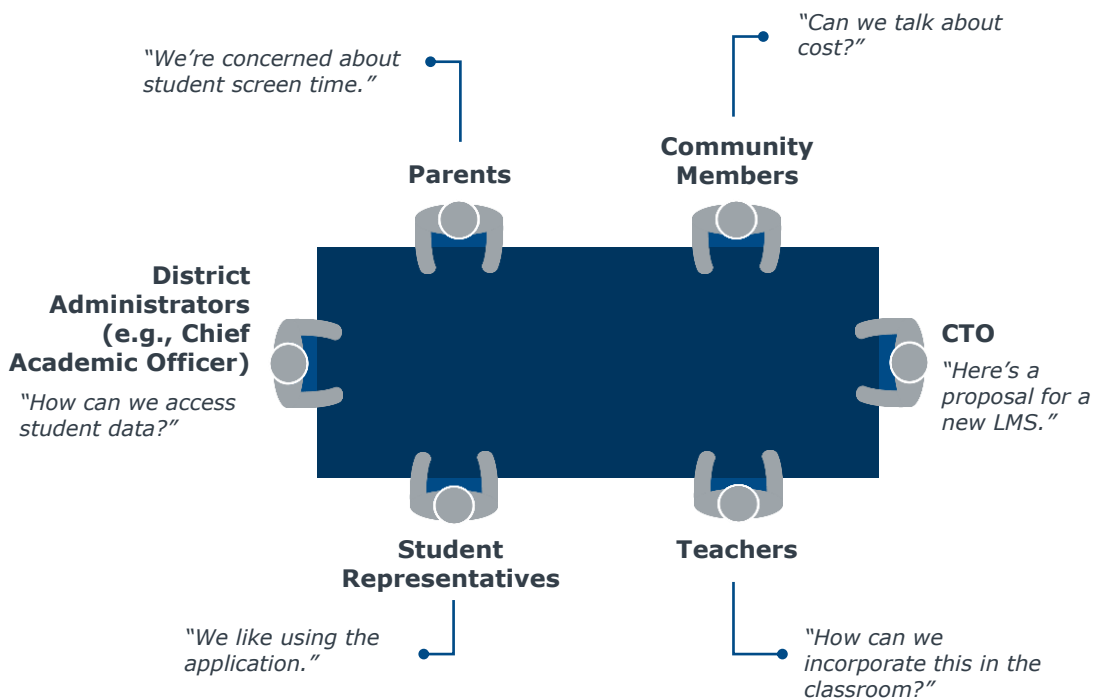
Oversight

Ask District Administrators, Teachers, Students, and Parents to Review Major Technology Changes to Preempt Pushback

District technology administrators manage a variety of technology products from email platforms to math remediation applications. Some applications used within a content area or grade-level may need only a cursory evaluation involving the application's users and the technology/curricular department. That said, administrators should involve as many stakeholders as possible to weigh in on major technology adoptions that will significantly affect all schools, teachers, staff, parents, and students within the district (e.g., email account, learning management system).

Administrators at **District A** developed a committee that, among other tasks, reviews major technology changes. Including students, parents, and teachers in the technology decision-making process may help mitigate pushback if district administrators implement the new technology. Committee feedback allows administrators to identify stakeholder concerns and address them during, rather than after, implementation. The **District A** technology committee meets monthly; however, the committee usually discusses the adoption of new technology products twice a year.

District A's Technology Committee Membership



Develop a District-Level Technology Approval and Renewal Process to Ensure Technology Purchases Align with District Priorities

District administrators who wish to move towards a more centralized technology product management model should develop a district-level technology approval process. A standardized, district-level approval process can serve multiple purposes depending on district priorities:

- *Track products in use:* By requiring school-level staff to submit prospective technology products for approval, district administrators can track all technology products in use at the district. For example, contacts at **District B** note that by reviewing and approving each current and proposed technology product every year they can ensure district-level technology staff know all products in use across the district.
- *Ensure products meet policy and infrastructure requirements:* By asking staff to review the technical specifications of prospective technology products, district administrators can ensure that new purchases meet district privacy standards and integrate with the district's technology infrastructure. **District D's** technology checklist (see **page 15**) ensures that administrators can roster, extract, and integrate student data from technology products to their LMSs or SIS when necessary.
- *Align with curricular needs:* By asking staff to review how a technology product's content aligns with the district's curriculum, district administrators can ensure:
 - That the proposed product teaches or reinforces a concept that the state/district requires students to learn.
 - That administrators and teachers understand the specific curricular standards a product addresses so that they can assign it to students appropriately.

