



EDTRAX

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better learnings outcomes

Technology Audit

Technology Audit Report

Executive Summary

The district has significantly invested in technology infrastructure, student devices, and cybersecurity to enhance educational activities and digital access, especially during the pandemic. However, with the depletion of ESSR funds, there is a pressing need for long-term planning and cost optimization. Recommendations include implementing a structured device refresh cycle, exploring cloud-based solutions, optimizing software licensing for potential annual savings, and expanding professional development to support effective technology use. Strengthening cybersecurity measures and maintaining compliance with regulations are also essential to protect student data and mitigate evolving cyber threats.

Guiding Principles:

- Increased Technology Spending: The district significantly boosted technology spending, particularly on student devices funded by COVID-19 relief. This proactive approach demonstrates the district's commitment to equipping students for remote learning. However, to sustain this investment, ongoing planning, processes, and procedures are essential to ensure long-term sustainability, efficient use of resources, and continued support for students' educational needs.
- Lease Agreements for Technology: The district heavily relies on lease purchase agreements for technology equipment. Including an evaluation of these lease agreements in the audit could reveal whether they are cost-effective and aligned with the district's financial goals.
- Strategic Plan's Focus on Technology: The strategic plan outlines the district's goal to "review and implement a comprehensive Technology Plan" as part of managing district growth, finances, and support services to improve student achievement. This indicates that the district views technology as a critical component of its strategic objectives, making it an essential area for audit.
- Technology Integration with Academic Services: The strategic plan emphasizes the collaboration between technology and academic services, which suggests that the audit should also assess how well technology is integrated into the district's educational framework and whether it is effectively supporting academic processes.
- Continuous Improvement and Monitoring: The district's commitment to quality continuous improvement and the Plan-Do-Study-Act Cycle mentioned in the strategic plan can be tied into the audit proposal by suggesting regular monitoring and updates to the technology infrastructure to ensure it continues to meet the district's evolving needs.

Coherent Actions:**Develop a Long-Term Technology Maintenance Plan**

- Action: Establish a plan that schedules regular maintenance, upgrades, and replacement of aging network devices, infrastructure, and obsolete software. This plan should include a budget forecast to manage these costs over time with suggested KPIs. (**PRIORITY = HIGH**)
- Benefit: Ensures the sustainability and reliability of the district's technology infrastructure, avoiding unexpected downtime and costly emergency repairs.

Implement a Standardized Device Refresh Cycle

- Action: Adopt a consistent 4-year refresh cycle for student and staff devices, with a projected annual budget of \$300,000. This cycle should be applied district-wide to ensure equity in device performance. (**PRIORITY = HIGH**)
- Benefit: Maintains up-to-date technology for all users, reducing disparities in device performance and ensuring all students have access to reliable digital tools.

Optimize Software Licensing and Usage

- Action: Conduct a comprehensive review of current software licenses to identify redundancies and negotiate better terms with vendors. Prioritize renewals based on their impact on student learning and administrative efficiency. (**PRIORITY = HIGH**)
- Benefit: Potentially saves \$50,000 to \$100,000 annually, ensuring the district only invests in software that provides high value and aligns with educational goals.

Expand Professional Development and Training Programs

- Action: Increase the budget for professional development by \$20,000 to \$50,000 to offer more personalized and ongoing training for teachers and staff. Focus training on advanced LMS features, data-driven decision-making, and integrating technology into the curriculum. (**PRIORITY = MEDIUM**)
- Benefit: Enhances the effectiveness of technology in education by ensuring staff are well-trained and confident in using new tools, leading to improved teaching practices and learning outcomes.

Enhance Cybersecurity and Compliance Measures

- Action: Allocate an additional \$25,000 annually for cybersecurity training for staff and students, regularly update security protocols, and conduct frequent security audits to identify and address vulnerabilities. (**PRIORITY = MEDIUM**)
- Benefit: Strengthens the district's defense against cyber threats, protects sensitive student data, and ensures compliance with legal and regulatory requirements.

Evaluate and Upgrade Bandwidth Capacity

- Action: Assess current bandwidth utilization and adjust internet service plans to accommodate increased online learning and future digital demands. (**PRIORITY = LOW**)
- Benefit: Provides sufficient bandwidth to support all digital learning activities, ensuring smooth and uninterrupted access to online resources.

Explore Alternative Funding Sources

- Action: Investigate grants, partnerships, and other funding opportunities to support ongoing technology initiatives and reduce reliance on limited district budgets. (**PRIORITY = LOW**)
- Benefit: Diversifies funding sources, making technology investments more sustainable and reducing the financial burden on the district.

Introduction

This report presents the findings of the technology audit conducted for District X, which serves approximately 15,000 students. The audit evaluated the district's technology infrastructure, spending patterns, and alignment with educational goals. The findings and recommendations aim to support the district's ongoing efforts to enhance its technology environment while ensuring cost-effectiveness in the longer term and a focus on compliance and security and ROI of technology-based academic programs.

