# SPS Technology Plan

## 2019-23

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For questions and more information about this document, please contact the following:

Tim Hall
Senior Administrative Assistant, Technology Services
tlhall@seattleschools.org

The Department of Technology Services (DoTS) Technology Plan 2019-2023 is the five-year plan developed by the Chief Information Officer (CIO), the management in DoTS, and senior staff members at Seattle Public Schools with engagement from a wide group of stakeholders.

# Technology Plan

## 2019-2023

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April 4, 2019

Seattle Public Schools
http://www.seattleschools.org

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# Introduction

## Message from Superintendent Juneau

Thank you to our Seattle voters for approving the Building Excellence Capital Levy (BEX) V in February 2019. BEX V and the current Building, Technology, and Academics (BTA) IV levies provide the primary funding source for district technology needs.

With voter approval we are able to make strategic investments in learning and teaching supports; deliver high-quality services to students, teachers, staff and families; and improve efficiency in our business processes. I want to thank the community for continuing to support our levies and every student's success in Seattle Public Schools.

From August to November 2018, I embarked on a comprehensive Listen and Learn Tour to identify our district's strengths, challenges, and what is most important to consider as I plan for our future. The input received helped shape our new strategic plan which sets the course for our district for the next five years and focuses our resources, work, and initiatives.

The district's strategic plan includes a short list of high-impact priorities and measurable goals focused on improving outcomes for students of color furthest from educational justice. While our ongoing operational work to prepare every student for college, career, and community participation continues, the strategic plan specifies what we will accomplish for our underserved students, in particular for students of color. The Seattle Public Schools 2019-2023 Technology Plan works in support of our Strategic Plan.

The Technology Plan projects and services fall into three major categories: student learning and supports, district systems and data, and infrastructure and security.

Student Learning and Support: We will upgrade and expand classroom, student, and staff technology and resources to provide a baseline of equality across schools. Technology and related professional development will be provided to support school improvement, district programs, and students' needs. Additional funding and supports will be targeted to high-need schools.

District Systems and Data: Student, school, and operational system improvements will continue for many critical functions. Work will also continue to improve business processes, communications, compliance, data governance, systems integration, and using data to improve results, so we become more consistent and predictable in our basic functions as a district.

Infrastructure and Security: Upgrades will be made to the data center and cloud systems with improvements to the district's data security and access systems. To meet the increasing demand for online access to digital resources for productivity, school internet connectivity and wireless access will be upgraded.

## Message from the Information Technology Advisory Committee

This committee was formed in April 2018 to represent the voices of Seattle Public Schools teachers, administrators, students, parents, and community members regarding current and future technology policy issues facing the district. During our tenure, we have offered insight and guidance on a variety of topics, which include, but are not limited to, network infrastructure, data privacy, accessibility to technology for differently-abled students, and best practices in technology-integrated curriculum and learning models.

The Technology Plan 2019-2023 is a not simply an overview of work being done but rather an essential element of the new Strategic Plan that is currently in development and expected to be completed in June 2019. We look forward to district technology planning that continues to prioritize equitable access and reflects research-based best practices for implementing emerging technologies that enhance teaching and learning. Finally, we recognize that our greatest asset is our teachers—essentially, the best technology comes with a heartbeat.

## Message from the Chief Information Officer

This technology plan is a culmination of years of work starting with BTA IV capital levy planning and community engagement in 2015 and going to voter approval in February 2016. The planning and engagement continued as we prepared for the BEX V capital levy which was approved by voters in February 2019.

During the process of developing this plan, the district published The Principles of Effective Digital Learning and the state adopted Education Technology Standards. Student learning with technology as both a creative tool and a portal to digital resources is the focus of this plan.

The supports from district systems and business intelligence provide the data we need to run the district, make informed instructional decisions, and communicate effectively. Over the course of the plan, the Department of Technology Services (DoTS) will work to make our enterprise systems integrated to efficiently meet the needs of staff, students, and the community stakeholders.

DoTS will continue to build an infrastructure with a robust wireless network and core services like single sign-on, file storage, and collaborations that promote a digital transformation. Security and data privacy are at the forefront of planning and operations of the technology foundation presented in the plan.

The Technology Plan aligns to and is support of the district's 2019-2024 strategic plan released in March 2019.

Thank you to all who helped put this plan together. I want to thank the school board for their input over the last three years in shaping the direction. Thank you to the Information Technology Advisory Committee that has met monthly to provide input and expertise. I appreciate everyone who came to the community engagement meetings. Finally, a thank you to the Seattle School District staff and teachers for demonstrating their needs and working to innovate with technology and digital resources to meet the needs of each and every student.

# Executive Summary

The Department of Technology Services (DoTS) Technology Plan 2019-2023 is the five-year plan developed by the Chief Information Officer (CIO), the management in DoTS, and senior staff members at Seattle Public Schools with engagement from a wide group of stakeholders. This plan is an effort to document planning for Information Technology (IT) projects that are funded by Capital levy funds. This plan includes planning for the Buildings, Technology and Athletics IV capital levy (BTA IV), which passed in February 2016, as well as the Building Excellence (BEX V) capital levy that goes to voters in February 2019. All the planning has been completed using both the Racial Equity and Community Engagement toolkits with stakeholder engagement including teachers, principals, students, parents, community members, the business community, elected officials, and board members, as well as central office staff.

Operations and projects are listed under three principle programs that make up the purview of the Department of Technology Services: Student Learning & Support, District Systems & Data, and Infrastructure & Security. Student Learning & Support includes hardware, software, and supports that directly enable teachers and students. District Systems & Data includes the finance and student data systems and operational software along with the data and business intelligence capabilities to support business, operations, and instruction. Infrastructure & Security includes core technology to access the internet and applications with controls addressing security, privacy, and compliance. All projects are listed in the context of the district vision, goals, and the five-year strategic plan.

Projects are listed with timelines for BTA IV, which will run from present through the 2019-20 school year, and timelines for BEX V, which will run from 2020-21 through the 2022-23 school years. Each levy funds a three-year technology budget, although some projects may extend up to six years.

Major work has been progressing on BTA IV projects, many of which kicked off in Fall 2016 after the passing of the levy the previous February. With still two years left on work for projects and operations funded by the BTA IV levy, the plan is being documented here. Although no changes from the commitments for that levy have been altered, this plan documents the work to be completed. Projects still in process for BTA IV have a completion time from the present to August 2020 and are designated as such.

The real work in planning has been for BEX V, which will go into effect in September 2020. Similar to the BTA IV planning, BEX V work is listed in the plan as running from September 2020 through August 2023.

About 85% of DoTS funding comes from the capital levy funds. Almost 120 staff members support technology for over 8,000 staff members, 54,000 students, and 105 buildings. In addition to operations, staff work on key projects which include upgraded and specific technologies students and teachers need to meet their learning and teaching goals, new district systems, especially the 16-year business systems, and upgraded infrastructure to provide adequate bandwidth and application delivery where every staff member and student needs it.

Senior staff, with guidance from the Information Technology Advisory Committee (ITAC), the board, and community and staff input, worked in board work sessions for BEX V to review technology projects along with other capital needs. Extensive engagement informed the planning which focused on equity and the needs of each and every student.

This plan is published for the public and will serve as a guide for district staff. All projects are listed in the context of the district's mission, vision, and the five-year strategic plan. All purchases go to the Superintendent and School Board for approval on a project-by-project basis.

# Mission and Vision

**Mission**
Seattle Public Schools is committed to eliminating opportunity gaps to ensure access and provide excellence in education for every student.

**Vision**
Every Seattle Public Schools' student receives a high-quality, world-class education and graduates prepared for college, career, and community.

**Theory of Action**
WHEN WE FOCUS on ensuring racial equity in our educational system, unapologetically address the needs of students of color who are furthest from educational justice, and work to undo the legacies of racism in our educational system…

BY doing the following:

- Allocating resources strategically through a racial equity framework
- Delivering high-quality, standards-aligned instruction across all abilities and a continuum of services for learners
- Creating healthy, supportive, culturally responsive environments from the classroom to central office
- Directly and consistently working in partnership with families and communities who represent students of color who are furthest from educational justice; and
- Making clear commitments and delivering on them

THEN we will eliminate opportunity and achievement gaps and every student will receive a high-quality, world-class education.

To achieve educational justice, Seattle Public Schools (SPS) strives to provide safe learning environments, curriculum that incorporates a student's life experiences and culture, and instruction delivered by high-quality, culturally responsive educators. Unfortunately, many students from certain ethnicities have not historically experienced equitable opportunities for all or part of their educational journey (including African and African American, Asian Pacific Islander and Pacific Islander, LatinX, and Native American students). These students are our priority – with an intentional focus on African American males.

Our Theory of Action is guided by the principles of "Targeted Universalism." Our universal goal is every Seattle Public Schools' student receives a high-quality, world-class education and graduates prepared for college, career, and community. Targeted Universalism holds that targeted and differentiated efforts are required to meet the needs of specific student populations, so every student meets the universal goal. By focusing on students of color who are furthest from educational justice, especially African American males, we will make the greatest progress toward our collective vision.

We believe that an intentional focus on African American males will ultimately benefit every student. We will refine our systems and structures that will ultimately be used to better meet the needs of students throughout SPS. We will also learn how to develop and provide differentiated efforts to meet the needs of specific populations, allowing us to better serve the needs of additional student populations.

# Strategic Plan Priorities

On March 27, 2019, the Seattle School Board unanimously approved the district's 2019-24 Strategic Plan. The new strategic plan sets the course for the district for the next five years and helps us focus our resources, work, and initiatives. Read about how Seattle Public Schools developed the 2019-24 Strategic Plan.

**High-Quality Instruction and Learning Experiences**: Educate the whole child1 through high-quality instruction2 and learning experiences that accelerate growth for students of color who are furthest from educational justice, with an intentional focus on African American males.

>We will recognize and serve the academic, social, cultural, emotional, and behavioral strengths and needs of students, providing high-quality, culturally responsive3 instruction, curriculum, and social-emotional learning supports delivered by educators who set high expectations, so students graduate ready for college, career, and community.

**Priority: Predictable and Consistent Operational Systems**: Develop operational systems that provide a predictable and consistent experience to meet the needs of students and families and allow them to focus on learning.

>We will manage district operational functions (non-academic/non-instructional; e.g., transportation, nutrition services, student assignment) in a culturally responsive, service-oriented, and cost-effective manner. We will ensure operational teams plan, establish, communicate, and consistently meet high service levels that provide school leaders, students, and families the information and daily experience that allows them to experience a safe and productive day of learning.

**Priority: Culturally Responsive Workforce**: Develop a culturally responsive workforce so teachers, leaders, and staff will effectively support students and families.

>We will recruit a diverse workforce representative of our broader community using proven local and national best practices and focus on the retention of educators of color. We will also continue to develop culturally responsive mindsets and capabilities with all team members so there is a warm, welcoming environment in every classroom, school, and throughout central office to support student learning.

**Priority: Inclusive and Authentic Engagement**: Partner with students, families, and communities who are furthest from educational justice by conducting inclusive and authentic engagement.

>We will proactively and consistently work in partnership with students, families, and communities to identify needs, determine solutions, and support the implementation of the initiatives that will best meet the needs of students of color who are furthest from educational justice. We will use culturally responsive ways to engage so we build trusting relationships and empower the voices of those who can help us meet these needs.

# Policies & Procedures

Technology is governed by School Board policies and Superintendent procedures that outline how to implement those policies. Listed are key policies that have a direct impact on technology. The policies and procedures may be updated from time to time.

1010  Board Oversight of Management

**Technology**
- Receive return on investment calculations for all major systems
- Requiring the Superintendent to maintain equity of technology in all schools
- Reviewing "up" time for all systems
- Receive recommendations regarding technological innovations that could be integrated in the district and plans for transition of existing technologies
- Review general technology plans, policies and key technology strategies
- Receiving and considering the recommendations of the Operations Committee with respect to these and other matters

Oversight Areas that shall report to the Board through Oversight Work Sessions include: Technology Services

2022      Electronic Resources/Use of the internet
2022SP Electronic Resources/Use of the internet
2023      Digital Citizenship & Media Literacy
2024      Online Learning
2024SP Online Learning
3231      Student Records
3231SP Student Records
3540      Student Internet Access
4020      Confidential Communications
4040      Public Access to District Records
          Superintendent Procedure
4040SP Public Access to District Records
4110      Family and Community Advisory and Oversight Committees
          Superintendent Procedure
4110SP Family and Community Advisory and Oversight Committees
5260      Personnel Records
          Superintendent Procedure 5260SP Personnel Records Procedure
6901      Capital Levy Planning

# Facts and Figures 2018 - 19

## Our Schools



**$955,448,694** Budget (General Fund FY18-19)

**6,944** Full-Time Staff   (General Fund)

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**102**  Schools        **4,519**  Educators*

*Includes all school-based staff

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**Student Enrollment** (as of Oct. 2018)

**27,272** (51.5%) - **Elementary** (K-5)

**11,639** (22.0%) - **Middle** (6-8)

**14,020** (26.5%) - **High** (9-12)

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**150** Countries of Origin

**147** Languages/Dialects

### Top Ten Languages

| | |
|---|---|
| English | Amharic |
| Spanish | Tagalog |
| Somali | Oromo |
| Vietnamese | Tigrinya |
| Cantonese | Mandarin |

## Our Students



**Total: 52,931**
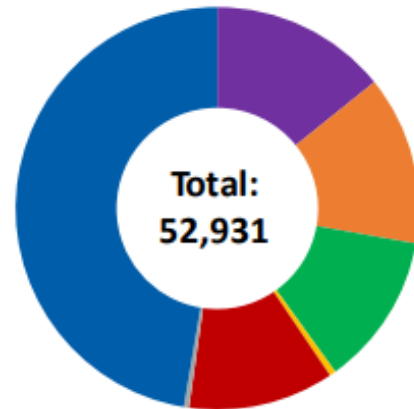
- **Caucasian/White** (47.33%)
- **Native Hawaiian/Pacific Islander** (0.42%)
- **Multi-Racial** (11.68%)
- **American Indian/Alaska Native** (0.51%)
- **Hispanic/Latino** (12.26%)
- **Asian** (13.59%)
- **African American/Black** (14.21%)

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**51.5%** Male          **48.5%** Female

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**31.1%**  Free and Reduced Lunch

**21.4%**  Non-English Speaking Background

**11.7%**  English Language Learners

**13.1%**  Special Education

**10.9%**  Advanced Learner

**9.0%**  Highly Capable

**3.1%**  Experiencing Homelessness

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### 4-Year Graduation Rate: 82%

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*SOURCES: Seattle Public Schools. Seattle Public Schools Adopted Budget 2018-2019. Seattle Public Schools P223 Enrollment Report October 2018 Adjusted, Final. Seattle Public Schools 2017-2018 District Scorecard (high school graduation in four years or fewer). Enrollment and Free or Reduced-Price Lunch Status of All Students as of October 2018.*

# How DoTS Supports Priorities to Deliver New Capabilities

The Department of Technology Services (DoTS) aligns with the district mission and vision. Through an engagement process with DoTS leadership and staff, a vision and mission were developed for the department's role to support all other district departments and all schools:

**DoTS Vision**
DoTS enables all staff and students to be successful through a secure ecosystem of information, collaboration, software, services, and technology.

**DoTS Mission**
- Equitable, reliable, coherent information, software, services, and technology
- Timely, relevant, and accurate information to support student focused decision-making district-wide
- Balance safety, security, and usability

The Department of Technology Services has organized and aligned its work to be in service to the district's vision, mission, and strategic plan priorities. All operations and projects are directly aligned to district priorities. To be successful in achieving these priorities, DoTS is developing an Agile approach to work which includes these principles:

- **Timeliness/ Speed** through definable and repeatable delivery processes
- **Flexibility** through strong prioritization of needs and change management
- **Accountability** with clear realization team roles, responsibilities and staffing
- **High Quality** deliverables driven by a clear vision, prototyping and test-driven development
- **Make all Work Visible** to achieve accurate cost and time estimates while managing expectations
- **Driving Improvement** by being a learning organization and implementing Continuous Improvement

A successful delivery starts with building relationships and bringing partners together to discover the true business and educational needs. To drive strategic visioning and alignment, DoTS forms realization teams that transform organizational mindset, business processes, and technical assets into a fully developed solution.
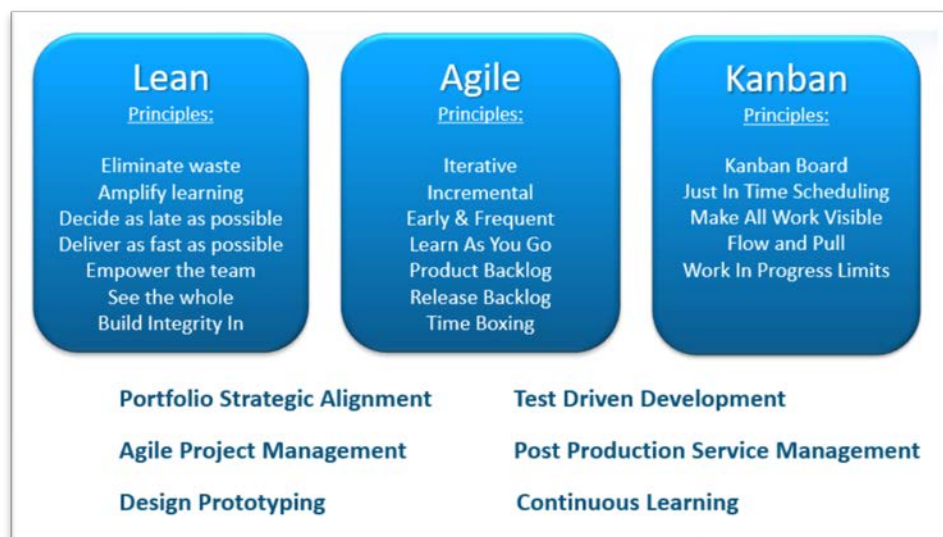


**Diagram: Methods used in project management**

There are multiple frameworks to deliver technology, but delivery cannot be successful until that framework is turned into a living methodology that the entire organization has made into their own and begun to live and breathe. DoTS has chosen to combine the principles along with Lean, Agile, and Kanban with the delivery components of Portfolio Management, Agile Program Management, Design Prototyping, Test Driven Development, Post Production Service Management, and Continuous Learning to realize that methodology. Cross department collaboration is essential to iteratively move from discovery to deployment.
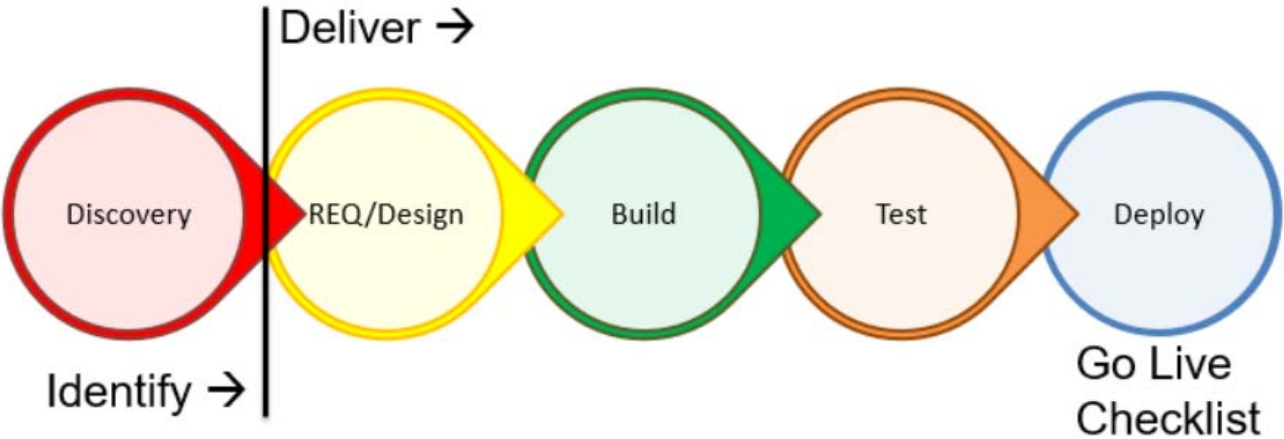


**Diagram: Sample workflow**

# Stakeholders, Engagement, and Equity Analysis

Seattle Public Schools' Chief Information Officer (CIO) has led the development of this plan with the Teaching and Learning division. This current plan extends the planning started in 2015 for the Building, Technology and Academic's IV Levy and adds engagement and planning begun in 2017 for the Building Excellence V (BEX V) Levy, including the design and commencement of the Information Technology Advisory Committee. Engagement and work from these efforts allowed the team, with members from across the district, to reach out to many stake holders, while not namely for the "Technology Plan", to learn about what is needed to improve technology's role in Student Learning and student success. SPS considers support from the following stakeholder groups, among others, as critical to optimal Technology Plan implementation:

- Staff
- Principals
- Teachers
- Students
- Classified Staff
- District Leadership

- Union Leadership
- Families
- Parents
- Information Technology Advisory Committee (ITAC)

- Community
- City of Seattle Community Technology Advisory Board (CTAB)
- Elected Officials

## Engagement

Input for this Technology Plan was both formal and informal. The following charts show formal meetings for the planning, through March 2019.

## Internal Engagement

| Date | Department | Purpose |
|---|---|---|
| 10/9/17 | Schools | BEX V and Long-Term Technology Planning |
| 10/16/17 | Strategies and Partnerships | BEX V and Long-Term Technology Planning |
| 10/19/17 | Business and Finance | BEX V and Long-Term Technology Planning |
| 10/23/17 | Student Support Services | BEX V and Long-Term Technology Planning |
| 10/24/17 | Communications | BEX V and Long-Term Technology Planning |
| 10/24/17 | Curriculum, Assessment, and Instruction (CAI) | BEX V and Long-Term Technology Planning |
| 10/24/17 | Legal | BEX V and Long-Term Technology Planning |
| 10/25/17 | Operations | BEX V and Long-Term Technology Planning |
| 11/2/17 | Operations | BEX V and Long-Term Technology Planning |
| 11/9/17 | Communications | BEX V and Long-Term Technology Planning |
| 11/13/17 | Teaching and Learning | BEX V and Long-Term Technology Planning |
| 1/18-10/18 | DoTS, CAI, Schools | Principles of Effective Digital Learning development |
| 7/18/18 | Operations Cabinet Meeting | Technology Planning Update |
| 7/23-27/18 | DoTS, CAI | STEM Smithsonian Conference |
| March – Oct 2018 | Research & Evaluation and Schools | In school research on technology, professional learning, and impact |
| 11/7/18 | Operations Cabinet Meeting | Technology Plan Overview |
| 1/23/19 | Superintendent Review | Technology Plan Overview |
| 1/30/19 | Small Cabinet Meeting | Technology Plan Overview |
| Feb 2019 | Board Directors – Individual Meetings | Technology Plan Overview |
| 3/7/19 | Capital Projects | Technology Plan Overview |

## External Engagement

| Date | Community/Region | Purpose |
|---|---|---|
| 3/28/18 | Board Work Session | Planning |
| 4/2/18 | Aki Kurose Middle School | Community Input |
| 4/3/18 | Madison Middle School | Community Input |
| 4/23/18 | T. T. Minor School/Seattle World School | Community Input |
| 4/24/18 | Jane Addams Middle School | Community Input |
| 4/26/18 | Monroe School/Salmon Bay K-8 | Community Input |
| 5/30/18 | Board Work Session | Program List and Funding |
| 6/1/18 | Chinese Home Language | Community Input |
| 6/18/18 | Information Technology Advisory Committee | Project Prioritization |
| 6/19/18 | Somali Home Language | Community Input |
| 8/20/18 | Information Technology Advisory Committee | Project Prioritization |
| 8/22/18 | Board Work Session | Project List and Funding |
| 9/12/18 | Ingraham High School | Community Input |
| 9/13/18 | West Seattle High School | Community Input |
| 9/17/18 | Information Technology Advisory Committee | Project Prioritization |

| 9/20/18 | Mercer Middle School | Community Input |
|---|---|---|
| 9/24/18 | Roosevelt High School | Community Input |
| 9/25/18 | Meany Middle School | Community Input |
| 9/26/18 | Board Work Session | Finalize Project List and Funding |
| 10/10/18 | Board Work Session | Capital Planning |
| 10/15/18 | Information Technology Advisory Committee | Planning |
| 10/18/18 | Board Work Session | Community Input |
| 11/19/18 | Information Technology Advisory Committee | Planning |
| 12/6/18 | Washington Middle School | Community Input |
| 12/11/18 | Rainier Beach High School | Community Input |
| 12/12/18 | Chief Sealth High School | Community Input |
| 12/17/18 | Information Technology Advisory Committee | Planning |
| 1/8/19 | John Rogers Elementary School | Community Input |
| 1/10/19 | Montlake Elementary School | Community Input |
| 1/14/19 | Information Technology Advisory Committee | Planning |
| 1/22/19 | Rainier Beach High School | Community Input |
| 3/18/19 | Information Technology Advisory Committee | Planning |

## Equity Analysis

It is the moral and ethical responsibility and a top priority for Seattle Public Schools to provide equitable access and opportunity for every student, and to eliminate racial inequity in its educational and administrative system.

Research indicates that racial disparities exist in virtually every key indicator of child, family, and community well-being. Individual, institutional and structural impacts of race and racism are pervasive and significantly affect key life indicators of success. The district's Racial Equity Analysis Tool lays out a clear process and a set of questions to guide the development, implementation and evaluation of significant policies, initiatives, professional development, programs, instructional practices and budget issues to address the impacts on racial equity. To do this requires ending individual racism, institutional racism, and structural racism.

The concept of racial equity goes beyond formal racial equality — where all students are treated the same — to foster a barrier-free environment where all students, regardless of their race have the opportunity to achieve. This means differentiating resource allocations, within budgetary limitations, to serve students with the support and opportunities they need to succeed academically.

School Board Policy No. 0030 states:

*With these commitments in mind, Seattle Public Schools will:*
- *Raise the achievement of all students while narrowing the gaps between the lowest and highest performing students;*
- *Eliminate the racial predictability and disproportionality in all aspects of education and its administration;*
- *Ensure all students regardless of race or class graduate from Seattle Public Schools ready to succeed in a racially and culturally diverse local, national, and global community.*

*In order to achieve educational equity for our students, the district shall:*

A. *Equitable Access—The district shall provide every student with equitable access to a high-quality curriculum, support, facilities and other educational resources, even when this means differentiating resource allocation;*

B. *Racial Equity Analysis—The district shall review existing policies, programs, professional development and procedures to ensure the promotion of racial equity, and all applicable new policies, programs and procedures will be developed using a racial equity analysis tool;*

C. *Workforce Equity—The district shall actively work to have the teacher and administrator workforce be balanced and reflect the diversity of the student body. The district shall recruit, employ, support and retain a workforce that includes racial, gender, and linguistic diversity, as well as culturally competent administrative, instructional and support personnel;*

D. *Professional Development—The district shall provide professional development to strengthen employees' knowledge and skills for eliminating opportunity gaps and other disparities in achievement;*

E. *Welcoming School Environments—The district shall ensure that each school creates a welcoming culture and inclusive environment that reflects and supports the diversity of the School District's student population, their families, and communities;*

F. *Partnerships—The district will include other partners who have demonstrated culturally specific expertise – including families, government agencies, institutes of higher learning, early childhood education organizations, community-based organizations, businesses, and the community in general – in meeting our high goals for educational outcomes;*

G. *Multiple Pathways to Success—The district shall provide multiple pathways to success in order to meet the needs of the diverse student body, and shall actively encourage, support and expect high academic achievement for all students;*

H. *Recognizing Diversity—Consistent with state regulations and District policy and within budgetary considerations, the district shall provide materials and assessments that reflect the diversity of students and staff, and which are geared towards the understanding and appreciation of culture, class, language, ethnicity and other differences that contribute to the uniqueness of each student and staff member.*

The Department of Technology Services (DoTS) participates in racially equitable outcomes for students by providing structures and support that focus resources, technologies and support where they are needed most to eliminate gaps in student achievement and to increase opportunities to eliminate those gaps.

