Educational Technology Roadmap 2020
June 24, 2020

Preparing all students for success in a changing world.

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Introduction

The close of the 2019-2020 school year is a unique time to reflect on how our organization has responded to the challenges surrounding the 2020 COVID-19 pandemic response. This has been far and above the greatest challenge that has faced me as an educator. I am grateful for the community’s foresight over the past six years to make an investment in the people, the infrastructure, and the hardware that have been instrumental in pivoting the learning environment to a remote model. Our successes over the past months were because of years of work in supporting digital learning opportunities.

I thank the countless people who contributed to the herculean effort that it took to transition the largest school district in the county into a remote work and learning environment in less than a week, and to pivot our support models to support our learners and teachers.

As we plan for next school year, we also know that reflection is necessary to plan for our new reality as educators. In May, the district distributed a survey to collect feedback from students, staff and families. The feedback from the survey indicated our students and families were overwhelmed with juggling too many platforms, tools, landing pages, calendars, agendas, and expectations for turning in work. As we reflect on this input, it is important for us to ensure that we have standard practices for instructional delivery and processes in place for selecting digital learning tools that meet students’ needs. This standardization also provides flexibility for teachers and learners to support in-school, remote, and hybrid learning scenarios. To ensure this occurs, the district has adopted Blackboard as the K-12 learning management system. The adoption will allow our students to use a consistent platform, no matter what school they attend in our district. This will promote consistency across teachers, departments, buildings and grades, which will ease the stress of students and parents navigating the coursework.

This report is intended to be a high-level overview of some of the key work that has occurred within the Technology Services department in the past year, and a look ahead to some of the work that is anticipated over the next three years. The report doesn’t capture the countless tasks that are required for Department members to maintain day-to-day operations in the District.

We are committed to continually reflecting and improving upon our practice, both during a crisis and during normal operations. Thank you to the School Board and the community for the support that you have shown us.

~~ Richard Platts, CETL, Director of Technology and Innovation
2019-2020 Technology Services End-Results

As Technology supports all aspects of modern instructional and business operations, the Technology Services team is involved in all aspects of the Administrative work plan. The End Results below are indicated to highlight the work led by members of the Technology Services administrative team.

**Goal Two**
Safe and Supportive Schools: We will provide a safe, welcoming, and well-maintained learning environment.

**End Result Statement:**
1. Implement Cyber Liability Maturity Model recommendations from Security Assessment and Vulnerability Assessment performed in Spring 2018.

**Goal Three**
Stewardship: We will maximize efficiencies in all areas of the District for the continuous improvement and optimization of resources.

**End Result Statement:**
1. Develop a needs assessment to collect data regarding the future purchase of a Student Information System/Business Information System including a Human Resources Information System.

**Goal Five**
Innovation: We will innovate our educational practices and become leaders in technology integration.

**End Result Statement:**
1. Extend the digital convergence brand by assessing and supporting the North Allegheny Digital Ecosystem, and uphold the original goals of the Focus 2020 Program: equity, one-to-one, and support.

**End Result Statement:**
2. Investigate the possibility of reopening the NA Cyber Academy.
Overview of Technology Environment

Today, North Allegheny supports a modern technology infrastructure that supports the learning and business operations of the School District and continues to pursue advancements and opportunities to streamline operations to provide the highest level of support with a focus on instructional needs.

In 2014 North Allegheny recognized that there was an opportunity to invest time and attention to improving the technology environment at the School District to better serve these needs. The most visible part of this began in 2015 when Focus 2020 was initiated. Focus 2020 involved a significant 1:1 initiative, creating equitable learning environments for students and providing the necessary support for educators to be successful. The goal was to create engaging and authentic learning experiences for students by leveraging technology.

During the 2018-2019 school year, a diverse group of stakeholders reflected on the first four years of Focus 2020 and made recommendations regarding where we need to go next. These recommendations focused on how North Allegheny might be able to build on the successful efforts of Focus 2020 and scale this notion of modern learning across the District. This included creating a theory of action for the District, adopting an instructional model, modernizing curriculum and developing a portrait of a graduate. It also supports work that is currently underway such as inquiry and project-based learning, student voice and choice, rethinking classroom space and mindful practices. We are doing this through what is called “digital convergence.” Digital convergence is thinking through how important drivers like leadership, instructional models, curriculum, digital ecosystem, professional learning and community come together to support modern learning.

The Technology Services Team is dedicated to supporting all aspects of Modern Learning through the support of a robust digital ecosystem at North Allegheny.

Report Format

The Technology Services Department has traditionally presented to the school board in the Spring to provide the board an update about the progress of Focus 2020. This
update has consisted of information about student learning happening with technology, data collected regarding technology utilization, and a preview of future plans. During the emergency school closures beginning in March 2020, much of the typical data was not possible to collect.

This written report is intended as a combination of an update to the School Board and community and a rolling technology planning document indicating a three-year outlook within specific focus areas.

The format of this report is based on the Digital Leap Success Matrix developed by the CoSN organization. CoSN is the Leading Education Innovator and Professional Organization for the K-12 Chief Technology Officer role. The Digital Leap Success Matrix outlines the practices needed to be a successful digital school system.

The Matrix is aligned to CoSN’s Framework of Essential Skills of the K-12 CTO, which focuses on three key professional categories: Leadership and Vision; Educational Environment; and Managing Technology and Business moving beyond the individual leader and identifying and promoting the fundamental requirements for the school system to create next-generation learning environments that foster equitable and effective use of technology.
Leadership and Vision

The Digital Leap Success Matrix helps District leaders to evaluate their performance in education and business operations in a technology-supported environment. In the first category of Leadership and Vision, the matrix highlights the following:

Leadership and Vision -- The executive team works together to develop a shared vision with all stakeholders for effective and strategic technology use. The vision describes how technology-infused teaching and learning will support students in gaining the skills and knowledge they will need for success in college and the modern workplace. Student outcomes drive the educational vision, which describes how technology will be used to support school system goals.

Strategic Planning – School system leaders utilize their high-level view of the school system to identify the steps needed to transform the digital vision into a long-range plan, complete with specific goals, governance, objectives, and action plans.

Ethics and Policies -- The school system leadership team models responsible decision-making and manages the creation, implementation, and enforcement of policies related to the social, legal, and ethical issues linked to technology use throughout the school system.

Highlights from the 2019-2020 School Year

**Data Governance**

- The Data Governance Committee developed and adopted a new DG Charter in January 2020 to establish the membership, mission, vision, and decision-making process for data-related issues at North Allegheny. The charter, Data Governance Matter Trackers, and Data Quality Playbooks are available at the new NASD Data Governance SharePoint. More detail provided in the Leadership and Vision section of this report.

**New Technology Planning Format**

- The format of this report is based on the Digital Leap Success Matrix developed by the CoSN organization. CoSN is the Leading Education Innovator and Professional Organization for the K-12 Chief Technology Officer role. The Digital Leap Success Matrix outlines the practices needed to be a successful digital school system.

**Cyber-liability Maturity Model**

- This section shares the path that North Allegheny is following towards improving our cybersecurity effort. Our efforts included professional development in cybersecurity, penetration testing, and the implementation of two-factor authentication. More detail provided in the Ethics and Policies section of this report.
Policy Review

• The District Administration continually monitors changes to the instructional or operational environment that may require changes to the School Board’s adopted policies. In the 2021-2022 school year the Technology Services team recommends a full review of existing policies with stakeholder engagement for a deeper dive into these policies and how they apply to a rapidly changing technology environment.

Preparing for the Trusted Learning Environment

• The Technology Services Department is focused on making the structural changes needed to ensure that staff and student data remains secure. The Trusted Learning Environment (TLE) Seal is a mark of distinction for school systems, signaling that they have taken strong and measurable steps to help ensure the privacy of student data. This aspirational certification is intended to be a growth process and applicants receive feedback and areas to improve upon in response to the application.

Supporting Digital Convergence Framework adoption

• The work of architeecting modern learning experiences for students is a long-term process that requires engagement from leaders at all levels. The Technology Services team is excited to support this important work in collaboration with other District leaders.

