Enabling a Culture of Access and Mobility
Planning for Technology Usage in the OCDSB
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Context and Vision

Technology plays a significant and rapidly changing role in the business and learning of the school district. The district has a system-wide approach to technology planning and works with a multi-disciplinary team known as DRIVE. The DRIVE team developed a five year technology plan called DRIVE to Success which covered the period 2008 to 2013. Now looking forward to the next five years, the district is moving away from technology plans which “bring the user to the technology” and towards strategies which “bring technology to the user”. This shift is supported by the district-wide implementation of wireless access in all facilities. The shift was also emphasized in the recent changes made to the Board’s policy on Appropriate Use of Technology and the addition of the principles of ‘digital citizenship’.

The objective for our District is to have a fully mobile and user-accessible technology environment by 2017.

Digital Learning in the context of District Priorities

In developing plans for technology usage in our learning environment, it was important to examine how technology fits into our strategic plan and, more importantly, how technology can help us to achieve our objectives. This report, “Enabling a Culture of Access and Mobility; Planning for Technology Usage in the OCDSB”, outlines a direction that is designed to enhance instructional practice to encourage and support creative thinking skills, as well as encourage and support student leadership and citizenship to promote global competencies. In particular, the report defines how the district can focus on ‘digital competency” that is a part of the student learning in the K-12 curriculum. This is defined as:

a) Using tools to interact with others to develop understanding and to share learning;

b) Safe and responsible use of technology as part of a positive on-line identity that is steeped in digital citizenship.

Flexibility and Mobility

The District’s major investment in wireless technology and in “cloud” computing facilitates the student or worker bringing their own technology. This allows our schools to move away from stationary computer lab environments with limited “technology time” to bringing the technology directly to where students and staff are working. The combination of base classroom technology, mobile technology carts, and wireless access allows us to better respond to the many and diverse demands for access to our network, and increases our capacity to differentiate instruction based on individual learning needs.

The provision of terminal type access to application software and data (virtual desktop integration) provides a standard configuration running on our servers to any brand or style of end-user device. This improves our District’s ability to be responsive to increasing demands for different hardware, including users’ personal devices.

Innovation and the Evolution of a New Standard of Practice

In a climate of rapid technological change, new products can revolutionize the market within a year. This has a significant impact on expectations, long term planning, and the life cycle of equipment. When creating projections for coming years, we have to take into account the “sudden” emergence of new technology that may derail (or accelerate parts of) the plan. To maintain focus, our planning must be of a sufficiently high level to accommodate the emergence of new technology, and also provide a regular review point to keep it in alignment with current requirements.

We must ensure that we are providing opportunities for ‘innovation projects’ – new initiatives that use the latest technology. These innovation projects allow us to assess new technology on a smaller scale and then can determine whether and how to put the technology/application into development, and ultimately, whether it becomes a standard of practice. This is a sustainable strategy that allows us to remain current and responsive.
Data and Information Management
Information management is becoming increasingly complex. Over the past three years, the district has been developing a stronger data management, privacy and security infrastructure. This is exemplified in the work we have done through MISA on our Student Information System, our enterprise content management strategy, and our privacy policy. Work in these areas continues; at the same time, work is beginning in the development of business analytical tools, data encryption, and legacy system renewal. These initiatives are critical to our objective of improving organizational effectiveness.

Privacy and Security of Data
As more students and staff bring their own devices to school and work, there is an expanding emphasis on our efforts to ensure the security of District data and privacy protection of information. The District is addressing the findings of pro-active security audits completed in 2012, and is incorporating the recommendations into teaching and administrative practice. Our planning clarifies that the District is moving away from defined equipment and workspace standards, to a more flexible, open and secure environment.

Summary
Technology is integral to our success in realizing all parts of the District’s Strategic Plan. On the learning side, technology has an increased impact on classroom practices and on our ability to further engage students through the development of rich learning tasks which emphasize collaboration, creativity and critical thinking. The technology plan establishes strategies that allow us to ensure that our students and staff have access to the technology they need. On the business side, technology is critical to the delivery of services, the management of information and improves our capacity to enhance our risk management culture.
Current Trends in Instructional and Corporate Technology

Mobile devices…
A marked shift from fixed-in-place technology such as desktop computers, to mobile technology such as laptops, tablets and smartphones

“Anytime / Anywhere” access…
Accessing [information] whenever the idea or the opportunity exists, from any device anywhere a person is.