The three categories for the plan are: Student Learning & Support, District Systems & Data, and Infrastructure & Security. The projects within the Student Learning & Support category have been prioritized based on grade-level needs, as well as allocating funds specifically for high need schools as defined by the district Weighted Student Staffing (WSS) formula. The projects that fall within the District Systems & Data and Infrastructure & Security categories are generally district-wide projects that will benefit students and staff equally and equitably, but data work is often focused on equity.

Leadership communicates key outcomes to stakeholders through various channels including the School Leader Communicator, News Brief, Friday Memo, and district website. The above-mentioned channels all represent unique audiences, all of whom are needed to ensure the work being done results in equitable outcomes for all students. The School Board's recently-formed Information Technology Advisory Committee (ITAC) serves an integral role in communicating key outcomes to stakeholders. The committee is charged to give an annual report to the board. DoTS publishes a quarterly Technology Report which details major projects and initiatives. These channels represent just a few of the ways in which key decisions and outcomes will be made public.

Leadership identified and engaged stakeholders making sure that racial/ethnic groups potentially impacted by this plan, especially communities of color, including students who are English language learners and students who have special needs were addressed. Assistive Technology, Career and Technical Education (CTE), STEM (Science, Technology, Engineering, and Mathematics), Physical Education, and the Arts are examples of areas surfaced for focus during engagement.

Throughout the BEX V capital levy planning period, leadership has attended community input sessions at schools, with language groups, and in the community to hear from community members about their needs. All input from these community meetings has been considered in the context of the larger technology plan.

Staff worked to collect specific information about the school, program, and community conditions to help determine if anything in the plan will create racial inequities that would increase the opportunity gap. With the assistance of Digital Learning Teachers and Technical Support Specialists, DoTS gathers actionable data related to the number of devices a school currently has. This data is used to determine how potential decisions made would impact the current and future student populations. Moreover, leveraging the relationships members of the ITAC have with the community and schools in which they serve, provides varying perspectives leading to inclusive and equitable decisions. Additionally, Community Based Organizations (CBO's) have been included in engagement to ensure the groups and communities they serve are being heard and represented.

Staff looked for negative impacts for specific student demographic groups, including English language learners and students with special needs. There are no foreseen negative impacts for specific student demographic groups.

Staff looked for potential benefits or unintended consequences. DoTS will publish and share the quarterly Technology Report to update stakeholders on the status of projects. Asking for feedback on a regular basis through various channels targeted at all stakeholders will allow for engagement and transparency as staff seek to identify issues. As staff makes a report, it will note any unintended consequences and ask stakeholders to share if they have seen any. The district does not want any blind spots to affect the work.

With this plan, educational and racial equity would be represented through each student having access to technology regardless of school location or access levels at home and resources will be allocated at different levels, where necessary, to make sure goals are achieved. The plan has a section for Monitoring and Evaluation to ensure accountability for educational equity for all students and staff.

## Information Technology Advisory Committee (ITAC)

In April 2018, the School Board approved the formation of the Information Technology Advisory Committee (ITAC). Most funding for information technology (IT), whether for the classroom education technology (EdTech), for enterprise applications and data systems, or for infrastructure, comes from capital levies that need engagement and input. The purpose of ITAC will be to serve as an advisory committee in planning for future funding as well as to provide expertise and community input on an ongoing basis.

ITAC receives periodic briefings and be asked to comment, to make recommendations, and/or to give input. The committee will be asked to advise on the strategic alignment, planning, prioritization and implementation of current and future information and education technology projects.

The inaugural ITAC meeting took place on May 21, 2018. Meetings occur monthly (except in July) and are open to the public. Minutes are available on the district website.

# Technology Plan Overview

Technology planning is divided into three components as it has been done historically for planning in the district:

- **Student Learning & Support:** Hardware, software, services, and support for student learning
- **District Systems & Data:** Enterprise systems, data, and Business Intelligence
- **Infrastructure & Security:** Core technology to run and secure connectivity, applications, and data

Technology does not stand alone but aligns to the district's priorities. Likewise, each component builds on the other. **Infrastructure & Security** provide the foundation. **District Systems & Data** run on the infrastructure and support student learning. Ultimately, **Student Learning & Support** with a focus on educational excellence and equity leads to students being ready for college, career, and life – to be Seattle Ready.

The following sections are organized by major program: Student Learning & Support, District Systems & Data, and Infrastructure & Security. For each program, there is an operations section and a projects section. Operations includes the day-to-day work of support as well as the operation of existing software and hardware. The costs in operations is the salary and benefits of employees, contracted prices of software and service licenses, and hardware maintenance contracts. The plan for operations does not include any new staff, software, or hardware.

The programs sections outline planned programs and projects for the next five years. Projects may have two phases. Projects listed between 2018-2020 are funded by BTA IV and those from September 2020 through 2023 are proposed projects under BEX V. Details of funding are in the Finance section of the plan.

# Financial Overview

The Technology Plan is funded from both the General Fund and capital levy funds, with the majority coming from levies. The Department of Technology Services (DoTS) has annual funding that covers operational, project, and capital expenditures.

The current Building, Technology and Academics levy (BTA IV) funds technology projects and runs from 2016-2020. This technology plan covers just two years of the BTA IV funds, 2018-2020. Additionally, there are a relatively small amount of BTA III and BEX IV projects completing. The Building Excellence (BEX) capital program enables Seattle Public Schools to replace, modernize or make major renovations to district buildings, infrastructure and technology. BEX V will fund years 2020-2023.

The state legislature has allowed local capital funds to be used for operational support of capital-funded technologies. Therefore, it is important to understand that levies fund technology operations with approximately half the funds allocated for operations and half for projects. RCW 28A.320.330 explains this funding:

> Intent -- 2007 c 129: "The legislature recognizes that technology has become an integral part of the facilities and educational delivery systems in our schools. In order to prepare our state's students to participate fully in our state's economy, school districts are making substantial capital investments in their technology systems, facilities, and projects. Districts are implementing, applying, and modernizing their technology systems. Software companies are shifting from selling software as a one-time package to a license or an

extended contractual relationship requiring a subscription and ongoing payments. School districts must be empowered to respond to the changing business models in the software industry and be given flexibility and authority to use capital projects funds to pay for licenses or online application fees. It is the intent of the legislature that these investments be deemed major capital purpose and are also permitted uses of the district's two to six-year levies authorized by RCW 84.52.053." [2007 c 129 § 1.]

Declaration -- 2002 c 275: "The legislature recognizes and acknowledges that technology has become an integral part of the facilities and educational delivery systems in our schools. In order to prepare our state's students to participate fully in our state's economy, substantial capital investments must continue to be made in our schools' comprehensive technology systems, facilities, and projects. These investments are declared to be a major capital purpose." [2002 c 275 § 1.]

## Technology Funding

The following two sections outline the funding for 85% of the programs described in this plan: BTA IV and BEX V, for the years 2018-2020 and 2020-2023, respectively. The total investment for BTA IV and BEX V funding includes both operational costs such as IT staffing and infrastructure and strategic projects. Detailed financial reporting is included in the Capital Programs Semi-Annual Report.

### Funding for 2018-2020: Buildings, Technology and Academics/Athletics Levy IV (BTA IV)

The BTA IV capital levy was approved by voters in 2016 by more than 72% and supports the district's long-range plans to upgrade and renovate aging school facilities and address enrollment growth. The published and approved expeditures are listed below. For the technology portion of the levy, funds were designated to be used to provide classroom technology equipment and instructional support to enhance student learning and provide for academic projects to meet the educational requirements and needs of students.

**BTA IV Investment for Technology: Total $104.7 million**
Making strategic investments in technology supports learning and teaching in the classroom; delivers services to students, teachers, staff and families; and improves efficiency in business processes.

**Student Learning: $29.3 million**
Upgrade and expand classroom/student technology equipment and services, mobile and stationary computer labs, and increase on-site technical support services for schools and student technology.

**Instructional Support and Delivery: $27.2 million**
Modernize and expand classroom audio-visual presentation systems and faculty workstations, modernize network access, and provide state-of-the-art instructional services including online learning environments to help prepare students for life in the 21st century.

**Physical Safety and Security: $8.4 million**
Modernize school safety and security systems including camera, threat alert, door access and communication services. Modernize the district's telecommunications system.

**Information/Data Security and Privacy: $3.5 million**
Continue operations and improvements to the district's data security systems for the protection of personal (student and staff) sensitive and confidential information; implementation/expansion of critical data protection

and recovery systems (disaster recovery, anti- virus, redundancy); and development of the district's first comprehensive business continuity plan.

**School and Instructional Support: $30 million**
Continue to improve and enhance districtwide student and business systems, which support all schools and central offices with services such as payroll, purchasing, human resources, finances, budgeting, transportation, health, nutrition, Special Education, scheduling and attendance.

**Communication transparency and outreach: $6.3 million**
Improve communication with families and community to increase transparency and outreach using website, parent contact, and other technology communication and collaboration tools.

## Funding for 2020-2023: Building Excellence Capital Levy V (BEX V)

At the October 11, 2018 Board meeting, SPS Board of Directors approved Building Excellence (BEX) V Capital Levy Program and Authorizing Resolution 2018/19-6 with technology projects listed as:

**BEX V PROPOSED TECHNOLOGY PROJECTS**

|  | |
|---|---|
| INFRASTRUCTURE | $ 44,041,000 |
| DISTRICT SYSTEMS | $ 45,114,000 |
| STUDENT LEARNING | $ 62,543,000 |
| **TOTAL BEX V PROPOSED TECHNOLOGY PROJECTS** | **$ 151,698,000** |

The BEX V capital levy was approved by voters in February 2019. The full list of projects as approved by the board is included in Appendix A.

**BEX V Investment for Technology: Total $151.7 million**
Making strategic investments to provide all schools equitable classroom technology and support for student learning; Improves district systems and infrastructure.

**Student Learning & Support: $62.6 million**
Upgrade and expand classroom, student, and staff technology and resources to provide a baseline across schools as well as technology and professional learning specifically to support school improvement, district programs, and special needs with additional funding to high need schools.

**District Systems & Data: $45.1 million**
Continue to improve districtwide student and business systems which support all schools and central office with services such as payroll, purchasing, human resources, finances, budgeting, transportation, health, nutrition, Special Education, scheduling, attendance, managing instruction, grade reporting, and parent communication; continue Digital Transformation to improve processes, communication, collaboration, and compliance; improve data governance, systems integration, and using data to improve results.

**Infrastructure & Security: $44 million**
Upgrade data center and cloud systems with improvements to the district's data security and access systems; upgrade school internet connectivity and wireless access to meet higher demands; implement computer replacement program.

## Budget for 2018- 2023

### Student Learning & Support

| Program | Project Name | 2018-20 BTA IV Budget | BTA IV Objective | 2020-23 BEX V Budget | BEX V Objective |
|---|---|---|---|---|---|
| Staff Technology | Certificated Staff Computers | $ 504,000 | 1.7 | $ 8,750,000 | 1.7 |
| Staff Technology | Computers for Instructional Assistants | $ - | n/a | $ 825,000 | 1.6 |
| Staff Professional Development | Technology Professional Learning | $8,000,000* | 1. 10 | $ 3,600,000 | 1. 10 |
| Classroom Technology | School Technology Services Support | $ 167,000 | 1.2 | $ - | n/a |
| Classroom Technology | Assistive Technology and Special Education | $ 800,000 | 1.2 | $ 1,200,000 | 1.3 |
| Classroom Technology | Department Technology: CTE, STEM, ELA, PE, Arts | $ 330,000 | 1.2 | $ 975,000 | 1.3 |
| Classroom Technology | Replacement Classroom Computers | $ 7,150,000 | 1.2 | $ 6,000,000 | 1.3 |
| Classroom Technology | Continue Support for STEM at Cleveland | $ 550,000 | 1.2 | $ 825,000 | 1.3 |
| Classroom Technology | Technology for K-5 students | $ 2,000,000 | 1.2 | $ 2,000,000 | 1.3 |
| Classroom Technology | Technology for Secondary School Students | $ 2,600,000 | 1.2 | $ 2,600,000 | 1.3 |
| Classroom Technology | Equitable Access to Technology to High Need Elementary Schools* | $ 980,000 | 1.2 | $ 1,050,000 | 1.3 |
| Classroom Technology | Equitable Access to Technology to High Need Secondary Schools* | $ 600,000 | 1.2 | $ 1,750,000 | 1.3 |
| Classroom A/V | Classroom AV for High Need Classrooms | $ 2,934,000 | 1.4 | $ 6,225,000 | 1.5 |
| Digital Resources | Student Assessment, Data, and PD | $ 2,310,000 | 1.8 | $ 3,500,000 | 1.9 |
| Digital Resources | Increase Online Student Library Resources | $ 364,000 | 1.8 | $ 394,000 | 1.9 |
| Digital Resources | Supplemental Educational Software | $ 365,000 | 1.8 | $ 605,000 | 1.9 |
| Operational Costs | Staff | $ 9,276,000 | 1.1 | $15,901,000 | 1.1 |
| Operational Costs | Software and maintenance renewals | $ 935,000 | 1.1 | $ 6,343,000 | 1.1 |
| | | **$31,865,000** | | **$62,543,000** | |

*Funded by BTA II, BTA III, and BEX III, BEX IV

### District Systems & Data

| Program | | 2018-2020 BTA IV Budget | BTA IV Objective | 2020-2023 BEX V Budget | BEX V Objective |
|---|---|---|---|---|---|
| Business Systems | Enterprise Resource Planning (ERP) Upgrade | $ 1,751,000 | 2.4 | $13,800,000 | 2.3 |
| Student Systems | Student Information System, Learning Management System (LMS) | $ 3,251,000 | 2.6 | $ 650,000 | 2.7 |
| Data Systems | Data Visualization and Dashboard | $ 1,548,000 | 2. 20 | $ 1,750,000 | 2.21 |
| Data Systems | Data Governance | $ - | n/a | $ 900,000 | 2.19 |
| Digital Transformation | OpenText Electronic Workflow, Communications, Board Meeting Mgt | $ 684,000 | 2.11 | $ 2,100,000 | 2.12 |
| Digital Transformation | Online Professional Development System | $ - | n/a | $ 900,000 | 2.16 |
| Operational Costs | Staff | $10,687,000 | 2.1 | $16,085,000 | 2.1 |
| Operational Costs | Software & Maintenance Renewals | $ 1,318,000 | 2.1 | $ 8,929,000 | 2.1 |
| | | **$19,239,000** | | **$45,114,000** | |

## Infrastructure & Security

| Program | Project Name | 2018-2020 BTA IV Budget | BTA IV Objective | 2020-2023 BEX V Budget | BEX V Objective |
|---|---|---|---|---|---|
| Data Center & Security | Academic/Office Productivity Cloud Service Migration | $ 218,000 | 3. 10 | $ - | n/a |
| Data Center & Security | Servers & Storage, Data Warehouse Systems | $ 896,000 | 3. 10 | $ 1,600,000 | 3.11 |
| Data Center & Security | Disaster Recovery, Planning, Training | $ 1,200,000 | 3.12 | $ 1,390,000 | 3.13 |
| Data Center & Security | Cybersecurity Tools, Training | $ 1,120,000 | 3.16 | $ 495,000 | 3.17 |
| Telecommunications | Telecommunications System Modernization | $ 5,668,000 | 3.9 | $ - | n/a |
| Network | Firewall | $ 1,700,000 | 3.4 | $ - | n/a |
| Network | Local Area Network (LAN) Switch, Power, Wireless Upgrades | $ 1,371,000 | 3.5 & 3.7 | $ 9,240,000 | 3.6 & 3.8 |
| Network | Metropolitan Area Network (MAN) Modernization & Expansion | $ 3,218,000 | 3.2 | $ 1,500,000 | 3.3 |
| Physical Security | Building Access & Physical Security Modernization | $ 1,767,000 | 3.14 | $ 1,500,000 | 3.15 |
| Physical Security | Fingerprinting and Access Badge Systems | $ - | n/a | $ 600,000 | 3.15 |
| Staff Technology | Administrative Staff Technology Modernization | $ 1,260,000 | 3.18 | $ 2,600,000 | 3.18 |
| Project Management | Technology Administration & Project Management | $ 127,000 | 4.1 | $ - | n/a |
| Operational Costs | Staff | $ 5,296,000 | 3.1 | $11,852,000 | 3.1 |
| Operational Costs | Software & Maintenance Renewals | $ 1,998,000 | 3.1 | $13,264,000 | 3.1 |
| | | $25,839,000 | | $44,041,000 | |

The five-year budget for this technology plan including all fund sources is as follows:

| Funding Source | 2018-19 Adopted Budget | 2019-20 Forecast | 2020-21 Forecast | 2021-22 Forecast | 2022-23 Forecast |
|---|---|---|---|---|---|
| General Fund* | 7,731,930 | 7,925,536 | 8,163,302 | 8,408,201 | 8,660,447 |
| Capital Projects Fund** | 42,354,595 | 43,625,234 | 44,933,991 | 46,282,011 | 49,538,971 |
| | 50,086,525 | 51,550,770 | 53,097,293 | 54,690,211 | 58,199,418 |
| | | | | | |
| **Funding Source Percentage** | | | | | |
| General Fund | 15.4% | 15.4% | 15.4% | 15.4% | 14.9% |
| Capital Projects Fund | 84.6% | 84.6% | 84.6% | 84.6% | 85.1% |
| | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| | | | | | |
| **Levy Source*** | | | | | |
| BEX V Estimates | - | 9,245,027 | 44,933,991 | 46,282,011 | 49,538,971 |
| BTA IV | 38,070,002 | 31,247,303 | - | - | |
| BEX IV | 3,519,410 | 3,132,904 | - | - | |
| BTA III | 765,183 | - | - | - | |
| BEX III | - | - | - | - | - |
| | 42,354,595 | 43,625,234 | 44,933,991 | 46,282,011 | 49,538,971 |
| | Baseline | 3.0% | 3.0% | 3.0% | 7.0% |

Notes:
* General Fund source excludes transfers from capital
** Includes transfers to General Fund for on going technology support costs
*** Building Excellence (BEX)
*** Building , Technology and Academics/Athletics (BTA)

## E-Rate

The Schools and Libraries (E-Rate) program, administered by the Universal Service Administrative Company (USAC) with the guidance of the Federal Communications Commission (FCC), collects and delivers funding focused on providing improved broadband connectivity for school districts nationwide. This program (begun in 1999) provides financial support to keep library patrons connected to broadband services for the lowest possible cost. Discounts and reimbursements are based on the Free and Reduced Lunch eligibility.

Category One and Category Two products and services support all schools and apply to construction and infrastructure at schools opening in the future, as well as central infrastructure and other non-end-user components. In the plan, network, wireless, and data center equipment at the JSCEE and all school sites are eligible for discounts and the budget anticipates this support.

The mechanism for E-Rate application submission is complex and closely monitored and routinely audited by OSPI, USAC, and the FCC.

Seattle Public Schools has applied for and has received approval or is currently awaiting funding commitment notification for the following:

| Current Funding Year | ID | Amount requested | Amount Awarded |
|---|---|---|---|
| 2019-2020 | Internal Switches | $105,000 | Pending |
| 2019-2020 | Internal Wiring for Wing Luke | $186,000 | Pending |
| 2019-2020 | WAPs for 4 schools | $60,000 | Pending |
| 2019-2020 | CDS Switches | $15,000 | Pending |
| 2019-2020 | Leased Site Connectivity Upgrade | $1,300 | Pending |
| 2019-2020 | Upgrade to MAN | $700,000 | Pending |
|  |  |  |  |
| **5 Year lookback (totals Cat One and Cat Two)** | **Status** | **Funding commitment** | **Comments** |
| Total for 2015-2016 | Approved | $1,270,758 | All FCDLs Received |
| Total for 2016-2017 | Approved | $1,103,359 | All FCDLs Received |
| Total for 2017-2018 | Approved (partial) | $1,863,000 | Cabling appeal $2,104,867 |
| Total for 2018-2019 | In review | $1,111,272 Pending | In full review |
| Total for 2019-2020 | Submitted 3/27/19 | $867,300 Pending | Review will begin 02/20 |
| Expected 5 Year Total Funding Commitment after reviews, appeals and audits completed |  | $6,215,689 | Should the 2017cabling appeal be ruled in favor of SPS, the 5-year total would increase to $8,320,556 |

# Student Learning & Support

The Seattle Public Schools technology plan for student learning is based on two key documents: the research foundation outlined in "Principles of Effective Digital Learning" developed in 2018 and published in the August 2018 and the State of Washington "K-12 Educational Technology Learning Standards" published by the Office of the Superintendent of Public Instruction (OSPI) in May 2018. Specifics of the plan were reached through internal and external engagement from 2016-2019 and are outlined in sections above.

## The Principles of Effective Digital Learning [1]

While technology has and will continue to change, there are some things that educators can rely on as constants. There are many things that we, as a community of educators, know about how people learn. We know how to implement effective instruction, and we know how to design assessments that actually support learning. There are many decades of research about what does and doesn't work well when it comes to helping students achieve their academic potential, regardless of the resources we use to do so. But along with the introduction of the then-new personal computer into our nation's classrooms, begun in the late 1970s and early 1980s, there began additional research on the effectiveness of these new technologies. While not originally designed for teaching, many educators were excited about the potential for these technologies to take over many educational functions, perhaps even reducing the need for teachers.

Much of the early research, and early practice, on technology in education suffers from methodological flaws. Early educational technology resources tried to focus on technology resources as they would a clinical drug trial, using "traditional" teaching—whatever that is—as the placebo. Do computers work better than teachers or not? In his now famous treatise on reconsidering research on learning from media, Clark (1983) notes that these so-called "media selection" or "media comparison" research design models were asking the wrong question. Media devices available at that time—and still today—by themselves have no inherent properties that one should assume will influence learning, positively or negatively. As Clark noted, "media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries cause changes in our nutrition" (p. 445). This is still true today. Instead of asking "is it better than…" more recent research focuses on questions like "when is technology most effective?"



Technology has become effective at replacing low-level instructional duties. It can administer and score multiple-choice assessments to dozens, even hundreds, of students simultaneously in a fraction of the time it would take any teacher. Technology can provide up-to-the-minute snapshots of student progress to relevant teachers, their students, and students' families in safe and secure environments with colorful and easy-to-read data reports tracking progress over time. And no teacher has the patience to match technology when it comes to presenting and re-presenting content over and over, whether reading text, watching video, or interacting with animations or other media so students can view and review as much content as often as they need to. But

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[1] Excerpt taken from "The Principles of Effective Digital Learning" by John D. Ross, Ph. D., August 2018

these savings in efficiency for low-level instructional activities provided by technology have actually changed the potential for what teachers can do, when and where learning can occur, and with whom. Technology goes beyond automation and makes it possible for teachers and students to access real-world resources, content, experts, and problems using the same or similar technologies that professionals use. Going far beyond rudimentary drill-and-practice or "read and click" tutorials, teachers can use technology to differentiate instruction to the needs of students as they engage in rigorous learning where they create new knowledge and information relevant to the content being studied, as well as their lives, interests, and experiences. No school currently has access to technology that can do that on its own. As noted time and again throughout the literature on technology integration, "It's more important how you use technology than if you use it" (Cennamo, Ross & Ertmer, 2018, p. 2; Bundick, Quaglia, Corso & Hawood, 2014; Gurung & Rutledge, 2014), and one of the most important components when using technology is a skillful teacher (Darling-Hammond, Zielezinski & Goldman, 2014; McDonald, 2016).

The topics in the research and principles are based on discussions with district leadership in Seattle Public Schools and a review of relevant documents and artifacts that support the district's mission. Central to teaching and learning in the district are two frameworks: **Charlotte Danielson's** <u>**A Framework for Teaching**</u> and a pyramid of pedagogical knowledge based on the <u>**Skillful Teacher**</u> **from Research for Better Teaching, Inc.** Both frameworks address components related to curriculum planning, motivation, instructional strategies, and managing learning. While the two frameworks are important to district leaders in Seattle, the question posed for this review was "how do digital technologies and content resources support best practices in these areas?" This literature provides information and data to explore that question.

Based on a set of principles derived first out of the analysis of the crossover between the two frameworks and major themes in the literature, the following principles are listed below and explored in Principles of Effective Digital Learning:

- Principle 1: Digital resources promote student achievement for all students, especially historically underserved students, when students use them to produce information rather than passively consume information, but technology use alone is ineffective unless mediated by a skillful teacher
- Principle 2: Digital resources help teachers develop authentic learning opportunities that align with the depth of rigor of college-and-career ready standards and are relevant and meaningful to students
- Principle 3: Digital resources have and continue to change what "literacy" and "being literate" mean and look like
- Principle 4: Digital resources can help but alone are insufficient for helping students authentically engage in learning
- Principle 5: Digital resources allow students and teachers to connect and collaborate with other students, teachers and other influential adults, and with the content
- Principle 6: Digital resources provide opportunities for students to demonstrate mastery of learning goals in a variety of ways
- Principle 7: Digital resources allow teachers and students to monitor progress towards learning goals

See Appendix B for the full publication of the "Principles of Effective Digital Learning."

## Washington State K-12 Educational Technology Standards [2]

**Educational Technology is part of Basic Education in Washington**

In 1993, Washington State Legislature established the commitment that all children would achieve at high levels. The Basic Education Act of 1993 established four common learning goals for all Washington students, designed to create high-quality academic standards and raise student achievement.

The four learning goals provided the foundation for the development of content standards, called Essential Academic Learning Requirements (EALRs), for reading, writing, communication, mathematics, science, social studies, health and fitness, the arts, and in 2007, educational technology. In 2011, "integrate technology literacy and fluency" was added to Goal Three.

These four learning goals are the foundation of all academic learning standards in Washington:

1. Read with comprehension, write effectively, and communicate successfully in a variety of ways and settings and with a variety of audiences.
2. Know and apply the core concepts and principles of mathematics; social, physical, and life sciences; civics and history, including different cultures and participation in representative government; geography; arts; and health and fitness [now named physical education].
3. Think analytically, logically, and creatively, and to integrate technology literacy and fluency as well as different experiences and knowledge to form reasoned judgments and solve problems.
4. Understand the importance of work and finance and how performance, effort, and decisions directly affect future career and educational opportunities.

**Washington State Learning Standards and Outcomes**

Learning standards are for all of us: students, principals, administrators, decision-makers, community partners, teachers, paraeducators, support staff, families, and the public. They help define what is important for students to know and be able to do as they progress through school. Standards help ensure that students acquire the skills and knowledge they need to achieve personal and academic success. Standards also provide an avenue for promoting consistency in what is taught to students in public schools across our state.

The Washington State K–12 Learning Standards are the required elements of instruction and are worded broadly enough to allow for local decision-making. Depending on school resources and community norms, instructional activities may vary. The updated 2018 Educational Technology K–12 Learning Standards reflect OSPI's continuous commitment to supporting rigorous, inclusive, age-appropriate, accurate instruction to ensure that students are prepared to live productive and successful lives in a global society.