When creating a centralized approval process, administrators must balance the desire to complete a rigorous, comprehensive evaluation of each product with the desire to create a time-efficient, easy process for teachers and district staff. If the approval process is too time-consuming, district administrators risk discouraging staff from pursuing potentially useful new products.

Use A Technical Checklist and Technology Staff Oversight to Assess New Products' Alignment with Existing District Infrastructure

District D employs two Digital Curriculum Support Specialists at the district-level to help teachers and principals across the district operate instructional technology. Technical reviews on products are one of their responsibilities.

All profiled districts require technology products to operate with the district's existing technology infrastructure and network (e.g., LMS, SIS, student laptops). To accomplish this goal, administrators at all profiled districts use a technical checklist (either formal or informal). Contacts report that these checklists also help prevent districts (for centralized districts) or schools (for decentralized districts) from wasting money and resources on incompatible technology products. Additionally, administrators at **District B** house all technology product reviews (e.g., technical checks) in a district-facing Google Drive. Other district administrators can modify this practice and add a step to the technical review process where reviewers upload a description of the product and the final checklist score to a central repository open to all district staff and teachers.

Administrators at **District D** developed the below technical checklist. Even though **District D** allows schools to pursue technology products with school-level budgets, district-level administrators require Digital Curriculum Support Specialists to complete this checklist for technology purchases by each school. The checklist list ranks technical considerations from most important to least important in descending order. Additionally, the score component of the checklist weighs the important technical considerations (e.g., confidentiality and privacy) more than minor technical considerations (e.g., support models). The checklist scores products out of 42 total points. Administrators can either use the checklist to compare products and pick the product with the highest score, or they can set a point threshold (e.g., 30 or 35) that a product must meet to qualify for adoption.

Technical checklists, like the one below, can also help administrators ensure the technology product administrators adopt helps them integrate student data from the product to a student data repository (e.g., LMS or SIS). Administrators at **District D** consider data integration capability in their technical checklist (see teal highlighted rows). Confirming that a technology product can roster appropriate student data and that administrators can extract data from the product relatively easily ensures administrators can aggregate and collect data (e.g., student performance data) across all technology products in the district.

District D's Technical Checklist³

	Ideal	Satisfactory	Undesirable
Confidentially & Privacy Is the vendor willing to sign a site-based Confidentiality and Non-Disclosure Agreement? Does the product comply with all necessary privacy laws (e.g., FERPA)? What are the privacy policies for all students and for students under 13?	6	3	0
Functionality Does the program work on district devices? What browsers are supported? Does it require Flash or Java? Is there a master list of URLs that will be used? How much bandwidth is required during a typical classroom session and will this create an undue strain on network resources?	6	3	0
Rostering Does it support OneRoster or Clever integration? Or does the vendor allow for automatic data ingestion via sftp? Do they host the sftp location or do we? What data can be ingested? Does it include products assigned as well as user accounts and classes? Are there any fees for this service?	6	3	0
Single Sign-On Is SSO a possibility with Clever or another solution? How will this work with the browser and/or app? Is there a fee for configuring this?	6	3	0

Address cross-system data collection and aggregation through rostering and data extraction questions (highlighted in teal).

3) District D. n.d. "Technical Checklist." Accessed June 16, 2020.

District D supplies students with iPads for their one to one initiative. Districts can easily change this criterion to "Android App" if students use Android-based devices.