Key Findings and Recommendations**Technology Infrastructure**

Overview: The district's technology infrastructure includes servers, networking equipment, Wi-Fi access points, and related hardware that supports day-to-day educational activities. Much of the infrastructure was purchased or upgraded using ESSR funding.

Key Findings:

- Cost Optimization Planning: Prioritize the replacement of aging network devices and explore cloud-based solutions to optimize long-term costs.
- Infrastructure Reliability: The current infrastructure is robust and has supported the district's needs during the pandemic. However, as ESSR funding wanes, the district must plan for future upgrades and maintenance without relying on similar federal funding.
- Bandwidth Utilization: Bandwidth usage has increased significantly due to the integration of more online learning tools. The district should evaluate its internet service plan to ensure it meets ongoing and future demands.

Strengths: The district has allocated \$1.2 million towards upgrading its network infrastructure over the past four years, resulting in improved connectivity and network reliability across all schools.

Areas for Improvement: Despite recent investments, some network equipment is nearing the end of its life cycle, and there is a lack of redundancies in critical network paths. Additionally, the district could benefit from migrating some applications and services to cloud-based solutions to reduce long-term maintenance costs.

Recommendations:

- Develop a long-term infrastructure maintenance plan to ensure the sustainability of current systems.
- Conduct a cost-benefit analysis to determine whether current bandwidth is sufficient or if upgrades are necessary.

Device Management and Refresh Planning

Overview: During the pandemic, the district expanded its device inventory significantly using ESSR funds. These devices include laptops, tablets, and Chromebooks.

Key Findings:

- **Device Lifecycle:** Most devices currently in use were purchased within the last 2-4 years. However, as the devices approach the end of their expected lifespan (3-5 years), planning for a refresh is critical.
- **Cost Implications:** Without additional funding, the district faces significant costs to maintain or replace devices. The current refresh model may be unsustainable.

Strengths: The district implemented a 1:1 device program, with a recent \$500,000 investment in Chromebooks for students. This initiative has significantly improved digital access.

Areas for Improvement: The device refresh plan is not consistently applied across the district, leading to disparities in device performance. A standardized 4-year refresh cycle, with projected costs of \$300,000 annually, is recommended to ensure all students and staff have access to up-to-date technology.

Recommendations:

- Evaluate current technology leasing agreements to ensure cost effectiveness and potential for longer-term cost savings.
- Establish a staggered refresh cycle to spread out costs over several years, avoiding the need for a large one-time expenditure.
- Explore alternative funding sources or partnerships to subsidize future device purchases.

Learning Management System (LMS), Student Information System (SIS), and Educational Software

Overview: The district uses a combination of a Learning Management System (LMS), Student Information System (SIS), and various educational software tools to facilitate learning and administrative processes.

Key Findings:

- **Integration and Usability:** The current LMS and SIS are well-integrated, but the district has yet to fully exploit these systems to enhance learning outcomes and administrative efficiency.
- **Software Licensing:** Some educational software licenses purchased with ESSR funds will expire soon, requiring renewal or replacement.

Strengths: The district's current LMS supports most educational software in use, with \$150,000 allocated annually for software licenses.

Areas for Improvement: There is an opportunity to streamline software licenses, potentially saving up to \$50,000 - \$100,000 annually by eliminating redundant tools and negotiating better terms with vendors.

Recommendations:

- Monitor software usage.
- Conduct a comprehensive review and ROI / Cost Analysis of instructional-based software licenses to eliminate redundancies and negotiate better terms, aiming for \$50,000-\$100,000 in annual savings.
- Review and prioritize software renewals based on their impact on student learning and district operations.

Professional Development and Training

Overview: Professional development and training is crucial for the effective use of technology in education. During the pandemic, professional development was prioritized to ensure staff could transition to online learning platforms.

Key Findings:

- **Ongoing Needs:** As technology continues to evolve, there is a continuous need for professional development, particularly in using new tools and software.
- **Resource Constraints:** With the decrease in funding, the district must strategically plan its professional development to ensure maximum impact aligned to technology investments and the return on instruction.

Strengths: The district invested \$100,000 in professional development programs last year, focusing on integrating technology into the curriculum.

Areas for Improvement: More personalized and ongoing training is needed to support teachers at different levels of technological proficiency. An additional \$20,000-\$50,000 is recommended to expand these programs.

Recommendations:

- Expand professional development programs with an additional \$20,000-\$50,000 to provide more personalized and ongoing support for teachers.

- Monitor impact of Professional Development on Education Program usage and ROI.
- Focus professional development on high-impact areas, such as advanced LMS features and data-driven decision-making using SIS

Security and Compliance

Overview: Security and compliance have become increasingly critical with the rise of cyber threats and the need to protect student data.