**Educational Technology Standards: Technology Literacy and Fluency**

The initial Educational Technology Standards developed by the Office of Superintendent of Public Instruction in 2007-08 defined technology literacy and its next level of skill development, technological fluency, in this way:

Technology Literacy is the ability to responsibly, creatively and effectively use appropriate technology to:

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[2] Excerpt taken from the "K-12 Educational Technology Learning Standards" by the Washington State Office of Superintendent of Public Instruction, May 2018.

- Communicate
- Access, collect, manage, integrate and evaluate information
- Solve problems and create solutions
- Build and share knowledge
- Improve and enhance learning in all subject areas and experiences

Technology Fluency is demonstrated when students:

- Apply technology to real-world experiences
- Adapt to changing technologies
- Modify current and create new technologies
- Personalize technology to meet personal needs, interests and learning style

## 2018 Educational Technology Standards Update

Starting with these definitions, teams of educators from across the state assisted OSPI in updating the Educational Technology Standards during 2017-18. Two goals framed the development work that led to these updated standards:

- Integrate technology across core curricula, and provide realistic examples connected to other content standards whenever possible
- Determine what students should know and be able to do in a digital world

After extensive review and discussion, the development team recommended that Washington should adopt the 2016 Technology Standards for Students released by the International Society for Technology in Education (ISTE). These standards emphasize the ways that technology can be used to amplify and even transform learning and teaching and resonate with our state's aspiration to empower connected learners in a connected world. In addition, they complement statewide efforts to enhance instruction in digital citizenship (ISTE Standard 2) and media literacy (ISTE Standards 1 and 3), as defined below: Digital citizens recognize and value the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they engage in safe, legal and ethical behaviors. Media literacy is the ability to access, analyze, evaluate, create and act using a variety of forms of communication.

## 2018 Standards for Technology Literate & Fluent Students

Based upon the 2016 International Society for Technology in Education (ISTE) student standards:

**Empowered Learner** - Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.

**Digital Citizen** - Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.

**Knowledge Constructor** - Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

**Innovative Designer** - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

**Computational Thinker** - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

**Creative Communicator** - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

**Global Collaborator** - Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
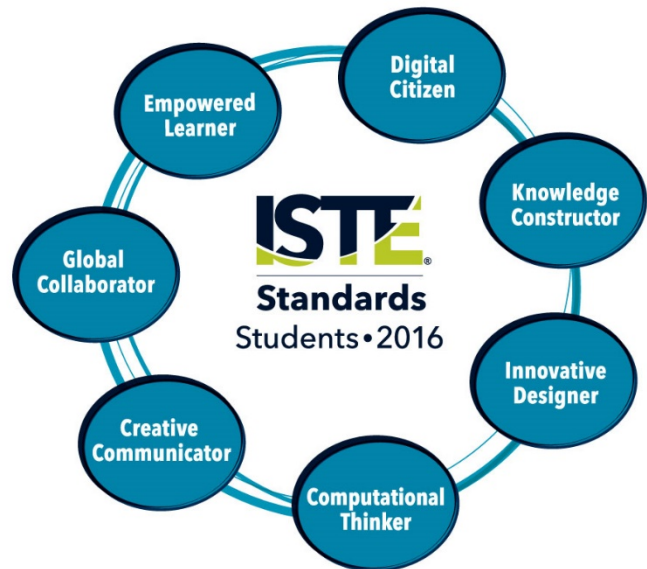
To implement the plan, it is a goal that the district formally adopts the Washington State Educational Technology Standards.

## Implementation Considerations

### Culturally Responsive Teaching

Many areas throughout Washington have seen a tremendous growth in the diversity of our student populations, which mirrors our national growth and serves as a strength in our classrooms. Research into a list of best practices that effective culturally responsive teachers use to support their students includes the following categories:

- Modeling, scaffolding, and clarification of challenging curriculum
- Using student strengths as starting points and building on their funds of knowledge
- Investing in and taking personal responsibility for students' success
- Creating and nurturing cooperative environments
- Having high behavioral expectations
- Reshaping the prescribed curriculum
- Encouraging relationships among schools and communities
- Promoting critical literacy
- Engaging students in social justice work
- Making explicit the power dynamics of mainstream society
- Sharing power in the classroom.

OSPI will incorporate these cultural competence standards for educators into the implementation and training for the new educational technology standards.

**Students with Disabilities**

There is no doubt that technology continues to enhance the educational experience of students with disabilities and those served by a Section 504 plan. High on the list of the benefits of assistive and adaptive technologies are greater independence and productivity, and expanded opportunities for social inclusion. Existing and emerging technologies have the power to connect and engage all students with personalized teaching and learning.

**Universal Design for Learning**

Many schools are also starting to make use of Universal Design for Learning (UDL), a set of principles for curriculum development that give all individuals equal opportunities to learn. It provides a blueprint for creating instructional goals, methods, materials, and assessments that work for everyone, with flexible approaches that can be customized and adjusted for individual needs.

**Equity, Access and the Essential Conditions**

Researchers and educators investigating the many dimensions of technology in education have identified essential conditions (see Appendix B) that optimize the likelihood that technology integration will make a positive contribution to teaching and learning.  Three of these conditions are critical if schools are to integrate these technology standards successfully:

- Equalized access for every classroom to a high-speed Internet connection and robust wireless network, up-to-date computers and a variety of digital teaching and learning technologies.
- Professional development for educators and administrators that promotes learner-centered instruction and technology integration.
- Sustainable and sufficient funding to keep the infrastructure of network and classroom technologies current and reliable.

OSPI recognizes that not every classroom has access to a high-speed Internet connection and other up-to-date teaching and learning technologies. An important part of implementing the new educational technology standards will be to continue to advocate for sufficient funding for all districts to help close opportunity gaps related to educational technology and level the playing field for all students in all districts.

**The Importance of Media Literacy in Educational Technology**

Students must know more than how to use technology. They must become fluent in analyzing the messages delivered via technology, and the motivation for the messages. Some experts estimate that we are exposed to over two million advertisements in our lifetime. Unpacking the messages, both overt and covert, in digital media is an essential 21st century skill. Fortunately, educational technology shares responsibility with all other subject areas to promote critical thinking and analysis skills as students evaluate information in any format, including digital media. Analyzing media influences is an essential skill that needs to be addressed in science, the arts, social studies, English language arts, history, health, and all other subject areas. Educational technology has a unique opportunity to reinforce critical thinking and analysis skills across disciplines. Based on feedback from the expert panel reviewing the draft standards for bias and cultural sensitivity, OSPI incorporated additional samples of student performance that include a focus on building media literacy skills.

**Inclusion**

Inclusion is active engagement and measurable benefit in teaching and learning based on relevance, rigor, and varied activities that deepen understanding. It includes multiple perspectives and involves students, and families in the education process.

Students must feel safe and comfortable to be able to learn effectively. To be inclusive, an educator must actively address when individual students or student groups are not feeling safe or comfortable. One key success factor for improving inclusion is to recognize the funds of knowledge students bring to the classroom. Students add great value from all perspectives, and active encouragement and support means embracing and highlighting the value added from multiple perspectives. High expectations for all students, along with authentic and active engagement is a key driver for learning for all students.

**Diversity**

Diversity is the complete representation of the community being served, including populations not "seen". Diversity includes representation of intersectionality, which is the interconnected nature of social categorizations such as culture, race, class, and gender as they apply to a given individual or group, regarded as creating overlapping and interdependent identities. Diversity includes an active student voice, not just the student's "form" identification.

Structural and institutional racism, sexism, homophobia, ableism, and other divisive factors that enforce the feeling that some students experience based on their identity must be addressed in all educational environments. In particular with regard to educational technology standards, school personnel are encouraged to engage in meaningful conversations about ensuring the broad representation of all cultures and economic backgrounds in learning educational technology skills and concepts. By checking assumptions and actions carefully, we can start the process of unwinding opportunity gaps related to educational technology. Sometimes, reducing opportunity gaps may even include restrictions on screen time (e.g., "go outside and play" or spend some 1:1 time interacting with a teacher) instead of more time in front of an online math program.

**Crosswalk with Other Standards**

Given that the Educational Technology Standards add to the demand of time of our teachers, Seattle Public Schools is committed to integrating much of the teaching of the standards into teaching of existing standards in English Language Arts, Math, Science, and Social Studies.

See Appendix C for the complete publication of the K-12 Educational Technology Learning Standards.

## Seattle Research: Teachers' Use of Digital Tools

The Research & Evaluation department worked during the 2017-18 school year with the Digital Learning team and Program Tomorrow. Program Tomorrow is a national education non-profit organization that works to ensure that today's students are well prepared to be tomorrow's innovators, leaders and engaged citizens of the world. Program Tomorrow approaches their mission by:

- Conducting national research projects such as Speak Up
- Facilitating the replication of model projects in schools and communities
- Providing online tools and resources for students, teachers and parents
- Contributing to the national and regional dialogue about educational issues

The team administered a survey to Seattle Public School teachers who had received digital learning resources. These groups included:

- Teachers in new, technology-rich schools who received no intense training
- Amplify Science users who had training focused on the digital materials
- Digital Learning Institute participants who received intensive training, support, and technology

The Research department asked Program Tomorrow to do an analysis and develop the "storyline" of initial Seattle Public Schools (SPS) technology usage. The data below from Julie Evans, CEO of Program Tomorrow, contains this analysis benchmarking SPS against national teacher survey results.

Ms. Evans summarized the results as follows:

> *The story narrative is that the teachers in the study cohort who have access to sophisticated technology – Amplify Science and Blended Learning content – are demonstrating sophisticated digital learning behaviors already and thus could anticipate similar results if more teachers had these or similar tools. Additionally, the teachers identified needs that could enhance their effectiveness and that is a good road map for how to bring all teachers on board.*

## SPS Teachers Involved with Focused Implementations of Digital Learning: Selected Findings with National Comparatives

**The SPS teacher study cohort place on higher premium on the value of student technology use within instruction as a factor in driving student success than teachers nationwide.** For example, 66% of the teachers in the sample who are teaching in a blended learning environment say that the effective use of digital tools is extremely important for student success; only 44% of teachers nationwide hold the same opinion.

How important is the use of technology in school to student success?
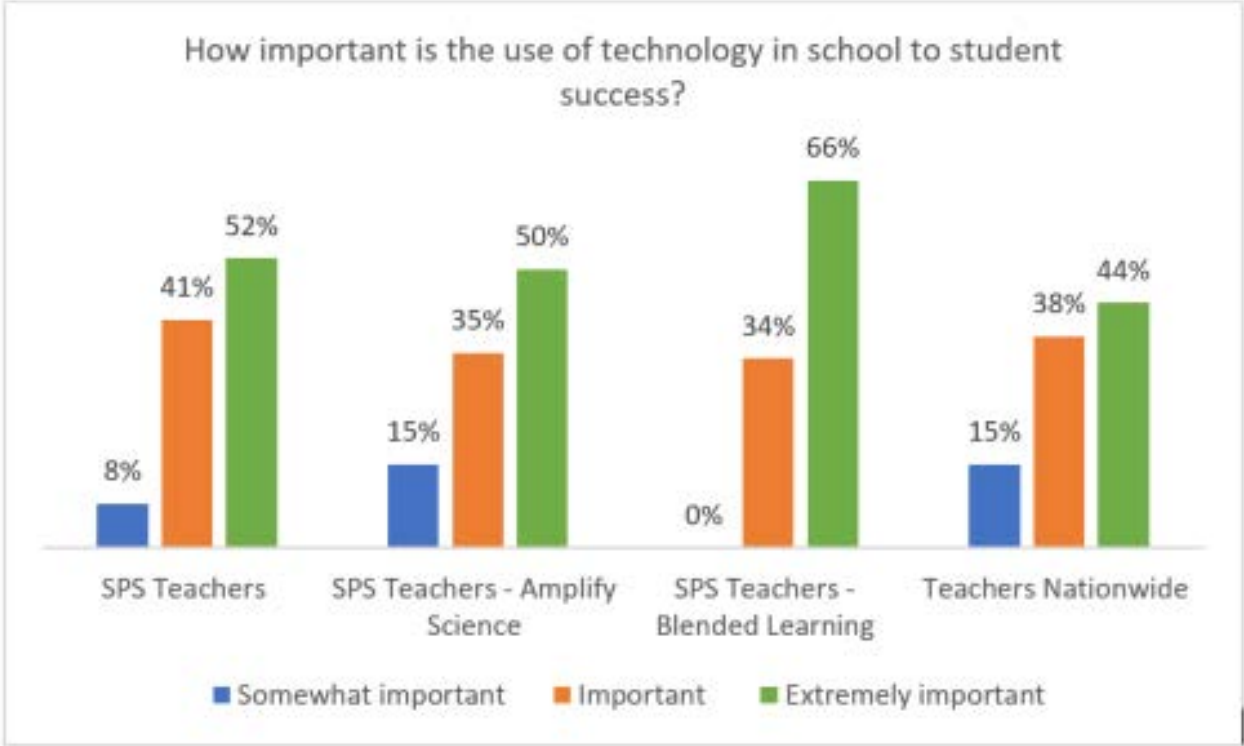
SPS teachers in the study cohort are using digital resources in their classroom to facilitate new learning experiences for students while at the same time leveraging district provided online tools to keep students and parents informed of class activities and requirements. Teachers in the SPS cohort appear to be using these tools more than teachers nationwide which indicates a greater sophistication level in usage and a readiness to use advanced technologies and instructional practices.

| How are you using technology to facilitate learning for your students? | SPS Teacher Cohort | Teachers Nationwide |
|---|---|---|
| Facilitating student collaborations | 70% | 46% |
| Posting class info on our portal | 69% | 47% |
| Customizing content for my class | 69% | 51% |
| Using an online curriculum | 51% | 43% |
| Creating investigations for students | 43% | 31% |

The impact of digital learning in their classroom is evident in the development of college and career ready skills, better understanding of course content and stronger student engagement in learning, according to the teachers in the SPS study cohort. A higher percentage of SPS teachers valued these benefits than teachers nationwide. For example, 59% of SPS teachers say that digital learning helps students develop critical thinking skills while only 43% of teachers hold that same valuation.

What student outcomes are evident from your classroom use of technology?
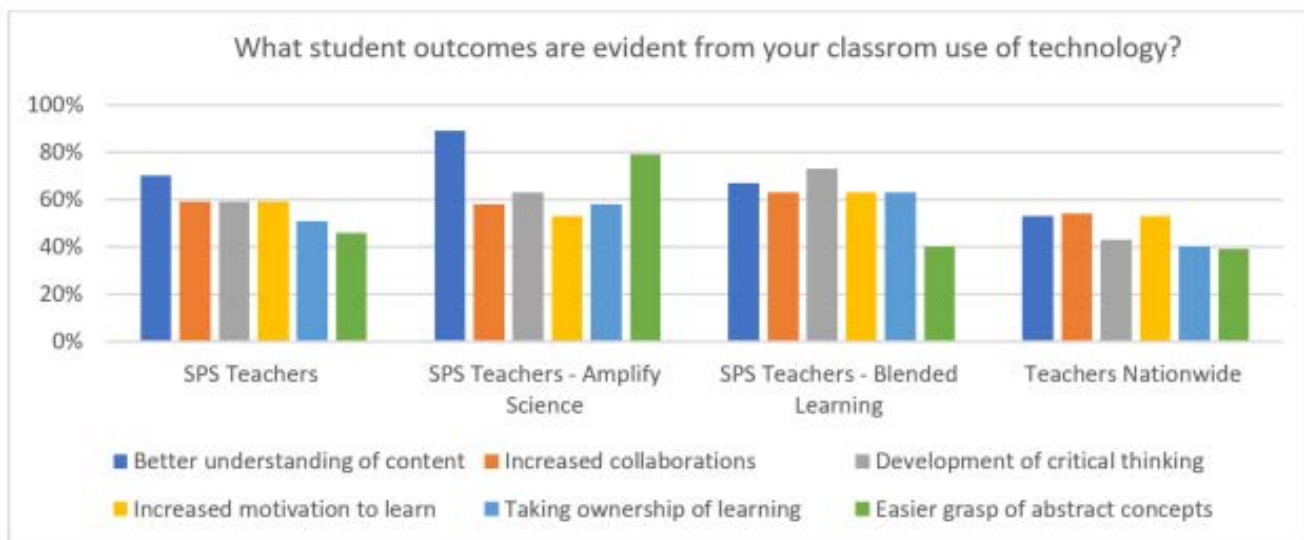
**The SPS teacher study cohort identifies six key needs that can help them be more effective with the use of digital tools, content and resources in the classroom.**

- Planning time with our colleagues (82%)
- Classroom set of laptops or tablets for student use (67%)
- Reliable and consistent Internet access in their classroom (65%)
- Technology support when they need it (62%)
- Professional development (55%)
- Curated set of digital resources organized by grade level and content area (47%)

**And specific to professional development, the SPS teacher study cohort identified a wish list of topics with a goal to enhance their effectiveness using a technology to support new student learning experiences.**

| PD wish list topics | SPS Teachers | SPS Teachers – Amplify Science | SPS Teachers – Blended Learning |
|---|---|---|---|
| Differentiating instruction with technology | 59% | 89% | 55% |
| Identifying high quality digital content for classroom use | 47% | 56% | 41% |
| Integrating digital content within instruction | 42% | 50% | 38% |
| Creating student investigations using digital tools | 41% | 44% | 41% |
| Leveraging technology for formative assessments | 41% | 33% | 48% |

## Professional Learning

Research and feedback from stakeholders including the Information Technology Advisory Committee (ITAC) emphasize the need for Professional Learning to support certificated staff using data and technology in schools. The plan calls for a Digital Learning team who provide the core professional learning and support. For the 2018-2019 school year, the certificated teacher contract recognizes the need for professional learning. Additionally, school technology funds may be used for further professional learning to provide staff time or trainers to help with the implementation of digital learning. Finally, the plan calls for Digital Teacher Leaders at each site who work as a conduit with central office on initiatives and a school leader for technology.

According to the 2018-2019 SEA-SPS collective bargaining agreement for certificated employees, all certificated employees are entitled to up to thirty-two (32) hours of extra pay, pro-rated by FTE, for technology-related professional learning in self-directed learning activities during the 2018-19 school year as listed below.

This extra pay supports the district's strategic goals in assuring high quality, multi-tiered systems of support, closing opportunity gaps, improving systems, and fostering community and family engagement. For each certificated employee to receive payment, the employee must have engaged in "professional learning associated with the integration of technology related to using data to improve instruction, using digital resources, managing instruction, leveraging technology for collaboration and communication, incorporating digital citizenship, and/or another personal professional learning in support of district or building initiatives." Budget adjustments will need to be made in future years if collective bargaining agreements call for more spending on technology professional learning than budgeted.

Also, part of the plan calls for Educational Technologists (ET's) to be named for each school. The ET is a building leadership position that seeks to improve teaching and learning through education technology and digital learning to support Seattle Public Schools districtwide initiatives. The building ET's are certificated, non-supervisory staff who work closely with building leadership and the district Digital Learning Specialists (DLS's). The ET will present at building meetings and PLC's working to help staff implement education technology and digital learning.  ET's will convene as a group at least 4 times per year for training and collaboration, engage in self-directed training, and provide input for system wide improvements. ET work supports the foundational beliefs of fostering learning communities that address racial equity. This is not a hardware/software troubleshooting position, but rather a teacher leadership position.

## Digital Equity

Ensuring educational and racial equity, School Board Policy 0030 is a foundation of all the district's work. Seattle Public Schools has made eight commitments to the success of each and every student in all schools. For technology planning, the district is putting this into practice in several ways as Policy 0030 applies to digital resources. The first tenant is Equitable Access, which states that "the district shall provide every student with equitable access to a high-quality curriculum, support, facilities and other educational resources, even when this means differentiating resource allocation."

Extra technology funding to support school technology plans is being budgeted for high need schools as defined by the WSS (Weighted Staffing Standard) formula used for equitable school funding. These funds may be used for professional development or technology itself for these schools to meet their Continuous School Improvement Plan (CSIP) goals. Particularly, meeting the needs for students without devices and/or connectivity at home will be a focus.

Also, funds will be allocated to upgrade classrooms with the same audio-visual equipment as defined in the educational specifications (Ed Spec). The schools will be selected based on not being on a modernization list and in need as defined by the WSS.

To address needs for teaching and learning while also addressing equity, staff are working on plans to provide devices to take home including both laptops and hotspots with internet access to students in need.

To address the need for connectivity at home, the plan calls for working with partners, which include, but are not limited to the following:

- City of Seattle and its Community Technology Advisory Board
- Wave Broadband, Comcast Internet Essentials, and Mobile Citizen
- Digital Promise initiative with Verizon
- EmpowerED initiative with T-Mobile
- 1 Million Project with Sprint

## Student Learning & Support: Operations

Technology is an essential tool for learning in today's schools. Computers are used for instruction in the core subjects as well as word processing, data analysis, and presentation development. Computers and projection devices are found in classrooms as well as labs. Locations for instructional technologies such as presentation stations, wall-or-ceiling mounted LED projectors, cart-mounted projectors, rear projection systems, and whiteboards that act as projection screens have been specified in the district Educational Specification.

Operational support for the technologies whether classroom laptops, audio-visual equipment (AV), or education technology software and services require many teams.

### Technology Support Specialists

Each Technology Support Specialist (TSS) supports four to six schools and respond to support requests by acting as a second-level problem-solving resource regarding all classroom technologies after a ticket is logged in the helpdesk system or there is a call to TechLine. They also provide ad hoc support including answering questions, providing advice, troubleshooting, and following up with customers to solve their equipment problems. TSS's maintain service records and develop plans for problem resolution. Additionally, TSS's may be part of building technology planning teams.

### The Client Management Team

The Client Management Team (CMT) consists of systems engineers, who provide central management of computers, laptop, tablets, and phones. These management systems, automation, application packaging, optimization, computer policy editing, patch management, login scripts, and software distribution provide consistency across the district and helps scale support with automated processes.

### Digital Learning Team

While the TSS's and the CMT provide support for systems to work properly and the District Systems team provides the core software, the Digital Learning team provides planning, functional support, professional development, and coaching for a number of initiatives that directly impact learning and teaching:

- Functional Support: PowerTeacher, Schoology, Office 365, Teacher Presentation Stations
- Planning Support: SharePoint for schools, teacher and student computers, online assessments, grading systems, professional learning systems
- Professional Development: Teachers, Students, School Administrators, CAI staff

Projects all fit within the broader mandate to support use of technology tools in the classroom for learning and teaching. This has three main components:

- Develop teacher fluency in the effective use of digital technology in their instructional practice, aligned with state standards, the "Principles of Effective Digital Learning," and Continuous School Improvement Plans (CSIP's)
- Provide planning, professional development, and ongoing support for initiatives such as Schoology, PowerSchool, teacher and student computers, and technology for new schools
- Liaison between schools, Curriculum Assessment and Instruction, and DoTS

## Library Media Center

The library media center is often the learning center of the school with technology and digital resources central to its model. It serves a dual role – its traditional role as a gathering place for research and learning and a new role as a technological information base. In this new role, the media center may be the home of a makerspace. Makerspaces are learning centers with tools, which combine manufacturing equipment, students, and education for the purposes of enabling students to design, prototype and create manufactured works that would not be possible to create with the resources available to students working alone. Library Media Centers may have a computer lab and connection for OPAC (Online Public Access Catalogue) stations that provide access to everything to list of books, digital books themselves, databases, encyclopedias, videos, and other digital resources.

As libraries change from simply serving as a depository of books to a high technology information distribution center, library functions will continue as digital resources enhance voice, video, and data communications within the school, among district facilities, and with distance learning resources. DoTS works closely with the Library Services Manager and district librarians to meet the needs of students.

## Career and Technical Education (CTE)

Career and Technical Education (CTE) is a planned program of courses and learning experiences that begins with exploration of career options, supports academic and life skills, and enables achievement of high academic standards, leadership, and preparation for career and college. Students are entering a highly competitive workforce based on a global knowledge and information economy. To be career and college ready, students need to be able to integrate and apply 21st century skills, technical knowledge and skills, and core academic knowledge. With an emphasis on real world, real life skills, CTE connects students to academics and training that will help them be successful in the future. The goal for CTE is that every Seattle Public School student will graduate from high school globally competitive for work and postsecondary education and prepared for life in the 21st century. CTE is at the front of innovation in education in Seattle, and DoTS partners with the CTE department to help them use Perkins funds designated for CTE and plan for and deliver additional support.

CTE technology, computers, and peripherals allow for new technology to be implemented in these classrooms that support the type of work that is done in today's careers. Students deserve to have access to equipment that supports a more engaging CTE learning experience. Students will be able to participate in pathways: Agriculture and Environmental Sciences (A&ES); Arts, Communications and Media (AC&M); Business, Marketing and Information Technology (BM&IT); Health and Human Services (H&HS); Science, and Engineering and Industry (SE&I). Failure to do these places students at a significant disadvantage and does not address the equity concerns across the district and will not support students being college/career ready.

## Assistive Technology and Special Education

Assistive Technology (also known as AT or adaptive technology) is defined in several federal laws (Assistive Technology Act, Individuals with Disabilities Education Act [IDEA], the Rehabilitation Act of 1973, and the Developmental Disabilities Assistance and Bill of Rights Act) as including both assistive devices and the services needed to make meaningful use of those devices.

An AT device is any item, piece of equipment or product system, whether acquired commercially, off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of a child with special needs. AT service is any service that directly assists a child with special needs in the selection, acquisition, or use of an assistive technology device. Includes: evaluation, training, maintenance and modification.

The Assistive Technology department supports students that have specific needs in which technology breaks down barriers to education. DoTS partners with the AT department to help them support students and plan for and deliver additional support.

Special needs students require the technology they need to meet their learning objectives as stated in IEP's and 504's. This includes assistive devices for vision, auditory, and motor skills. Meeting these requirements keeps the district in compliance.

## Science, Technology, Engineering, and Mathematics

The definition of STEM (Science, Technology, Engineering, and Mathematics) developed by the SPS Smithsonian Institute Team is rooted in concepts taken from the literature on STEM related topics, as well as Seattle Public Schools' district goals.  As well, there is strong identity and commonality with the following definition and the engineering standards in the NGSS, the mathematical practices of Common Core State Standards (both of which are now Washington State Standards), and recently-adopted state K-12 Educational Technology Standards. Briefly, a CAI and DoTS working definition of STEM education is as follows:

1. Interdisciplinary, providing students with experiences allowing the application of core content knowledge in science, engineering and mathematics, combined with the strengthening technological competencies
2. Rigorous, aimed at helping students reach content and practice standards in science/engineering, mathematics and technology competencies, supported by strong core instruction enabling ALL students, especially historically underserved students to succeed
3. Supportive of applying "Seattle-ready" skills such as collaboration, critical thinking, communication and creativity to real-world problems in preparation for global citizenry
4.  Connected to college and career preparation

In both types of STEM learning opportunities, the following elements would be present:

**Science:** Inquiry-based approaches to learning, which are active pedagogical strategies that develop students' abilities to ask questions, design investigations, solve problems, interpret data and evidence, form explanations and arguments, and communicate findings. Inquiry-based approaches to learning enable students to engage in authentic and meaningful activities that are connected to the real world.

**Technology and Engineering:** Engineering is often attached to science, because of engineering standards in Next Generation Science Standards. Student objectives in this area have been well-laid out in the NGSS. However, engineering is not limited to science, but is also tied together with the use of technology. Engineering design is highly connected to developing students' technological literacy. The process of engineering design consists of three components: identifying the problem, including constraints and limitations; designing and evaluating solutions to real world design problems; testing and refining solutions, and improving the final design. The process includes planning and design in authentic learning environments, iterative decision-making, formulating predictions, creating solutions, testing prototypes, and communicating findings.