Interoperability Does the program incorporate Common Cartridge/LTI as outlined by the IMS Global Learning Consortium? Is there a fee for configuring this?	4	2	0
User Account Management Are separate security roles available to provide different levels of access? Is it possible to create/import accounts manually that will not be removed during the automatic sync?	4	2	0
iOS App If an app is available, how does the functionality compare to browser functionality? Does the vendor guarantee zero-day compatibility with iOS updates? If not, how soon?	2	1	0
Extraction of Data Is it possible to extract data to input into another system? How easy is this process?	2	1	0
Maintenance When and how frequently is maintenance conducted by the vendor? How are end users informed of this maintenance? How often is the service down? Are users notified?	2	1	0
Support Models What kinds of support models does the vendor offer? Who will teachers contact? Is online support available and how robust is this? Is there a support line? Chat? How available and helpful is support?	2	1	0
Reporting Are usage reports available?	2	1	0
Total Score			/42

Administrators at **District D** do not require technology products proposed by school administrators to pass additional review beyond the technical checklist. By minimizing the number of barriers school-level staff must complete to implement a new technology, administrators increase the likelihood that principals and teachers will attempt to use new technologies to improve student learning.



As Technology Products Grow in Popularity, Increase the Rigor of the District-Level Evaluation Process

Once school-level administrators at **District D** have demonstrated success with a given technology product (and other administrators begin to show interest in the technology), district administrators expand the district-level evaluation process to incorporate additional steps. Specifically, administrators begin to investigate the instructional validity of the product and how it fits within the district curriculum. Administrators begin to ask the questions, “Is the product scalable to serve all students in the district?” And, “Is the product ‘good for students’ (i.e., is there research to support the efficacy of this product)?”

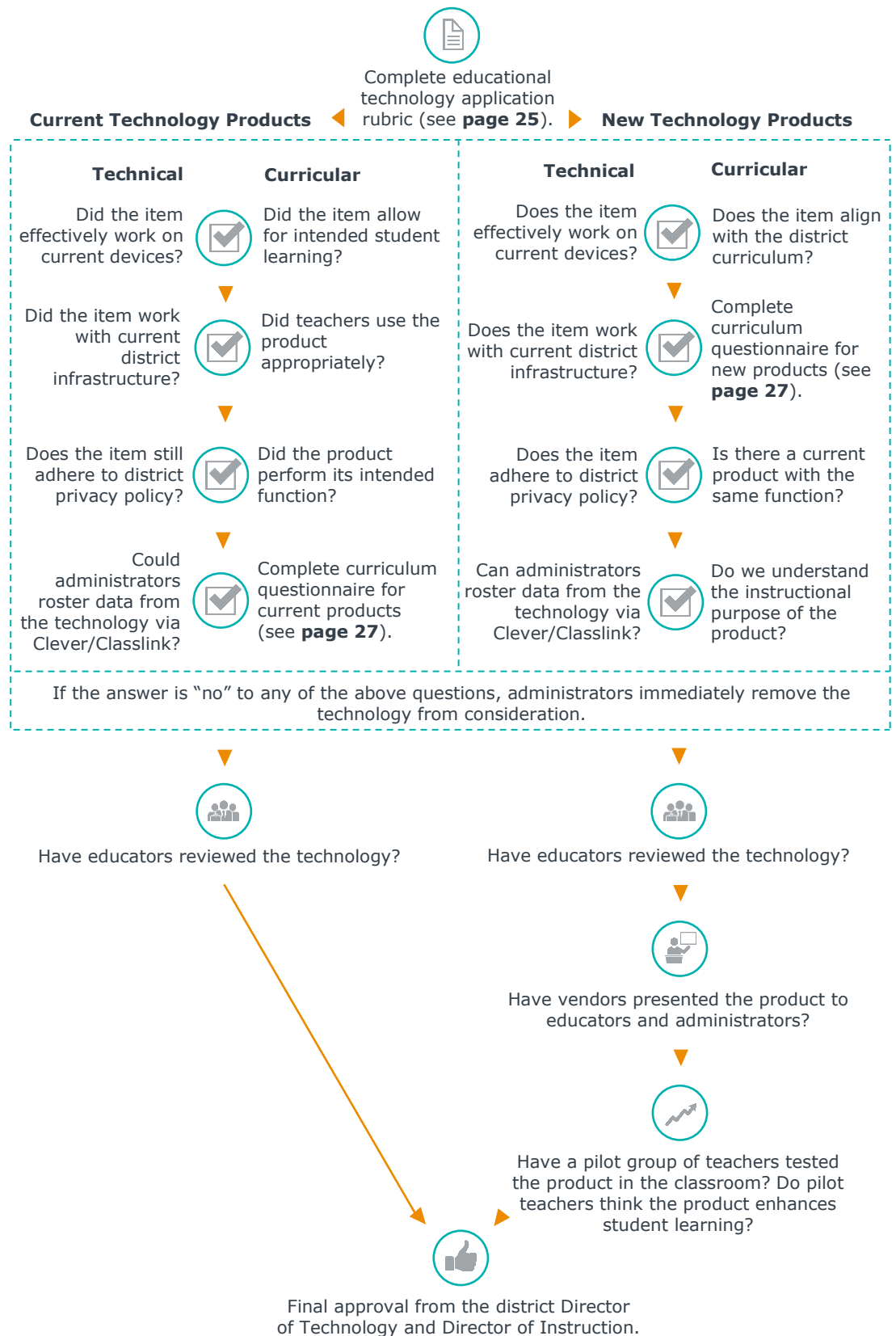
To Maximize the Likelihood That Adopted Technologies Align with District Priorities, Implement a Holistic Technical and Curricular Review Process