Shared services…
Shared services is the consolidation of business operations that are used by multiple parts of the same organization. One example of a shared service at the OCDSB today is the IT department – all divisions of the OCDSB make use of the services.

Virtual secure apps (Desktop Virtualization) on any device…
This practice consists of a set of mainstream technologies that optimize the delivery of desktops, applications and data to users. The operating system, apps and data are decoupled from the underlying PC hardware and moved to the datacenter, where they can be centrally managed and secured. One use would be providing “Trillium”, designed for a Windows computer, on an iPad.

“Bring Your Own Device” (BYOD)…
In the consumerization of IT, BYOD is a phrase that has become widely adopted to refer to employees who bring their own computing devices – such as smartphones, laptops and PDAs – to the workplace for use and connectivity on the corporate network.

“Technology As A Service”…
The concept is that all businesses ought to make their technology available as a service rather than a mere purchase.

Tablets vs. Desktops…
Similar to Mobile Computing, this trend is toward fewer desktop computers. In the consumer market, most computer retailers will no longer have shelves full of desktop machines, opting for mobile or portable equipment. While the desktop computer is far from obsolete, it is becoming more limited in use, and will not be the standard of technology for much longer.
Changes to the OCDSB technology landscape:

Since the “DRIVE to Success” project plan was created, the District has moved forward well in aligning our technology platform with current trends and needs.

Some classroom examples:

• Instructional coaching program created
• Innovation projects formalized
• Approximately 900 interactive (“Smart”) boards installed District-wide
• Mobile computer carts now available, approximately 110 in service today
• Active Directory authentication installed which permits us to securely access OCDSB network services from a variety of devices and the wireless network.
• Digital projectors expanded beyond the “media cart”, with installation activity occurring within a range of regular classroom settings.
• Over 5,000 SEA laptop computers and related support equipment delivered

Some corporate examples:

• Blackberrys and “Mike” radio phones provided centrally to all school admin staff
• Smartphone replacement program underway
• Ubiquitous wireless (“Wi-Fi”) nearing completion in all our buildings. This means every classroom, public space and portable will have wireless coverage.
• Increase in access to internet capacity
• Transition from “Oracle” database to “SQL Server” database, providing flexibility, efficiency increase and cost savings
• New administration desktop computers
• Creation of the Enterprise Content Management (ECM) system based on SharePoint
• Creation of the Document Management System based on Laserfiche
• Acquisition of a Business Intelligence tool “Compass”, to assist with analyzing survey and other data
• First “App” created for the iPad providing public access to OCDSB information
• Call-out system for supply teachers
• Tracking software for ESL students
• Tracking software for Learning Support Psychologist staff

We are doing very well, but there are always new needs emerging, or unresolved issues that still require attention. Most notable is how the District will replace aging computers in a very tight financial environment.

The next section identifies some of these needs…
“What We Hear” ... A summary of OCDSB issues that this plan will address

Classroom-based technology needs:
Schools are asking about how they can increase the integration of Smartboards and similar Interactive Technology into teaching and learning. Schools and parents are inquiring about policies concerning students bringing in their own computers or similar devices. Improved access by students (and staff) to networks, computers, instructional technology, online content, and collaboration tools must be addressed.

School-wide technology needs:

Computer replacement / renewal:
- Schools are asking when current equipment, much of which is 7 or more years old, will be replaced.
- Principals are seeking confirmation for timelines for replacing our current compliment of laptop computers assigned in 2008 to support administrative activity at schools.
- Teachers are seeking confirmation of timelines for replacing our current compliment of teacher computers (referred to in the District as “YOT”) that were assigned in 2005.
- Recurring questions about our District plan for technology, including District intentions to address computer replacement.
- Parents are asking about our District’s capacity to equip every room with Smartboards, iPad tablets, or other technologies that may support their student learning.

District Network needs:

Software replacement / renewal:
- A recently completed audit has suggested that the payroll system should be replaced.
- Our desktop computer operating system is predominantly Windows XP, which is now out-dated by industry standards.
- AODA requirements for accessibility requires us to further identify aging productivity tools such as “Word” that will require updating.