**Mathematics**: Mathematical inquiry has been conceptualized in a similar manner and is commonly defined as a process whereby students use their mathematical knowledge to argue, justify, hypothesize and direct their inquiry. Developing a collaborative learning environment is associated with an inquiry-based mathematics approach, where students value the processes of reasoning and negotiation. STEM-oriented mathematics develops students' problem-solving abilities and mathematical thinking, enabling them to apply their knowledge to situations other than the classroom. Foundational knowledge is critical to undergird these competencies. A specific focus in PK-12 mathematics education relates to algebraic and proportional reasoning, necessary for students' higher mathematical study and future career options. The development of algebraic and proportional reasoning is considered to be a gatekeeper that strongly influences students' future decisions about careers in STEM professions.

DoTS, in conjunction with CAI, supports STEM in several ways:

**Technology:** Directly connect technology acquisition plans to support instructional adoption

**Professional development:** Focus on strengthening STEM content and pedagogy elements in the STEM definition in math and science professional development; demonstrate application of different disciplines in project-based learning, and demonstrate basic STEM processes that strengthen achievement; develop externship opportunities for teachers to observe industry requirements

**Equity, expectations and belief systems:** Incorporate central messages about beliefs to assist teachers in promoting participation of underrepresented populations in STEM:
- STEM can help raise expectations for historically underserved students
- The recruitment of historically underserved students is everyone's job
- Secondary teachers are responsible to collaborate to develop interdisciplinary, rigorous and engaging STEM learning experience
- Provide equitable opportunities, exposure, and enrichments for all students

## Physical Education

The PreK-12 Physical Education and Health Literacy program embraces technology including heart rate monitor technology, iPads, and other technology in classrooms across the district to support all students. The program is becoming a model in the country for physical education and adding technology will improve the learning outcomes for all students, staff and community. DoTS works closely with this department to meet its unique technology needs.

## Arts



Digital Arts remains a unique and important aspect for technology support. Classes with these offering often need higher capability hardware and peripherals. Likewise, DoTS support software beyond Microsoft Office suite to include, for example, Adobe Creative Tools, Autodesk 3D modelling, and Ableton Live audio. DoTS works closely with schools to meet the unique technology needs of the Arts.

## Nurses, Counselors, Occupational Therapists, Audiologists, Other Certificated Staff

The Technology Plan addresses other staff both operationally and in specific projects. Nurses need mobile devices and stationary computers that need support along with a dedicated health management system. Counselors need an advanced mobile device, and support for rolling out and training students on Naviance, the district's college and career planning platform. Other certificated staff depend on technology to do their jobs.

## Instructional Assistants and Substitute Teachers

The Technology Plan addresses instructional staff that have not consistently had their technology needs addressed. Instructional assistants and substitutes have access to teaching stations and kiosks schoolwide. Under BEX V funding, for the first time, instructional assistants will get a dedicated laptop to support their work.

## Computer and Device Standards

In October 2017 DoTS conducted a Request for Proposal (RFP) to establish a computer standard for district devices over the next five years. The district requested proposals from qualified manufacturers and firms to provide various computers and support services for the district. Thornburg Computer Services, LLC from Olympia was chosen to provide Dell computers with services that include etching, configuration, deployment, and warranty support. Pricing is a guaranteed discount off of state-negotiated contracted pricing. The district also has an Apple standard for iMacs and iPads that have educational pricing.

The current standards as of February 2019 for students include:

| | |
|---|---|
| Dell Latitude 3189 Convertible<br>11.6", Celeron N3350, 4GB RAM, 128GB SSD, One HDMI, Two USB 3.0, Cost: $357.78<br><br><br><br>High School:<br>Dell Latitude 3300<br>13", Intel, 8GB RAM, 128 SSD, Cost: $700<br><br>OptiPlex 5050 Small Form Factor<br>i5-7500 QC, 8GB RAM, 256GB Solid State HD, DVD+R/W, Cost: $689.33<br><br>iPad Wi Fi<br>A10 Fusion Processor, 32GB, 9.7" Retina Display, Cost: $299.00 | iMac<br>i5-Quad Core, 8GB RAM, 1TB SATA HD, 21.5" Monitor<br>Cost (BEFORE TAX): $1,264.00<br><br>For teachers and principals, the standard allows more advanced interaction and integration which will enable the district to phase out the desktop computer currently used as a teaching station. It is also available for students who need a more powerful mobile device.<br><br>Dell Latitude 7390 Convertible Tablet<br>13.3", i5-QC, 8GB RAM, 256GB SSD, Two USB-C, Two USB 3.0, One HDMI, Cost: $1,174.93 |

The district is currently evaluating standards to develop new standards specifically for grades: K-1, 2-5, 6-8, and 9-12. Decisions will be made based on student needs for internet access, digital resources, productivity, creative arts, applications, and programming. Based on needs, choices will be made for operating system, form factor, memory, storage, screen size, and durability while considering our existing purchasing agreements and budgets.

A representative group of staff from schools and central office will define standards to be revisited bi-annually.

## Classroom Audio/Visual (A/V)

School buildings incorporate A/V technology to support programs that help personalize education and maximize student learning. Every new classroom gets a "teaching wall" which includes a wall mounted short throw interactive projector, document camera, and a desktop computer.  A sound system is provided in all elementary and K-8 schools. Connections, wired and wireless, allow teacher to project from their computers which include a teaching station desktop and personal laptop.

The typical configuration to be utilized for each teaching wall is indicated below.

WALL MOUNTED PROJECTOR

4'w X 6'h MARKERBOARD

8'w X 5'h MARKERBOARD

4'w X 6'h MARKERBOARD

6'-0"

24" AFF FOR 3RD GRADE THRU 5TH GRADE
18" AFF FOR KINDERGARTEN THRU 2ND GRADE
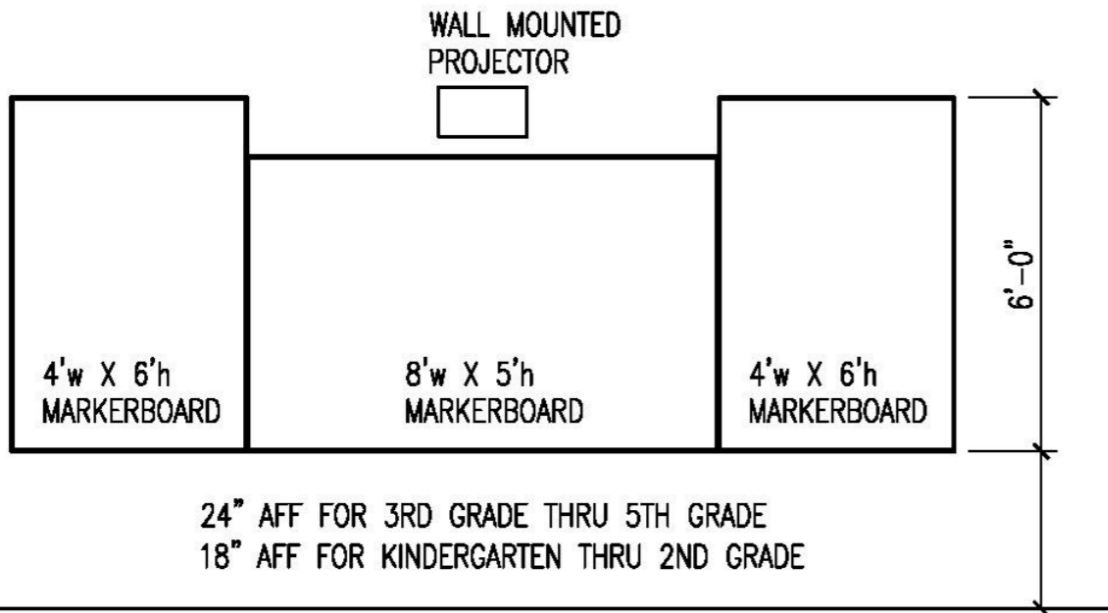
TYPICAL MARKERBOARD CONFIGURATION AT TEACHING WALL

SCALE: 1/4" = 1'-0"

**Hitachi CP-TW3005 Interactive Projector**

Ultra-Short Throw, 3300 Lumens, HDMI, Mini D,
RCA, USB, RJ-45, Two interactive pens
Cost: $1,514.00
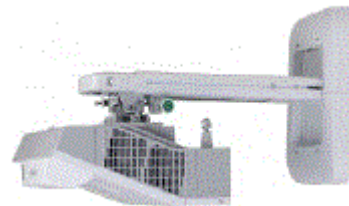


For the 2018-2019 school year, this is the educational specification, but it is currently under review, as the cost and capabilities of flat screen displays and laser projectors show promise.

Each classroom also has a teaching station that includes a desktop computer and document camera on a mobile cart. This allows the teacher to project computer and analog images and allows interaction. This set up is likewise under review as teachers received laptop computers in 2017-1018 and the necessity of an additional desktop is in question.

While new schools have been bestowed the current A/V specification, schools not on a Capital Program modernization list have not gotten classrooms up to the full specification. Some schools are still using projectors on their presentation carts instead of wall mounted interactive projectors. This plan calls for more schools to get upgraded A/V with the full educational specification. For an equity approach, the plan will start with the schools with the most need. A representative group will be reviewing A/V specification in 2019.

## Systems Supported

- EOG Toolkit
- Learning Management: Schoology
- Grades/Reports: PowerSchool/Schoology
- Library Management: Destiny
- Rostering, Single Sign-on, Portal: Clever
- Assessments: CenterPoint/Illuminate MAP F&P
- State Assessment: Smarter Balanced
- School Data System: Homeroom
- College, & Career Planning: Naviance
- Supplemental Digital Materials: Student Portal

## Staffing

Technology Support: 11.5 General Fund, 28.3 Levy Funds
Professional Development: 9.0 Levy Funds

**There are no plans for increased team members during the time of this plan. The staffing costs include a 3% increase in salary and benefits annually.**

## Key Performance Indicators (KPI's)

- Laptop computers baseline of 20,000 within four-year replacement cycle
- Devices per student (Council of Great City Schools comparative KPI)
- IT spending per student (Council of Great City Schools comparative KPI)
- Percent of schools with a technology plan to support CSIP's
- Technology plans delivered for schools and departments
- Customer service score
- % Incident response Service Level Agreement (SLA) success

## Student Learning & Support Operational Objective

1.1 Seattle Public Schools technology support specialists, client support specialists, and digital learning support resource teachers will achieve benchmarks goals of KPI's.

**Benchmarks:**
1.1.a 100% accurate inventory is maintained
1.1.b 100% of school and department technology plans developed and reviewed
1.1.c Ticket Reponses meets SLA
1.1.d Technology support demonstrates and equity lens
1.1.e Customer service will be rated at 9 or greater on a net promoter score of 1-10

**Operational Budget:**
Staffing
- 2018-20 (BTA IV): $14,365,000
- 2020-23 (BEX V): $15,901,000

Software and Maintenance Renewals
- 2018-20 (BTA IV): $935,000
- 2020-23 (BEX V): $6,343,000

# Student Learning & Support: Projects

## Technology to Support Teaching and Learning
Business Sponsor: Curriculum, Assessment, and Instruction (CAI)

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**

**Project Goal:**
Teachers and students need technology to support, amplify, and accelerate the processes of teaching and learning. Classroom technology is delivered through several means with a program developed over two years of engagement:
- Align to Teaching and Learning
- Baseline for all schools
- Allow for innovation with variety of technology
- Give some autonomy to schools to purchase additional technology
- Address program need: Special Education, Assistive Technology, CTE, STEM, Arts, PE
- Use an Equity lens: More resources where more support needed
- Don't have libraries and computer labs used for testing
- Follow a technology plan, standards, and research
- New Schools receive a cart of computers for each classroom as part as part of the Educational Specification (12-16 depending on grade level)

To that end the specific goals for the next five years includes:
- Maintain baseline of devices with four-year replacement cycle centrally managed and funded. The standard established is cart of devices per classroom with 12-16 devices based on class size so one computer per two students K-8. High Schools will provide a computer to all ninth-grade students beginning in 2019-2020 phasing out the cart model over four years. High need high schools will have an accelerated roll out to meet equity goals. The 2016 High School Education Specification calls for one-to-one in high schools starting with new high schools.

| Grade Level | Number of Devices per classroom | Device Type |
|:-----------:|:-------------------------------:|:-----------|
| K-2 | 12 | Laptops or iPads |
| 3-5 | 15 | Laptops |
| 6-8 | 16 | Laptops |
| 9-12 | 16-30 | Laptops (performance model) |

- School Technology budgets with additional funds for high need schools. ITAC and Teaching & Learning set guidelines with accountability
- Technology for schools linked to Continuous School Improvement Plan (CSIP) goals, the State of Washington Office of the Superintendent of Public Instruction (OSPI) Education Technology (EdTech) Standards, and the Seattle Public Schools "Principles of Effective Digital Learning"
- Fund Special Education, Assistive Tech, ADA Accessibility, CTE, STEM, ELA, PE & Arts, and
- Funds for Equity with Professional Learning focus

1. Would you support a plan where 9th graders receive a laptop and keep for 4 years with all grade levels having laptops in 4 years phasing out computer carts?

More Details

- ● Yes  17
- ● No  1

2. Would subject area teachers commit to using laptop for instruction/learning? Eg. Using for writing, research, collaboration, media creation, presentations, simulations, and online applications (Phasing in starting with English 1, Physical Science, and Algebra 1)

More Details

- ● Yes  17
- ● No  1

*High School Principal Support for laptops for students*

## Project Business Value:

In coordination and collaboration with the Teaching & Learning division to directly support its core initiatives, these deployments support pedagogy and curriculum.

Improvements in perceived teacher effectiveness come about by teaching with technology as measured by the district's Research department. An accurate inventory determines an equitable baseline of technology at schools which currently requires replacing nearly 15,000 desktops and replacing about 5000 devices annually to keep the four-year replacement cycle.

The Information Technology Advisory Committee meets monthly to discuss, among other things, student computers and classroom technology. The committee provides advice and oversight for the technology plan.

The Building Technology and Academics levy (BTA IV) called for $29,300,000 for student learning to "upgrade and expand classroom/student technology equipment and services, mobile and stationary computer labs, and increase on-site technical support services for schools and student technology" but lack of a specific plan for implementation and stakeholder consensus delayed implementation of classroom/student technology while teaching models were tested, consensus built, and plan articulated. Planning for BEX V led to the development of this strategy that delivers on the goals stated above for the BTA IV funds and keeping with the promise to the voters who passed the levy in February 2016.

This philosophy for technology for student learning is an integral part of this technology plan and includes balancing district and school input for technology needs with guardrails set by ITAC and Teaching & Learning. Staff wants to address specific groups to ensure that Special Education students, those with Assistive

Technology needs, Career and Technical Education (CTE) programs, Science (includes all forms of Science), Technology, Engineering and Math (STEM), English and Language Arts (ELA), Physical Education (PE), and the Arts have the technology and professional development (PD) they need. Understanding the direction of the board, staff does not want to recommend increasing computers as a central mandate, but rather move to laptop computers as desktops age out and maintain a four-year replacement cycle for a baseline of laptops to meet basic needs and funded centrally. Additional technology beyond base laptops would support schools' CSIP's, have accountability for impact, and follow "Principles of Effective Digital Learning" that were developed based on research. Finally, staff will dedicate funds to high need schools, defined by the WSS, to prioritize them for professional development and technology for school improvement.

Schools will receive funds beyond the allocation to all schools to have further professional development and technology to support school improvement and eliminate opportunity gaps. Principals and Building Leadership Teams (BLT's) will choose from standard technologies and develop professional learning plans to meet the needs of their students. Guidelines will be reviewed by ITAC and approved by Teaching and Learning.

Schools include:

| | |
|---|---|
| Emerson Elementary | Sanislo Elementary |
| South Shore PK-8 School | Denny International Middle School |
| Concord International School | Aki Kurose Middle School |
| Dunlap Elementary | South Lake High School |
| John Muir Elementary | InterAgency |
| Leschi Elementary | Seattle World School |
| Lowell Elementary | Mercer International Middle School |
| M. L. King Jr. Elementary | Rainier Beach High School |
| West Seattle Elementary | Washington Middle School |
| Bailey Gatzert Elementary | Franklin High School |
| Highland Park Elementary | Cleveland High School |
| Madrona Elementary | *Schools may change based on need |

**Risks:**
- Approved levy funds for classroom devices do not get approved by Board at time of purchase
- Professional Development does not promote use of devices and technology
- Devices go unused or get lost or stolen

**Objective: By August 2020**
1.2 All schools meet their baseline device requirement and fulfil needs of site-based technology plan.

**Benchmarks:**
1.2.a By June 2019, School Technology Services Support parts depot fully operational
1.2.b By June 2019, Seattle Public Schools formally adopts the Washington State Education Technology Standards
1.2.c By August 2019, 8,000 laptops deployed to upgrade schools to meet standard
1.2.d By January 2020, grants distributed to Elementary and Secondary schools per their technology plans to support CSIP goals
1.2.e By January 2020, $1,580,000 in grants to high need schools for Digital Equity
1.2.f By August 2020, all assistive technology, CTE, STEM, ELA, PE and Arts tech plans met within budget of $1,130,000
1.2.g By August 2020, 4,000 laptops deployed to upgrade schools to meet standard
1.2.h By August 2020, 1,000 Wi-Fi hotspots and computers are available for checkout by students in need

1.2.i By August 2020, all high need schools have a digital equity initiative to promote connectivity
1.2.j By August 2020, district has a dashboard measuring technology usage

**Budget**: $15,177,000
- School Technology Services Support - $167,000
- Assistive Technology and Special Education - $800,000
- Department Technology: CTE, STEM, ELA, PE, Arts - $330,000
- Replacement Classroom Computers - $7,150,000
- Continue Support for STEM at Cleveland - $550,000
- Technology for K-5 students - $2,000,000
- Technology for Secondary School Students - $2,600,000
- Equitable Access to Technology to High Need Elementary Schools - $980,000
- Equitable Access to Technology to High Need Secondary Schools - $600,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Create and execute roll out plan for laptops | 2019-2020 | Monthly status report | Technology Support Services Manager |
| Facilitate site tech plans | 2019-2020 | Completed plans | Digital Learning Manager |
| Create partnership with Assistive Technology, CTE, STEM, ELA, PE and Arts to create and execute tech plans | 2019-2020 | Status report | Technology Support Services Manager |
| Plan digital equity initiatives | 2018-2020 | Monitor school participation | Chief Information Officer |
| District adopts Washington State Education Technology Standards | 2019 | Standards brought to board for approval | Chief Academic Officer |
| Create dashboard that shows technology usage | 2020 | Dashboard available to staff and public | Chief Information Officer |

**Objective: By June 2023**
1.3 All schools meet their baseline device requirement and fulfill needs of site-based technology plan.

**Benchmarks:**
1.3.a By August 2020, four-year laptop baseline plan developed and initiated of approximately 5,000 laptops per year
1.3.b By January 2022, $4,600,000 in grants distributed to Elementary and Secondary schools per their technology plans to support CSIP goals
1.3.c By August 2023, $2,800,000 in grants to high need schools for Digital Equity
1.3.d By December 2020, all assistive technology, CTE, STEM, ELA, PE and Arts tech plans are met within budget of $2,175,000
1.3.e By December 2023, 1,000 Wi-Fi hotspots and computers are available for checkout by students in need
1.3.f By December 2023, all schools have a digital equity initiative to promote connectivity

**Budget**: $16,400,000
- Assistive Technology and Special Education - $1,200,000
- Department Technology: CTE, STEM, ELA, PE, Arts - $975,000
- Replacement Classroom Computers - $6,000,000
- Continue Support for STEM at Cleveland - $825,000
- Technology for K-5 students - $2,000,000
- Technology for Secondary School Students - $2,600,000
- Equitable Access to Technology to High Need Elementary Schools - $1,050,000
- Equitable Access to Technology to High Need Secondary Schools - $1,750,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Create and execute roll out plan for laptops | 2020-2021 | Monthly status report | Technology Support Services Manager |
| Facilitate and support site tech plans | 2020-2023 | Completed plans | Digital Learning Manager |
| Create partnership with Assistive Technology, CTE, STEM, ELA, PE and Arts to create and execute tech plans | 2019-2023 | Status report | Technology Support Services Manager |
| Plan digital equity initiatives | 2020-2023 | Monitor school participation | Chief Information Officer |

## Classroom Audio Visual Technology Modernization
Business Sponsor: CAI

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**
**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
Schools have outdated A/V that do not meet the Educational Specification (Ed Spec). Incorporating technology into the classroom when the equipment is outdated and has reached end of life is difficult. Current A/V technology expands the possibilities for innovative teaching and learning. Replacement of projectors/displays and document cameras, wireless display connectivity, sound, and installation are all included. The plan calls for the replacement of oldest audio/visual (A/V) equipment at WSS Tier 1-2 schools with current specification (schools may change based on need):

| | |
|---|---|
| Aki Kurose Middle School | Leschi Elementary |
| Emerson Elementary | Lowell Elementary |
| South Lake High School | John Muir Elementary |
| South Shore PK-8 School | Louisa Boren STEM K-8 (Sound system only) |
| InterAgency | Broadview-Thomson K-8 School (6-8) |
| Mercer International Middle School | M. L. King Jr. Elementary |
| Concord International School | Washington Middle School |
| Dunlap Elementary | West Seattle Elementary |
| Denny Middle School | Bailey Gatzert Elementary |

As funds become available, the following schools will be addressed in order:

| | |
|---|---|
| Franklin High School | Hawthorne Elementary |
| Highland Park Elementary | Orca K-8 School |
| Madrona Elementary | Whitman Middle School |
| Sanislo Elementary Rainier View Elementary | Adams Elementary |
| Sand Point Elementary | Chief Sealth International High School |
| Broadview-Thomson K-8 School | Sacajawea Elementary |
| Dearborn Park International School | Van Asselt Elementary |
| Gatewood Elementary | Hamilton International Middle School |
| Graham Hill Elementary | |

**Project Business Value:**
Classrooms will be updated with the latest educational specification without modernizing the entire school.

**Risks**:
- Maintenance of A/V is too time consuming and/or expensive
- Lifespan of A/V does not meet expectations to get all schools to standard
- Professional Development does not meet needs to take full advantage of A/V
- Software to support A/V becomes too difficult or expensive to maintain

**Objective: By August 2020**
1.4 A/V educational specification finalized and deployed at first set of schools.

**Benchmarks:**
1.4.a By July 2019, A/V educational specification finalized
1.4.b By September 2019, deploy beta sites
1.4.c By June 2020, status of meeting standard is published for all sites
1.4.d By August 2020, deploy Phase One sites

**Budget**: $2,934,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Test A/V solutions | 2019 | Report | Technology Support Services Manager |
| Installs at beta sites | Summer 2019 | Report | Technology Support Services Manager |
| Install at Phase One sites | Summer 2020 | Report | Technology Support Services Manager |

**Objective: By August 2023**
1.5 A/V educational specification finalized and deployed at second set of schools.

**Benchmarks:**
1.5.a By January 2020, A/V educational specification finalized
1.5.b By September 2021, deploy beta sites
1.5.c By September 2022, deploy Phase Two sites

**Budget**: $6,225,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Test A/V solutions | 2020-2021 | Report | Technology Support Services Manager |
| Installs at beta sites | Summer 2021 | Report | Technology Support Services Manager |
| Install at Phase One sites | Summer 2022 | Report | Technology Support Services Manager |

## Educational Staff Technology Modernization
Business Sponsor: CAI

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**

**Project Goal:**
To truly support students, all staff need to have the appropriate tools to do an effective job. There will be a negative impact to schools if instructional assistants, principals, or certificated staff do not have a computer to meet their needs. Currently, administrative computers are refreshed on a three-year replacement cycle per contract. Certificated teachers are on a four-year replacement cycle and received their computers in the 2017-2018 school year.

Instructional assistants have historically never received a computer. Instructional assistants currently only have access to teaching stations and kiosks in the school. Giving IA's a computer will improve their ability to support the students and teachers in the classroom. They are often asked to do certain work that sometimes is difficult to complete without easy access to a computer.

In 2018, laptop computers were provided for the first time to teachers and certificated staff in SPS. The laptop created greater instructional possibilities to enhance teaching, to increase collaboration, and to impact student learning. Laptops will be out of warranty in 2022 and teaching station desktops where teachers have historically anchored instruction will phased out. The next teacher laptop will have the capability to be the sole teacher device with a monitor and advanced capabilities to connect to projection and sound systems.

**Project Business Value:**
Staff that support students will get updated devices they need to support teaching and learning.

**Risks:**
- Board does not approve computers for instructional support staff
- Professional development is too expensive or time consuming
- Maintenance and theft

**Objective: By August 2021**
1.6 Instructional support staff will have a dedicated laptop.

**Benchmarks:**
1.6.a By August 2020, complete forecast of need
1.6.b By June 2020, complete professional development with IA's
1.6.c By August 2021, deliver computers to IA's

**Budget**: $825,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Staffing forecast | Summer 2019 | Report | Technology Support Services Manager |
| Training of Instructional Assistants | 2019-2020 | Report | Technology Support Services Manager |
| Rollout to IA's | 2020-2021 | Report | Technology Support Services Manager |

**Objective: By June 2023**
1.7 Four-year laptop program in production

**Benchmarks:**
1.7.a By August 2021, create plan for certificated staff roll out
1.7.b By August 2022, deliver new laptop to all certificated staff
1.7.c By August 2023, complete professional development with all staff

**Budget**: $9,254,000
- $504,000 (BTA IV)
- $8,750,000 (BEX V)

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Maintain three-year replacement program for principals | 2018-2023 | Inventory report | Technology Support Services Manager |
| Deliver new laptops to certificated staff | Winter-Spring 2022 | Report and survey of staff | Technology Support Services Manager |

## Educational Application Onboarding, Integration, and Transparency
Business Sponsor:  CAI

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**
**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal is to ensure that all educational software used in Seattle Public Schools purchased or acquired at the district or school level for use by students and families is fully compliant with state and federal law, district

policy and other legal obligations including the district current agreements in ADA-related consent decrees. To ensure this, DoTS is partnering with purchasing to develop a list of approved software and developing a process to add new software to an approved list. This program also will provide budget to purchase district-wide educational creative, operational, and supplemental software that are vetted supplementary materials and provide equity. Additionally, DoTS reviews student data requirements and, where possible, sets up single sign on (SSO) and rostering. Project will also renew and maintain student assessment system licenses.

**Project Business Value:**
This project has two primary benefits to the district: ensuring students have access to safe, appropriate and secure educational software that enables their success by addressing their learning needs; and reducing liability and risk for the district by ensuring there is a clear and effective process to ensure compliance with state and federal law, district policy and other legal obligations.

There is a strong inequity of access to consistent educational technology software resources across the district because of a lack of central funding. This will allow DoTS to bring greater consistency to educational software offerings across the district and allow integration with existing systems like the Schoology with centralized management of privacy, security and access.

**Risks:**
- Lack of cooperation from leadership and staff stifles implementation
- Process is too burdensome
- Public opposition to digital materials
- Student data privacy protection

**Objective: By June 2020**
1.8 All district and school-wide applications will be onboarded and indexed, meeting ADA, privacy, and security benchmarks, while providing equitable access.