Peer Review

• In the 2021-2022 school year it will be five years since the department was reorganized under the leadership of a new Director of Technology and Innovation. This provides an opportunity to continue the reflection on the growth of the District’s technology function. By inviting in technology leaders from similar schools across the country, the CoSN Peer Review process provides honest and constructive feedback to the District from Certified Educational Technology Leaders.
Leadership and Vision

The vision of North Allegheny is to inspire excellence in academics, athletics, arts, and activities for every student every day. The Technology Services leadership team strives to develop practices, policies, and programs to execute this vision so that all members of the North Allegheny community can excel every day.

Leadership Across the District

The NA Technology Services Team has a key leadership presence in the instructional and operational aspects of the District. The department’s focus is to support the District mission of preparing all students for success in a changing world.

The Department is represented on the administrative level by two District leaders.

The Director of Technology and Innovation is a member of the superintendent’s cabinet and leads the work of the entire department in supporting the long-term planning and sustainability of the District and Departments overall vision for implementing technology to modernize learning and business operations.

The Coordinator of Academic Technology leads the academic components of technology that supports the North Allegheny instructional model. The coordinator is a critical liaison and decision maker with curriculum and instruction cross-functional groups.

Technology Services administrators are represented on the following groups:

- Academic Support Team (AST)
- Business Roundtable
- Crisis Response
- Curriculum Senate
- Data Governance Committee
- District Advisory Team (DAT)
- District Comprehensive Planning Committee
- Elementary Facilitators
- Elementary Support Team (EST)
- Executive Council
- Labor Management
- Management Support Team (MST)
- Ministerium
- Professional Education Committee (PEC)
- Secondary Support Team (SST)
- Superintendent’s Parent Liaison Committee (SPLC)
• Technology Advisory Committee (TAC)
• Technology Issues Committee (TIC)
• Technology Services Change Advisory Board (CAB)

In addition to the administrative participation in existing leadership teams members of the Technology Services Department are constantly working to support the functions of the various instructional and business operations of the District. The processes can be both formal, through a Data Governance subcommittee, or informal, in ad-hoc support of other District teams.

Data Governance

The Data Governance Committee developed and adopted a new DG Charter in January 2020 to establish the membership, mission, vision, and decision-making process for data-related issues at North Allegheny. The charter, Data Governance Matter Trackers, and Data Quality Playbooks are available at the new NASD Data Governance Sharepoint.

**DATA GOVERNANCE MISSION**
*The Data Governance Committee designs, builds and maintains a data ecosystem that empowers North Allegheny to use data to make better student-centered decisions.*

**DATA GOVERNANCE VISION**
*North Allegheny School District will leverage interconnected resources providing reliable data to appropriate stakeholders for strategic decision making.*

The DG Committee will establish, monitor, and enforce rules, processes, and policies around data and identify the appropriate data stewards who are responsible for working directly with NASD data. The Committee is not responsible for the actual collection, manipulation, or distribution of data.

Led by an identified DG Lead, the Committee comprises leaders representing a cross section of departments and programs at NASD. To ground the work, the Committee first worked with NASD leadership to identify pain points around data access, use, validity, reliability, training and communication. Along with developing the Charter for the DG committee, initial pain points were identified. The Charter included a means to address these pain points through work groups (WG) and subcommittees and then brought to the Committee for discussion and voting.

Through the work of the DG Committee, the following results are expected:

• The Committee will represent all voices at NASD.
• All NASD leaders will understand, support, and promote both the work of the Committee and the active implementation of Committee decisions.
• Internal and external data users and stakeholders will be able to access high quality data with greater clarity and transparency.
• Those affected by changes to data, applications, and systems will vet proposed idea first.
• Decisions concerning district data will prioritize interoperability, a common data standard, access and usage, and security and privacy.

The Charter shall also inform internal and external stakeholders of the data governance structure at NASD. This should be considered a living document and should be amended as the needs of NASD change.

### Technology Services Roadmap
#### Leadership and Vision

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<tr>
<th>2020-2021</th>
<th>2021-2022</th>
<th>2022-2023</th>
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<tbody>
<tr>
<td>• Lead the efforts of implementing the Digital Convergence Framework to support Modern Learning. [End Result]</td>
<td>• Support the implementation of District Goals based on the adopted Comprehensive Plan.</td>
<td>• Support the implementation of District Goals based on the adopted Comprehensive Plan.</td>
</tr>
<tr>
<td>• Participate in the Portrait of a Graduate development process. [End Result]</td>
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<tr>
<td>• Continue to support, expand, and implement Data Governance.</td>
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Strategic Planning

During the 2018-19 school year, the community-based Educational Technology committee conducted a mid-point review of the District’s progress towards the goals of Focus 2020. It became very clear to the committee that the future focus of educational technology is directly aligned to the District’s mission to prepare all students for success in a changing world. The phrase the committee honed in on was “in a changing world.” As the committee began examining areas such as the future of work, essentials skills for future success, and instructional practices it was evident that the District needed to examine and plan for digital convergence to shift toward a more modern learning environment. The committee recommended that the District adopt the Modern Teacher framework for digital convergence. The adoption of the Modern Teacher framework is highlighted in the Instructional Focus and Professional Development portion of this report.

Technology Planning

The digital convergence framework has helped shape Technology Services planning. In addition to the Modern Teacher framework, the District has partnered with nearly a dozen organizations to help guide the District’s planning for leveraging technology to support modern learning. These organizations include:

- **AIU3 TransformEd** – which connects educators with professional learning, technology access, peer networks, and grant funding they need to start, scale, and sustain transformational change.
- **Allegheny Conference** – which is focused on improving the Pittsburgh region’s economic future and quality of life by bringing together public and private sector leaders to define and communicate a regional vision, build partnerships, and mobilize action to advance a shared vision for the future.
- **Consortium for School Networking (CoSN)** – which is a professional association for school system technology leaders. CoSN provides thought leadership resources, community, best practices, and advocacy tools to help leaders succeed in the digital transformation.
- **Dell Foundation** – who work with partners to develop and provide tools so that educators can analyze each student’s academic achievement and change direction as needed.
- **Ed-Fi Alliance** - a nonprofit devoted to helping school districts and states achieve data interoperability by connecting educational data systems, to empower educators with comprehensive, real-time insights into students’ performance and needs.
- **Ethical Intruder** – an organization that uses an agnostic approach to evaluate and assess cybersecurity programs.
• **Grable Foundation** – a Pittsburgh-based foundation that is dedicated to improving the lives of children by supporting programming that ignites students’ interests, stretch their abilities, and set the path toward a successful future.

• **IMS Global Learning Consortium** – a nonprofit which strives to advance technology that can affordably scale and improve educational participation, attainment and ensure that the “Learning Impact” of technology-enabled innovation is achieved.

• **International Society for Technology in Education (ISTE)** – an organization that works towards transforming teaching and learning, accelerate innovation and solve tough problems in education by delivering: practical guidance, evidence-based professional learning, virtual networks, thought-provoking events.

• **Pennsylvania Association of Educational Communications and Technology (PAECT)** – an organization that promotes professional development, communications, and leadership in educational communications and technology in the Commonwealth of Pennsylvania.

• **Project Unicorn** - is a nonprofit focused on improving the adoption of industry adopted data interoperability standards in the education technology space and empowering districts and states to be smart consumers in their procurement of technology.

• **Remake Learning** - a network of regional resources and organizations that ignites engaging, relevant, and equitable learning practices in support of young people navigating rapid social and technological change by collectively leveraging resources and reducing duplication of efforts.

With guidance from these organizations and both our internal and external stakeholders Technology Services continues to strive to attain the District’s Comprehensive Planning Goal 5 of innovating our educational practices and become leaders in technology integration.

**Capital Funding Plan**

The District uses a Capital Reserve Fund as a means to finance capital improvements as a means to minimize the impact of capital improvements on cash flow and can be used for repair and replacement of plant, property, and equipment. Technology Services uses Capital Funding, in conjunction with e-rate funding, to create a sustainable cycle of level funding to maintain the infrastructure in a sustainable, secure, and reliable manner. Through the planned Capital Funding process, the District has been able to fund projects such as the large-scale purchase of interactive boards in classrooms, re-wiring of buildings, along with the installation and expansion of wireless access points. Technology expenses are typically forecasted out 6 years through the Capital Funding Plan. Upcoming projects include continued maintenance of the core infrastructure, upgrades to projection systems in school auditoriums, and the deployment of an IP-based (network) video distribution network.