Access to Data:
- More user groups are expecting access to data for research, statistics, ARCs.
- The Ministry of Education, through the Education Statistics and Analysis Branch, is requiring all school Districts to use data effectively in the classroom to assess and enhance student performance by monitoring three key indicators of success.
- Trustees have mentioned that data must be provided in a more timely and fulsome manner.

Storage & Archive space increase:
An increasing number of network users are requesting more file storage space in our systems such as BEAM, Active Directory network drives.

Security and Privacy:
- With growing inventories of data – personal, academic and corporate – and growing public awareness of the need to protect this data, a strong security and privacy awareness and culture must be developed and promoted.

Mobile Connect & Management:
- There is a strong expectation for mobile devices to connect to networks and network-attached devices (e.g. printers and servers) anywhere in our District.
- The District must manage all District-owned mobile equipment to protect assets and protect data and privacy.
District Network User needs:

User / Parent Portal:
- A commitment in the Board’s Strategic Plan to enhance parent communication suggests the use of some form of service to which parents and staff can commonly connect, to maintain communication between the teacher / school and parent. This type of software is commonly referred to as a “Parent Portal”.

Lab Space Repurpose:
- In response to an increase in requirements for additional classroom space due to full day kindergarten and other growth issues, fixed-in-place computer labs can easily be transformed into “mobile” installations, where portable computers (or tablets) can be used in several locations as a lab or as an individual workstation.

“Bring Your Own Device” (BYOD) for Staff and Students:
- The option for staff and students to bring their own computing equipment to school / work is a growing need. Most individuals now expect the District to provide power and connectivity to network services and devices, for their own hardware or for hardware of their choice.

Staff Development & Training:
- A recognition that a strong commitment to professional development for staff at all levels is required to make optimal use of the technology purchases has been established.

AODA Compliance and Support:
- New legislation and standards in place and emerging place requirements on [school districts] to provide all electronic media, communications and resources in an accessible format.

Equity:
- In all cases, equity of access to technology must be considered as new plans for the purchase, implementation, and use of instructional technology emerge. Very often, it is easy to assume that all students will have access to digital tools and resources that will support their learning and this must be addressed. Our District’s Appropriate Use Policy requires schools to make available to its students “reasonable access to any digital technology in order to fully and equitably access the curriculum, course material or other information.”
Tools available to us today to address the issues:

- Base Classroom Technology: Projector, Wireless Kbd + Mouse, WiFi, Computer
- Mobile Carts: 24 Wireless Notebooks or Tablets, plus charging cart
- Cloud: Google Apps, Docs, Drive, Mail,
- Licensing: EES, OSAPAC, Purchased Apps, Learn 360
- ECM: Indexed file storage and retrieval system
- Laserfiche: Enables connectivity anywhere on most devices
- Wi Fi: Bring Your Own Device? Sure, why not!
- BYOD: Classroom support in four technology areas
- Coaching Pillars: Training Teams / Resource Sites / App Support
- Training Projects: Investigate and test new technology or concept
- Innovation Projects: Support and distribution for Spec Ed Assist HW & SW

Tools we must develop next to address the issues:

- VDI: Virtual Desktop Integration
- MDM: Mobile Device Management
- Processes: Defined User Processes
- Zoning: Breakup of Network into Physical and Logical Zones
- Hosted Services: Purchase of Apps Online, instead of hosting them ourselves
- Access Support: Assist users with setup & support “Out of Box into Operation”
- Data Standards: Establish clear data access and reporting standards
- Templates: Create more user-ready templates to speed work, AODA
- Encryption: Encrypt all data and passwords
- Students use Cloud: Move student work into cloud to facilitate AODA and equity
How the issues will be addressed:

In this example, the major issues outlined in section 4 are paired up with the solutions we have today (green) or what we must develop next (orange). In many cases, a proposed solution may address many concerns (e.g.: VDI), or it may address the concern in a different manner that what users are expecting.