**Benchmarks:**
1.8.a By August 2019, all applications purchased for use across the district or a school for use of students and families meet ADA requirements
1.8.b By August 2019, inventory of existing application complete
1.8.c By August 2019, selections made for district-wide supplemental educational software deployment
1.8.d By August 2019, selections made for district-wide online student library resources
1.8.e By December 2020, district student assessment system reviewed

**Budget**: $3,039,000
- Increase Online Student Library Resources - $364,000
- Supplemental Educational Software - $365,000
- Student Assessment, Data, and PD - $2,310,000 (in Capital Academics budget)

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Install monitoring tool | 2018-2019 | QA report | Technology Support Services Manager |
| Develop website template for approved applications | 2018-2019 | Posted | Director, Enterprise Applications |

| | | | |
|---|---|---|---|
| Inventory district applications | Summer 2019 | Posted | Director, Enterprise Applications |
| Selection process for EdTech and online library resources | 2019-2020 | Inventory updated | Digital Learning Manager |
| Schools give periodic interim testing | 2019-2020 | Test scores posted | Chief Academic Officer |

**Objective: By June 2023**
1.9 All district and school-wide applications will be onboarded and indexed, meeting ADA, privacy, and security benchmarks, while providing equitable access.

**Benchmarks:**
1.9.a By August 2019, all applications purchased for use across the district or a school for use of students and families meet ADA requirements
1.9.b By August 2019, selections made for district-wide supplemental educational software deployment
1.9.c By August 2019, selections made for district-wide online student library resources
1.9.d By December 2023, district student assessment system reviewed

**Budget:** $4,499,000
- Increase Online Student Library Resources - $394,000
- Supplemental Educational Software - $605,000
- Student Assessment, Data, and PD - $3,500,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Evaluate and select interim testing | 2020 | Posted | Chief Academic Officer |
| Inventory district applications | Ongoing | Posted | Director, Enterprise Applications |

## Professional Development
Business Sponsor: CAI

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**
**Strategic Plan Priority: Culturally Responsive Workforce**

**Project Goal:**
Staff learn effective use of technology in their instructional practice aligned with state standards, district strategic goals, and building Continuous School Improvement Plans (CSIP's). The goal is to provide teachers with training and support for online tools to enhance their instruction with students and communications with families. Professional learning includes support with learning management systems (LMS's), assessment systems, reporting platforms, new gradebooks, digital resources. Professional Development beyond systems will focus on pedagogy aligned with the "Principles for Effective Digital Learning" and the EdTech Standards described earlier.

**Project Business Value:**
To get full value of the technology, it must be paired with strong professional development. Professional learning supports district strategic goals in assuring high quality, multi-tiered systems of support, closing opportunity gaps, improving systems, and fostering community and family engagement. Staff must engage in professional learning associated with the use of technology aligned with the "Principles for Effective Digital Learning" and the EdTech Standards. Professional development will be related to using data to improve instruction, using digital resources, managing instruction, leveraging technology for collaboration and communication, incorporating digital citizenship (using Common Sense Media materials or other approved materials), and/or another personal professional learning in support of district or building initiatives. Teachers can use digital tools to aid their students' learning inside and outside the classroom and to help parents support their child's growth.

To improve use of data, reporting, and tracking interventions, teachers are using Homeroom and Atlas, the district's data warehouse reporting and dashboard system that uses Tableau. As capabilities improve, more coaching and support will be provided to teachers. To deliver assessments, teachers will be supported in using digital tools.

**Risks:**
- Staff autonomy in Professional Development is not aligned to district or school direction
- Continuing cost of Professional Development
- Limited Digital Learning Specialists to support all staff

**Objective: By June 2023**
1.10 All district and school personnel will have appropriate professional learning activities to meet their needs.

**Benchmarks:**
1.10.a By January 2019, 32-hour certificated SEA training program in place
1.10.b By August 2019, new training options defined
1.10.c By June 2019, Education Technology (ET) stipend positions established
1.10.d By January 2020, Education Technology (ET) stipend positions established at all schools
1.10.e By August 2020, survey in place to measure certificated staff engagement with digital technology.

**Budget**: $11,600,000
- $8,000,000 (BTA II, BTA III, and BEX III, BEX IV)
- $3,600,000 (BEX V)

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Annual planning and support for district-wide professional learning. Includes use of classroom technologies (displays, sound, etc.) and digital resources | 2018-2023 | Technology report | Digital Learning Manager |
| Develop survey for instructional staff that measures use of digital tools and resources | 2019-2020 | Survey complete | Digital Learning Manager |

# District Systems & Data

District Systems includes business systems, student data systems, business intelligence systems, and systems for collaboration and digital transformation.

<u>District Systems and Data: Operations</u>

## Enterprise Resource Planning Business Systems

The Business Systems team provides applications and support to employees to help them perform all the business functions needed to run the school district. The team completed a major upgrade the summer of 2017, which made new products and modules available to streamline screens and processes in the district's Enterprise Resource Platform (ERP) primarily on the SAP platform. These new products are being implemented as customer needs and timing of resources align. The SAP system has interfaces to several other systems, including the Aesop substitute tracking system, Questica budget system, PowerSchool and others. In 2018, the team also created several interfaces and reconciliation reports for the new Online Payment System that was implemented for processing parent/guardian payments for various student fees. Additionally, the team released 20-30+ items per month on average in its build cycle, including bug fixes, enhancements and changes required by new business processes, state mandates and multiple projects for many different clients.

SAP is the system that provides functionality for the management of departments including: Staffing, Human Resources, Payroll, Finance, Accounting, Purchasing and Logistics. SAP supports hiring and paying teachers and staff; procurement and distribution of food, furniture, equipment, and supplies; and processing and reconciliation of all payments and incoming funds. The original license and maintenance agreement with SAP, the backbone of the district's business systems, was entered into in January 2000. The agreement included maintenance, SAP license grant, and Marketplace license grant (online procurement). Subsequently, in 2007, the SAP license and maintenance contract was upgraded to mySAP Business Suite license model, and Human Resource payroll and eRecruit licenses were added. Seattle Public Schools has been renewing the SAP Agreement each year for 18 years.

The current agreement with SAP is for a one-year term which ensures that SPS staff has access to the current SAP software applications. SAP provides essential Enterprise Resource Planning (ERP) application support for Accounting, Logistics, and Human Resources. This includes support for staffing and payroll, as well as Supplier Relationship Management (SRM) support for managing goods and services like Market Place procurement.

Since the system has been in place for so long, even with the upgrade in 2007, SAP is due for a major overhaul. The plan is to either replace it with a new ERP or to upgrade to SAP S/4HANA, SAP's next generation business suite, which is deployable in cloud or on-premise and is expected to drive productivity and use of data. The new suite is built on an advanced in-memory platform, SAP HANA, which will be upgraded first. This intermediate upgrade to HANA will provide much faster performance and offer a personalized user experience with SAP Fiori. Before the larger upgrade to S/4HANA, however, stakeholders will complete a thorough business process reengineering effort, a cost-benefit analysis and a request for information to determine whether SAP is the correct platform for the future of SPS. The implementation team will look at deployments at State of Washington, including OSPI, and at school districts in other cities, including Spokane, Minneapolis, San Francisco, and Houston to help determine the course of action.

## Student Information Systems

PowerSchool is the district's Student Information System (SIS). The district uses PowerSchool to collect and report on all the key student information, including demographics, courses, teachers, grades, class schedules, attendance, discipline incidents, transcripts, GPAs and several mandatory state reports. The system includes a student and family portal the district dubs "The Source." In addition to showing student attendance, state assessment scores and grades, the team has added other applications for parents/guardians to access. These include School Pay, Advanced Learning referrals, and Student Data Verification. PowerSchool feeds data to many downstream systems, including the Atlas Data Warehouse & Reports System, HomeRoom, Health & Nursing, Truancy and assessment tools. PowerSchool works with the Student Assignment System (SAS), which allows Enrollment Services to assign students to schools with the programs they need. Additionally, the team released 15 items on average in its bi-weekly build cycle, including bug/fixes, enhancements and changes required by new business processes, state mandates and multiple projects for various clients.

The original license agreement with PowerSchool (formerly a Pearson product) was entered in October 2012 and includes maintenance, software use, and technical support. The district has been renewing the support agreement for PowerSchool each year for five years. The system is currently hosted in the district data center.

The district also uses PowerSchool's Online Registration forms, including the SPS Enrollment Form completed by new families and SPS Student Verification form that is sent out annually to all students' families to update their student information. Families enter their information online where it is validated as needed and automatically entered into the PowerSchool database. Because the online forms are accessed via the web, families may complete the forms from their homes, any district locations, public libraries, etc. Putting the Enrollment Form online for automatic entry into PowerSchool saves over $100,000 annually in Enrollment Services staff overtime and additional hourly substitute time that was required when entering enrollment forms manually. Adding the Student Verification Form online saves time for school staff who used to manually print and distribute the forms to each student, then collect and input the changed data. The online process is quicker, more secure and results in more accurate data entry. In fall of 2018, the district received updated information online from 11,680 families.

Although PowerSchool and Online Registration work well, there are areas of improvement needed in the short term and long term. The PowerTeacher gradebook, currently used by secondary schools only, is in its last year of support as it has been replaced by PowerTeacher Pro. During 2018-19 staff is planning an upgrade for secondary schools and looking to add elementary schools, who need both a gradebook and a new report card system. This will allow the rollout of these new platforms during the 2019-2020 school year.

Beginning in the 2020-2021 school year, the district will move to a more unified student data platform. The district plans to either adopt PowerSchool's Unified Classroom or build and integrate a suite of tools running on standards established by EdFi[3] and IMS Global[4] with PowerSchool as the foundation. Currently there are too

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[3] The Ed-Fi Data Standard is a set of rules that allows (previously disconnected) educational data systems to connect. Any educational technology that's powered by Ed-Fi—whether a student information system, a rostering tool, assessment software, etc.—can connect with any other. See https://www.ed-fi.org.

[4] The IMS Global Learning Consortium is a highly effective nonprofit, member organization that strives to enable the adoption and impact of innovative learning technology. The IMS open architecture and extensive ecosystem of EdTech products enable education institutions to be more innovative, provide a more seamless user experience and dramatically reduce the cost of integrating products into the educational enterprise systems. See https://www.imsglobal.org/.

many standalone data applications for schools that are not integrated (PowerSchool, HomeRoom, Illuminate, and Schoology) and this needs to improve.

The Student Information Systems team provides training and support to schools in using the systems to track their students' progress and entering correct data for accurate reporting to meet requirements throughout the school year.

## Business Intelligence

The Business Intelligence team enables SPS to realize full value of data to achieve strategic goals through:

- Data as a service to SPS stakeholders, both internal and external
- Focus on maximizing delivered customer value balanced across short, medium and long term
- Curated, reliable, trustworthy data which accurately reflects source systems
- Widely accessible yet appropriately secured
- Agility: work plans quickly adapt to changes in business priority and available delivery capacity
- Compliance with regulatory reporting requirements

Data is a strategic asset. Atlas, the district's enterprise data warehouse, serves as a repository for integrated data and the official district data.  The data warehouse brings together internal and external sources, such as PowerSchool, SAP, eVAL, and OSPI, to enable consistent and timely reporting and data access.
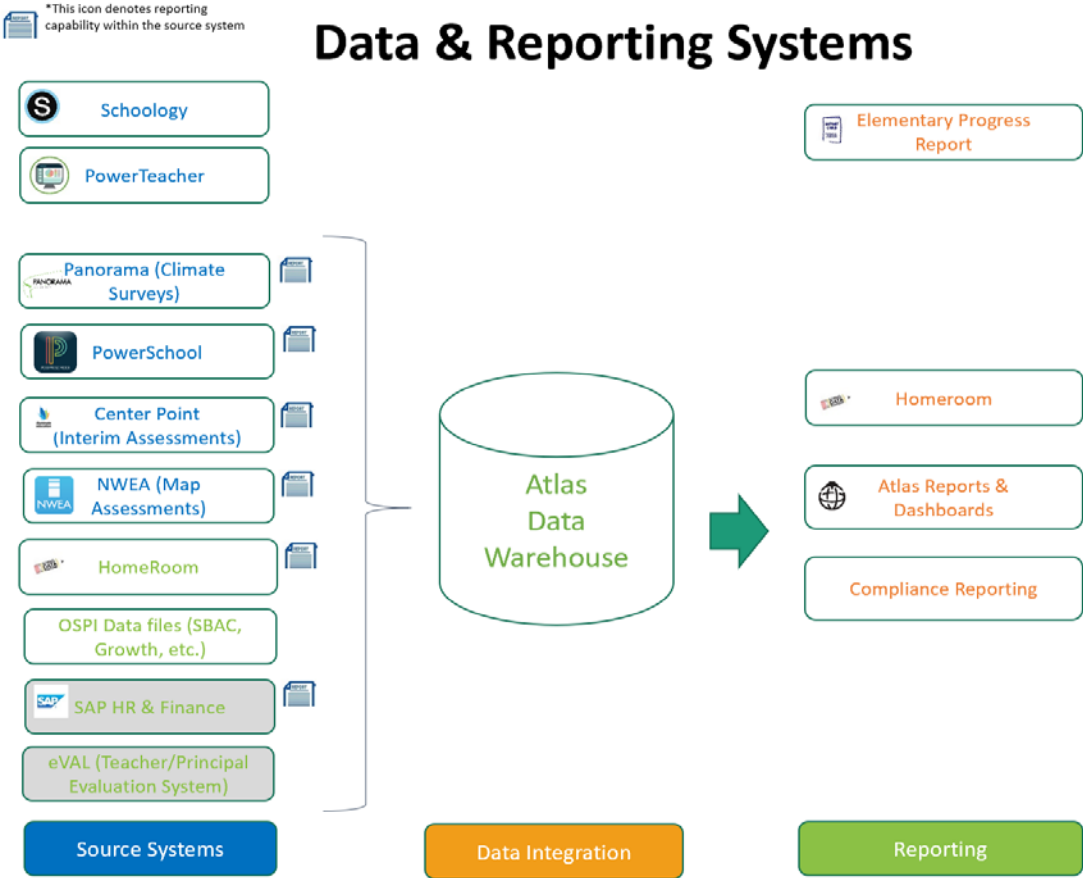


**Diagram of Atlas Data Warehouse linking data from district systems (left) to reports and dashboards (right)**

## Collaboration & Digital Transformation

The Digital Transformation team provides tools, training, and support to employees to work efficiently with automation and help them communicate and collaborate across the district, as well as with families and the community. The team supports Business Process Automation (BPA) with OpenText and ServiceNow and collaboration and knowledge management with Microsoft's suite of tools including Teams and SharePoint. Additionally, it runs the public websites for the district and all schools, as well as an internal staff website called MySPS, in concert with the Public Affairs division.

In the next two years, DoTS will be expanding its deployment of ServiceNow to expand on the help desk functionality to add demand management, resource planning, software development management, problem management, change management, and project management. Additionally, the district is making a big commitment to OpenText (Process Suite, ihub, xECM, and content management) to automate business processes and workflows with an immediate focus on Human Resources while expanding across departments and systems (SAP, PowerSchool, etc.) during the five years of the plan.
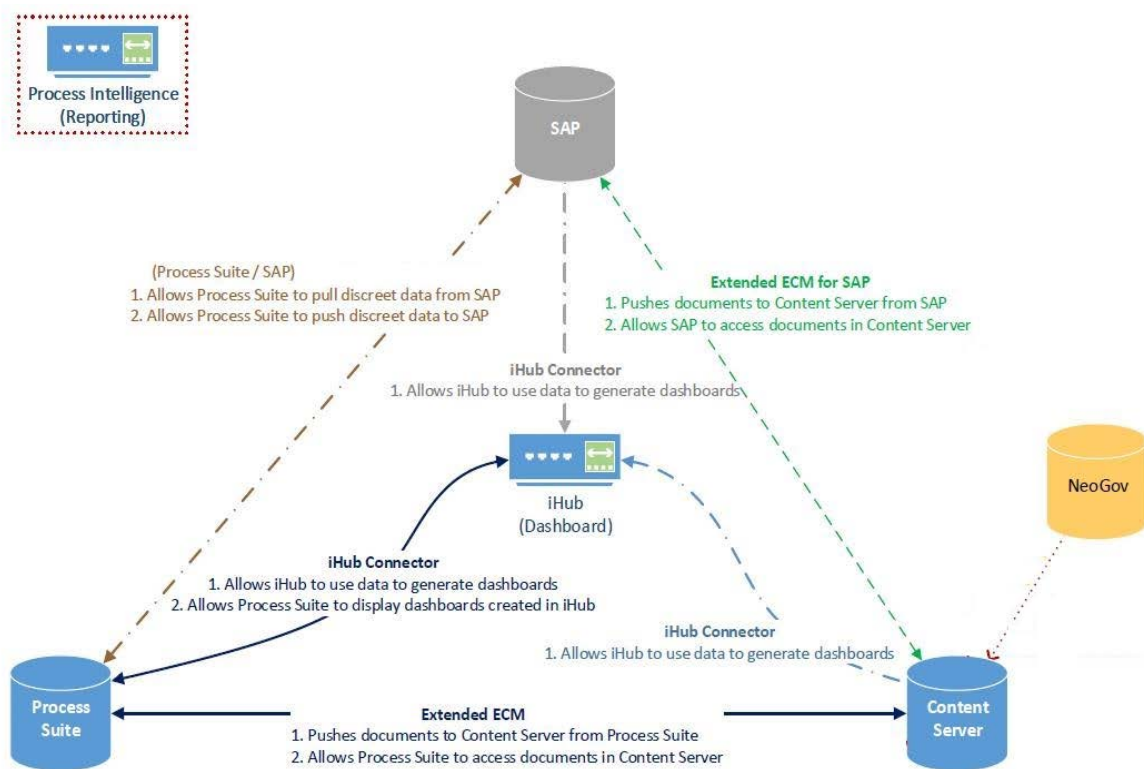


**Diagram of OpenText automation of Finance and Human Resource processes**

## Systems Supported

**Business, Finance and HR:**
- Finance/Payroll: SAP, Manager/Employee Self Svc.
- State Budget and Financial Statements: OSPI EDS
- Human Resources (HR): SAP, NeoGov
- Procurement: SAP, Marketplace
- Substitute Tracking: Aesop
- Budget Development: Questica

- Certificated Staff Evaluations: EVAL
- Online Payments: School Pay
- Staffing: SPOT  -> SAP/Questica
- Recruiting: NeoGov

**Operations:**
- Construction Management: eBuilder
- Fixed Asset System: custom R:Base database -> Service Now
- State Grant: iGrants
- Contract approval and routing: DocuSign
- Facilities Work Order Tracking: SchoolDude
- Risk Management/Compliance Training: SafeSchools
- IT Helpdesk: "TechLine" ServiceNow
- Safety & Security: SafePointe
- Transportation: VersaTrans
- Nutrition Services: PayPAMS -> School Pay

**Student Administration:**
- Registration and Enrollment: PowerSchool
- Student Info.: PowerSchool, PowerTeacher Pro
- Elementary Report Cards: EPR -> PowerTeacher Pro
- College & Career Readiness: Naviance
- Student Assignment System: "SAS"
- Advanced Learning Registration: "ALR"
- Special Education: IEP Online
- Health Information: Caredox
- Attendance Management: Truman
- Continuous School Improvement Plan: CSIP

**Communication/Collaboration:**
- File Sharing/Collaboration: Office 365 OneDrive/SharePoint/Teams
- Website/Intranet: School Messenger Presence
- Curriculum & Professional Development: Schoology
- Automated Calls/Text: School Messenger
- *Two-Way Communication: Thought Exchange*
- Parent Portal: Power School "The Source"
- *Enterprise Content Management:* Open Text
- Board Documents Mgt.: -> eScribe

**District Reporting:**
- State Reporting: PowerSchool, SAP
- District Reporting: Atlas
- District Dashboards: Tableau *
- School Data Report: School at a Glance (SAAG)*
- Longitudinal District Report: District Data Profile*
- School-based reporting for MTSS: Homeroom
- CBO Reports: "ADR", Student at a Glance

- School Climate Survey: Panorama
- District Scorecard
- School Reports

## Staffing

Communications: 4.2 Levy Funds
Operations: 6.0 Levy Funds
Finance and HR: 6.6 General Fund, 7.4 Levy Funds
School Systems: 7.4 General Fund, 10.1 Levy Funds
Data: 3.0 Levy Funds

**There are no plans for increased team members during the time of this plan. The staffing costs include a 3% increase in salary and benefits annually.**

## Key Performance Indicators (KPI's)

- Decrease in client time to perform specific processes
- 99.9% uptime without planned outages
- Sprint delivery rate meets customer expectations
- Greater than 75% adoption and consumption of applications and data usage
- Growth in number of users year-over-year and frequency of usage
- New datasets onboarded and integrated
- 100% Compliance with regulatory requirements including ADA Accessibility Consent Decree
- Client satisfaction
- Instructional System cost per student (Council of Great City Schools comparative KPI)
- Business System cost per employee (Council of Great City Schools comparative KPI)

## District Systems & Data Operational Objective

2.1 Seattle Public Schools District Systems & Data operations will achieve benchmark goals of KPI's.

**Benchmarks**:
2.1.a Decrease of client time to perform specific processes as measured by user survey
2.1.b Availability of critical applications, Finance & HR (SAP), Student Information (PowerSchool), Productivity (Office 365), Secure Access (Active Directory logon) and other identified critical applications will be available with 99.9% availability
2.1.c 75% adoption and consumption of applications data usage across target customer groups
2.1.d Customer service will be rated at 9 or greater on a net promoter score of 1-10

**Operational Budget:**
Staffing
- 2018-20 (BTA IV): $10,687,000
- 2020-23 (BEX V): $16,085,000

Software and Maintenance Renewals
- 2018-20 (BTA IV): $1,318,000
- 2020-23 (BEX V): $8,929,000

# District Systems & Data: Projects

## Business Systems: ERP/SAP Modernization
Business Sponsor: DoTS/Finance/HR

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The initial goal of the program is to upgrade the district's Enterprise Resource Planning (ERP) platform replacing SAP's existing unsupported physical servers with new VMware servers. The engineering team will then upgrade the operating system and database versions to 2016 which will enable the team to upgrade SAP to an in-memory system called HANA. Additionally, the team will modernize the SAP UI with Fiori and Personas to standardize the look and feel of SAP comparable to other tools in the market.

**Project Business Value:**
Using virtual machines (VM's) instead of physical servers will enable an easy administration of the business system footprint. The VM's will also improve high availability and disaster recovery via VMWare tools. Once the team implements HANA, business users will experience much faster performance enabling larger data extraction, improved payroll processing, year over year reporting, and new functionality which was limited in a standard SQL system. Upgrading to HANA will also enable the ability to use Tableau reporting User Interface (UI) connecting directly to SAP.

Fiori is SAP's new UI to modernize SAP's User Interface. The new UI will give users a better screen "look and feel" while also improving UI performance. The Personas tool will also modernize individual transactions by reducing the number of steps to complete a process and to personalize the look of the screen to end users.

**Risks:**
- Not completing the upgrade leaves servers not performing optimally and without the ability to offer streamlined operations
- Not completing the upgrade leaves SAP less flexible
- Changing systems costs more than anticipated, resulting in incomplete implementation
- Training and staff costs escalated due to changing systems
- Inconsistent leadership focus

**Objective: By June 2020**
2.2 All SAP servers upgraded and running on SAP Hana and user interface will implement Fiori and Personas.

**Benchmarks:**
2.2.a By January 2019, SAP running on VMware virtual machines
2.2.b By June 2019, implement SAP Personas and Fiori
2.2.c By September 2019, implement SAP Single Sign-on (SSO)
2.2.d By June 2020, complete HANA technical upgrade

**Budget**: $400,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Install SAP middleware (SAP PI) for new API and Webservice interfaces | Fall 2018 | End-to-end testing | Business Systems Manager |
| Fiori virtual machine installation, testing, and launch | 2018-2019 | End-user survey | Business Systems Manager |
| HANA in testing | 2019-2020 | Functional testing | Business Systems Manager |

**Objective**: **By June 2023**
2.3 New or upgraded ERP in full production to include Payroll, HR, Finance & Accounting, Budget, Purchasing, warehouse, travel management, time card, and badge implementation and automation including full business process reengineering.

**Benchmarks**:
2.3.a By June 2020, feasibility study complete
2.3.b By June 2021, RFP process complete
2.3.c By August 2023, implementation complete

**Budget**: $13,800,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| Operational/Feasibility Study | 2020 | Study complete | Project Manager |
| ERP RFP process | 2020-2021 | RFP awarded | Project Manager |
| Business Process Reengineering | 2020-2022 | Documentation | Project Manager |
| Implementation | 2021-2023 | Status reports | Project Manager |

## Business Systems: Budget Management
Business Sponsor: Finance/HR

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal of the Budget Management Project is to replace the outdated, unsupported Budget Development System with the implementation of the Questica budgeting software that offers more functionality. The goal is to re-engineer all business processes across the Finance and HR teams related to the budgeting/staffing lifecycle, implement position budgeting and control capabilities, redesign the Personnel Change Request intake and workflow, and create robust reporting abilities.

The 2018-2019 central budget (operating and position) has been fully developed in Questica using the delivered Phase One capabilities and processes. The school budget and staffing were developed in SPOT and consolidated to Questica. SPOT is ready to be decommissioned as school budgets will be done directly in

Questica next year. After intensive reconciliations, the Budget Book (Recommended Budget for board approval) are in the process of being created. Significant time savings have already been realized and will be significantly increased with the implementation of Phase Two.

Phase Two activities will deliver fully developed processes and automated technical capabilities for preparing the base budget, budget entry with position and staffing management, budget finalization, position change requests, integrations, and reporting.

**Project Business Value:**
The current system is on an unsupported version of Access with little integration with SAP and limited users.  The current system also lacks functionality and would be difficult to modify to meet new state reporting requirements.

Currently, budget for staff is not maintained at the position level. By implementing position budgeting, discrepancies between actual and budget on FTE and total dollars can be tracked, analyzed and controlled to provide more accuracy and salary savings.

**Risks:**
- Project goes over budget
- Missing timelines requires more work standing up legacy systems so less time is on value-added work

**Objective: By June 2020**
2.4 New budget management system in full production.

**Benchmarks:**
2.4.a By November 2018, Phase One budget system in production (position budgeting for central orgs)
2.4.b By December 2019, Phase Two budget system in production (position budgeting for central and school orgs)
2.4 c By August 2019, full position control (personnel change requests and SAP security changes)
2.4.d By November 2019 – August 2020, full budget cycle with all functionality

**Budget**: $1,351,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Phase One Position Budgeting Central | November 2018 | Live | Project Manager |
| Phase Two Position Budgeting Central and Schools | December 2019 | School Arenas in Questica | Project Manager |
| Full Position Control | August 2019 | PCR and SAP security implemented | Project Manager |
| Full Budget Cycle w/Position Control | November 2019 – August 2020 | 100% operations driven | Project Manager |

## Business Systems: Online Payments
Business Sponsor: Finance

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal is to implement an online payment system at the schools to improve cash collection processes, supporting Strategic Goal 2 of Improving Systems. With a new online payment system, the district hopes to increase the use of credit card payments, automate more of the reconciliation processes, and reduce manual work performed in the school offices to free up more resources to focus on student achievement. School Pay was selected with an RFP process and was implemented at five pilot secondary schools in early fall 2017, followed by the rest of the secondary schools. Phase Three is to roll out the product to the rest of the schools to add secure credit card readers to the front offices at the comprehensive high schools.

**Project Business Value:**
School cash handling was done manually, including payments, receipts, and reconciliation. An Online Payment System automates these functions, reduces the amount work at the schools, improves reconciliation of funds and provides parents with more payment options.

**Risks:**
- Data security of financial data
- Training and ease of use of system

**Objective: By June 2019**
2.5 All schools will have online payment items, receipts, and reconciliation and will receive payments online for 50% of student fees.