If district administrators limit themselves to a solely technical review process, they risk teachers and principals adopting digital content and products that do not align with the district’s curricular goals. To prevent this problem, administrators at **District B** created a thorough technology product application process that combines a technical and a curricular review. This process ensures that all adopted technologies align with district priorities, but requires more staff time and thus may reduce the speed with which the district can adopt technology products as well as the likelihood that staff will apply to implement new technology products.

District B developed their application process in collaboration with a school district in Texas and a district technology award granting organization. In the application process, school- or district-level staff first apply to purchase a new technology product. Staff members from the Teaching & Learning and Technology departments evaluate each product’s alignment with the district’s technology infrastructure and curricular standards. Coordinators from the Teaching & Learning and Technology departments complete all steps in the evaluation process (e.g., rubric on **page 25**, technical and curricular checklists on **page 18**, curriculum questionnaires on **page 27**). As part of this process, district administrators only sign one-year contracts for technology products or services to ensure they can switch to or adopt the most effective technology on the market. Therefore, district administrators evaluate each paid technology product the district employs every year.

Administrators at **District B** perform their review process for *paid* technology products. Thus, Seesaw—the district uses the paid version—goes through the evaluation process each year, but Google Classroom does not. Administrators who wish to model **District B** evaluation process can do so for both *free* and *paid* technology products, so they can track and approve all technology products in the district.

District B's Technology Product Evaluation Process⁴



4) District B. n.d. "Technology Product Evaluation Process." Accessed June 16, 2020.

The above curricular review processes can allow district administrators to identify which curricular standards each technology product addresses. As part of **District B's** technology product review process, coordinators in the Teaching & Learning and Technology departments must identify (at least broadly) the curricular standards each technology product addresses. To help teachers better understand how to use approved technology products to address student skill gaps, administrators could publish a database outlining the standards associated with each technology product. Teachers could then consult this database to assign specific digital content or assignments to students struggling on curricular standards.



Consider Implementing a Less Rigorous Curricular Evaluation to Save Staff Time

Districts that see the value in some, but not too much, district oversight on the curricular side of technology products may consider simply relying on the curricular approval of technology software from a district administrator like the Chief Academic Officer rather than a standardized process. Administrators at **District A** uses this approach when evaluating technology products.

Formalized Technology Product Review Processes Help Mitigate Teacher and Administrator Pushback

Standard review processes not only help ensure district administrators—in a more centralized model—or school administrators—in a more decentralized model—pick compatible technology, but also help administrators justify their purchasing/implementation decisions to requesting teachers or staff. Contacts at **District B** note that a standard evaluation process allows administrators to cite specific criteria that resulted in the rejection of a technology product. Contacts at **District E**—a more decentralized district than **District B**—similarly note that district administrators who provide a concrete rationale behind a technology adoption decision are less likely to encounter significant teacher or school-level administrator pushback.

Contacts at **District A** also note that explaining the logic behind district technology product management models more broadly can help mitigate teacher pushback to either specific technology adoptions or to the product management model more generally. For example, if a teacher questions why all technology products must integrate with Canvas, a senior technology administrator (e.g., Chief Technology Officer) should explain all the benefits the district and teachers experience from employing Canvas, instead of Google Classroom, as their district wide LMS. Elaborating further, administrators could highlight that Canvas allows the district to gather data on courses and students within a course—that may have linked technology products—which they can then use to help them more effectively identify student skill gaps. To build trust, contacts at **District E** suggest Chief Technology Officers travel to specific schools to have conversations with principals about technology adoption decision-making.