VDI is an example. Many are asking when computers that were issued for teacher use in 2005 will be replaced, since this version of equipment is growing incompatible with current software and other applications. While there is a compelling case to be made for replacement or renewal of any type of hardware, we also recognize that the District may not be in a position to fund direct replacement that compares with the timelines and product-version sought by our diverse group of users. Our District IT staff receives requests from teachers concerning how they can use a “Mac” computer product instead of a “Windows” computer. Furthermore, when staff choose to use District apps (e.g.: Trillium) at home to complete tasks such as report cards, IT staff receive requests for IT support that exceeds our District’s role given the many combinations of hardware and operating systems. So, rather than replacing the computers with a “standard” replacement unit which will only resolve one of these issues short term, providing a “virtual session” (VDI) creates a standard configuration running on our servers to any brand or style of end-user device, which addresses all the issues over the longer term at less cost.
When the issues will be addressed:

In the current climate of rapid technological change, compression of timelines seems to be getting tighter with each passing year. In the past, a new product or concept would take several years to develop and become a standard of practice. Today, a new product can “hit the market” in one year, and be in almost regular use one year later. An example of this is the proliferation of tablet technology and rapidly up-dated product lines by different manufacturers.

When creating projections for coming years, we have to take into account the “sudden” emergence of new technology that may derail (or accelerate parts of) our efforts to plan for the future. To maintain focus, the District’s approach must be of a sufficiently high level to accommodate the emergence of new technology, and provide a regular review point to keep it in alignment with current requirements.

The timeline projected in this plan accomplishes this: all items listed are more “general” in nature, and within each element is room for change. An example of this is the “Innovation Projects”. This year, the District’s Business & Learning Technologies Department is investigating two hardware components — “Chromebooks” and “iPads”, and two pedagogical components — “Digital Citizenship” and “Blended Learning”. As these projects move forward into production, other innovation projects will take their place, and the standard of practice may change. See section 10 for a visual description. The following illustrations place the major components identified in sections 5 and 6 on a timeline to 2017. It should be noted that the orange-coloured items are not available to us yet, but are where our focus must be. In effect, where multiple instances of an item are indicated, (for example, the “VDI” project), this becomes part of our critical path.
Next Steps: Year One

By August 2013, we are planning to address the following:

1. Wi-Fi completed in all schools and admin buildings
2. A mobile device management system in place to administer tablet and smartphone devices
3. A Virtual Desktop environment in place so all staff can access business software on any make / model of device
4. The “Compass for Success” business analytical application in operation
5. Google Apps for Education in place, available for all students.
6. Central databases, authentication servers, and key workstations fully encrypted
7. Smartphone / “Mike phone” upgrades completed.
8. IPPS (Integrated Personnel Payroll System) review completed, and replacement process initiated if warranted
9. Work initiated on rezoning of local network topology
10. Student Information database auditing suite in place
11. Additional 20 mobile carts distributed to schools
12. Accessible templates for key Board documents, report cards, newsletters, web pages to meet AODA legislative requirements
Alignment with the OCDSB Key Priority Areas:

Priority Area 1, Well-being: Incorporates safe and caring learning and working environments, mental and physical health, cultural proficiency, diversity, inclusion, accessibility and wellness.

The Technology Plan supports this key priority in the following manner:

- WB1: (Safe caring respectful learning working environment) Access to Data, Processes, Digital Citizenship, Equity
- WB2: (Framework for student and staff well being) Processes, Data, Equity, Privacy
- WB3: (Inclusive & Accessible Practices) Equity, Data, Innovation, Base Technology, Templates, Training
- WB4: (Culture supporting Innovation) Innovation, Processes, Data

This illustration visually represents some of these links:
Priority Area 2, Engagement: Addresses the importance of parental engagement, community involvement, collaboration, partnerships and schools as community hubs.

The Technology Plan supports this key priority in the following manner:

EN1: (Parental engagement) Access to Data, Portal, ECM, Cloud
EN2: (Partnerships with organizations) Classroom Technology, Access to Data, Training
EN3: (Broad community engagement) Equity, Data, Innovation, Base Technology, Templates, Training
EN4: (Engagement in provincial, national and international learning initiatives) Processes, Data Standards, 21c Classroom

This illustration visually represents some of these links …
Priority Area 3, Leadership: Includes the recognition of formal and informal leadership, leadership development, succession planning, governance, emotional intelligence, creating a culture of innovation and celebrating success

The Technology Plan supports this key priority in the following manner:

- LD1: (Sound governance and practice) Access to Data, Data Standards, Laserfiche, Licensing
- LD2: (Strategies for Leadership, Succession planning) Classroom Technology, Access to Data, Training
- LD3: (Enhance our risk management culture) Equity, Data, Innovation, Base Technology, Templates, Training
- LD4: (Encourage and support student leadership and citizenship) Processes, Data Standards, 21c Classroom