**Benchmarks:**
2.5.a By June 2019, all schools have online payment system deployed
2.5.b By June 2019, $10,000,000 collected online

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| Phase Three – Implement at all Elementary schools | October 2018 | Report number of parents accessing, dollars collected online | Director Accounts Payable PM |
| Card readers and iPads tested with training scheduled | Winter 2019 | Successful testing | Security Manager |
| Phase Four – Schools include Cascade Partnership, Interagency & Middle College multiple sites. | June 2019 | Report number of parents accessing | Director Accounts Payable PM |
| Parent Engagement to promote online payments | 2018-2019 | Parent Surveys | Communications Team |

## Student Systems: Update Student Information Systems
Business Sponsor: CAI

**Strategic Plan Priority: Predictable and Consistent Operational Systems**
**Strategic Plan Priority: Inclusive and Authentic Engagement**

**Project Goal:**
Phase One is to update all secondary schools from PowerTeacher Gradebook to PowerTeacher Pro by the fall of 2019 making it available to not only secondary teachers who used the previous version but also elementary teachers who, heretofore, have had no district gradebook. In addition, the elementary schools currently use a separate system for their progress reports. This system is going off support and the current plan is that PowerTeacher Pro will be the replacement for progress reports.

In addition, beginning in 2020 the district will begin an adoption of PowerSchool's Unified Classroom or an equivalent platform to integrate the teacher classroom experience between systems (PowerTeacher, HomeRoom, Schoology, and Illuminate) to be complete by 2023.

**Project Business Value:**
Staff sees this as an opportunity to improve the technical stability of the gradebook and provide an opportunity for leaders in Teaching & Learning to provide greater guidance in grade configuration standards to support equitable practices across the district. By adding elementary progress reports to PowerSchool, parents can view progress online through The Source at the end of grading period.

All secondary schools will begin Fall 2018-19 with the current PowerTeacher gradebook. Engineers and project managers are developing a plan to migrate schools to the upgraded product, PowerTeacher Pro, and are evaluating the newer interface and portal. Schools and families will be informed of any changes over the course of the 2018-19 school year. The implementation team will develop:

- Continuous communication through multiple channels
- Workshops and other opportunities for school and district staff to learn the new version and provide feedback to ensure a successful implementation
- Demonstrations and online information will be posted, including overviews, videos, and project updates

The project to integrate all platforms will kick off in 2020. The district has extended the Schoology contract for one-year. The district is only renewing the contract on a yearly basis to assess progress in fixing technical issues, compatibility with other systems, and adoption. The district will consider consolidating under PowerSchool to both improve integration and save money

**Risks:**
- Professional Development does not meet needs
- Staff resistance to change

**Objective: By June 2020**
2.6 All teachers K-12 will use PowerTeacher Pro as the official gradebook with PowerSchool holding official grades. Learning Management System (LMS) will be fully functional and integrated with PowerSchool and PowerTeacher Pro and used by 80% of secondary schools.

**Benchmarks:**
2.6.a By August 2019, demonstrations and workshops of PowerTeacher Pro are complete
2.6.b By August 2019, teachers will be trained in PowerTeacher Pro
2.6.c By December 2019, teachers will deliver progress reports using PowerSchool
2.6.d By June 2020, 50% of secondary teachers using LMS

**Budget**: $3,251,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Gather requirements for Elementary Report card | October 2018-March 2019 | Requirements to stakeholders | Executive Director CAI |
| Create training plan for PowerTeacher Pro for secondary | 2018-2019 | Survey of staff, usage reports | Digital Learning Manager |
| Create cohorts of schools & teachers to review and give input | 2018-2019 | Beta cohorts named | Digital Learning Manager |
| Configure PowerTeacher Pro | Winter 2018 | Process test scripts | Student Systems Manager |
| Complete Workshops | Spring 2019 | Survey | Digital Learning Manager |
| Summer Training | Summer 2019 | Survey | Digital Learning Manager |

**Objective: By June 2023**
2.7 District will implement PowerSchool Unified Classroom or a system with PowerSchool as a foundation and integrated applications for grading, data analysis for MTSS, assessment, and learning management using standards from IMS Global and EdFi to improve school and district staff experience streamlining tracking and reporting.

**Benchmarks:**
2.7.a By June 2021, complete evaluation of alternatives to go with one platform and vendor or an integrated approach
2.7.b By June 2022, upgrade/implement core platform
2.7.c By August 2023, teachers have unified platform for grades, data analysis, assessment, and learning management
2.7.d By August 2023, teachers are using system to keep student/parents/guardians abreast of learning progress

**Budget**: $650,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Gather stakeholder feedback on existing platforms and business requirements | 2020-2021 | Engagement Matrix | Project Manager |
| Establish technical requirements for platform and migration of current system. Consider hosted vs. cloud. | Summer-Fall 2021 | Technical Requirements Document | Student Systems Manager |
| Train on digital teaching, grading and reporting practices | Fall 2021-Spring 2022 | Documentation, survey | Digital Learning Manager |
| Pilot integrated solutions | 2022-2023 | Survey | Digital Learning Manager |

## Student Systems: College & Career

Business Sponsor: CAI

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**
**Strategic Plan Priority: Inclusive and Authentic Engagement**

**Project Goal:**
The program goal is to provide tools to support secondary schools in helping students meet the new state 24-credit graduation requirement and, supporting the district Goal of Student Achievement. Key recommendations of the 24-credit planning task force were to adopt and deploy a districtwide, electronic High School and Beyond planning platform and to provide Counselors with online tools to support their career and college readiness coaching with all students.

**Project Business Value:**
The current student-to-counselor caseload is now over 400:1, whereas the American School Counselor Association (ASCA) recommends a student-to-counselor ratio of 250:1. The 24-Credit Task Force is calling to reduce counselors' caseloads to the ASCA recommended ratio. Counselors and Registrars currently do manual work to support students in reaching graduation. With these caseloads, individualized support is very difficult. Families with personal resources are able to augment their children's career and college preparation with outside consultants and tools. Families with fewer resources may not be able to provide this extra support, so this project will make those same tools more accessible to *all* students. This project adds online tools for High School and Beyond Plan, Graduation Planner, Career & College Readiness planning, and Course Requests.

**Risks:**
- Community resistance
- Student data privacy protection
- Access to devices to use platform
- Professional Development
- Student and parent/guardian training

**Objective: By June 2019**
2.8 All secondary students have access to Naviance and have established regular usage.

2.8.a By June 2019, middle school students have been added
2.8.b By June 2019, 80% of eligible students have accessed Naviance

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Complete opt-out window & provide application to counselors and students at grade level 8-12 | Fall 2018 | Report | Director College Career Readiness |
| Support counselors with training and support | 2018-2019 | TechLine tickets | Counseling PM |
| Complete opt-out window & provide application to students at grade level 6-7 | Spring 2019 | Report | Director College Career Readiness |
| Provide application to secondary teachers with PD and support | Fall 2019 | TechLine tickets | Counseling PM |
| Implement Parent Portal for Naviance | 2019-2020 | Report | Director College Career Readiness |

## Student Systems: Nurse Data System Replacement
Business Sponsor: Health Services

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal is to replace the current NED system for use of school nurses. The new system offers more functionality and streamline nurses' processes. The district's new student electronic health record (EHR) system, CareHub, launched in 2017-2018 for use of school nurses. Phase Two of the project is to provide access to parents to see their children's records and provide updates.

**Project Business Value:**
NED was an outdated, unsupported Access application that nurses used to track their student health contacts. This work is required by the state and cannot be done manually by the small number of nurses in the district. In addition, the parent portal will allow parents to review their children's medical status, including nurse visits and medication administration, to provide updates and to receive alerts for low inventory of medications.

**Risks:**
- Community resistance
- Student data privacy protection
- Professional Development
- Parent/guardian training

**Objective: By June 2019**
2.9 All parents will have the opportunity to securely access their children's medical status and provide updates online and to increase their interactions with the nurses assisting their children.

**Benchmarks:**
2.9.a By June 2019, all parents/guardians have secure access to health records
2.9.b By June 2019, 50% of parents/guardians whose students require frequent interaction with nurses are using
   the system

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Set up and test parent/guardian access | Fall 2018 | Report | PM |
| Publicize in channels aimed at parents/guardians | Fall 2018 | Report number of parents accessing | Manager of Nurses |
| Nurses reach out to families with students who are actively receiving treatment | 2018-2019 | Nurses report | Manager of Nurses |

## Digital Transformation: Collaboration and Knowledge Management
Business Sponsor: DoTS

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**
**Strategic Plan Priority: Predictable and Consistent Operational Systems**
**Strategic Plan Priority: Culturally Responsive Workforce**
**Strategic Plan Priority: Inclusive and Authentic Engagement**

**Project Goal:**
The goal is to facilitate communications within departments, project teams, and schools, supporting the district Goal of Improving Systems. Employees need to have a common place to store documents for collaboration and reference in their departments or project teams.

**Project Business Value:**
The newly designed SharePoint sites are easy to navigate and offer visible, easily managed areas for collaboration within and among departments, schools, and project teams. Documents are currently stored in a number of places that can be hard to find. The new SharePoint sites pull all documents together for easy reference and retention classification. In addition, adding the use of Microsoft Teams as a front end to SharePoint sites will increase the ease of collaboration within work groups, departments and cohorts, across project teams and potentially within classrooms between students and teachers.

**Risks:**
- Staff buy-in
- Professional Development
- Balancing compliance and usability

**Objective: By June 2020**
2.10 All schools will use online collaboration effectively as measured by survey.

**Benchmarks:**
2.10.a By February 2019, all schools have an activated SharePoint site
2.10.b By March 2019, five pilot schools (West Seattle High School, Rainier View, Eckstein Middle School, Aki
       Kurose, and Garfield) using Microsoft Teams and providing feedback
2.10.c By June 2019, 75% of schools using collaboration online
2.10.d By June 2020, 100% of schools collaborating online

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Offer SharePoint Lead training at remaining sites that have not activated sites | Fall 2018 – Winter 2019 | Report of Schools with sites activated | Director Enterprise Applications |
| Train and support pilot sites Teams at West Seattle HS, Rainier View, Eckstein, Aki Kurose, and Garfield | 2018-2019 | Survey pilot schools | Digital Learning Manager |
| Assess effectiveness of product use with staff and classroom pilot sites | June 2019 | Survey pilot schools | Digital Learning Manager |
| Teams training for all schools | 2019-2020 | Report and survey | Digital Learning Manager |

## Digital Transformation: Electronic Records and Business Process Reengineering
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal is to provide central platforms for digital content management and automated digital workflows. The initiative includes processes and a platform for the digitization, categorization, and retention of documentation, both legacy (i.e. paper) and go-forward (all digital processes). Project funds establish a base platform for School Board legislative meetings. Phase Two initiates the further development the OpenText platform for the entire organization for workflow automation and document management. Also included are continued development of specific platforms for email and document retention.

**Project Business Value:**
The organization needs to move from paper-based manual workflows, forms, document storage, and case management to improve efficiency and reduce cost.

Initial implementation will streamline several departments: Board Office, HR, Contract Services, Legal, Office of Student Civil Rights, Finance, and Archives. Implementing OpenText content server will manage long-term document retention for specific processes particularly in HR and accessibility for data and documents where data is collected and automated trough OpenText. The project will include the capacity to scan to file for legacy documents. See Digital Transformation: Human Resources Process Improvement below.

**Risks:**
- Staff buy in
- Professional development

**Objective: By June 2020**

2.11 Business Process Automation platform will be available for all departments and archiving practices meet policy requirements.

**Benchmarks:**

2.11.a By August 2019, OpenText process automation in production

2.11.b By August 2019, Board Meeting management and documentation on platform

2.11.b By August 2019, K12 Insight customer service portal pilot in place

**Budget**: $684,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| Set up and configuration of Open Text and content server with beta test departments | 2018-19 | Report twice yearly | Archives Manager |
| Board management platform roll out | 2019 | Board meeting process online | Enterprise Applications Director |
| Implement Business Process Management with HR and set process and procedures for other departments | 2018-2020 | Report twice yearly | Archives Manager |

**Objective: By June 2023**

2.12 All schools and departments properly managing processes and documents pursuant to policy; high priority processes are automated.

**Benchmarks:**

2.12.a By August 2020, high priority process identified for business process automation

2.12.b By August 2021, expand OpenText enterprise-wide and increase capabilities and usage

2.12.c By August 2022, all major process documents managed online with capacity to scan to file

**Budget**: $2,100,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| Document Management and Printing System implementation | 2020-2023 | Documentation | Publishing Services Manager |
| OpenText migration enterprise-wide | 2020-2023 | Functional Testing | Archives Manager |

## Digital Transformation: Human Resources Process Improvement

Business Sponsor: Human Resources

**Strategic Plan Priority: Predictable and Consistent Operational Systems**
**Strategic Plan Priority: Culturally Responsive Workforce**

**Project Goal:**
To provide technology support to the HR's Transformation effort which spans multiple separate projects to automate and modernize HR processes and systems.

The work has been divided into four distinct projects coordinated across HR and DoTS. The Chief Information Officer is accountable for the technology implementation and its accurate configuration to the business requirements the Chief Human Resources Officer is accountable for the overall business program.

**Onboarding/Recruiting Project** will improve the candidate and new hire experience, ensure a teacher in every classroom in September, and provide the right HR processes and technology to successfully acclimate the teacher to SPS through an online and consistent onboarding experience; significant manual data entry will be eliminated, allowing HR to absorb budget cuts without jeopardizing operational timeliness or quality.
> *Technology:* NeoGov Recruiting and Onboarding integrated with SAP

**Labor and Employee Relations (LER) Transformation Project (including Case Management)** will automate and modernize LER practices through online case management and document management.
> *Technology*: OpenText for case management, online workflow and document management; NeoGov for performance management of non-represented staff

**Human Capital Analytics** will provide timely and accurate data and data analysis to support operational and strategic decision making.
> *Technology*: New HR Data warehouse hosted by BI team with data integrated across SAP, PowerSchool and other district systems; HRIS team has appropriate reporting tools to leverage the HR data housed in the new data warehouse, so that they can easily respond to ad-hoc requests and build foundational queries for human capital analytics.   New HR Atlas portal with self-service reports available to school leaders and Central managers

**Professional Development** will implement a system that better organizes the creation, approval, posting, scheduling, and tracking of professional learning. Professional development offering and tracking, as well as clock hour tracking, currently requires manual processes in several departments and is time consuming and error prone.
> *Technology*: The newly designed system which includes business process reengineering and systems integration will streamline processes

**Project Business Value:**
HR functions do not follow consistent processes or employ systems efficiently, resulting in a large amount of time-consuming manual work, bottlenecks, and rework. This makes it difficult for the HR team to provide the level of service they know is needed by the schools and the district.

**Risks:**
- Staff buy in
- Professional Development

**Objective: By September 1, 2019**

2.13 Critical processes in the LER team are moved from paper to online; the team can track and account for quantity, timeliness, and outcomes of its work; case files are searchable by LER and stored online. Budget cuts can be absorbed and outcomes are improved by integrating SAP and recruiting/onboarding systems to reduce manual effort, increase data quality, and allow HR to absorb budget cuts. Data is available to support human capital analytics, so they can answer questions around teacher performance, retention, etc.

**Benchmarks:**

**LER Case Management & HR Document Repository for online records**

2.13.a By June 2019, integrations complete between SAP and NeoGov to streamline onboarding for the 2020 school year

2.13.b By July 2019, OpenText architecture built, providing necessary functionality to build LER workflows and HR document repository

2.13.c By July 2019, LER processes moved from paper to online leveraging OpenText for workflow and case management

**Recruiting and Onboarding: Manual data entry for staffing new hires and transfers has been significantly reduced such that HR can absorb budget cuts without jeopardizing operational quality or timeliness**

2.13.d By June 2019, integrations across SAP and NeoGov will be completed

**Human Capital Analytics**

2.13.e By December 2019, the HRIS team will have adequate tools to leverage the new HR Data Warehouse for complex reporting, queries, and analytics

2.13.f By June 2020, the HR Data Warehouse will have gradually expanded to include pre-built views and self-service reports corresponding to the routine reporting needs of the HRIS team and its customers (this effort is part of general maintenance and continual improvement to occur through routine operations across HR and DoTS after the above milestone has been completed.)

Budget: Covered by Electronic Records and Business Process Reengineering project

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Finalize scope | Fall 2018 – Winter 2019 | Documented requirements document | HR Program Manager |
| Business Systems and HR teams work | Winter-Spring 2019 | Ready for 2019 onboarding | HR Program Manager |
| OpenText development | 2018-2019 | Case Management for LER delivered | Enterprise Applications Director |

**Objective: By August 2020**

2.14 LER case files and general personnel files are moved from paper to online as new cases and files are created or as existing ones are retrieved. Continuous improvement throughout the school year allows us to refine the systems and processes put in the previous year.

**Benchmarks:**

2.14.a By September 1, 2019, functionality in OpenText completed to enable us to store the following in its document repository: (1) recruiting and onboarding documents currently stored in NeoGov; (2) HR records stored on network drives or other third party HR systems; (3) the case files generated by the OpenText applications; and (4) documents that originated in paper and must be scanned into OpenText; Plans for migrating documents from paper and from third-party systems to OpenText complete, including technical design and identifying hardware requirements (new scanner, etc.)

2.14.b By January 2020, begin scanning existing paper HR files "as they are touched", in other words, as a paper file is needed, it will be scanned into the system

2.14.c By January 2020, have functionality to move closed cases in the LER case management workflows to the OpenText document repository

2.14.d By October 2020, records over X age stored in third-party HR systems (such as NeoGov) stored in OpenText's content repository, including both the initial migration of existing documents and ongoing automated processes as documents reach archive age.

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| All new personnel files created digitally | 2019-2020 | Report to HR | HR Director |
| Staff training | 2019-2020 | Report to CIO and HR | HR Director |

**Objective: By August 2021**

2.15 HR has achieved a mature state of operational readiness; its processes are online and supported by appropriate technology solutions, allowing it to reach its goals of supporting high quality teachers in every classroom and providing timely, high quality services to district employees.

**Benchmarks:**

2.15.a By June 2021, achieved milestones and objectives stated above.

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| Annually evaluate needs and capabilities | 2020-2023 | Report to HR | HR Director |

**Objective: By June 2022**

2.16 All staff can use an integrated professional learning system.

**Benchmarks:**

2.16.a By August 2019, professional learning processes documented
2.16.b By March 2020, RFP process complete
2.16.c By August 2021, Phase One compete
2.16.d By June 2022, Phase Two complete

**Budget**: $900,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Document PD process | Fall 2018 – Winter 2019 | Report | PD Manager |
| RFP | 2019-2020 | RFP complete | PD Manager |
| Phase One | 2020-2021 | Technology Report | PD Manager |
| Phase Two | 2021-2022 | Technology Report | PD Manager |

## Digital Transformation: Website Governance and Customer Service
Business Sponsor: Communications

**Strategic Plan Priority: Inclusive and Authentic Engagement**
**Strategic Plan Priority: Predictable and Consistent Operational Systems**

<u>Project Goal:</u>
Website governance will improve user experience (UX), accuracy, timeliness, accessibility, credibility, and value for the Seattle Public Schools "seattleschools.org" website domains, which include the district public website, all school websites, and the staff-only MySPS website.

<u>Project Business Value:</u>
The district website domains offer exceptional opportunity to communicate with our communities: conveying and amplifying strategic goals and work; reduce risk and improve transparency; and help users (families, staff and the community) find needed information and complete tasks.

Currently, the district does not have a website governance framework that provides strategy, process, and standards. Without governance, the district websites will continue to offer an increased risk, ambiguous goals and ownership, and unreliable user experience.

Website governance will further existing efforts to provide mobile-first, useful, and usable district website domains that maintain an optimal user experience.

<u>Risks:</u>
- Meeting ADA requirements
- Meeting staff and student needs
- Inconsistent leadership focus

<u>Objective</u>: **By June 2020**
2.17 Website governance framework with supporting sponsor, governance development and steward group, staffing and implementation plan in place.

<u>Benchmarks:</u>
2.17.a By May 2019, identify district leadership sponsors/advocates and development group
2.17.b By October 2019, draft governance framework
2.17.c By January 2020, finalize governance framework and action plan to implement standards
2.17.d By June 2020, implementing the framework on "seattleschools.org" website domains

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Existing website standards and roles information analysis | Winter 2019 | Documentation | Web Team |
| ADA and editing principles editor training | Ongoing | Report to governance sponsor and group | Web Team |
| Establish KPIs | Winter 2019 | Documentation | Web, Communications, and DoTS teams |
| Create action plan for content audit and UX research | Spring 2019 | Create action plan | Web Team |
| Staff website governance training and web editor website management training | Fall 2019 – Spring 2020 | Report to governance sponsor and group | Web Team |
| Publish and report to community website governance plan | January 2020 | Documentation and communication plan KPIs | Web Team |
| Website KPI reports | Ongoing | Report to governance sponsor and group, school board, district leadership | Web Team |

### Data and Business Intelligence: Data Governance
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
Data Governance will improve accuracy, timeliness, quality, and accessibility for reporting and processes to improve data quality and data exchange.

**Project Business Value:**
Currently district systems do not integrate as well as they should. First, there is a need to standardize district data definitions, as common data definitions do not exist among various departments in central office. For example, enrollment numbers, school lists, list of teachers, and equity definitions are inconsistent. The district needs to establish common definitions through master data management. Likewise, the district needs standards of data ownership. Once the first stage is complete, standards of data exchange will be established following accepted standards.

In standardizing data definitions and processes, successful completion of this project will reduce data inaccuracies and eliminate costly redundancies that occur when the organization relies upon multiple, conflicting sources of information. Having multiple sources of information is a widespread problem and the impacts and costs can be very high.

**Risks:**
- Staff coming to agreement on data definitions
- Data ownership roles not defined
- Data entry, validation, and correction processes not followed
- Lack of staff and leader buy-in

**Objective: By August 2020**

2.18 Data quality improvements will be operationalized within high leverage domains to support the district's key performance indicators. Existing district processes will be refined to include a data audit step to support this work.

**Benchmarks:**

2.18.a By August 2019, master data issues which impact key performance indicators identified with action plans established to quantify and correct data quality issues; central office departments and IT work together to ensure the uniformity, accuracy, stewardship, and semantic consistency of SPS' shared master data assets

2.18.b By August 2020, action plans to improve data quality related to key performance indicators will be executed and successfully operationalized; data integrity within these areas; improved within an agreed upon tolerance of errors; new data quality processes implemented to ensure continuity of accurate data going forward

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Identify data quality issues focused on data points feeding into district KPI's. Create new McKinney-Vento and CRDC (Civil Rights Data Collection) reports | 2019 | Establish/review a data quality scorecard | BI Team and Departments |
| Create an action plan to resolve data quality issues in key areas | 2019 | Create action plan | BI Team and Departments |
| Execute plan and operationalize process improvements, adding in an audit step to monitor data quality | 2020 | Report out on status, quarterly | BI Team and Departments |
| Create data audit reports and embed the use of them in existing district processes | 2020 | Audit reports | BI Team and Departments |

**Objective: By August 2023**

2.19 Improve accuracy, timeliness, quality, and accessibility for reporting and processes to improve data quality and data exchange. All systems will have well-defined data with clear ownership. Data will be exchanged among systems according to established standards.

**Benchmarks:**
2.19.a By August 2021, the district selected a K-12 Enterprise Interoperability Standard using standard RFP process. The RFP includes project goals, business requirements, specific deliverables, and technical requirements. Once selected, the district will follow the data mapping template provided.
2.19.b By August 2022, DoTS creates a solution design and data architecture that best utilizes the technologies. This will include review of overall systems architecture to maximize the benefits of the interoperability standard.
2.19.c By August 2023, an interoperability standard implemented to enable different systems and applications to communicate, exchange data, and allow use of the information that has been exchanged.

**Budget**: $900,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Select a K-12 interoperability standard | 2021 | Documentation | CIO |
| Data mapping | 2021 | Documentation | Director BI |
| Solution Design & Architecture | 2022 | Documentation of diagrams and technical review | Director BI |
| Implement the standard, API, and ODS | 2023 | Functional testing | Director BI |

## Data and Business Intelligence: Visualization with Dashboards
Business Sponsor: DoTS

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**
**Strategic Plan Priority: Predictable and Consistent Operational Systems**
**Strategic Plan Priority: Culturally Responsive Workforce**
**Strategic Plan Priority: Inclusive and Authentic Engagement**

**Project Goal:**
Modern reporting tools are needed for data visualization, exploration, and integrating data sets.  Over several years, many SPS users had already purchased Tableau desktop licenses and were using the desktop version to perform queries and create data visualizations. The project goal for implementing Tableau Server is for scalability; to centrally manage collaboration, approved data sources, security, governance, and performance.