5) Curricular Alignment

Addressing Student Skill Gaps

No Profiled District Successfully Maps Technology Products to the Curricular Standards They Address nor Automates Assignment of Technology Products to Address Student Skill Gaps

More centralized districts that distribute and manage district-wide curriculums and prioritize student equity (i.e., ensuring all students get access to instruction support) are more likely to prioritize aligning software to address student skill gaps in curricular standards than more decentralized districts. Decentralized districts may leave this task up to individual schools.

Administrators who want to align curriculum standards with technology products to address student skill gaps must accomplish three tasks:

1. Match technology products or learning modules with specific lessons or standards in the district curriculum.
2. Measure student skills gaps on specific topics or subjects within the district curriculum.
3. Develop a process to assign the technology product or digital content associated with a curricular standard to students with visible gaps in that standard. Preferably, this process would incorporate automation to help teachers identify the correct product to apply.

No profiled district successfully created a process to complete all three of the above tasks, but some profiled districts have made progress toward one or more of these steps.

Matching Technology Products or Modules to District Curriculum Standards

No profiled district invests significant time or resources in mapping technology products or modules to the specific curricular standards they can address. Though administrators at **District B** do consider how a technology product aligns with the district curriculum during their annual review/adoption process (see **page 18**), they do not formally identify and record the specific curricular standard each product addresses (e.g., matrix algebra).

While administrators at **District C** do not yet map each technology product to specific standards, they do employ the software [Atlas](#)—which integrates with the district’s LMS (Canvas) and Clever—to identify the specific curricular standards each course (and unit and lesson within that course) should address. Atlas allows teachers to view the district curriculum by subject and grade level and identify the specific standards tied to each unit (e.g., module) within their courses.

Administrators at **District C** integrate the curricular information in Atlas with Canvas—their LMS for secondary students. This approach helps teachers understand how the lessons and assessments they upload to the LMS connect back to the district curricula but does not extend to technology products.

Administrators at **District A** and **District D** do not map specific technology products or modules to standards, while administrators at **District E** consider technology product alignment to specific standards alignment a lower priority for the district.

Measuring Student Skill Gaps

While most school districts administer assessments or exams to track student progress—which administrators can match to district standards—not all districts do so in a way that allows for data integration between the assessment, curricular standard, and technology products associated with that standard. Administrators who wish to

connect all three components (assessment, standards, and technology products) should consider implementing student assessment or data software that integrates with curricular software (e.g., the LMS) and instructional technology products. Administrators at **District B** use Illuminate and Edulastic to assess students and track longitudinal performance data for each student. Both assessment/data software integrate with common LMSs, which in turn can integrate with technology products.

Assigning Technology Products to Address Student Skill Gaps

This challenge remains the largest growth area for all profiled districts. No profiled district has developed an automatic way to assign a technology product to address a student skill gap in a specific curricular standard. Profiled districts instead require teachers act as intermediaries between the data identifying a skill gap on a specific curricular standard and the appropriate technology product or module to address the gap. For example, if a student does poorly on an assignment covering the properties of triangles, teachers can identify the student's weak area through an assessment and assign appropriate follow-up work (e.g., a virtual, adaptive worksheet with problems using the Pythagorean theorem) based on their knowledge of the technology products available to them.

Contacts at **District B** note that Seesaw allows students to upload assignments. Based on student performance on those assignments, teachers can then manually associate a technology product or module with specific learning outcomes or standards. Then, teachers can assign follow up lessons or modules to students, as necessary. Administrators at **District B** plan to adopt products that incorporate artificial intelligence (e.g., iReady) to improve teachers' matching of skills gaps with specific technology products that align with district curriculum standards

Contacts at **District A** note that their LMS (Canvas) allows teachers or administrators to integrate Canvas-compatible technology products to lessons that address a specific curricular standard. On a similar note, administrators at **District C** use Atlas to identify which standards lessons uploaded to Canvas address. District administrators could combine these two approaches to facilitate technology product assignment:

1. Administrators could audit technology products and map them to curricular standards.
2. Administrators could associate all technology products that integrate with Canvas with the Canvas-hosted units and lessons (also aligned to standards via Atlas).
3. When teachers reach a specific unit in their course and begin to upload assignments and assessments associated with that unit to Canvas, they will then see the relevant technology product already present within that unit. Thus, teachers thus do not have to identify the relevant product themselves. Teachers can then assign that product to students, as necessary.

