Chapter 25
St. Paul's Roman Catholic Separate School Division No. 20—Adapting Technology for Learning in Elementary Schools

1.0 Main Points

St. Paul's Roman Catholic Separate School Division No. 20 set a vision to adapt technology to enrich learning and promote excellence in education. Consistent with the Ministry of Education's expectations, it allows teachers to decide how best to use technology in the classroom.

The Division had effective processes to adapt technology for learning in elementary schools, other than in the following areas. The Division needs to:

- Determine the extent it currently uses and wants to integrate technology in elementary classroom instruction, and share that future vision with its teachers

  Knowing both the current level of technology integration in the classroom, and determining the desired future level of integration would help the Division determine how much effort it needs to make in supporting and encouraging teachers to use technology in classroom instruction. It would also help the Division assess whether its current efforts in helping teachers use technology in meaningful ways proves successful.

  Making certain teaching staff understand to what extent the Division expects them to use technology in the classroom, and by when, helps engage them. It also assists teachers to better identify needed support and professional development.

- Periodically verify the existence and location of its over 9,000 devices for student use assigned to different elementary schools

  Verifying device locations ensures availability for teachers and students to use in the classroom.

- Assess the cost-benefit of its practice of buying different device brands and IT platforms for classroom use

  Cost-benefit analysis compares the costs of both buying and supporting multiple device brands using different platforms against the benefits of exposing students to differing brands and IT platforms. Periodically doing such an analysis ensures the Division uses resources efficiently.

Technology serves as a significant aspect of modern education. Having strong processes to support and encourage its use in classroom instruction helps students develop essential competencies to succeed.

2.0 INTRODUCTION

This chapter discusses our audit on St. Paul's Roman Catholic Separate School Division No. 20's processes to adapt technology for learning in elementary schools.

2.1 Use of Technology in Education

Today's students must be digitally fluent to be competitive in an ever-changing workforce as our lifestyles and workplaces embed technology.[1] Digital fluency means an ability to use digital technologies readily and strategically to learn, work, and play, as well as to move nimbly and confidently from one technology to another.[2]

Use of technology in the classroom transforms lessons in a way that challenges students to create, connect, and grow as problem-solvers in new ways.[3] For example, technology enables students to share and peer edit digital documents and demonstrate their growth in developing documents using revision history to teachers. Furthermore, its use could provide a video reflection on student writing, and illustrate student learnings about the competencies they gained.[4]

Learning technology uses interactive tools, and information and communication technology to educate, teach, and assess students. Examples of learning technology devices include smartboards, laptops, tablets, and IT applications.[5]

Effective adaptation of learning technology includes more than identifying and making suitable computer equipment and software available to students. It includes giving teachers appropriate and sufficient access to, and support for use of, technology in schools. Appropriate and sufficient technology support is key to enrich learning and promote excellence in education as research suggests teachers transform their teaching ways gradually.[6]

2.2 Use of Education Technology Encouraged, But Not Mandated in Saskatchewan Schools

The Education Act, 1995 makes Boards of Education (school boards) responsible for administrating and managing schools with oversight from the Ministry of Education, and for delivering programs and courses of study consistent with Ministry direction.[7,8]

In June 2013, the Ministry of Education published a framework entitled *Technology in Education Framework: Teaching and Learning, Administrative Operations, Provincial Infrastructure*.[9] The Framework provides high-level direction for the use of technology within the Saskatchewan education system.

[1] Victoria Auditor General's Office, *Learning Technologies in Government Schools*, December 2012.
[2] Adapted from Ministry of Education, *Technology in Education Framework: Teaching and learning, administrative operations, provincial infrastructure*, p. 1 (pubsaskdev.blob.core.windows.net/pubsask-prod/85655/85655-Technology_in_Education_Framework.pdf August 2019) and Clint Lalonde, *Digital Fluency vs Digital Literacy,* (edtechfactotum.com/digital-fluency-vs-digital-literacy/).
[3] Sniezek, Todd, The Learning Exchange, **pedagogy not included*, October 2016.
[4] Ibid.
[5] Victoria Auditor General's Report, *Learning Technologies in Government Schools*. December 2012.
[6] Education Week, *Technology in Education: An Overview*, February 2016.
[7] Section 85(1) of *The Education Act*.
[8] School boards approve administrative procedures pertaining to the internal organization, management, and supervision of schools.
[9] pubsaskdev.blob.core.windows.net/pubsask-prod/85655/85655-Technology_in_Education_Framework.pdf (16 August 2019).

At June 2019, the Ministry encourages the use of technology to teach students but does not require it. The Ministry has not formally embedded the use of technology in the curriculum and courses of study that school divisions are required, by law, to provide.

2.3 St. Paul's Roman Catholic Separate School Division's Vision for Education Technology

St. Paul's Roman Catholic School Division is one of the largest of Saskatchewan's 27 school divisions. Its mission is to provide a welcoming community to nurture faith, encourage excellence in learning, and inspire students to serve others.[10]

It is responsible for educating about 19,000 students in 50 schools in both urban and rural settings that service students from varied socio-economic circumstances.

Forty-three of the 50 schools are elementary schools (i.e., Kindergarten to Grade 8) located in Saskatoon, Martensville, Warman, Humboldt, and Biggar. They employ about 865 elementary teachers in 820 full-time equivalent positions.

The age of its schools, and computer equipment and internet capabilities within each school, vary.

The Division recognizes that technology acts as a significant aspect of modern education. Its educational technology vision is as follows: the Division is *a faith-based community adapting technology to enrich learning and promote excellence in education*.[11] At June 2019, while the Division encourages and supports teachers to use technology in the classroom, consistent with the Ministry's expectations, it does not make it mandatory.