This illustration visually represents some of these links …
Priority Area 4, Learning: Reflects the core business of the school district, includes instructional practice, academic leadership, differentiated instruction, program quality, equity of access to programs and services and the development of lifelong learning

The Technology Plan supports this key priority in the following manner:

- LN1: (Instructional practice to encourage creative thinking skills) Mobile carts, Cloud, Coaching
- LN2: (Cyclical program development, monitoring and review) Classroom Technology, Innovation Projects
- LN3: (Use survey data to identify, understand and support groups) Equity, Data access, Innovation, Base Technology, Templates, Training
- LN4: (Develop organizational culture committed to lifelong learning) Processes, Data Standards, 21c Classroom, Training, Coaching

This illustration visually represents some of these links:
Innovation and the Evolution of a New Standard of Practice:

As the example illustrates, innovation (initiation) in one year can lead to development or expansion of the idea, then quite likely the innovative idea becomes a standard of practice.

Using the “carts” example in the illustration, in the 2010-11 school year the District purchased a number of laptop computer-charging carts with wireless access, using innovation money available at the time. The test was successful in scope, so the scope was expanded the next (current) school year to offset space required from old labs.
Next year and beyond, we fully envision the cart to replace the fixed-in-place computer lab, and as the illustration shows, in 2013-14 it will become the new “standard of practice” for class time computer access.

Innovation has to be funded, and while innovation funding never appears to be ‘equal’ (i.e.: not all schools necessary have opportunity to participate in a trial), the knowledge learned is ‘equitable’, in that it can be applied to all schools. Accordingly, the district can do a lot with limited innovation money. This plan is designed around the model of Initiation – Development – Standard of Practice, funded by an annual Initiation budget.

The following illustration shows how several innovation projects are progressing to deliver the school district the goal of the technology plan:
Professional Development

The OCDSB technology plan is focused on the use of technology to support learning, rather than learning to use the technology. However, there is a certain amount of learning about the technology that is required before it can be used effectively. Research studies published by the OECD Centre for Educational Research and Innovation, and in the Journal of Research on Technology in Education, confirms that professional development for the teacher and non-teacher is undeniably the best way to ensure that we are making the best use of technology. ¹

There are three main delivery mechanisms provided for in this plan:

1. **Instructional Technology Coaching:**
   
   The District’s coaching model is an opportunity for teaching staff within our District to enhance and extend their instructional expertise. Our coaches are certified teachers with expertise in the same areas or disciplines as the teacher being coached.

   Coaching in the area of Instructional Technology is designed to promote student learning and increased student achievement by having a coach and a teacher work jointly in specific settings. This level of professional interaction may consist of collaboratively planning, reflecting on specific lessons, and / or acting as a resource as the teacher considers how to integrate instructional technology available at the school to support student learning that emphasizes creativity, collaboration and critical thinking.

   Classroom teachers assigned to the Business & Learning Technologies Department are working in the classroom with teachers, either directly on a 1:1 basis, or with groups. There is one coach to support elementary schools for each Superintendency.

   Our Instructional Technology coaches provide instructional support across four targeted areas (“pillars”) to in an effort to build our District capacity to create a common baseline of knowledge.

   For 2012-2013, our District emphasis (or “pillar” topics) is:
   
   1. Transitioning from a fixed-in-place computer lab to mobile computing
   2. Instruction using interactive technology (e.g.: Smartboards).
   3. The use of digital imaging technology (e.g. Document cameras) in class.
   4. The use of online content (e.g.: Learn360, TV Ontario)

2. **Training:**

   B&LT has a team of trainers who support academic and corporate application software. Members of our training team will visit schools or hold workshops in central labs, focusing on a wide variety of applications from Trillium to Google Docs. The trainers may work in collaboration with the coaches, for example – to provide basic training on Interactive White Boards prior to a coaching session.

3. **Operational Setup and Training:**

   An emerging installation model for any technology / hardware received in our District is the concept of “from box to use”. Our field service technicians’ role will be transformed into service providers.

   Many times, equipment arrives at a school in fully package, and can remain in this state for weeks until a combination of employees arrive to assemble, connect, and train the recipient. This plan will have a service technician unbox and set up the equipment, then meet with the teacher or staff member to guide them through the necessary steps to result in basic connectivity and operation.