Further development of a suite of district-wide dashboards for performance management and departmental operational dashboards to improve using data to improve student outcomes. This will include continued support of the continuous improvement program and related dashboards and Balanced Scorecard.
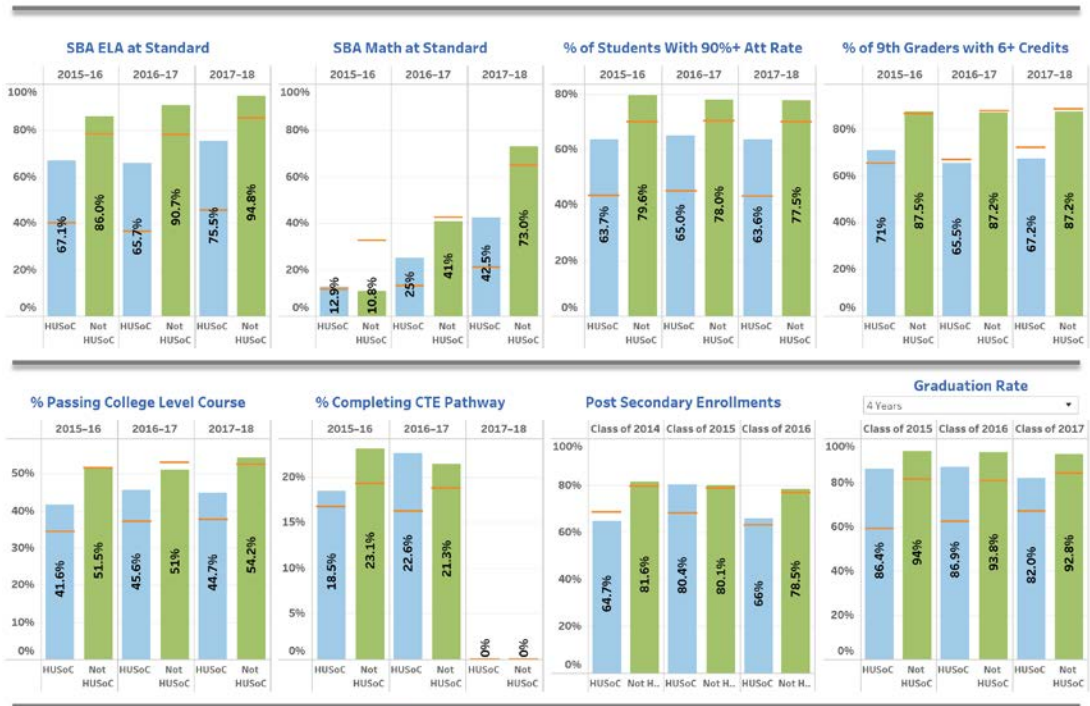
*Version 1.0 of the Strategic Plan dashboard*
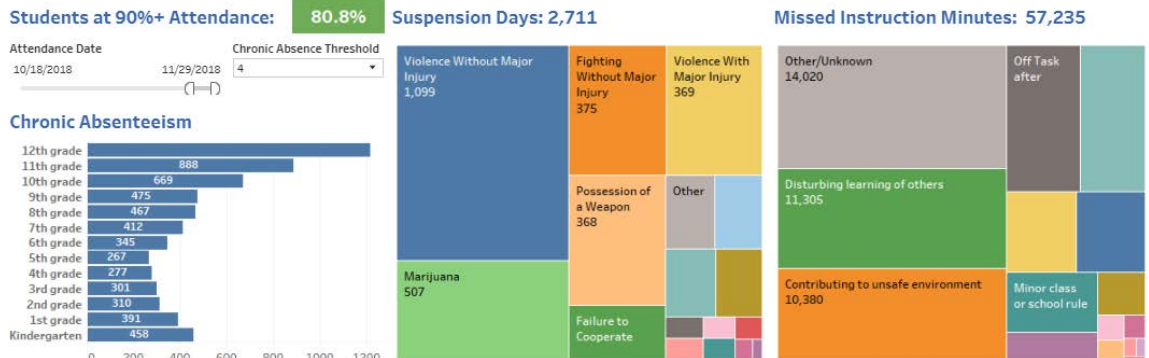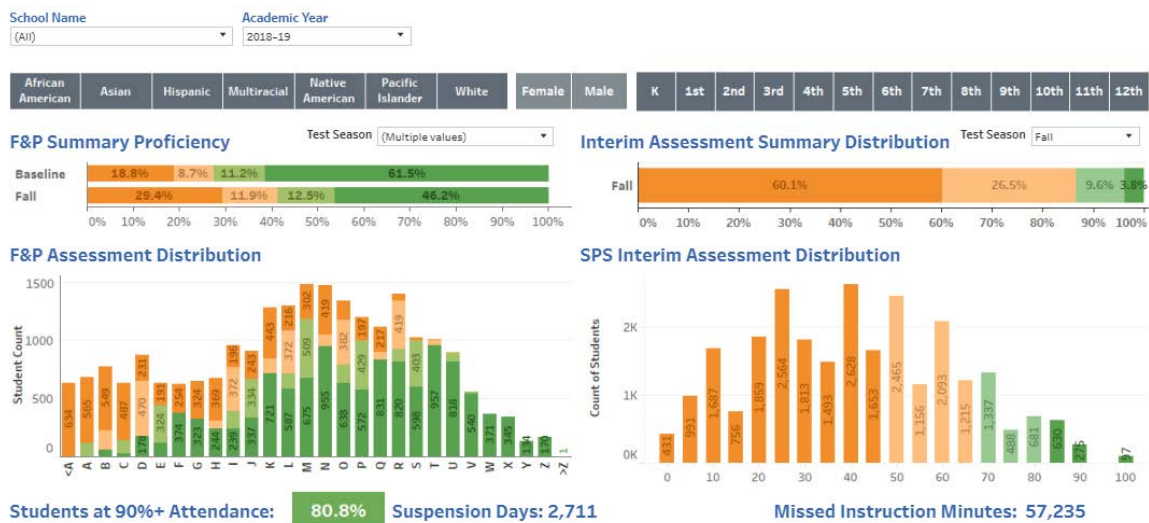


*Version 1.0 of the Progress Monitoring dashboard*

**Project Business Value:**
New usage dashboards, data exploration, advanced ad hoc analysis will empower leadership and data analysts. Tableau as an analytics tool will enable the business to better visualize data and gain new insights. Also, business users can self-serve more easily on data needs rather than making a request and waiting in line. Tableau Server efficiently manages access to data sources and provides a collaborative platform for reporting.

Legacy reporting is static and outdated. Investing in reporting modernization using interactive dashboards will be a critical tool in helping drive a culture of data driven decision making in schools and central office departments. This project will help drive culture of data usage, allow for easier data analysis, and accompany the data strategy of self-service to make data-based decisions to improve teaching and learning and eliminate opportunity gaps.

**Risks:**
- Defining top-line KPI's takes too long
- Data remains unavailable or siloed
- Data is ignored or is not used to affect meaningful change

**Objective: By June 2020**
2.20 Further development of a suite of district-wide dashboards for performance management and departmental operational dashboards to improve using data to improve student outcomes. This will include continued support of performance management program and related dashboards, School Reports, and Balanced Scorecard.

**Benchmarks:**
2.20.a By December 2018, initial progress monitoring dashboard deployed by Business Intelligence (BI) team
2.20.b By August 2019, Strategic Plan dashboard 2.0 released at School Leaders Institute (SLI)
2.20.c By December 2019, progress monitoring updated with additional functionality based on feedback
2.20.d By June 2020, 80% of principals using dashboards

**Budget**: $1,548,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Design Strategic Plan 2.0, DoTS, and Special Education dashboards created as models | Winter-Spring 2019 | Functional specification | Director BI |
| Create a repeatable process to onboard central departments with metric selection, data, and reporting needs and training materials | Winter 2019 | Documentation | Performance Management PM and Research Director |
| Work with one central office department to adopt and implement continuous improvement processes, data capabilities, and dashboards. | Spring 2019 | Delivery of dashboards, training, and documentation | Director BI |
| Enhancements made to Strategic Plan and Progress Monitoring Dashboards | Summer 2019 | Delivery of dashboards | Director BI |

**Objective: By August 2023**

2.21 Dashboards will be actively used by Teaching & Learning, Finance, Operations, Technology, Communications, and Human Resource to help leverage data to optimize decisions. District-wide dashboards for performance management and departmental operational dashboards improve student outcomes.

**Benchmarks:**

2.21.a By August 2021, new data sets from Finance, Operations, Technology, and Communications onboarded into Atlas Data Warehouse

2.21.b By August 2022, departments work with BI Team to create starter dashboards and reports to support their strategic, compliance, and operational requirements

2.21.c By August 2023, additional data and reporting capabilities delivered via the Atlas analytics platform to allow power users within departments to self-serve queries and reports

**Budget**: $1,750,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| Onboard key data sets into Atlas from select departments | Summer 2021 | Data is integrated into Atlas | Director BI |
| Co-create starter dashboards with key departments | Summer 2022 | Delivery of dashboards, training, and documentation | Director BI |
| Departmental Power Users can self-serve data using Atlas, the analytics platform | Summer 2023 | Delivery of training and ongoing support | Director BI |

# Infrastructure & Security

Infrastructure and Security includes the foundation for running the Information Technology (IT) for the district. The infrastructure team supports the district's enterprise internal and external network, phone system, architecture, data center, and the core IT services to all staff and students. The cybersecurity team provides incident response for cyberattacks (internal or external), facilitates cyber safety training for adults, and provides digital forensic support to the legal, HR, and safety teams.

## Infrastructure & Security: Operations

Seattle Public Schools has an extensive technology infrastructure that consists of its own private fiber network to every district owned building, including the John Stanford Center for Educational Excellence (JSCEE) and all school sites. JSCEE is the center of infrastructure, acting as the main data center to which all schools connect.

### Networking and Telecommunications Infrastructure

The district's Internet Service Provider (ISP) is the high-speed K-20 network provided by the state. The district provides filtering from all school sites. Internet access is through dual fiber optic connections at 10 Gigabits per second (GB/s) with one connection at JSCEE and another at Roosevelt High School.

All schools are networked to the JSCEE by a metropolitan/wide area network (MAN/WAN) connection that runs on private fiber and is part of a consortium with the city and local corporations. The elementary schools network connections currently share bandwidth capacity in a local network ring that is a one GB/s connection. With current usage growth, this is not sufficient, so the plan calls for expanding this shared connectivity to 10 GB/sec. There are nine rings of fiber using a one GB/s connection with 10 GB/s connecting those rings. Rings are all redundant and is what is known as counter rotating rings that will rap the other way in a case of a break to keep all sites up.

The district operates what is, in essence, its own telephone company that runs over the single wide-area network using virtual local area networks (VLAN) to separate voice and data traffic.

The phone system running over the WAN is transparent to end users, but enables enterprise capabilities like room to room calling, voice mail, local and managed long-distance calling, and safety features. Some phone, fax, and alarm service are provided via POTS (Plain Old Telephone Service) lines provided by Verizon. The department handles call routing and message handling using telephone switches at the sites.

Seattle Public Schools' current telephone system install started in 1999 and was completed in 2003. Newer equipment from the same manufacturer, Nippon Electric Company (NEC), has been purchased at new schools since the original installation. However, most of the hardware is outdated, and parts and software changes are no longer supported, which makes it difficult to continue operating.

The telephone system was identified to receive an upgrade/replacement as part of the Buildings, Technology and Academics IV (BTA IV) Levy approved in February 2016.  SPS went out to bid via the Request for Proposal (RFP) process to secure a new system that meets present and future needs and awarded it. The requirements call for an estimated 9,100 new phones and 108 switches at a total of 108 sites. Also, with safety and emergency communication (e911 access) as a key requirement, the system will be able to run during a power outage without significant upgrades to the current battery backup and generator infrastructure district-wide. The

system also takes advantage of existing building wiring and wide area networking that connects the schools and buildings. The upgrade began in Fall 2018.
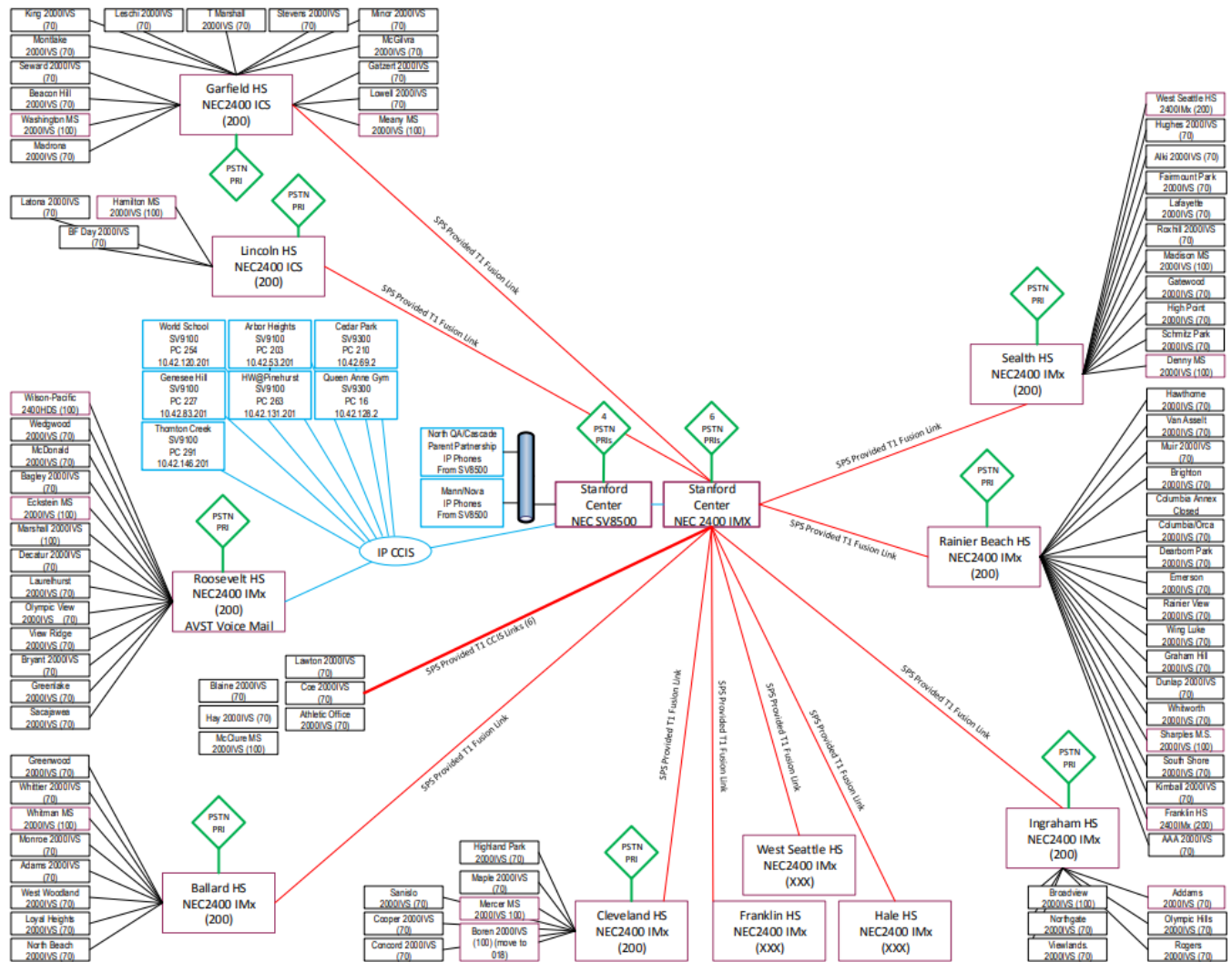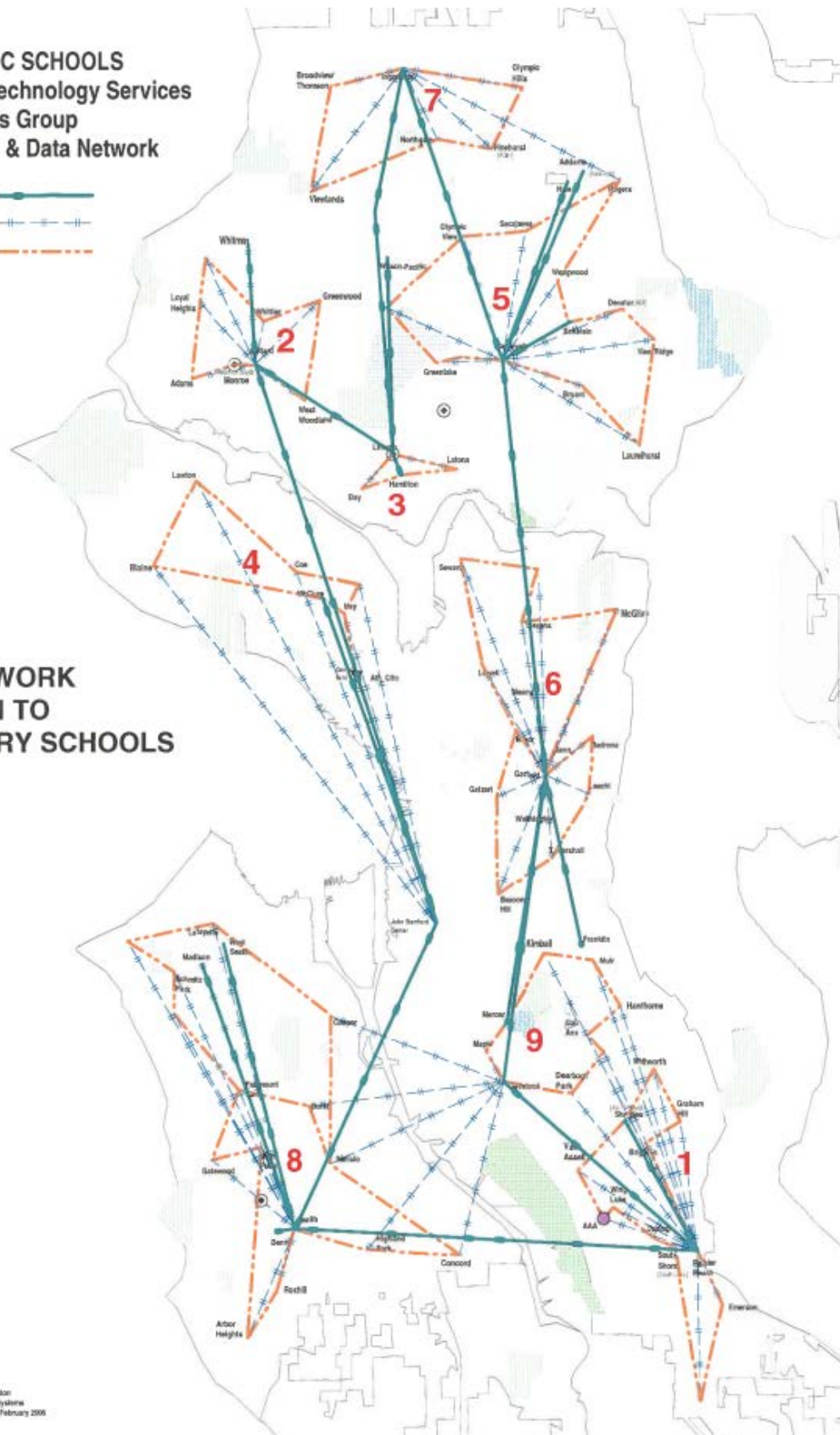


*Overview of the District Telephone Architecture (Spring 2018)*

*Overview of the District Network Architecture (Spring 2018)*

## Cell Phones

The district has cell phones on a group plan funded by departments. DoTS manages all district cell phones with a mobile device management (MDM) system to ensure security of data on the phones in case of loss.

## Local Area Network (LAN)

The LAN is segmented to optimize for security and speed. Each school dedicates a room or area to be its Main Distribution Frame (MDF). Here the district works to have updates to the electrical, cooling, and security as needed.  The networking and telephone equipment terminate in this room.  From the MDF, the district has generally run fiber to the Intermediary Distribution Frames (IDF's).
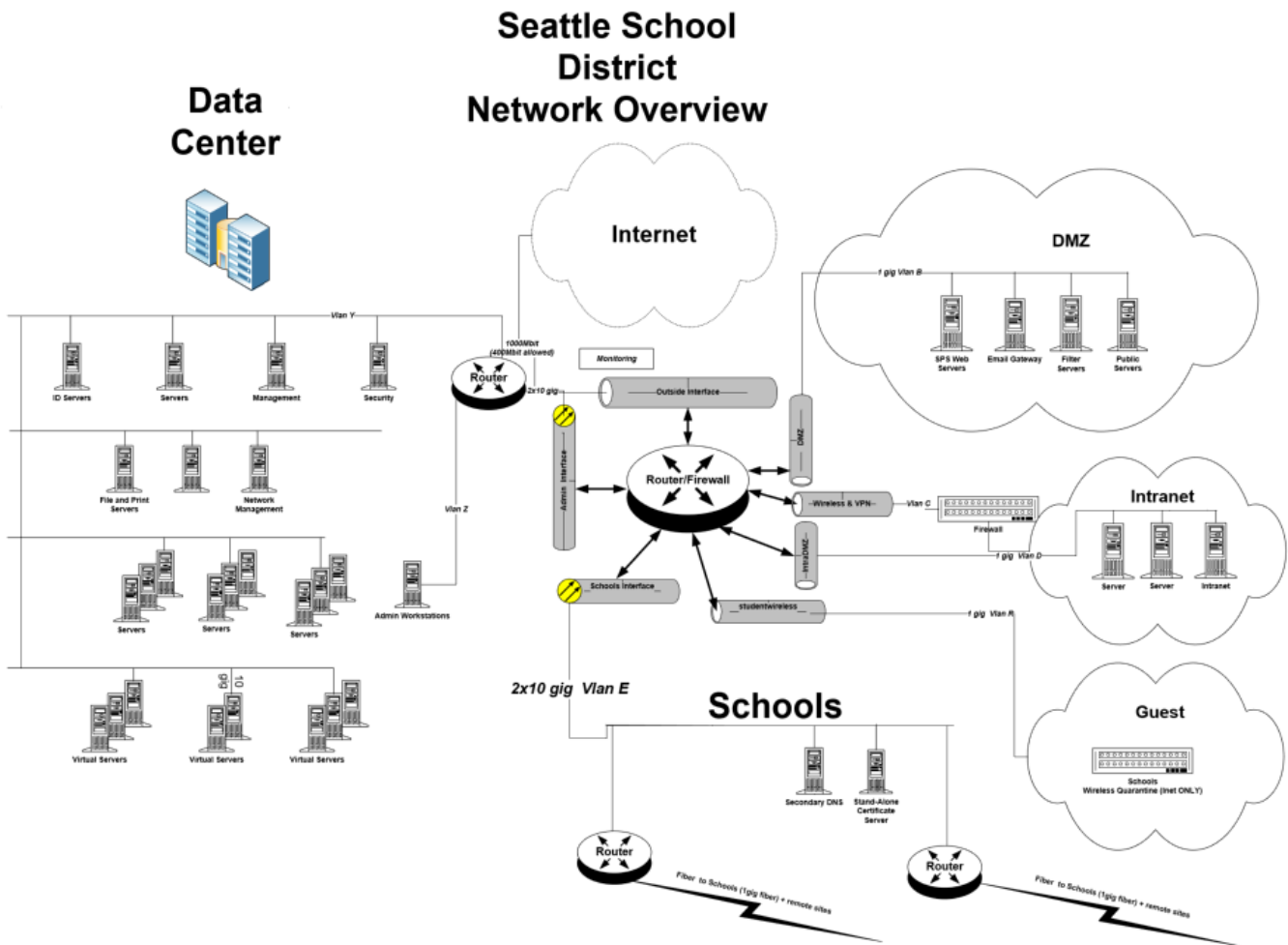


The goal is the ability to run 10GB between these points. Upgrades to the wiring and switches will be necessary to support that goal.

The district presently runs Category 5 or 6 wiring (sometimes through conduit) to all required endpoints to provide voice and data communication to all classrooms and offices.  There is a minimum standard of 9 drops per classroom. Currently, the district is standardized on Cisco wireless.

Each of the district's school sites is equipped with its own local area network. Each MDF has one or more Cisco switches. The hardware in the MDF's and IDF's is typically over five years old and is becoming more difficult to keep up to date with the growing data demand. The district is planning to update all switches to increase the ability to handle higher bandwidth and more Power over Ethernet (PoE to power devices over an ethernet cable) and spanning tree (to eliminate network loopback outages).

Wireless access is currently available with the goal to expand coverage and egress:
- To link local classrooms, labs, and library media center into a seamless network
- To link school resources to the resources of the district Wide Area Network
- To link the school to the resources of the Internet

The table below indicates the connectivity from schools to the district office. The district has 10GB internet connection via the K-20 network. The district has redundant connections with one in the JSCEE building and the other in the Roosevelt MDF. These connections run back to the Westin Hotel in downtown Seattle and connect into the K-20 network. This gives the district failover if one or the other buildings is offline for any reason.

**MAN/WAN Data Connectivity**

| School Type | WAN speed 2018 | WAN speed 2020 | WAN speed 7/2023 |
|---|---|---|---|
| Elementary | 1GB Shared | 10GB Shared | 10GB Dedicated |
| Middle Schools | 1GB | 10GB | 10GB |
| High Schools | 2GB | 10GB | 10GB |

## Physical Security

Seattle Public Schools has security procedures to improve safety at all sites. Although those departments maintain security cameras and entry systems with cameras, DoTS maintains the network and the backend servers and storage. With the growing need for more security and the storage of data, the plan calls for continued updates to the infrastructure to support this. DoTS has a role in supporting the Safety and Security and Facility departments.

## Data Security

The district has placed a clear focus on cybersecurity in current and future years. The cybersecurity team has taken a proactive stance in the cybersecurity space, working at both the board policy and the technical level to address cybersecurity concerns with a renewed focus on the NIST (National Institute of Standards and Technology) Cybersecurity Framework – Protect/Detect/Respond/Recover/Identify.

DoTS actively works with business units during the RFP purchasing and acquisition process to make sure that appropriate MoU (Memorandums of Understanding), DSA (Data sharing agreements), NDA (Non-Disclosure Agreements), and other contract controls are in place to protect both systems and data.

The infrastructure and security teams leverage both conventional controls (examples: firewalls, patching and Antivirus software), and more sophisticated on site and cloud-based controls to protect and audit. Steps are taken to limit internet exposure by filtering and actively inspecting encrypted traffic where feasible. The network is actively partitioned into isolated segments and firewall are deployed internally as well as externally. Infections are actively managed, and controls are in place to limit spreading from site to site and machine to machine.

New software is evaluated for ADA compliance, privacy, safety, and security before onboarding globally. Cybersecurity extends to the end users, with an effort at enhancing end user education and understanding of threats and mitigations. There is more work to be done in all areas, but especially in the Identify, Detect, and Respond space, as threat actors are moving faster and faster to take advantage of new vulnerabilities. The district is budgeting to allow for more tools and services to address future security needs.

## Disaster Recovery and Business Continuity

DoTS has developed a Disaster Recovery and Business Continuity Plan. The following chart shows the implementation of the plan. The district is currently in the testing phase while looking for areas of enhancement. The plan calls for moving more data to redundant and resilient cloud services.



## Appropriate Use and Digital Citizenship

There is a standard Acceptable Use Policy for both students and staff. In recognition of the fact that students use technology to play, learn, and communicate while at home and at school, it is important that students learn how to use that technology responsibly. The district is committed to educating every student on how to use technology in ways that augment their learning experience, leading to analysis, evaluation, reflection, and enhanced skills of expression. As the district's educators guide exploration of the digital landscape, they will encourage students to be critical and creative thinkers. Students, in turn, are expected to actively engage with and express their voices in the digital landscape. The district is dedicated to promoting and instilling principles of digital citizenship and media literacy in each of its students and updated its board policy in 2018 to address the importance of including this in classroom instruction.

Digital citizenship includes the norms of appropriate, responsible, and healthy behavior related to current technology use, including digital and media literacy, ethics, etiquette, and security. Digital citizenship includes the ability to access, analyze, evaluate, develop, produce, and interpret media, as well as Internet safety and cyberbullying prevention and response.

Digital citizens recognize and value the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they engage in safe, legal, and ethical behaviors. Digital citizens

cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world. They advocate for themselves and others in their behavior, action, and choices.

Teaching "Appropriate Use and Digital Citizenship" is part of the objectives in the Washington State EdTech Standards, referenced in the Student Learning & Support section.