**Measuring Success**

Starting in 2014, the District began to collect data about the use of technology in our classrooms to support teaching and learning; the District has used the survey tool from BrightBytes to collect this data. It is important to measure the impact technology has on teaching and learning. There are four specific technology domains that are analyzed
each year through the BrightBytes survey: Classroom, Access, Skills, and Environment. These are the essential factors needed for successful implementation of technology in the classroom. Unfortunately, due to the timing of the school closures in response to the COVID-19 pandemic, BrightBytes data was not collected in the Spring of 2020. However, it is important to note that in the Spring of 2019 the District’s overall score of 1102 was higher than the national (1073) and Pennsylvania (1061) scores. The District’s baseline scores from 2014, prior to Focus 2020, were below the state and national averages.

The District’s has also been recognized for our efforts towards becoming leaders in educational technology by outside organizations including:

- Mr. Rich Platts, NA’s Director of Technology and Innovation, being awarded the Pennsylvania Association for Educational Communications and Technology (PAECT) Chief Technology Officer.
- The District has been recognized as a Common Sense Education District; an award that acknowledges our efforts to educate all students about digital citizenship.
- The designation of “Apple Distinguished School” to Carson, Ingomar, and Marshall Middle Schools. This designation is earned through demonstrating that the school is a center for innovation and an exemplary learning environment. There are only 535 schools globally that have earned the designation of an Apple Distinguished School.
- Fifteen (15) North Allegheny educators have been awarded the designation of a Keystone Technology Innovator which identifies these educators as the best educational innovators in Pennsylvania.

### Technology Services Roadmap

#### Strategic Planning

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<th>2020-2021</th>
<th>2021-2022</th>
<th>2022-2023</th>
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<tbody>
<tr>
<td>• Continue annual updated publication of Technology Services Roadmap.</td>
<td>• Apply for the Trusted Learning Environment Seal.</td>
<td>• Continue annual updated publication of Technology Services Outlook.</td>
</tr>
<tr>
<td>• <strong>Contribute to the development of a Comprehensive Plan that supports innovation, experimentation and risk-taking among our staff. [End Result]</strong></td>
<td>• Continue annual updated publication of Technology Services Outlook.</td>
<td>• Evaluate recommendations from CoSN Peer Review.</td>
</tr>
<tr>
<td>• Publish departmental roadmap on Digital Ecosystem Hub.</td>
<td>• Participate in Peer Review from CoSN.</td>
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Ethics and Policies

The District has policies not just to comply with legal requirements but provide a transparency related to the operation of the District. District Policies provide the community and employees definitions of operating practices and acceptable practices.

Relevant Technology Policies

The District has adopted various policies to govern technology use in the District. These policies include: 224.1, 352, 452, and 552 Responsible Computer, Telecommunications, and Information Technology Use, 237 Electronic Devices, 829 Electronic Signatures, 830 Breach of Computerized Personal Information, and 836 Social Media.

Technology Services strives to regularly review and update policies to best protect the District and to address new systems, new technologies, and best practices.

Records Retention

In the Fall of 2019, the School Board approved an updated Records Management policy (Board Policy 800) along with an updated Student Records policy (Board Policy 216) to assure compliance with federal and state laws and regulations. These policies define how Technology Services maintains electronic and email records. As a part of the overall Records Management Plan, Technology Services will be taking the lead in providing professional development for educators regarding the records management procedures. In the 2020-21 school year, an online course will be developed for educators and designated staff that updates employees about records management and student data privacy. This course will be developed with the support of the Student Services Department.

Cyber-liability Maturity Model

District Administration has worked across various stakeholder groups to provide Cybersecurity training and engagement with all staff members. All professional and administrative staff participated in 90 minutes of required cyber-security training during this year and are scheduled to complete a 30-minute refresher in the upcoming school year.

During the 2019-2020 school year, Technology Services expanded two-factor authentication to Staff members. The Technology Services team continues to engage with cyber-security partners to perform vulnerability testing, penetration testing and phishing testing. It was planned to transition all members of the staff to two-factor authentication by the end of the school year, but this progress was disrupted by the COVID-19 closures.
Additionally, the Technology Services team has focused on the security infrastructure. This year the department consolidated two key security platforms to take advantage of Microsoft 365’s Advanced Threat Protection features. The Department has also begun to move toward centralized security appliance logging within the Azure Sentinel SIEM / SOAR platform.

### Technology Services Roadmap

#### Ethics and Policies

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<tbody>
<tr>
<td>• <strong>Implement Cyber Liability Maturity Model recommendations from Security Assessment performed in Spring 2018. [End Result]</strong></td>
<td>• Review technology related board policies and propose updates as necessary.</td>
<td>• Evaluate TLE results and continue to refine practices and policies to support student and staff data privacy.</td>
</tr>
<tr>
<td>• Review two-factor authentication integration for PC and Mac logon when off-site.</td>
<td>• Implement changes required to qualify for the TLE seal.</td>
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<td></td>
<td>• Implement two-factor authentication for all staff for device logon.</td>
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<td></td>
<td>• Support the implementation and training for the Records Retention Plan.</td>
<td>• Continue cyber-security assessments and partnership with third party security provider.</td>
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<td></td>
<td>• Define and publish minimum vendor specifications for security and data privacy standards.</td>
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<td></td>
<td>• Develop a plan to ensure compliance with the Trusted Learning Environment seal.</td>
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<tr>
<td></td>
<td>• Define regular cadence of simulated phishing attacks against NASD staff. Develop procedures for follow-up and training for non-compliant staff.</td>
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## Technology Services Roadmap

### Ethics and Policies

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<tbody>
<tr>
<td>• Continue regular cadence of Penetration and Vulnerability assessments.</td>
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<tr>
<td>• Review and update technology related policies.</td>
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Educational Environment

The Digital Leap Success Matrix helps District leaders to evaluate their performance in education and business operations in a technology-supported environment. In the category of Educational Environment, the matrix highlights the following:

Instructional Focus and Professional Development – School system leaders’ budget, plan, and coordinate ongoing, purposeful professional development using technologies for all staff.

Team Building and Staffing – School system leaders create and support cross-functional teams for decision-making, technology support, professional development, and other aspects of the school system’s technology program. The school system aligns resources to functional requirements. The school system hires motivated, self-directed staff.

Stakeholder Focus – The school system builds trusting relationships with all stakeholders. School system leadership understands the key factors that lead to stakeholder satisfaction and implements practices to gather feedback from students and other stakeholders.

Highlights from the 2019-2020 School Year

Standardizing K-12 Learning Management Systems

- The District has standardized on Blackboard as the learning management system for grades K-12. This change is intended to provide consistency in accessing blended learning materials and to support professional development in use of technology for designing learning opportunities.
  More detail provided in the Instructional Focus and Professional Development section of this report.

Modern Learning

- The Technology Services team supports the six drivers of Digital Convergence as North Allegheny focuses on the systemic supports and changes to ensure that student experiences directly reflect the competencies that they need to thrive after graduation.
  More detail provided in the Instructional Focus and Professional Development section of this report.
Digital Ecosystem Hub

- The Technology Services Department will lead the development of a unified resource that will provide stakeholders with consolidated educational technology information. This hub is anticipated to be available before the start of the 2020 School Year and will include information regarding student device care and protection, approved software lists, and information regarding the District's software approval processes.

Planning for hybrid-flexible learning

- Technology Services leaders are highly involved in the work required to return safely to school in the Fall of 2020 with the ability to support all NASD learners equitably.

TigerID for parents

- The Technology Services team anticipates the expansion of Single Sign On (SSO) through TigerID to include parents. This unified single login will initially eliminate separate logins for the Tyler SIS 360 Data Portal, and Blackboard. The department is committed to working with vendor partners to expand SSO access to additional products as they become available.
**Instructional Focus and Professional Development**

Having a strong instructional focus helps keep coherence among multiple initiative and frames our work to prioritize initiatives that directly impact classroom practices. Professional Development is essential to strengthen the efforts of instructionally focused initiatives.