Software Solutions to Align Curriculum and Track Student Progress Towards Standards



LMS

[Canvas](#) or [Seesaw](#)

- Teachers can track students' attainment of standards through software compatible with the LMS (e.g., iReady).
- Students can upload assignments and teachers can match assignment grades to specific standards.



Pursued by **District B** at the K-5 grade-levels.
Discussed as a possibility and potential capability by contacts at **District A**, but not something district administrators pursue.



Curricular Software

[Atlas](#)

- Teachers can align standards to curriculum (i.e., match lessons with district-wide or state-wide learning standards).
- Teachers and administrators can track student learning goals and plan assessments.



District C



Student Assessment/Data Software

[Illuminate](#) or [Edulastic](#)

- Teachers can assign assessments directly to students.
- Administrators can input state assessment scores.
- Administrators view and analyze longitudinal data for students.
- Administrators can link Illuminate assessment scores to compatible LMSs (e.g., [itslearning](#)).
- Administrators can link Edulastic with compatible LMSs (e.g., [Canvas](#), [Schoolology](#)).



District B

6) Research Methodology

Project Challenges

Leadership at a partner district approached the Forum with the following questions:

1. How do contact districts manage technology products?
 - a. Do contact districts centralize products into an LMS or repository? Why or why not?
 - b. Do contact districts leave technology products decentralized (e.g., managed by separate curriculum departments)? Why or why not?
 - c. Do contact districts employ another model other than a centralized or decentralized model to manage technology products? Why or why not?
2. What are the benefits and challenges associated with the model(s) in use at contact districts?
3. Within their model, how do contact districts track the various technology products in use across the district, keep centralized records, and otherwise aggregate results across systems?
 - a. How do contact districts track student performance across distinct technology products?
 - b. How—if at all—do contact districts map technology products to the curricular standards they address?
4. Within their model, how do contact districts help teachers match technology products or modules to student skill gaps (e.g., learning paths in a centralized learning management system, adaptive pathways in vendor-provided management systems)?
5. How do contact districts manage teacher and administrator pushback to their technology product model?
6. How do contact districts ensure that new technology adoptions align with district priorities (e.g., previous purchases, central LMS system, single sign-on, etc.)?
7. How do contact districts' LMS systems/models align with their district's professional development system?

Project Sources

- EAB's internal and online research libraries (eab.com)
- National Center for Education Statistics (NCES)
- Niche.com
- "Best K-12 LMS." n.d. Itslearning US. Accessed June 25, 2020. <https://itslearning.com/us/>.
- "Canvas the Learning Management Platform." n.d. Instructure. Accessed June 16, 2020. <https://www.instructure.com/canvas/>.
- "Clever's Products." n.d. Clever. Accessed June 16, 2020. <https://clever.com/products>.
- Davis, Michelle. 2019. "K-12 Districts Wasting Millions by Not Using Purchased Software, New Analysis Finds." *Market Brief* (blog). May 14, 2019.

<https://marketbrief.edweek.org/marketplace-k-12/unused-educational-software-major-source-wasted-k-12-spending-new-analysis-finds/>.

- "Edulastic." n.d. Edulastic. Accessed June 22, 2020. <https://edulastic.com/>.
- "Illuminate Education." n.d. Illuminate Education. Accessed June 22, 2020. <https://www.illuminateed.com/>.
- "Learning Management System - Schoology." n.d. Schoology. Accessed June 16, 2020. <https://www.schoology.com/homepage>.
- "Manage Teaching and Learning." n.d. Google for Education. Accessed June 16, 2020. <https://edu.google.com/products/classroom/>.
- District B. n.d. "Technology Product Evaluation Process." Accessed June 16, 2020.
- District B: Instructional Technology Department. n.d. "Education Technology Software Application Rubric." Accessed June 16, 2020.
- "Power Your School's Curriculum Using Our Features." 2019. AtlasNext. April 5, 2019. <https://www.onatlas.com/features>.
- "Seesaw." n.d. Seesaw. Accessed June 16, 2020. <https://web.seesaw.me>.
- District D. n.d. "Technical Checklist." Accessed June 16, 2020.