## Systems Supported

**Infrastructure:**
- Identity & Roles System: Active Directory, O365
- District Data Warehouse: MS SQL Server
- Virtualization: VMware
- Systems Management: SCCM, JAMF, Intune
- Monitoring: Solar Winds
- Change & Incident Management: Service Now
- Business Continuity: Microsoft Azure
- Telephone: NEC
- Network/Wireless: Cisco

**Security / Compliance:**
- Firewall: Cisco
- Web Filter: iBoss and OpenDNS
- Back-up: EMC Networker, Veeam
- Archiving/Legal: Rational Governance
- Log Management: Graylog
- Cloud Access Security Broker
- Cybersecurity Event Management: SolarWinds

## Staffing

Operations: 8.1 General Fund, 8.2 Levy Funds
Security & Compliance: 1.5 General Fund, 4.5 Levy Funds
Support: 3.1 Levy Funds
Management: 2.5 Levy Funds

**There are no plans for increased team members during the time of this plan. The staffing costs include a 3% increase in salary and benefits annually.**

## Key Performance Indicators (KPI's)

- Internet bandwidth usage
- Wireless usage
- Data Center uptime
- % Incident response service level agreement (SLA) success
- # Malware/AV intercepts
- Bandwidth per student (Council of Great City Schools comparative KPI)
- Days Exceeding 75% Network Capacity (Council of Great City Schools comparative KPI)
- Network WAN Availability (Council of Great City Schools comparative KPI)

- Computers per Employee (Council of Great City Schools comparative KPI)
- Average Age of Computers (Council of Great City Schools comparative KPI)

## Infrastructure & Security Operational Objective

3.1 Seattle Public Schools Infrastructure & Security will achieve benchmark goals of KPI's.

**Benchmarks:**
3.1.a Availability of internet access at 99.99% and building egress at service level agreement (SLA) outside of scheduled maintenance windows
3.1.b Availability of critical applications, Finance (SAP), Student Information (PowerSchool), Productivity (Office 365), Secure Access (Active Directory logon), and other identified critical application available 99.9% of the time
3.1.c Wireless connectivity in all areas allows occupancy limit to achieve 5Mb/second
3.1.d Data security maintained so impact on user is mitigated
3.1.e Servers and workstations on latest operation system (OS) and patched
3.1.f Servers have up-to-date SSL (secure socket layer) certificates
3.1.g Data drives are encrypted
3.1.h Staff use multifactor authentication
3.1.i Network and servers access logs are maintained and monitored
3.1.j Third parties and Community Based Organizations (CBO's) with relationship with district have appropriate data sharing agreement
3.1.k Cloud and SaaS providers are vetted and approved
3.1.l Breaches are identified, remediated, and reported
3.1.m Customer service rated at 9 or greater on a net promoter score of 1-10

**Operational Budget:**
Staffing
- 2018-20 (BTA IV): $5,296,000
- 2020-23 (BEX V): $11,852,000

Software and Maintenance Renewals
- 2018-20 (BTA IV): $1,998,000
- 2020-23 (BEX V): $13,264,000

## Infrastructure & Security: Projects

### Network: Wide Area Network (WAN) Modernization
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
Modernization and replacement of 17-year old Fujitsu sonnet network keeps the network backbone for all sites functional, reliable, and robust. It is beyond End of Service and unable to get the latest features and productivity improvement tools.
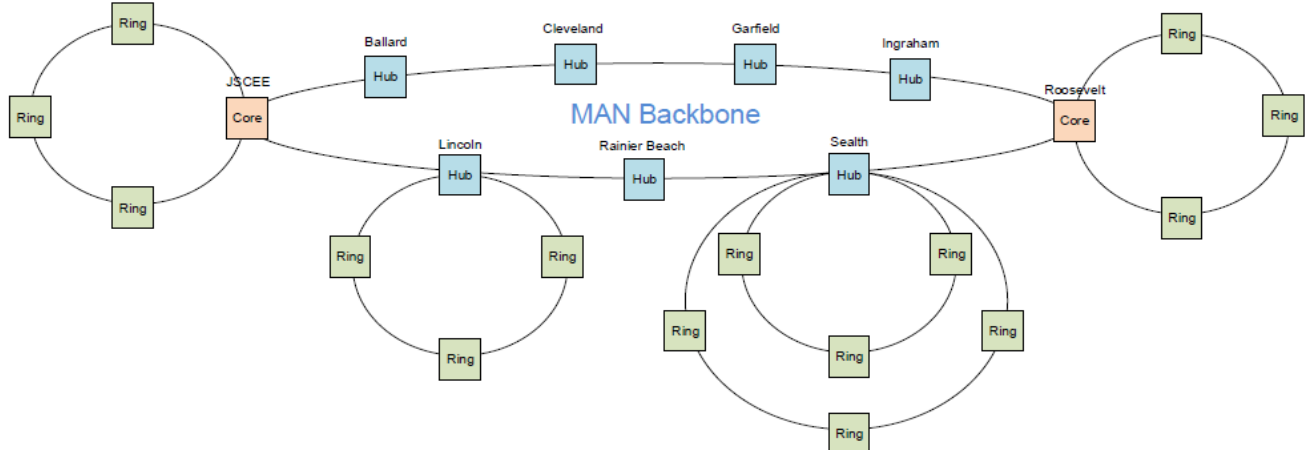
**Project Business Value:**
This program is a key security and infrastructure need as all schools are connected to the WAN for internet connectivity that is used for everything from taking attendance to teaching a lesson.

**Risks**:
- Implementation timeline does not meet demand
- Lack of project coordination leads to downtime

**Objective: By August 2020**
3.2 All district sites have higher bandwidth with elementary school sites upgraded to 10GB shared. High schools and middle schools upgraded to 10GB dedicated.

**Benchmarks:**
3.2.a By August 2019, core network upgrade from 10GB to 100GB with multiple channels. High school and middle schools upgraded to 10GB
3.2.b By August 2020, elementary rings equipment upgraded to 10GB shared bandwidth

**Budget**: $3,218,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| E-rate application and vendor selection | 2018-2019 | Vendor awarded | Infrastructure Manager |
| Hardware purchasing | 2019-2020 | Equipment verified | Infrastructure Manager |
| Planning and Preparation | 2019-2020 | Approved plan | Vendor |
| Installation | 2019-2020 | DoTS testing | Infrastructure Manager |

**Objective: By August 2023**
3.3 Upgrade all sites to 10GB dedicated bandwidth, with multiple 100GB or higher core network with multiple channels to increase capacities for core network and redundancy to support higher bandwidth.

**Benchmarks:**
3.3.a By February 2021, selection process complete

3.3.b By August 2022, RFP completed, and work started for upgrading elementary rings to 10GB dedicated network to each school

3.3.c By August 2023, Phase One of the RFP completed

**Budget**: $1,500,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| E-rate application & vendor selection | 2021-2022 | Vendor awarded | Infrastructure Manager |
| Hardware purchasing | Spring 2022 | Equipment verified | Infrastructure Manager |
| Planning and Preparation | Spring 2023 | Approved plan | Vendor |
| Installation | 2022-2023 | DoTS testing | Infrastructure Manager |

## Network: Firewall
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal is the modernization and replacement of network hardware which is beyond End of Service and unable to deploy the latest features and productivity improvement tools. The project will improve network connectivity at schools and support improved wireless connectivity.

**Project Business Value:**
New firewalls will ensure the district is protected against threats from outside and inside the district. The protection of end users and data center servers by using the proper firewall with latest next generation engines to catch and block malicious attacks will save the district time and money.

**Risks**:
- Implementation timeline does not meet demand
- Lack of project coordination leads to downtime

**Objective: By August 2020**
3.4 Complete install a new core network set of firewalls to give more redundancy and increase capabilities to protect and inspect traffic in and out of the district.

**Benchmarks:**
3.4.a By August 2019, install multiple firewalls and test failover capabilities. Purchase new contract for products used to inspect, catch and block malicious attacks at the firewall at wire speed. RFP started for Network Switch upgrades.

3.4.b By August 2020, district is protected at wire speed (real time) from malicious attacks.

**Budget**: $1,700,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| E-rate application and vendor selection | 2018 | Vendor awarded | Infrastructure Manager |
| Firewall hardware purchasing | Spring 2019 | Receipt | Infrastructure Manager |
| Planning and Preparation | Summer 2019 | Approved plan | Vendor |
| Installation | 2019-2020 | DoTS testing | Infrastructure Manager |

## Network: Local Area Network (LAN) Upgrades

<u>Objective</u>: **By August 2020**
3.5 All installed End-of-Service-Life district switches have been upgraded to new equipment based on RFP and increase power to support more equipment needed as the capital and facilities departments increase network-based cameras, locks, and building management.

<u>Benchmarks</u>:
3.5.a By December 2019, additional switches and power installed based on the phase in this current year
3.5.b By August 2020, network switches and power installed at schools based on phase for the year
3.5.c By August 2020, all switches installed for the RFP, working on remediations and adjustments

<u>Budget</u>: $1,000,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| E-rate application and vendor selection | 2019-2020 | Vendor awarded | Infrastructure Manager |
| Hardware purchasing | Spring 2020 | Equipment verified | Infrastructure Manager |
| Switch Installation | 2020-2021 | LAN testing | Infrastructure Manager |

<u>Objective</u>: **By August 2023**
3.6 All installed district switches have been upgraded to new equipment based on RFP and increase power to support more equipment needed as the capital and facilities departments increase port counts and density.

<u>Benchmarks</u>:
3.6.a By August 2021, additional switches and power installed based on the phase in this current year
3.6.b By August 2022, network switches and power installed at schools based on phase for the year
3.6.c By August 2023, all switches installed for the RFP, working on remediations and adjustments

<u>Budget</u>: $6,890,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| E-rate application and vendor selection | 2019-2020 | Vendor awarded | Infrastructure Manager |
| Hardware purchasing | Spring 2020 | Equipment verified | Infrastructure Manager |
| Switch Installation | 2021-2023 | LAN testing | Infrastructure Manager |

## Network: Wireless
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
Modernization and replacement of wireless hardware will keep up with the growing demand of users and bandwidth needed to support student learning.

**Project Business Value:**
To ensure the district has enough wireless connectivity at all locations of the schools and remove dead spots will increase access in general use areas to allow large public events and other school activities to aid in the student outcomes.

**Risks**:
- Implementation timeline does not meet demand
- Lack of project coordination leads to downtime

**Objective: By August 2020**
3.7 Evaluate all secondary schools for general use areas, such as gyms, auditoriums, and lunchrooms for wireless access. Design and implement a solution that allows for a high wireless density. Start a new RFP for future wireless plan across the district to get to higher bandwidth and higher density of devices in classrooms.

**Benchmarks:**
3.7.a By Sept 2019, common general use areas are configured with high density solution for wireless
3.7.b By August 2020, RFP has gone out to bid for new wireless solution for the latest protocols being used in the industry that allow for higher density of devices

**Budget**: $351,000

| Implementation Plan Activities | Timeline | Monitoring/ Evaluation | Responsible Party |
|---|---|---|---|
| Survey secondary schools | 2018-2019 | Documented Wi-Fi surveys and floorplans | Infrastructure Manager |
| High-density Wi-Fi research | 2018-2019 | Report | Infrastructure Manager |
| Wi-Fi Installation | Summer 2019 | LAN testing | Infrastructure Manager |

<u>Objective</u>: **By August 2023**
3.8 All schools have exceptional wireless with high density of devices at any location of the school to allow for any usage of devices to enhance the student learning and access to resources.

<u>Benchmarks</u>:
3.8.a By December 2020, identify schools to be upgraded in Phase One
3.8.b By August 2021, Phase One schools have new access points installed; Phase Two schools identified
3.8.c By August 2022, Phase Two schools complete
3.8.d By August 2023, testing and remediation compete

<u>Budget</u>: $2,350,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Survey All schools | 2019-2020 | Documented Wi-Fi surveys and floorplans | Infrastructure Manager |
| Hardware purchases | 2020-2021 | Equipment verified | Infrastructure Manager |
| Wi-Fi Installation | 2021-2023 | LAN testing | Infrastructure Manager |

## Telecommunications
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

<u>Project Goal:</u>
The goal is the complete modernization and replacement of 17-year old SPS phone system, which is beyond End of Service and unable to deploy the latest features and productivity improvement tools. All staff areas will get new phones and modern features. Key is implementing safety features that work in our infrastructure and remain available during emergency situations.

<u>Project Business Value:</u>
The district sees stationary phones as a key security need as phones provide reliable service in an emergency because they will work in a disaster with power backup systems, are part of the e991 system, and are integral to school communication.

<u>Risks</u>:
- Implementation timeline takes too long
- Lack of project coordination leads to downtime

<u>Objective</u>: **By August 2021**
3.9 All schools and central office will be on the new phone systems and all handsets in district have been upgraded to the new versions that did not get new phones recent Capital projects. New features implemented and leveraged like cell phone apps for district phone and PC-based applications.

**Benchmarks**:
3.9.a By August 2019, core telephone network ring cut over to new equipment and connected to old
       network. Start the process of testing cell phone application for district phone numbers on personal
       devices. Testing of computer-based calling for departments including Purchasing and Enrollment
3.9.b By August 2020, sites cut over to new core telephone network and leveraging additional redundancy of
       network
3.9.c By August 2021, all sites are complete and all applications are running as expected

**Budget**: $5,668,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Board Action approval for five-year agreement and project kick-off | 2018-2019 | Vendor starts | Infrastructure Manager |
| Core equipment upgrade | Summer 2019 | Testing of telephony functions | Infrastructure Manager |
| Site by site migration activities | 2019-2021 | Customer survey after site upgrades | Infrastructure Manager |

## Data Center & Cloud: Modernization
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal is to create and maintain a modern data center with a balance of on-site and cloud resources to meet business requirements. The district will update and improve existing servers and appliances used to support the day to day business needs and add new software or hardware that helps manage environments. The plan will identify workloads, services and capabilities that can be more efficiently, inexpensively, and securely be migrated to the cloud.

**Project Business Value:**
District systems and digital resources require both local and cloud resources. The data center establishes a secure foundation for access and redundancy to protect data and to recover from hardware issues. The cloud may be a better solution for some cases. DoTS will work with stakeholder to determine the best solutions to provide the best value

**Risks**:
- Not accurately forecasting need and cost
- Lack of project coordination leads to downtime
- Data privacy protection

**Objective: By August 2020**
3.10 All hardware and software that is end of service life has been replaced with newer updated equipment or
      software locally and targeted workloads moved to cloud.

**Benchmarks**:

3.10.a By August 2019, all HPE servers G6 or lower has been replaced with new generation hardware.  All HPE Storage EVA systems replaced with HPE 3PAR Storage systems

3.10.b By August 2020, all HPE servers G7 or lower replaced with new generation hardware. Storage Access Network (SAN) upgraded with new hardware

3.10.c By August 2020, all targeted workloads move to cloud

**Budget**: $1,114,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Architect infrastructure with balance of upgraded servers and cloud | Fall 2018-Winter 2019 | Servers received | Infrastructure Manager |
| Migrate applications from servers to be replaced | Spring-Summer 2019 | Successful testing | Infrastructure Manager |
| Examine roles of current cloud and potential cloud services for student and staff applications including email and document storage | Fall 2018-Winter 2020 | Servers received, and services migrated | Infrastructure Manager |
| Migrate applications from servers to be replaced to new hardware and/or services | Spring-Summer 2019 - 2020 | Successful testing | Infrastructure Manager |

**Objective: By August 2023**

3.11 All hardware (servers and storage) and software that is end of service life (EOSL) has been replaced with newer updated equipment or software and targeted workloads moved to cloud.

**Benchmarks:**

3.11.a By August 2021, data warehouse modernization complete

3.11.b By August 2023, all HPE servers out of warranty replaced with new generation hardware. SAN upgraded with new hardware

3.11.c By August 2023, all targeted workloads move to cloud

**Budget**: $1,600,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Architect data warehouse upgrade | Fall 2020-Winter 2021 | Servers received | Infrastructure Manager |
| Migrate applications from servers to be replaced | Spring-Summer 2020 | Successful testing | Infrastructure Manager |

| | | | |
|---|---|---|---|
| Purchasing process for servers and cloud | Fall 2021-Winter 2022 | Servers received, and services migrated | Infrastructure Manager |
| Migrate applications from servers to be replaced | Spring-Summer 2023 | Successful testing | Infrastructure Manager |

## Data Center & Cloud: Disaster Recovery and Business Continuity
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The goal is the implementation of the most critical recommendations and needs as identified in the BTA IV and BEX V Disaster Recovery Plan and Fit/Gap Assessment. The district will provide protections against data exfiltration and cyber exploits. Projects will include the implementation of an external recovery function, implementation of redundancy in critical locations, and systems and processes to secure and protect data.

**Project Business Value:**
True value will be achieved with the reduction in risk profile for district with possible decreased insurance premiums, protection of key district data assets, and reduction of data loss risk to students and staff.

**Risks**:
- Not accurately forecasting need and cost
- Lack of project coordination leads to downtime
- Data privacy protection
- Lack of Board support

**Objective: By August 2020**
3.12 All systems are resilient to withstand unforeseen outage of production systems so that employees can resume work next business day.

**Benchmarks:**
3.12.a By October 2019, disaster recovery plan published to community
3.12.b By August 2020, disaster recovery in local data center and cloud operational
3.12.c By August 2020, IT disaster recovery integrated with district emergency operations center (EOC)
3.12.d By August 2020, disaster recovery equipment replaced at district office and alternative locations

**Budget**: $1,200,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Tabletop sessions to practice plan | 2018-2020 | Report | IT Security Manager |
| Weekend disaster testing | Annually | Report | IT Security Manager |
| Initiate meetings with Operations and EOC | Monthly 2019-2020 | Minutes | Operation Manager |

| | | | |
|---|---|---|---|
| Initiate annual meeting with City of Seattle | 2019-2020 | Minutes | Operations Manager |
| Implement 3<sup>rd</sup> party cloud backup for Microsoft Office | 2019-2020 | Report to CIO | Director of Infrastructure |
| Implement scanning and archiving solution across supported clouds and services | 2019-2020 | Report to CIO | Director of Infrastructure |
| Update local data center disaster recovery infrastructure | 2019-2020 | Report to CIO | Director of Infrastructure |
| Build and deploy cloud disaster recovery infrastructure | 2019-2020 | Report to CIO | Director of Infrastructure |

**Objective: By August 2022**
3.13 All systems are resilient to withstand unforeseen outage of production systems so that employees can resume work next business day.

**Benchmarks:**
3.13.a By October 2020, disaster recovery plan re-certified
3.13.b By August 2021, training plan established
3.13.c By August 2021, yearly cloud investment established
3.13.d By August 2022, disaster recovery equipment replaced at district office and alternative locations

**Budget**: $1,390,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Planning for business continuity | 2020 | Report to CIO | Director of Infrastructure |
| Update local data center disaster recovery infrastructure | 2020-2022 | Report to CIO | Director of Infrastructure |
| Manage cloud disaster recovery infrastructure | 2020-2022 | Report to CIO | Director of Infrastructure |

## Physical Security: Security Systems Expansion
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
The Phase One goal is to assist the Security department in getting high risk schools that need security setup with door entry systems with cameras that protect entrances and expanded camera coverage to protect the

most critical need not yet covered. Additionally, DoTS will expand its infrastructure to receive and store video footage making it available when needed by maintaining proper retention.

Phase Two, beginning in 2020, will initiate the upgrade and expansion of security systems including our fingerprinting and security badge systems.

**Project Business Value:**
The ultimate value is the safety and security of students and staff in our buildings.

**Risks**:
- Timeline does not meet need

**Objective: By August 2020**
3.14 All school buildings will have security cameras covering outside access to all entry points of the building.

**Benchmarks:**
3.14.a By August 2019, critical entry points have cameras and video Aiphones installed
3.14.b By August 2020, additional entry points have cameras added

**Budget**: $1,767,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| IP CCTV cameras installed and connected in the following new schools: Olympic Hills Elementary, Cascadia Elementary, Robert Eagle Staff Middle School and Meany Middle School. | Summer- Fall 2018 | Camera online test | Security Manager |
| SPS Security uses the Site Security Assessment to determine priority of school camera phones and surveillance cameras. | 2018-2019 | Written assessment | Security Manager |
| Additional planning and preparation | 2019 | Approved plan | Security Manager |
| Installation | 2019-2020 | DoTS and Security testing | Security Manager |

**Objective: By August 2023**
3.15 All core storage and servers used to support CCTV systems, fingerprinting systems, and district-wide security badge system will be in place.

**Benchmarks:**
3.15.a By August 2021, storage and servers upgraded
3.15.b By August 2022, fingerprinting solution added
3.15.c By August 2023, district-wide security badge system in place

**Budget**: $2,100,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Plan and implement security infrastructure | 2020-2021 | Plan in place | Security Manager |
| Fingerprinting RFP process | 2021-2022 | RFP verified | Security Manager |
| Badge Planning and Preparation | 2021-2022 | Approved plan | Security Manager |
| Badge Roll out | 2023 | DoTS and Security testing | Security Manager |

## Data Security
Business Sponsor: DoTS

**Strategic Plan Priority: Predictable and Consistent Operational Systems**

**Project Goal:**
Funding is required for implementation of most critical recommendations and needs as identified in the BTA IV Disaster Recovery Plan and Fit/Gap Assessment, and to provide protections against data exfiltration and cyber exploits. Projects include the implementation of an external recovery function, implementation of redundancy in critical locations, and systems and processes to secure and protect data.

**Project Business Value:**
Reduction in risk profile for district; possible decreased insurance premiums; reduction of data loss risk to students.

**Risks**:
- Not accurately forecasting need and cost
- Business continuity
- Lack of project coordination leads to downtime
- Data privacy protection

**Objective: By June 2020**
3.16 All systems and users will be protected, and risk mitigated.

**Benchmarks:**
3.16.a By June 2019, Multi-Factor Authentication (MFA) district-wide for staff
3.16.b By September 2019, a secure password reset portal will be operational for all users
3.16.c By October 2019, Cloud Access Security Broker (CASB) in place to add an extra security layer to supported cloud providers
3.16.d By January 2020, Security Onion and Graylog or other vendor implemented as a Security Event Information Management System (SEIM)
3.16.e By January 2020, all sites attain PCI compliance to implement credit card transactions with the district's online payment system, School Pay
3.16.f By January 2020, SSL certificates upgraded to support current standards
3.16.g By January 2020, phishing prevention solutions in play

**Budget**: $1,120,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Regular security training and user behavior tests | 2018-2020 | Report test results | IT Security Manager |
| Third party vulnerability tests | 2018-2019 | Report to CIO | IT Security Manager |
| Internal and External resources architect Security Event Information Management and Cloud Access Security Broker | 2018-2020 | Report to CIO | IT Security Manager |
| Field test MFA and password portal | 2018-2019 | Report to CIO | IT Security Manager |
| Phishing solutions in plan | 2018-2019 | Report to CIO | IT Security Manager |

Objective: **By June 2023**
3.17 Meet new security challenges with appropriate defense and mitigation with software tools and training.

Benchmarks:
3.17.a By August 2020, complete a security assessment and penetration test
3.17.b By September 2021, complete vendor selection
3.17.c By August 2021, implement new security solution in place to enable staff to prevent breeches
3.17.d By August 2022, training in place

Budget: $495,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Regular security training and user behavior tests | 2020-2023 | Report test results | IT Security Manager |
| Third-party vulnerability tests | 2020-2022 | Report to CIO | IT Security Manager |
| Evaluate and select security solutions in response to tests | 2020-2023 | Report to CIO | IT Security Manager |

## Staff Technology
Business Sponsor: DoTS

**Strategic Plan Priority: High-Quality Instruction and Learning Experiences**

Project Goal:
The district will fund computers for all employees centrally as part of operating costs instead of depending on departments to cover the cost. This would ensure that every department has the same level of technology at the best price.

**Project Business Value:**
Staff computers at central office and school offices will be put on a four-year replacement cycle to improve efficiency and accountability. Previously purchases were managed by schools and departments using general fund and manager discretion. Centrally managing will save money, increase employee productivity, and improve efficiency and accountability to provide additional business value.

**Risks**:
- Not accurately forecasting need and cost
- Lack of staff or leadership buy-in

**Objective: By June 2023**
3.18 All staff computers (central and school offices) will be upgraded and on a four-year replacement cycle.

**Benchmarks:**
3.18.a By January 2020, all staff computers inventoried with full details including purchase date
3.18.b By June 2020, roll out plan published to all end users
3.18.c By August 2020, Media Operations Center upgraded
3.18.d By September 2020, plan initiated

**Budget**: $3,860,000
- $1,260,000 (BTA IV)
- $2,600,000 (BEX V)

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Inventory work | 2018-2020 | Report results | Client Services Manager |
| Planning | 2019-2020 | Report to CIO | Client Services Manager |
| Tracking inventory | 2020-2023 | Report to CIO | Client Services Manager |
| Computer roll out | 2020-2023 | Report to CIO | Client Services Manager |

# The Office of the CIO

The Office of the CIO (Chief Information Officer) provides administration and support that includes project management, help desk services, management of the division and departments, and collaboration with cabinet leaders, the school board, and stakeholders.

The Office of the CIO works closely with budget and finance. It manages all major software applications and site/enterprise licensing for district-wide systems including Microsoft Enterprise Agreement, SAP, PowerSchool, anti-virus, infrastructure support licensing, and district-wide education applications.

Besides leading DoTS operations and programs, the Office of the CIO works on digital equity initiatives in partnership with the City of Seattle.

## Portfolio Management and IT Governance

The program management function develops the processes and procedures to be the technology Portfolio Management Office (PMO), which works closely with business owners (district departments and leadership) to deliver on key initiatives district-wide where information technology is a major lever to success.

**Strategic Plan Priority: Predictable and Consistent Operational Systems**
**Strategic Plan Priority: Inclusive and Authentic Engagement**

**Project Goal:**
The district will have a process for using IT for programs and projects to achieve district goals. It will include using executives to vet and approve strategic initiatives that use IT as a major lever to achieve success. People, processes and systems will be used to initiate, track, communicate, collaborate, measure, and report on the IT portfolio.

**Project Business Value:**
IT is a limited resource, so people, processes, and systems need to be in place to properly govern this valuable resource. By aligning the resources, demand and delivery of strategic goals into programs with financial portfolio management, a more comprehensive view based upon real time data will be available to make critical decisions.

**Risks**:
- Lack of staff and leadership buy-in
- Inconsistent adherence
- Staff turnover

**Objective: By June 2020**
4.1 IT Business Management and IT Service Management implemented.

**Benchmarks:**
4.1.a By May 2019, Service Now foundation complete
4.1.b By July 2019, Go Live
4.1.c By August 2019, Dashboard
4.1.d By November 2019, Phase One complete
4.1.e By June 2020, 80% of IT project running through established processes and systems

**Budget**: $127,000

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Collaborate to define methodologies | 2019-2020 | Documentation | IT Manager |
| Platform Configuration | November 2018 | Configuration complete | Specialist Lead |
| Ideation/Demand | July 2019 | Internal Release to PM's | IT Manager/ Specialist Lead/BA |
| Software Development Management | August 2019 | Released to SAP/SIS team | Director Enterprise Applications |
| Incident Management | August 2019 | Migration to new version | Specialist Lead |
| Service Catalog and Portal | October 2019 | Released to production | Specialist Lead |
| Change Management | October 2019 | Released to production | Specialist Lead |
| Resource Management | November 2019 | Internal Release to PM's | IT Manager/ Specialist Lead/BA |
| Ideation/Demand/Resource Management – Phase Two | June 2020 | Projects in system | IT Manager/ Specialist Lead |
| Develop an IT Dashboard to track plan KPI's and program deliverables | 2019 – 2020 | Dashboard released | CIO |

**Objective: By June 2023**
4.2 All DoTS teams and business owners will use IT Business and Service Management principles and manage projects with a common agile framework and tool set.

**Benchmarks:**
4.2.a By August 2021, common project management framework set
4.2.b By August 2022, common tools set
4.2.c By January 2023, frameworks and methodology published to business owners

**Budget**: Included in Operational Costs

| Implementation Plan Activities | Timeline | Monitoring/Evaluation | Responsible Party |
|---|---|---|---|
| Collaborate to define methodologies | 2020-2022 | Documentation | IT Manager |
| Instill practices though active projects | 2020-2022 | Project Debriefs | IT Manager |

## Help Desk/TechLine

The TechLine supports most technical systems and services that are used by staff throughout the district such as: PowerSchool/PowerTeacher, SAP/ESS/MSS, Marketplace, Office 365 (i.e. Exchange, OneDrive), as well as networking issues, hardware issues, basic instruction, etc.

TechLine KPI's include:
- Total tickets
- First touch Response
- Customer Satisfaction (scale of 1-10)
- Support Staff Break/Fix staffing cost per ticket (Council of Great City Schools comparative KPI)
- Helpdesk Call Abandonment Rate (Council of Great City Schools comparative KPI)
- Helpdesk Staffing Cost per Ticket (Council of Great City Schools comparative KPI)

## Staffing

Management: 1.0 General Fund
Help Desk: 2.9 Levy Fund
Project Management: 5.0 Levy Funds

# Appendix

All appendices are available at http://www.seattleschools.org/dots.

Appendix A: BEX V Technology Project List

Appendix B: Principles of Effective Digital Learning

Appendix C: K-12 Educational Technology Learning Standards

Appendix D: Mobile Devices by School (December 2018)