**Supporting Modern Learning at Scale**

The Technology Services team plays a key leadership role in the District’s Modern Learning focus by supporting the six drivers of Digital Convergence as North Allegheny focuses on the systemic supports and changes to ensure that student experiences directly reflect the competencies that they need to thrive after graduation.

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**Instructional Focus and PD Digital Leap Success Elements**

- Adaption of Innovative Practices
- Student Ownership
- Balanced Outcomes
- Data-Informed Instruction
- Data-Informed Learning
- Professional Development
- Collaborative PD
- Continual Improvement

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**Branding Modern Learning**

The work of implementing the Digital Convergence Model has been both accelerated and hampered by the 2020 COVID-19 interruption. The Digital Ecosystem team has assembled a number of models for a revision to the North Allegheny Digital Ecosystem tool evaluation. The Administration anticipated that work will continue on implementing this tool during the summer of 2020.

The team also recognizes that the website redesign provides a unique opportunity to collaborate with the communications team to design a one-stop landing page for community member information.

The rebranding of Focus 2020 is still pending. This work around branding the Modern Learning Environment was disrupted due to the COVID-19 closure.
The Academic Technology unit of Technology Services works closely with the Curriculum Office to support key components of learning such as active engagement, participation in groups, frequent interaction and feedback, and connection to real-world experts through the use of technology. Additionally, the team supports the operational aspects of technology use by students and teachers by facilitating access to systems including Blackboard, on-line textbooks, content providers such as Discovery Education and Everfi, educational apps, and assessment tools such as aimswebPlus and StudyIsland. The Academic Technology unit strives to support the Curriculum Review process by providing feedback about tools and resources being investigated to support instruction.

Additionally, the team works very closely with the Instructional Technology Integrators and the Office of Professional Learning to support and encourage teachers in the pursuit of new knowledge and skills. The academic team has coordinated professional learning activities such as the 2019 *Dreaming, Thinking, Doing* professional development day which created a unique learning experience where teachers and students switched roles as students presented their technology-based learning experience. The academic team developed the 2019-20 Cybersecurity course and will continue to develop online professional development for the District including a 2020-21 course on *Digital Citizenship for Educators*. The Coordinator of Academic Technology acts as an advisor to the Instructional Technology Integrators and Coordinator of Professional Learning as to professional learning needs and helps shape the technology-based learning opportunities for our educators.

**Standardizing Learning Management System**

The COVID-19 crisis has highlighted our need to assess how we conduct education in a remote learning environment. Community feedback from May 2020 highlighted two major themes surrounding remote education: (1) a lack of consistency in the means of communicating instructional content to students and families, particularly at the elementary level; and (2) a lack of consistency in the delivery of instruction. Based on these concerns, the District decided to standardize on a single LMS product for our elementary program. A review of products was conducted using the following criteria for identifying a standard LMS tool:

- Standardized experience for teachers, students, and parents
- Consistent format and display of information
- Consistent location for assignments/materials
- Support a learning environment that flexibly moves between in-person and remote learning
- Consistent standards-based curriculum (assured experiences) for students
- Support for the NASD Instructional Model
- Modern Learning
- Rigorous and Relevant Learning
- Personalized Learning
- No additional expense to the District
During the evaluation process Technology Services worked with over 70 stakeholders, primarily elementary, to solicit feedback and comments on how to weigh this decision. At the conclusion of the process the recommendation of the Administration, in agreement with NAFT leadership, was to standardize on Blackboard (K-12) for 2020-21 school year. The successful adoption a learning platform necessitates robust Professional Development on leveraging technology differently to shift the delivery of instruction in a flexible environment. Professional Development for elementary teachers in Blackboard began during the end-of-year professional development days in June 2020.

Designing Flexible Instructional Delivery Models

In August of 2019, the District submitted a Flexible Instructional Day (FID) application to the Pennsylvania Department of Education.

FID programs can support public school entities in cases when circumstances prevent the delivery of instruction in its customary manner (i.e. hazardous weather conditions). The number of FIDs instituted may not exceed five days per school year. The District’s FID application was subsequently approved, and this is valid for three school years (2019-20, 2020-21, and 2021-22).

In November of 2019, a FIDs retreat was coordinated which included a variety of K-12 District stakeholders. The purpose of the Retreat was to outline the parameters of a FID, identify what student learning would look like, and establish staff expectations for these days. The discussion led to the development of an informational document that was shared with families and staff members across the District. Below are some of the highlights that were included in this document:

Grades 6-12
Middle School and High School students are expected to log on to Blackboard (blackboard.northallegheny.org) to access assignment information. Each individual course will have a FID module available which will contain the FID activities/lesson for the day. This material will be available no later than 9:00 am on the FID. If a child does not have Internet access, the child will need to contact his or her teacher on the next school day. Students will have five (5) school days, once school resumes, to complete their learning activities.

Grades K-5
Elementary students will work on a FID lesson unique to their grade level. A team of elementary educators created grade-level and special area menus of activities for a student to complete. Students will have five (5) school days, once school resumes, to complete their learning activities.

Staff Availability
All school-based staff members will be available to answer questions on a FID via email during the hours below. In addition, the student technology help desk will also be available.

- High School-7:30 AM to 2:30 PM (assignments will be available on BlackBoard after 9:00 AM)
• Middle School-8:15 AM to 3:15 PM (assignments will be available on BlackBoard after 9:00 AM)
• Elementary School-8:45 AM to 3:45 PM (assignments will be available on teacher webpages by 9:00 AM)

The End Result committee hoped that the lessons learned through the development and implementation of FIDs would help inform future decisions as they relate to the possibility of reopening the NA Cyber Academy. Due to the fact that FIDs would only be implemented once the District exhausted all four built-in snow days, there was no need to implement a FID as intended. However, when schools were closed due to COVID-19, the work done in this area helped inform the District’s Continuity of Education Plan. As the District shifted into a remote learning environment, feedback was gathered from students, parents and staff members both anecdotally and through a remote learning survey. This feedback is being utilized to make future decisions as it relates to remote learning and should be considered during any discussions around a cyber school. The realities of the global pandemic have forced school districts to rethink how they deliver instruction to students and create learning environments that meet the needs of students in-person and through cyberlearning options. This would give students the opportunity to still participate in learning activities when they are not physically in the school building. It would mean that live/synchronous instruction would be the norm as the physical location of students might be a variable.

Technology Services Roadmap

<table>
<thead>
<tr>
<th>Instructional Focus and Professional Development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2020-2021</strong></td>
</tr>
<tr>
<td>• Develop and support an instructional model that will redefine the District’s Students’ experiences. [End Result]</td>
</tr>
<tr>
<td>• Explore curriculum development options for online or blended learning courses. [End Result]</td>
</tr>
<tr>
<td>• Finalize and inform staff members about the Digital Ecosystem Tool Evaluation process.</td>
</tr>
<tr>
<td>• Complete overhaul of K-12 Blackboard environment.</td>
</tr>
<tr>
<td>Benefits</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Support full and fast-track curriculum reviews in Science, BCIT, FCS, Visual Arts and Music. [End Result]</td>
</tr>
<tr>
<td>Develop cyber and blended learning options where students can learn in-person or remotely. [End Result]</td>
</tr>
<tr>
<td>Explore and implement in-classroom technology that extends the classroom experience to students who cannot be physically present in the classroom.</td>
</tr>
<tr>
<td>Develop and support robust professional development for the return to school in the Fall of 2020.</td>
</tr>
</tbody>
</table>
Team Building and Staffing

The Technology Services Team consists of 15 Confidential Staff, 3 Confidential Managers, and 2 Administrators. Additionally, the team is supported by a contracted staff member, who supports all aspects of student one-to-one device maintenance and repair.

The Department leadership team is called the Change Advisory Board (CAB) and consists of the Director, Coordinator, Team Managers and System Administrators. The CAB team meets weekly to raise issues, discuss and implement technology changes, and coordinate efforts in supporting complex issues.