**Digital Citizenship**

This document projects our current and future capabilities for students and staff to use technology in classrooms and workplaces within our school district. While we invest in our District’s potential to engage a greater array of digital tools in environments that promote connectivity as part of learning and the business-functions of the District, there is a parallel priority to ensure that all users of the District’s technology and / or network resources understand what it means to access these elements thoughtfully, responsibly, and with care.

The latter priority is in the process of being addressed at several levels. Revisions to the District’s Appropriate Use Policy (AUP) have already been completed in early 2012. This policy acknowledges the importance of “Digital Citizenship” among all users of digital devices in environments hosted by the school district. Digital Citizenship is defined in our District as “…the norms of appropriate and responsible behaviour with regard to technology use”. In addition, the policy has influenced the focus of an innovation project currently underway in the District, regarding the design of a continuum of digital citizenship skills from kindergarten to grade 12.

Citing the “Nine Themes of Digital Citizenship” developed by the American educator and author Dr. Mike Ribble, our District policy fosters a foundation for healthy and safe use of technology that is recognized as an essential element for implementing and integrating technology in settings operated by school districts.²

The Nine Elements of Digital Citizenship [http://www.digitalcitizenship.net/Nine_Elements.html](http://www.digitalcitizenship.net/Nine_Elements.html) (Mike Ribble) are:

1. **Digital Access:** full electronic participation in society.
   Technology users need to be aware of and support electronic access for all to create a foundation for Digital Citizenship. Digital exclusion of any kind does not enhance the growth of users in an electronic society. All people should have fair access to technology, no matter who they are. Places or organizations with limited connectivity need to be addressed as well. To become productive citizens, we need to be committed to equal digital access.

2. **Digital Commerce:** electronic buying and selling of goods.
   Technology users need to understand that a large share of market economy is being done electronically. Legitimate and legal exchanges are occurring, but the buyer or seller need to be aware of the issues associated with it. The mainstream availability of Internet purchases of toys, clothing, cars, food, etc. has become commonplace to many users. At the same time, an equal amount of goods and services which are in conflict with the laws or morals of some countries are surfacing (which might include activities such as illegal downloading, pornography, and gambling). Users need to learn about how to be effective consumers in a new digital economy.

3. **Digital Communication:** electronic exchange of information.
   One of the significant changes within the digital revolution is a person’s ability to communicate with other people. In the 19th century, forms of communication were limited. In the 21st century, communication options have exploded to offer a wide variety of choices (e.g., e-mail, cellular phones, instant messaging). The expanding digital communication options have changed everything because people are able to keep in constant communication with anyone else. Now, everyone has the opportunity to communicate and collaborate with anyone from anywhere and anytime. Unfortunately, many users have not been taught how to make appropriate decisions when faced with so many different digital communication options.

4. **Digital Literacy:** process of teaching and learning about technology and the use of technology.
   While schools have made great progress in the area of technology infusion, much remains to be done. A renewed focus must be made on what technologies must be taught as well as how they should be used. New technologies are finding their way into the workplace that is not being used in schools (e.g., videoconferencing, online sharing spaces such as wikis). In addition, workers in many different occupations need immediate information (just-in-time information). This process requires sophisticated searching and processing skills (i.e., information literacy).

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Learners must be taught how to learn in a digital society. In other words, learners must be taught to learn anything, anytime, anywhere. Business, military, and medicine are excellent examples of how technology is being used differently in the 21st century. As new technologies emerge, learners need to learn how to use that technology quickly and appropriately. Digital Citizenship involves educating people in a new way these individuals need a high degree of information literacy skills.

5. **Digital Etiquette:** *electronic standards of conduct or procedure.*

Technology users often see this area as one of the most pressing problems when dealing with Digital Citizenship. We recognize inappropriate behavior when we see it, but before people use technology they do not learn digital etiquette (i.e., appropriate conduct). Many people feel uncomfortable talking to others about their digital etiquette. Often, rules and regulations are created or the technology is simply banned to stop inappropriate use. It is not enough to create rules and policy; we must teach everyone to become responsible digital citizens in this new society.