Key Findings:

- **Security Posture:** The district's security measures are adequate but will require ongoing updates to keep pace with evolving threats.
- **Compliance Requirements:** The district must ensure continued compliance with regulations such as FERPA, especially as it transitions away from ESSR-funded resources.

Strengths: The district has strong security protocols, with \$75,000 allocated annually for cybersecurity measures, including regular audits.

Areas for Improvement: Additional funding of \$25,000 (annually) is recommended to enhance cybersecurity training for staff and students, reducing the risk of phishing and other cyber threats.

Recommendations:

- Increase the cybersecurity budget by \$25,000 to strengthen staff and student training against cyber threats.
- Regularly update security protocols and conduct audits to identify potential vulnerabilities.
- Ensure all technology policies are up to date and reflect current legal and regulatory requirements

Technology Budget Analysis

Technology Infrastructure				
Spending Category	Purchase Date	Amount Spent	Percent of Budget	Future Budget Allocation
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Network Upgrades (Wi-Fi, LAN)	Aug 2021	\$120,000	40%	-
Server Upgrades	Sep 2021	\$60,000	20%	↓
Backup and Storage Solutions	Oct 2021	\$30,000	10%	↓
Internet Bandwidth Increase	Nov 2021	\$60,000	20%	↑
Maintenance Contracts*	Dec 2021	\$30,000	10%	↑
Total		\$300,000	100%	
<i>*Represents shifting to applications and infrastructure to cloud technologies.</i>				
Device Management and Refresh Planning				
Spending Category	Purchase Date	Amount Spent	Percent of Budget	Future Budget Allocation
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Laptops (Student Devices)	Jul 2020	\$500,000	50%	↑
Tablets (Student Devices)	Jul 2020	\$200,000	20%	↓
Chromebooks (Student Devices)	Aug 2020	\$150,000	15%	↓
Teacher Laptops	Sep 2020	\$100,000	10%	↑
Device Management Software	Oct 2020	\$50,000	5%	↑
Total		\$1,000,000	100%	
<i>*District is paying higher per device than benchmarks indicate.</i>				
Learning Management System (LMS), Student Information System (SIS), and Educational Software				
Spending Category	Purchase Date	Amount Spent	Percent of Budget	Future Budget Allocation
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Learning Management System (LMS)	Sep 2020	\$100,000	33%	↓
Student Information System (SIS)	Oct 2020	\$150,000	50%	-
Educational Software Licenses	Nov 2020	\$50,000	17%	?
Total		\$300,000	100%	
Professional Development				
Spending Category	Purchase Date	Amount Spent	Percent of Budget	Future Budget Allocation
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Teacher Training for Educational Software	Jan 2021	\$25,000	50%	↑
Staff Workshops on New Software Tools	Feb 2021	\$15,000	30%	-
Online Training Subscriptions	Mar 2021	\$10,000	20%	↓
Total		\$50,000	100%	
Security and Compliance				
Spending Category	Purchase Date	Amount Spent	Percent of Budget	Future Budget Allocation
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Cybersecurity Software	Aug 2021	\$30,000	30%	-
Data Protection and Encryption Tools	Sep 2021	\$40,000	40%	-
Compliance Audits and Training	Oct 2021	\$20,000	20%	↑
Incident Response and Recovery Plan	Nov 2021	\$10,000	10%	↑
Total		\$100,000	100%	

Technology Spend Analysis

Key Insights
• <u>Top Vendors</u>: The data shows that a few vendors, such as VISA, Quill Corporation, and SHI International Corp, account for a significant portion of technology-related transactions, with VISA alone representing 20% of all transactions. • <u>Transaction Distribution</u>: The majority of spending is concentrated among a small number of vendors, indicating reliance on key suppliers for technology services and products. • <u>Spending Patterns</u>: The distribution suggests a focus on hardware, software, and security services, which aligns with typical needs for maintaining and upgrading technology infrastructure and devices.

Recommendations	Priority
Vendor Dependence Analysis: Conduct a detailed review of contracts with the top vendors to ensure favorable terms, costs and assess risks associated with over-reliance on a few suppliers.	High
Cost-Effectiveness Review: Evaluate whether the high frequency of transactions with specific vendors, such as VISA and Quill Corporation, is cost-effective or if better pricing and services could be obtained through competitive bidding, alternative suppliers, and/or ROI and Cost Benchmarking.	High
Budget Allocation and Forecasting: Given the upcoming end of ESSR funding, it's critical to forecast future technology needs and allocate budget accordingly, ensuring sustained operations without compromising quality.	High
Lifecycle and Refresh Planning: Review the lifespan and refresh cycles of current technology investments to prevent unexpected costs or downtime, particularly in areas like device management and security infrastructure.	High