Technology Services Organization Chart

Building Out Skill Sets

Moving Forward as Technology Changes

The technology industry moves rapidly it is vital that the Technology Services staff stay up to date on the capabilities of current software and applications while anticipating the coming trends in the future. The team views the Technology function as a continuous improvement cycle and takes part in numerous opportunities for professional learning. For example:

- Monthly team-member led lunch and learns to encourage cross-training
- Participation in CBT Nuggets modules
- Self-study materials provided to pursue certification opportunities
- Study groups to pursue identified certification tracks
  - Microsoft, CISCO, CompTIA, Palo Alto
- Repayment of successful professional certification examination fees for staff members
- Participation in statewide technology conferences for staff members
Adding New Skills

The addition of the Data Modeler position this year has provided a level of data analytics with a focus on leveraging data insights that benefit student learning has been essential to modernizing the way that North Allegheny is able to leverage modern tools to benefit the organization. In the first six months of this position, there have been significant immediate outcomes as well as groundwork to leverage new technologies in the future.

- Student Climate Survey National Norm Comparison Analysis
- Development of PowerBI environment
  - Enrollment Dashboard
- Development of Ed-Fi Operational Data Store and PPT Project (Dell Foundation Grant)
- Development of business process automations
- Development of District tool API integrations

This position also takes on the role of Data Governance Manager to coordinate the efforts of the Data Governance team and has been critical in bringing these efforts to fruition.

Recognizing Gaps and Additional Areas of Need

State Reporting Vacancy

As of June 2020, the Department has a vacancy in the role of PIMS administrator that is currently being backfilled by the Director of Technology and Innovation. During this period of vacancy, members of Executive Council are working to understand the scope of responsibilities needed in this role and utilizing existing District tools to empower data stewards in other departments to take more ownership over state-reporting data.

Additional Needs

As the Department continues to evolve, there are an increasing number of applications and products that are anticipated to have support needs.

- The adoption of an **HR Management System** will require significant integration and support from the Technology Services department to ensure that critical systems remain functional.

- The adoption of a **Professional Development Management** platform will require significant integration and support from the Technology Services department to ensure that critical systems remain functional.

- The District’s need to migrate from a shared folder system to a secure and managed **SharePoint** solution provides the challenge of managing this environment and ensuring that all staff members are trained and able to self-manage department SharePoint assets.
- The District has indicated a goal to move to a more efficient **electronic records management** strategy. This includes the need to manage tagging, document classification and sensitivity within the platform. Technology Services is currently limited in the level of support that can be dedicated to full-time business process development.

- The District has an opportunity to make significant **business process and automation** workflow improvements integrated to the Microsoft365, Power Automate and SharePoint platform.

- The District would benefit from additional expertise in modernizing systems integrations through Applications Programming Interfaces (APIs) – this is an area for development.

- The District would benefit by increasing the capacity for application coding and programming.

### Technology Services Roadmap

#### Team Building and Staffing

<table>
<thead>
<tr>
<th>2020-2021</th>
<th>2021-2022</th>
<th>2022-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Evaluate the efficacy of insourcing contracted staff.</td>
<td>• Continue to evaluate staff skills in relation to anticipated technology needs and plan accordingly to augment, develop or recruit to meet these needs.</td>
<td>• Continue to evaluate staff skills in relation to anticipated technology needs and plan accordingly to augment, develop or recruit to meet these needs.</td>
</tr>
<tr>
<td>• Redesign vacant position to meet identified needs.</td>
<td>• Seek efficiencies in processes to focus staff on the highest priority needs.</td>
<td>• Seek efficiencies in processes to focus staff on the highest priority needs.</td>
</tr>
<tr>
<td>• Plan for building capacity to support anticipated increases in workload and skill demand.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Support staff members certification and development goals by providing time, support, and resources.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Evaluate representation of Department Staff on Change Advisory Board (CAB)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Stakeholder Focus

North Allegheny is fortunate to have an array of both internal and external engaged stakeholders. Our stakeholders provide feedback on prioritizing projects, serve as champions for change, and act as collaborative sounding boards. The overarching goal of increasing Technology Services engagement with our diverse stakeholders is to strengthen and foster support for the changes and evolution of the District’s digital ecosystem.

Identifying NASD Technology Stakeholders

Developing partnerships and connections to the NA community is an important aspect of the Technology Services goal of servicing our learners, schools, and families. The leadership of Technology Services routinely meets with internal and external stakeholders, illustrated below, through various committees and maintains many informal connections with stakeholders. The department attempts to provide information and seek feedback from our stakeholders through various communications mediums including, e-blasts, the District website, and through parent presentations at back-to-school time and smaller building-based meetings. Our stakeholders are instrumental in informing and shaping the District’s technology initiatives.

TigerID for Parents

During the 2019-2020 school year the Technology Services team has continued to focus on working with District vendor partners to ensure that the tools and services that are used by staff, students and parents support secure, industry-standard single-sign-on authentication methods that provide seamless access to digital tools.
TigerID is the North Allegheny-branded username and password credential that is recognizable by all users. TigerID has been in use for the past two years with Staff and Students. TigerID powers additional security features such as two-factor authentication, which has been added to all staff accounts as of June 2020.

In the Fall of 2020, it is anticipated that the District will expand the TigerID program to include single-sign-on for North Allegheny parents and guardians.

A Service-Based Approach with (ITIL – ITSM)

ITIL (Information Technology Infrastructure Library) is a set of detailed practices for IT service management (ITSM) that focuses on aligning IT services with the overall organizational mission. The Technology Services team has made significant progress in implementing some of the core areas of the ITIL framework.

Department has efforted toward adopting the ITIL service lifecycle include improvements and planning in the areas of Service Strategy, Service Design, Service Transition, Service Operation, and Continual Service Improvement. The implementation of this model was fundamental to the department to be able to seamlessly shift to supporting thousands of active additional constituents in the form of families during the COVID-19 crisis.

Technology Services utilizes an ITSM Service Desk Platform. The Service Desk serves staff, students, and families via multiple channels of support. A self-service portal allows access to ticket history and updates, a knowledge base for pre-populated solutions, and service requests. Staff, students and families can receive walk-up, email ServiceDesk@northallegheny.org and telephone support; all of which are tracked through this system. As TigerID is rolled-out to parents, they too will be able to access the portal through the TigerID platform.

Freshservice is designed with the ITSM Service Lifecycle in mind. The team is utilizing the advanced features of the software that help to manage incidents, service requests, problems, changes, and releases.

<table>
<thead>
<tr>
<th>Technology Services Roadmap</th>
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<tbody>
<tr>
<td>Stakeholder Focus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2020-2021</th>
<th>2021-2022</th>
<th>2022-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educate the community on the need for transforming educational practices in the District to align with modern blended learning and equitable practices. [End Result]</strong></td>
<td><strong>Continue to engage with Stakeholders in support of Modern Learning.</strong></td>
<td><strong>Continue to engage with Stakeholders in support of Modern Learning.</strong></td>
</tr>
<tr>
<td><strong>Expand regional connections to educational partner organizations.</strong></td>
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<td></td>
</tr>
</tbody>
</table>
## Technology Services Roadmap
### Stakeholder Focus

<table>
<thead>
<tr>
<th>2020-2021</th>
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<th>2022-2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Reconvene the Technology Advisory Committee to support the implementation of Modern Learning and Portrait of a Graduate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Develop orientation program for parents and students to understand the expectations and procedures for using Digital tools in learning.</td>
<td></td>
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</tr>
</tbody>
</table>
Managing Technology and Business

The Digital Leap Success Matrix helps District leaders to evaluate their performance in education and business operations in a technology-supported environment. In the category of Managing Technology and Business, the matrix highlights the following:

Infrastructure – The school system maintains a robust infrastructure that aligns to industry standards and is adequate to meet the needs of stakeholders.

Information and Data Management -- The school system manages the data systems that are needed for operations and instruction. There are general controls in the areas of access, system development and maintenance, documentation, operations, and physical security. To the extent possible, systems are integrated and interoperable and provide each user with a simple interface to the functionality he/she needs. The school system maintains appropriate controls and safeguards for both student and staff personal information.

Communications Management - The school system manages the platforms and messages used to communicate transparently with internal and external stakeholders, effectively using both emerging and mature technologies as appropriate.