6. **Digital Law:** *electronic responsibility for actions and deeds*

Digital law deals with the ethics of technology within a society. Unethical use manifests itself in form of theft and/or crime. Ethical use manifests itself in the form of abiding by the laws of society. Users need to understand that stealing or causing damage to other people’s work, identity, or property online is a crime. There are certain rules of society that users need to be aware in an ethical society. These laws apply to anyone who works or plays online. Hacking into others information, downloading illegal music, plagiarizing, creating destructive worms, viruses or creating Trojan Horses, sending spam, or stealing anyone’s identify or property is unethical.

7. **Digital Rights & Responsibilities:** *those freedoms extended to everyone in a digital world.*

Just as in the [Canadian] Constitution’s Charter of Rights, there is a basic set of rights extended to every digital citizen. Digital citizens have the right to privacy, free speech, etc. Basic digital rights must be addressed, discussed, and understood in the digital world. With these rights also come responsibilities as well. Users must help define how the technology is to be used in an appropriate manner. In a digital society, these two areas must work together for everyone to be productive.

8. **Digital Health & Wellness:** *physical and psychological well-being in a digital technology world.*

Eye safety, repetitive stress syndrome, and sound ergonomic practices are issues that need to be addressed in a new technological world. Beyond the physical issues are those of the psychological issues that are becoming more prevalent, such as Internet addiction. Users need to be taught that there inherent dangers of technology. Digital Citizenship includes a culture where technology users are taught how to protect themselves through education and training.


In any society, there are individuals who steal, deface, or disrupt other people. The same is true for the digital community. It is not enough to trust other members in the community for our own safety. In our own homes, we put locks on our doors and fire alarms in our houses to provide some level of protection. The same must be true for the digital security. We need to have virus protection, backups of data, and surge control of our equipment. As responsible citizens, we must protect our information from outside forces that might cause disruption or harm.
Data Management

Data management, (the use of data to improve student achievement, data security and privacy, and the regulations surrounding the collection and reporting of data), are among the major elements of this document.

The importance of data and information to the operation of the OCDSB, and the continued improvement of education to our students, cannot be understated.

Data initiatives continuing include:

a) MiSA (Managing Information for Student Achievement), a Ministry initiative.

b) Business analytical tools soon available, including “Compass for Success” to assist with analyzing data from surveys (e.g.: recent student survey), or other sources

c) Reports from Trillium, our Student Information Management System, used to provide input into most school operations. Examples include suspension data, grad rate calculations, credit accumulation and so forth.

d) An “Information Administrator” position has been created to provide information, data and guidance to those requiring access to data.

The Ministry has placed an even greater emphasis on quality and timely data, and the OCDSB continues to experience challenges in meeting this obligation. OnSIS reporting must be accurate and on time, and at the moment, our data capture, recognition of importance of data accuracy and adherence to data reporting deadlines requires further review. In response to a recent set of Ministry recommendations, we are implementing an auditing suite concurrent with our student information database to proactively address data issues.

Training programs will begin in the fall of 2012 to assist school administrators in completing this important task. The Ministry will be reviewing our submissions closely for the foreseeable future.

Privacy of data is another area where the District must enhance our efforts. Access to data cannot be provided to make a workers’ day more efficient, nor because someone is simply curious. Requests for data must be scrutinized, and any major report, project or deliverable that accesses personal data must first have a “Privacy Impact Assessment” (PIA) completed, to the satisfaction of the Privacy Coordinator. There is a toolkit available from a provincial Privacy Information Management Taskforce to assist with this process.

Security of Data

Related to this, the security of data is equally important. Recent privacy breaches noted in the press related to Federal public sector organizations emphasize the risk to the District of loss of public confidence if its data is accessed inappropriately. Hacking is a growing issue in all large IT networks, which includes networks operated by District school boards. The District network experienced several low-level hacks initiated by students during 2011-2012.

Early in 2012, the B&LT Department initiated a review of existing topology and security measures in place to identify possible risks and threats to the system. In response to the recommendations from this review, B&LT staff will begin encrypting all core data in late 2012, and network structures will be modified (termed as “Zoning”) to physically restrict access to core systems. This will become more urgent as users can connect to our network via wireless from anywhere including school parking lots, using a wide variety of tools. Encryption on computer hard drives and memory sticks will continue to be strongly encouraged.