Research Parameters

The Forum interviewed tenured technology administrators at medium-sized (10,000-50,000 students) districts with a history of high technology performance. Whenever possible, the Forum prioritized insights from districts that emphasized standards-based or personalized learning.

A Guide to Districts Profiled in this Brief

District	Location	Approximate Enrollment	Approximate Total Annual District Operating Expenses
District A	Midwest	15,000	\$155,000,00
District B	Midwest	10,000	\$115,000,000
District C	Pacific West	50,000	\$575,000,00
District D	Mountain West	30,000	\$290,000,000
District E	Mid-Atlantic	30,000	\$290,000,000

7) Appendix

District B's Education Technology Software Application Rubric⁵

Components	1	2	3	Score
Acceptable Use/Privacy Statement COPPA/CIPA/FERPA compliant Account requirements Data sharing and collection Third-party applications involved (login with Google, Facebook, etc.) Parental consent required	AUP/Privacy Statement is unclear or contains major concerns with student data. --STOP--	AUP/Privacy statement contains basic requirements for security	AUP/Privacy statement contains best practices for the security of student data.	
Advertisements Does the app have advertisements? Are the ads static or do they change depending on the time of day? Are the ads placed on valuable screen space? Are students required to close the ad before using the App?	Ads are inappropriate, varied, intrusive or unpredictable and get in the way of the learning process --STOP--	Ads are static & predictable, Ads are visible through the app, but do not overly get in the way	No advertisements at all.	
Data Encryption Enter URL into www.ssllabs.com to view security "grade"	Data is not safe in transit (received grade of D or F) --STOP--	Data is protected, but the key exchange is weak (grade of C)	Data is completely Encrypted in transit (grade of A or B)	
Student Data Rostering Does the app require student data? Does the app support auto-rostering from SSO or SIS?	App does not support any type of auto-rostering --STOP--	App supports auto-rostering but the process is complicated.	App does not require student data or fully supports auto-rostering	
Cost Is the cost of the app in align with the budget? Does the app contain in-App purchases?	App is costly and contains in-app purchases --STOP--	App is free or aligns to budget but contains in-app purchases	App is free or aligns to budget, no in-app purchases.	
Social Appropriateness and/or Educational Relevance Content is of high educational quality App aligns with classroom instruction, standards, framework	Content is inappropriate for students of this grade level --STOP--	Content is questionable for students of this grade level	Content is appropriate for students of this grade level.	
User-Generated Content Content contains appropriate information (images, text, URLs) Can individuals comment on others work? Can the comments or chat be monitored?	App contains inappropriate info and lacks teacher controls --STOP--	App contains inappropriate info or lacks teacher controls	App contains appropriate info and provides teacher controls.	

5) District B: Instructional Technology Department. n.d. "Education Technology Software Application Rubric." Accessed June 16, 2020.

Feedback Does App provide students with feedback or encouragement? Feedback is appropriate for students Can teachers provide feedback?	App does not provide feedback	App provides minimal feedback	App provides feedback at a variety of levels.	
Engagement/Interaction Would students like using the App? Would students understand the tools?	Users are not actively engaged with content	Users have minimal engagement with content	Users are fully engaged with content	
Leveled Customization Can teachers adjust the settings for individual students? (i.e. Kristy works on pennies and George works on quarters) Is the app adaptable based assessment or student previous work?	Settings are not customizable, all students get the same work.	Settings have minimal customization, but is not adaptable	Settings are fully customizable and the program is adaptable.	
Usability of Interface Will the teacher have to spend time teaching the students how to use the App or is it easy to learn?	Users need assistance navigating the app	Users are able to navigate the app with minimal assistance	Users are able to navigate the app without assistance	
Communication Features Does the App have a built-in chat feature? Can the chat/discussion posts be monitored/approved by the teacher? Is it visible by Go Guardian or Apple Classroom?	Anonymous capability, chat is available and unmonitored, not visible with GG/AC	Chat is monitored but not archived	Chat is monitored regularly and archived, visible with GG/AC	
Accessibility Features for Special Needs Are there settings that support students with visual limitations? Are there settings that allow users to zoom or adjust text? Are there settings that allow users to have text read to them?	App offers no accessibility features	App offers some accessibility features	App offers multiple accessibility features	
Results	Approved (Yes/No)	Denied (Yes/No)	Total Score (39)	/39