Business Management - The school system manages budget, financial operations, disaster recovery, and business continuity effectively. The school system determines the return on investment for all technology implementations. School system leaders foster good relationships with vendors, potential funders, and other key groups.

Highlights from the 2019-2020 School Year

Sustainable Infrastructure Plan

• The Technology Sustainable Infrastructure Plan was adopted as part of the Capital Funding Plan in the Fall of 2019. Year 1 of this plan is anticipated to be fully funded in the 2020-2021 budget. The Plan aims to fund future technology investments in a way that allows the District to maximize its eligibility for E-Rate Federal Technology funds, and prevent the need to be locked into long-term leases for core infrastructure hardware.

More detail provided in the Business Management section of this report

Business Needs Assessment

• During the 2019-2020 school year, the District engaged in a needs assessment process that was focused on the critical business systems that support the operations of the District. This work was intended to support a fit-gap analysis with recommendations on how to proceed with process and systems improvements to modernize operations.

More detail provided in the Business Management section of this report.

Highlights of the future planning roadmap
Preparing NASD Infrastructure for the Cloud

• The Technology Services team has focused on the work required to make the District cloud-ready. During the next three years the department will begin to evaluate the most effective and efficient path forward to take advantage of the cost-savings and advanced technologies available in the Cloud.

Modernizing Business Processes

• The Technology Services Team is leading the work of assessing and adapting the Business systems to modernize business practices throughout the District. By performing Fit-Gap analysis, the Department will continue to support all aspects of business operations by making recommendations to update business processes, change system configuration, or assess, implement and integrate tools that best meet the identified needs.
Infrastructure

Technology Services at North Allegheny spans a wide variety of different resources, which support the ability of our staff, students, parents and community members. In the diagram below, Technology Services are listed on each of the District goals, represented by a “line” on the subway map. These goals intersect in the central “station” of the NA Mission. The outer ring supports the major infrastructure support that make the rest of the services possible.

Overview of Current NASD Infrastructure

Network Infrastructure

The North Allegheny Network supports wired and wireless network access in 15 separate schools and sites across the District. The network design follows a traditional hub and spoke design with the Datacenter at CAO acting as the Main Distribution Point. Recent updates have provided additional redundancy by separating highly available Firewalls to the Marshall campus to provide supplemental Internet connectivity.

The District is a participant in the Allegheny County Regional Wide Area Network (RWAN) and is represented by Mr. Platts who sits on the RWAN Committee of Governance. The RWAN provides 10 Gigabit per second network connectivity, commodity internet subscription, local peering with major service providers, and access to the Internet2 backbone for transport to key services.

The network interconnects sites with a combination of leased-lit (E-Rate Discounted) fiber on the DQE network, and district-owned fiber on multi-site campuses. Building interconnects are now standardized to support up to 10 Gbps transport...
School Building wiring is standardized on Category 6A cabling where possible. Multi-gigabit connectivity within each building data closet is supported by fiberoptic cable.

After the expansion of Franklin Elementary School, over 1000 Wireless Access points provide wireless access District-wide. In order to support the District’s one-to-one technology environment, each classroom supports a wireless access point, and recent projects have expanded the capacity of large-venue spaces significantly.

In addition to wired data to endpoint workstations, the NASD Network provides power and communications for many other networked services across the District including:

- Telephone Systems
- Video Surveillance
- IP Video Distribution
- IP Bells, Paging, Speakers and Emergency Notification Systems
- Wireless Access Points
- HAVC and Building System Access
- Digital Signage

Datacenter

The District’s primary datacenter is housed at the Central Administrative Offices and houses the main Network Core and server farm infrastructure.

The District currently supports two virtualization platforms VMWare and Nutanix. There are legacy servers hosted on each platform. In the coming years, it is the intent of the Department to downsize and standardize and streamline on-premise server infrastructure when the Datacenter hardware is near end of life and adopt a cloud-ready posture at that time.

The Datacenter also supports the core of an Apple software and app caching infrastructure that is distributed throughout District sites.

The Datacenter is protected by an inline enterprise-grade UPS for battery backup for short outages, and a natural-gas fed generator for longer outages. Backups are managed using Commvault and snapshots are sent off-site to Amazon Web Services for off-premise storage.

Endpoint Hardware

North Allegheny supports a variety of endpoint hardware platforms to meet the needs of staff members and students. The primary device ecosystems supported by Technology Services are Apple and Microsoft devices.

The largest number of devices overall is the Apple iPad with over 7000 supported devices in active use. This number is anticipated to increase in the 2020-2021 school year as Kindergarten device access is increased. Small subsets of teaching staff and Administrators have Apple iMac devices as their district-issued laptop.
The District is standardized on Windows 10 PCs for the majority of staff members and students in grades 9-12. Beginning in 2019, the Department moved to support laptop deployments with docking stations at many office locations. This shift to making our workforce more flexible was a key success factor in pivoting our workforce to work from home in the Spring of 2020.

Modern Device Management

During the 2019-2020 School Year, the Technology Services team has been preparing for a major technology shift in the management of Windows PCs. This shift leverages the Microsoft 365 environment to leverage Intune for modern desktop management, extending the ability of the Technology Services team to manage windows PCs when not connected to the NASD network. In prior years it has been challenging to deploy software and updates to staff while they were off-network, as the District was using a more traditional System Center Management approach. This shift has required significant new learning in the Systems Administration team, and a great deal of preparation of the Client and Field Service Teams in supporting this new management method.

Staff members and Students will experience an NASD Branded Autopilot “Out of the Box Experience” when logging into a new PC for the first time. This process can be completed at home or on-site, and typically results in a fully functional PC within five to ten minutes with additional software updated in the background.

A North Allegheny Branded “Company Portal” allows for self-service from a pre-approved list of software. Windows and Software updates will be managed whether staff is on-site or at home and eliminates the need for overnight maintenance windows.

This process reduces the time required for department staff to provision PCs from several hours of imaging and software updates to several minutes of asset tagging and stickering with assignment information.

This new approach to Windows PC management is very similar to a Mobile Device Management approach.

The Apple and Mac environments already have the capacity to be managed in this way off site through the JAMF tool. The department is

Preparing NASD Infrastructure for the cloud.

Over the past two years the Department has begun the process of learning about the opportunities that are available when moving services to the Cloud either by adopting Software as a Service (SaaS) platforms, or investing in Platform or infrastructure as a Services (PaaS / IaaS) through commercial public cloud offerings.

To that end, the District has established preliminary cloud presences and relationships with vendors in both the Amazon Web Services (AWS), and Azure Public Cloud.

Currently, the District maintains a Virtual Private Cloud (VPC) in AWS with hot and cold Domain Controllers to maintain an off-premise presence of the District Windows domain.
This Virtual Private Cloud also hosts backup agent servers that enable the recovery of off-site backups from the on-premise server environment in AWS. Snapshots of local server backups are synced to Amazon S3 Buckets and are periodically tested through for the ability of staff to recover services to the cloud. The District maintains a stable Virtual Gateway to extend the District network to the AWS VPC. In the event of a catastrophic data center loss, the Department could recover critical servers to the cloud relatively quickly to ensure continuity of critical operations such as payroll.

The District has also begun evaluating the benefits of the Azure Cloud, and is currently hosting the District’s Ed-Fi Operational Data Store in the Azure Cloud.

As the District staff learns the pros and cons of each platform, it will be important in the coming years to formalize a plan for migrating production servers to the cloud. Currently, the District has sufficient processing and storage to run a large number of servers, each dedicated to performing specific services within the infrastructure. While this approach is appropriate in an on-premise environment, it is less cost-effective in the cloud. Prior to moving servers and services into the cloud, it will be important to add new learning in managing server power scheduling and maximizing compute investment in the cloud environment.

Streamlining Services and Eliminating Redundancy

In the 2019-2020 school year the Technology Services team identified two significant opportunities to streamline District operations that were made possible by the adoption of the Microsoft 365 environment in the Summer of 2020.

By adopting the Microsoft Exchange Online Environment, the District was able to leverage Microsoft’s Advanced Threat Protection for email. This tool includes anti-phishing and malware, spam filtering, email archiving and advanced eDiscovery. This change has created an opportunity to eliminate the District’s Mimecast platform that provided similar features at additional cost in previous years.