“DRIVE To Success” and the “DRIVE Team” technology committee

As part of the original “DRIVE to Success” plan, a District-wide steering committee was formed to coordinate technology development. The requirement for this coordination is now more acute, as funds dwindle and expectations grow. The “DRIVE Team” will continue to meet to coordinate technology activity across the district, and to maintain alignment with the Technology Plan. The “DRIVE Team” reports to the Directors Council the results of their consultation.

The “DRIVE Team” is comprised of task force groups who are responsible for investigation and reporting back to the full committee (Team) on their respective technology issues (e.g.: Facilities, Communications etc.). The committee is responsible for:

a) Monitoring technology use in the District
b) Coordination and review of requests for new District-wide or core applications software
c) Coordination of technology support and development
d) Recommendations about emerging technology
e) Monitoring the technology plan, and overseeing alignment of new initiatives and current practice with the plan

Financial considerations

The Business and Learning Technologies Department has an annual operating budget in the range of $8M. Approximately $600,000 of that amount is used annually for classroom hardware renewal, and $1.5M for annual infrastructure renewal, which includes annual repayment for the wireless network installation. This amount has been static for approximately three years.

A significant – and rapidly increasing – demand on the budget is software licensing costs. While hardware costs tend to fall, the cost to connect the hardware to networks and the internet is making up the difference. The licensing costs are now approaching $3M per annum. Services costs, which includes telephone lines, internet access, and cell phone costs are a $2M annual expense. The departmental budget has been complemented with funding from OCENET which has enabled some innovation projects. On a go-forward basis, there will be a need to provide more regular funding to the department for innovation projects. The amount that has been available is approximately $150,000.

The District has technology investments in all business areas, from school budgets to other central department technology commitments. Of particular note is the annual $2M investment in technology investment for special needs students in the Learning Support Services department. The technology strategy took this into account as the plan was developed, and recognizes and supports these investments as part of the overall district technology plan.

Aging core business systems is a concern. For example, the Integrated Personnel and Payroll System (IPPS) is now 20 years old, and while functional is not capable of addressing many future requirements. It is being reviewed this year, and a plan to replace it will be brought forward for budget considerations during the current (2012-13) school year. The estimated cost for this product replacement is $1 – 2M.

Moving forward, this and related core systems and infrastructure replacement are identified, non-budgeted expenses. B&LT staff has identified the following major capital priority items to be considered as part of a longer term capital plan:

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>Core router replacement</td>
<td>$500,000</td>
</tr>
<tr>
<td>2013-15</td>
<td>IPPS HR / Payroll System replacement</td>
<td>$2M</td>
</tr>
<tr>
<td>2013-20</td>
<td>School telephone system replacement</td>
<td>$4M</td>
</tr>
<tr>
<td>2013-16</td>
<td>School Data Switch replacement</td>
<td>$2M</td>
</tr>
<tr>
<td></td>
<td>BAS 2000 Finance System replacement</td>
<td>$2M</td>
</tr>
<tr>
<td></td>
<td>Admin Buildings telephone set replacement</td>
<td>$400,000</td>
</tr>
</tbody>
</table>
Summary

Technology is integral to our success in realizing all parts of the District’s strategic plan. On the learning side, technology has considerable impact on classroom practices and on our ability to further engage students through the development of rich learning tasks which emphasize collaboration, creativity and critical thinking. The technology plan establishes strategies that allow us to ensure that our students and staff have access to the technology they need and has been proven to be beneficial to student learning and achievement. On the business side, technology is critical to the delivery of services, the management of information and improves our capacity to enhance our risk management culture.

The approach outlined in this document addresses many current trends and user needs in very tight financial times. It relies on (and facilitates use of) personally owned technology to keep the District aligned with those trends and requirements. While simply ‘buying equipment’ would appease user requests, it does little to meet our District’s stated educational or operational goals of using technology to improve student learning or to streamline back office processes.

Acknowledgements

Collaborators who assisted with the development of this plan include:

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- Jill Cutler, Principal, Berrigan Elementary School
- Brent Smith, Principal, J. H. Putman Public School
- Dorothy Baker, Principal, South March Elementary School
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- Rex Vollans, Project Manager, Operations, Business & Learning Technologies
- Michele Giroux, Executive Officer, Board Services
- David Miller, Manager, Business & Learning Technologies
- Stephen Sliwa, Superintendent of Instruction

References

Cited in document where indicated