District B's Digital Content Questionnaires⁶

Current Digital Content

1. Did this piece of digital content solve (fully or partially) the original problem we were trying to solve when we first purchased it?
2. Did this piece of digital content move us toward our definition of success?
3. What was the goal of using this program? (What was the program supposed to teach students?)
4. What evidence do we have that this program supported the goal (from #1)?
5. Was their appropriate usage of the program across the grade band, subject or building(s)?
6. Is the program still aligned with our curriculum, pacing guides, frameworks, maps, etc.?
7. Did this program provide actionable data that was useful for educators?
8. Does this program still support the key components of the district's strategic plan for student learning?
9. Does this program still support the district's 21st century skills initiative?
10. Are there any major changes to the program since it was last evaluated?
11. Are there any flaws that are preventing the effective use of the program?
12. Do the students like the program?
13. Has the training been appropriate for the educators?
14. Is there anything we need from the vendor before we renew a contract for another year?
15. Obtain a quote for what you will be recommending.

New Digital Content

1. What problem are we trying to solve with the purchase of this digital content?
2. What does this digital content allow our students to learn?
3. How will this meet the needs of our students better than what we were using?
4. What research is available to show this will improve student learning?
5. How will this help increase student engagement?
6. How will this differentiate and allow for personalized learning?
7. How will this align with our current curriculum frameworks, maps, pacing guides, assessments, etc.?
8. Is the digital content adaptive or same content for all students?
9. What are the flaws of the new digital content?
10. What data will this digital content provide, is the data usable, is the data exportable (to be used in different data programs), are there reports showing student progress?
11. Does this program align properly with curriculum and district goals?
12. Does this foster dialogue and empowerment among our students...or more compliance?

6) District B, "Technology Product Evaluation Process."

13. How will leaders provide the essential resources and training to make sure the initiative works?
14. Is the digital content easy to use (intuitive) or will it take time to train?
15. How are we sure that this will not be one of those programs that we will need to get rid of next year?
16. Is the solution simply automating something in our classroom or is it making something possible that would be impossible without technology?
17. What ongoing professional learning is necessary to improve success?
18. Does the digital content put users (students and educators) first?
 - a. Is it engaging, empowering and motivating?
 - b. Is it free of gender, racial, ethnic, and cultural biases?
 - c. Is it accessible to all learners regardless of their abilities?
 - d. Do students like it?
19. How does this program support the district's 21st century skills initiative?

Vendor Question for New Digital Content

1. What is required to implement this digital content in the classroom and at scale?
2. Where have you seen this digital content used so that it produces effective results?
3. Where have you trained teachers so they can uniformly perform within the guidelines of this digital content product?
4. Where is the data that show you have achieved performance that is superior to that achieved by other programs?
 - a. Ask for research, ask for action plans.
 - b. Ask who did the research and when, did the vendor do their own research or did a 3rd-party researcher do the research?
 - c. How similar are the participants (students) to our own students? (Context matters)
 - i. If vendor cannot show results, be wary of the product. Push for results and research.
5. Where have you seen historically successful teachers (those whose students outperform demographic predictions)?
6. What standards for interoperability, safety, and security does this solution adhere to?
7. What student data is collected? Is personally identifiable information collected?
8. How does your solution let you import, export or synchronize information? what types of information and in what format?
9. Explain your customer support process if we have a problem with your product.
10. Explain your pricing structure?
 - a. District License? Building License?
 - b. Per student or Per teacher
 - c. Obtain a quote for what you will be recommending.

11. Buzz words that would trigger a "red flag" warning:
- a. "On the Road Map"
 - b. "Teacher Hacks"
 - c. "Comment Request We Hear About"