The Microsoft 365 environment also includes Windows Defender ATP, an enterprise endpoint security platform designed to help enterprise networks prevent, detect, investigate, and respond to advanced threats. By leveraging this available platform the District has the opportunity to consolidate services and not renew the Trend Micro subscription for similar services in December of 2020.

Department System Administrators are building skill in the Microsoft Security Environment by pursuing MS-500 training this summer.

Microsoft’s licensing for education customers in Pennsylvania is one of the most heavily discounted Enrollment for Education Solutions (EES) agreements in the country. This agreement is purchased through Lancaster Lebanon IU 17’s Software Sales Department. The District subscribes to Plan C, which provides access to the full ATP suite in addition to data analytics through PowerBI.
# Technology Services Roadmap

## Infrastructure Focus

<table>
<thead>
<tr>
<th>2020-2021</th>
<th>2021-2022</th>
<th>2022-2023</th>
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</thead>
<tbody>
<tr>
<td>• Continue to advocate for Sustainable Infrastructure Plan funding.</td>
<td>• Continue to advocate for Sustainable Infrastructure Plan funding.</td>
<td>• Continue to advocate for Sustainable Infrastructure Plan funding.</td>
</tr>
<tr>
<td>• Expand one-to-one to Kindergarten for Fall 2020. (Redeploy iPads)</td>
<td>• Continue Technology Service staff training on cloud services.</td>
<td>• Plan for E-Rate bidding and implementation of first phases of Sustainable Infrastructure Plan.</td>
</tr>
<tr>
<td>• Migrate Blackboard to SaaS.</td>
<td>• Evaluate Network standardization and future network plans in preparation for major network equipment refresh projects beginning in 2023.</td>
<td>• Evaluate and select a primary cloud environment and implement initial production servers as a pilot.</td>
</tr>
<tr>
<td>• Upgrade and Maintain phone system servers.</td>
<td>• Evaluate District Datacenter and cloud needs for application hosting.</td>
<td>• Determine a long-term strategy for sustainable video surveillance upkeep and replacement cycles.</td>
</tr>
<tr>
<td>• Implement Azure Active Directory – Intune PC Fleet Management for new devices and convert existing fleet to Intune Management.</td>
<td>• Determine a long-term strategy for sustainable video surveillance upkeep and replacement cycles.</td>
<td>• Evaluate and determine a long-term strategy for integrated building access tools.</td>
</tr>
<tr>
<td>• Firewall and VPN redundancy improvements.</td>
<td>• Evaluate District Datacenter and cloud needs for application hosting.</td>
<td>• Perform a “dipstick” evaluation on the endpoint device hardware environment for instructional and business operations and make recommendations.</td>
</tr>
<tr>
<td>• Migrate Antivirus and Antimalware to Windows Defender ATP.</td>
<td>• Evaluate and determine a long-term strategy for integrated building access tools.</td>
<td>• Perform a “dipstick” evaluation on the endpoint device hardware environment for instructional and business operations and make recommendations.</td>
</tr>
<tr>
<td>• Evaluate and select a primary cloud environment and implement initial production servers as a pilot.</td>
<td>• • Determine a long-term strategy for sustainable video surveillance upkeep and replacement cycles.</td>
<td>• Perform a “dipstick” evaluation on the endpoint device hardware environment for instructional and business operations and make recommendations.</td>
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</tbody>
</table>
Information and Data Management

To maximize operational efficiencies, the management of data and information is essential to all businesses. Improving data quality, assuring that data is understandable, trusted, accessible, interoperable, and usable are aspects of information and data management.

Seeking Automation and Interoperability

To maximize efficiencies Technology Services has been actively pursuing opportunities to automate as many routine processes as possible. One high impact automation project has been automating the on-boarding of new employees into the District’s digital ecosystem. Within 4 hours of a new employee being entered into the Human Resources system, their account access, TigerID, is automatically generated and a notification is sent to the new employee’s supervisor which includes information on how to access the District’s data systems. The automation process also enrolls the new employee into the appropriate email and system access lists based on their individual job role and building assignment(s). Included in this workflow is the generation of a service ticket that triggers the process of hardware assignment. A near identical process occurs when new students are enrolled in the District; the automated process creates their accounts, notifies the building with the student login information, and triggers the process of assigning a device to the student.

The administrative systems and academic technology units have worked closely to increase the automated processes that enroll new teachers and students into various academic systems. Through a combination of TylerSIS exports, the Identity Automation product behind TigerID, and a 3rd party product (Clever) Technology Services has been able to implement single sign-on (SSO) with the following products: Common Sense Media, ConnectED (McGraw Hill textbooks), Discovery Education, Ed Online (HMH textbooks), Everfi, Learning A-Z (RazKids), Naviance, NoodleTools, Pearson Easybridge (Pearson textbooks), Reflex Math, and ThinkCentral (elementary textbooks). Administratively, SSO has been implemented with Frontline Absences Management and Applicant Tracking products, aimswebPlus, Microsoft Mail, Microsoft Teams, Microsoft Office 365, and Modern Teacher. All of these automated processes simplify the user experience because they create easy and consistent access to District resources for students and employees.
A Commitment to Interoperability

North Allegheny’s Technology Services leaders are actively involved in advocating for K-12 School Districts through a number of national professional organizations. One of the most important roles of these groups is to amplify the voice that schools like North Allegheny have in calling for Educational Technology vendors to develop Mr. Platts is a member of the IMS Global K-12 Institutional Leadership Board. IMS Global is the leading international standards body for interoperability in educational technology products for K-12 and Higher Education. The goal of the K-12 Institutional Leadership Board is to lead the adoption of open instructional technology interoperability standards for curriculum, assessment, and all aspects of instructional improvement for the benefit of school districts and states working to put in place a new generation of IT infrastructure.

The District is partnered with the Ed-Fi Alliance to adopt and advocate for the Ed-Fi Common Data Standard.

The CoSN organization has an active interoperability advocacy effort. Mr. Platts was invited to be part of a panel discussion on the topic of interoperability at the 2020 Virtual CoSN conference.

As the District formalizes a revised Technology adoption process, the ability of vendors to be certified in their support of interoperability and data standards is critical.

Ed-Fi Operational Data Store

The Technology Services Department is completing a project, funded by a grant through the Michael and Susan Dell Foundation, to build an Ed-Fi Operational Data Store (ODS), in support of efforts to better leverage district data across disparate information systems. The Ed-Fi ODS functions like a data warehouse in its ability to host data from many different sources and will allow centralized reporting and analytics of cross-platform data. The ODS also takes advantage of the Ed-Fi Data Standard, which standardizes the format and structure of data from a wide range of educational data domains. Using a unifying data standard enables apples-to-apples comparisons of data between participating LEAs and, more importantly, enables LEAs to share systems, innovations, and solutions that are otherwise difficult to implement across district borders due to incompatible data structures. The North Allegheny Ed-Fi ODS project is conducted in collaboration with participating data system vendors, including Tyler SIS, BrightBytes, and Pearson’s aimswebPlus platform.

OneDrive

The Technology Services is working to make access to staff and student user files seamless and secure by leveraging the modern cloud infrastructure available within OneDrive for Business. By migrating user files that are currently on on-premise storage to the Microsoft Azure cloud, the District can minimize costs of on-premise equipment, and take advantage of modern information protection through the Microsoft Security Center.
<table>
<thead>
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<th><strong>2022-2023</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Migrate on-premise shared folders to structured SharePoint Online. [End-Result]</td>
<td>• Continue to develop Ed-Fi ODS as part of the NASD Data infrastructure.</td>
<td>• Continue to develop Ed-Fi ODS as part of the NASD Data infrastructure</td>
</tr>
<tr>
<td>• Implement and training staff in the use of Azure Information Protection including document sensitivity and classification tagging.</td>
<td>• Develop and extend the PPT Dashboard tools.</td>
<td></td>
</tr>
<tr>
<td>• Train staff on email encryption when sending sensitive data.</td>
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<tr>
<td>• Implement production Ed-Fi Operational Data Store</td>
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<tr>
<td>• Implement PPT platform based on Ed-Fi ODS</td>
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<tr>
<td>• Migrate staff home directories to the cloud using OneDrive for Business.</td>
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</table>
Communications Management

Effective communication is essential to almost everything we do as a school and a business. Being able to clearly send and receive accurate and timely information from all members of the North Allegheny community is key to our District goals.

Microsoft 365 and Collaboration Suite

North Allegheny transitioned the staff email suite to fully take advantage of the Microsoft 365 collaboration environment. The transition to utilize Microsoft 365 was critical in the District’s ability to seamlessly pivot to use Teams as the District’s primary collaboration and communications platform during the school closure.

Transitioning to Microsoft 365 has also facilitated the ability to take advantage of streamlined resources tools available in the statewide PAIU Microsoft agreement.

Video in the Classroom

The District is pursuing the third year of a three-year phase-in of an IP-based (network) video distribution network. Phase three targets the seven Elementary Schools in addition to the additional core infrastructure to the CAO datacenter. This project will allow for building-wide and District-wide delivery of pre-recorded or live video to every interactive display projector, or TV panel across the District.

Phones and Digital Faxing

Telephone communication is an important continued need. During the school closure, the District’s investment in the Mitel software suite was vital in continuing communications of building offices from home through the softphone capabilities of the Mitel System.

The Department is working with Toshiba Business Services to support a transition of the District’s faxing capabilities away from traditional fax machines and fax boards on copiers to a centralized electronic faxing solution that can support fax routing and electronic faxing directly from staff computers, or through an App on Toshiba copiers.

Crisis Communications

The District maintains the ability to rapidly contact families in the case of an emergency. Families can manage their preferences through a portal to ensure that they receive messages through their preferred communications methods and phones. Communications are delivered through Email, Text and Phone Call.

The SchoolMessenger system supports absence notification calls in addition to crisis communications.
IP-Based PA Systems and Building Emergency Notification Systems

With the completion of the renovations at Franklin and McKnight Elementary Schools in the fall, the Department is becoming more involved in the maintenance of IP-Based PA Systems, Bell Systems, and Emergency Notification Systems. This presents an opportunity to unify the functionality of these systems to improve in-building communication and emergency responsiveness.

## Technology Services Roadmap

### Communication Management

<table>
<thead>
<tr>
<th>2020-2021</th>
<th>2021-2022</th>
<th>2022-2023</th>
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<tbody>
<tr>
<td>• Create a resource that outlines the District’s Digital Ecosystem including selection process for new technology tools and approved apps and resources. (Digital Ecosystem hub) [End Result]</td>
<td>• Implement new telephone contract, and any related technology changes for telephone service delivery.</td>
<td>• Continue to maintain and update Digital Ecosystem Hub for stakeholders.</td>
</tr>
<tr>
<td>• Standardized TV studios for daily announcements at Elementary and Middle Schools.</td>
<td>• Continue to maintain and update Digital Ecosystem Hub for stakeholders.</td>
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<tr>
<td>• Explore District Implementation of Remind communication tool.</td>
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<td>• Support Communications staff in website redesign implementation.</td>
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<td>• Complete implementation and training of digital fax solution.</td>
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<td>• Reconfigure email distribution groups to meet modern standards.</td>
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<tr>
<td>• Develop RFI/RFP to evaluate telephone service contract for renewal in July 2021.</td>
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</table>
## Technology Services Roadmap

### Communication Management

<table>
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<th>2020-2021</th>
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<tbody>
<tr>
<td>Assess options for modern services delivery options such as SIP trunks vs. traditional PRIs.</td>
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</table>
Business Management

To operate efficiently, systems and resources must be organized and led in a manner that aligns to the District’s operational goals. This requires collaborative planning and strong leadership in order to satisfy the needs of stakeholders.

Sustainable Infrastructure Plan

The Technology Sustainable Infrastructure Plan was adopted as part of the Capital Funding Plan in the Fall of 2019. Year 1 of this plan is anticipated to be fully funded in the 2020-2021 budget. The Plan aims to fund future technology investments in a way that allows the District to maximize its eligibility for E-Rate Federal Technology funds, and prevent the need to be locked into long-term leases for core infrastructure hardware. E-Rate may not be used against leased network equipment.

In 2014 the District made a large investment in Technology Infrastructure including 212 network switches, 14 fiber optic routers, 937 wireless access points, district firewalls, and core routing equipment. The total investment in this equipment is approximately $4.9 million.

Asset Management

The Technology Services team maintains a stewardship responsibility for significant hardware investments across the School District. Since 2018, the department has successfully used the Asset Panda tool to track over 17,000 assets tracking both assignments to individuals, and deployments to specific locations across the District. Tracked assets range from student and staff laptops and iPads, to Computer Labs, Interactive Whiteboard equipment, network switches and wireless access points. This tool is critical in managing hardware lifecycle and refresh.

A Technology Services employee is designated as hardware manager with the responsibility of adding new equipment to the Asset Management tool, and managing moves, adds and changes within the tool. This employee coordinates with the Operations team’s inventory technician who uses the audit functionality within Asset Panda. In the 2019-2020 school year approximately 15% of assets were audited by the operations team.

Business Needs Assessment

During the 2019-2020 school year, the District engaged in a needs assessment process that was focused on the critical business systems that support the operations of the District. This work was intended to support a fit-gap analysis with recommendations on how to proceed with process and systems improvements to modernize operations.
From January to March, the District partnered with an outside analyst who performed interviews with stakeholders representing the District’s stakeholders who interact primarily with the MUNIS system. A copy of this complete report will be provided to the Board at the end of June 2020.

The report found that there are numerous areas for process improvement and highlighted that the District should evaluate the purchase of a fully featured HR Management system to support the HR function.

The evaluation of the Student Information System was scheduled to begin in March and has been postponed to the Fall of 2020.

Disaster Recovery and Business Continuity

The Technology Services Team continues to evaluate ways to reduce single points of failure, provide increased reliability, and plan for disaster recovery and business continuity.

In the 2020 school year the Department implemented numerous improvements to Disaster Recovery and Business Continuity including:

- Geographically diverse internet pathways and split firewall locations in North and South.

- Exploration of SD-WAN solutions for added network redundancy.

- Continued off-site backups at AWS with periodic unannounced “fire drills” to recover to the District’s AWS Virtual Private Cloud.

### Technology Services Roadmap

**Business Management**

<table>
<thead>
<tr>
<th>2020-2021</th>
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<th>2022-2023</th>
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<tbody>
<tr>
<td><strong>Support implementation of Middle School Day Schedule. [End Result]</strong></td>
<td><strong>Develop an RFI/RFP process to evaluate Student Information System purchase or retention.</strong></td>
<td><strong>Plan for implementation of Student Information System if required by RFP/RFI process.</strong></td>
</tr>
<tr>
<td><strong>Perform needs assessment of Tyler SIS. [End Result]</strong></td>
<td><strong>Implement and Train Staff HRMS</strong></td>
<td><strong>Continue to support implementation of textbook asset management.</strong></td>
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<tr>
<td><strong>Develop an RFI/RFP process to evaluate and select Human Resources Management System</strong></td>
<td><strong>Implement and Train Staff on PDMS.</strong></td>
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<td></td>
<td><strong>Reconfigure Identity Access Automation to interface with new</strong></td>
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<td>2020-2021</td>
<td>2021-2022</td>
<td>2022-2023</td>
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<tr>
<td><strong>(HRMS). [End Result]</strong></td>
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<tr>
<td>• Develop an RFI/RFP process to evaluate Professional Development Management System (PDMS). [End Result]</td>
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<td>• Support Transportation and Operations team in selecting and implementing effective tools for operations management. (Fleet Management, Field Trip Management, Service Management, Routing, Tracking)</td>
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<td>• Retire Mimecast while ensuring compliance with litigation hold procedures.</td>
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<td>• Begin textbook inventory with Asset Panda. [End Result]</td>
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<tr>
<td>• Broaden the implementation and utilization of online collaboration tools (Sharepoint, Teams, PowerAutomate) to streamline processes. [End Result]</td>
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<tr>
<td></td>
<td></td>
<td>• Continue to support implementation of textbook asset management.</td>
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Appendix
Roadmaps