Each year, the Division spends about $920,000 on technology used in schools (i.e., internet services, and devices like computers, iPads, tablets, and related software for student use), and about $25,000 on training staff on IT. As shown, in **Figure 1**, at September 2018, it supplied schools with a variety of types of devices for student use.

Figure 1—Number of Division Devices by Type at September 2018

Device Type	Device Quantity	Device Type	Device Quantity
Computers	2,541	Tablets	201
Laptops	2,984	Chromebooks	455
Classroom iPads	2,808	Smartboards	615
Student Support iPads	100	3D Printers	6

Source: Based on data provided by St. Paul's Roman Catholic Separate School Division.

Without effective processes to adapt technology for use in schools, the Division is at risk of its teachers not using resources (e.g., equipment, training, and support) efficiently and not meeting its vision of using technology to enrich student learning. In addition, students may not develop essential competencies to help them in high school, post-secondary education and the work force.

[10] www.gscs.ca/faith/Pages/Statements.aspx (24 March 2019).
[11] www.gscs.ca/studentsandfamilies/curriculum/Pages/Technology.aspx (24 March 2019).

3.0 AUDIT CONCLUSION

We conclude that for the 16-month period ended June 30, 2019, St. Paul's Roman Catholic Separate School Division No. 20 had, except for the following areas, effective processes to adapt technology for learning in elementary schools. The Division needs to:

- **Periodically determine the extent it integrates technology use in its elementary schools' classroom instruction**
- **Determine and communicate to teachers the extent it wants to integrate technology use into its elementary school classrooms**
- **Periodically verify the existence and location of educational technology devices in its elementary schools**
- **Assess the cost-benefit of its decision to own varying brands of devices on differing IT platforms for student use in its elementary schools, and better link its purchases of these devices to its Educational Technology Plan**

Figure 2—Audit Objective, Criteria, and Approach

Audit Objective: To assess the effectiveness of St. Paul's Roman Catholic Separate School Division No. 20's processes to adapt technology for learning in elementary schools for the 16-month period ending June 30, 2019.

Audit Criteria:

Processes to:

1. Determine key actions
   - 1.1 Determine current state of learning technology used in schools (e.g., devices, internet availability)
   - 1.2 Determine desired future state of technology use in schools (e.g., percentage of schools that have technology and/or technical support)
   - 1.3 Develop action plans for using technology in schools (e.g., technology equipment needs, resources, timelines)
2. Support implementation of key actions
   - 2.1 Engage key users to support actions (e.g., principals, technology facilitators, teachers)
   - 2.2 Use resources in accordance with action plans (e.g., learning technology, training, technology resources)
3. Monitor process of actions
   - 3.1 Analyze successes and barriers to implementing actions.
   - 3.2 Adjust actions as required
   - 3.3 Regularly report on progress to key stakeholders (e.g., senior management, Board, Ministry)

Audit Approach:

To conduct this audit, we followed the standards for assurance engagements published in the *CPA Canada Handbook—Assurance* (CSAE 3001). To evaluate the Division's processes, we used the above criteria based on our related work, reviewed literature including reports of other auditors, and consulted with management and an external expert. Division management agreed with the above criteria.

We examined the Division's plans, policies, and procedures relating to adapting technology for learning in elementary schools. We assessed the Division's processes to support schools and plan for technology use in schools. We interviewed 17 school officials to gather school-level evidence and learn the processes in place at the selected schools.

For the purpose of this audit, elementary schools include schools that teach children in Kindergarten through Grade 8. The scope of our audit does not include technology supports for students identified with intensive needs. The audit focus is on learning technology used by mainstream students (i.e., general population students who do not require special or individualized attention or lessons) in elementary grades.

4.0 KEY FINDINGS AND RECOMMENDATIONS

4.1 High-Level Education Technology Plan in Place

Each year, the Division publishes a *Learning Services Educational Technology Plan*.

The Plan clearly documents its belief statements, goals, questions to consider for continuing to integrate technology in the classroom, and strategies. Questions to consider for continuing to integrate technology in the classroom include ways to identify and engage teachers who are reluctant to integrate technology, and how to help teachers become more digitally fluent so they can effectively integrate technology into the curriculum.

Its *Educational Technology Plan for 2018–19* identifies the following four broad goals: professional development, technology team collaboration, technology purchasing support for schools, and support for its Educational Technology Facilitators.

We found these goals consistent with its publicly stated educational technology belief statements set out in **Figure 3** and reiterated in the Division's *Educational Technology Plan for 2018–19*.[12]

Figure 3—St. Paul's Educational Technology Beliefs

1. Technology is an integral part of education
2. All stakeholders have a voice
3. Students and teachers can achieve curricular outcomes by adopting technology
4. Professional development is critical for effective integration of technology
5. Technology must empower students by developing skills to meet their diverse needs as global and digital citizens.

Source: www.gscs.ca/studentsandfamilies/curriculum/Pages/Technology.aspx (24 March 2019).

In addition, on its website, the Division describes its elementary learning program as being guided by the provincial government curriculum and priorities, and that technology supports and enriches student learning.[13]

We found the Division clearly messaged the optional use of technology in classrooms, and it thinks technology adapted for classroom use benefits teachers and students. Our interviews with teachers found them fully aware the Division encouraged and supported technology use in the classroom, but did not require it.

We found the Division's four broad educational technology goals not easily measured. Good practice, at this time, recognizes the difficulty in quantifying technology's impact on students' learning outcomes, and determining whether time and money spent on classroom technology offers a good investment. Good practice indicates while general agreement exists that effective adaptation of technology in the classroom can contribute to student success and positive outcomes, no generally accepted measures of success exist, at this time, to quantify those outcomes.[14]

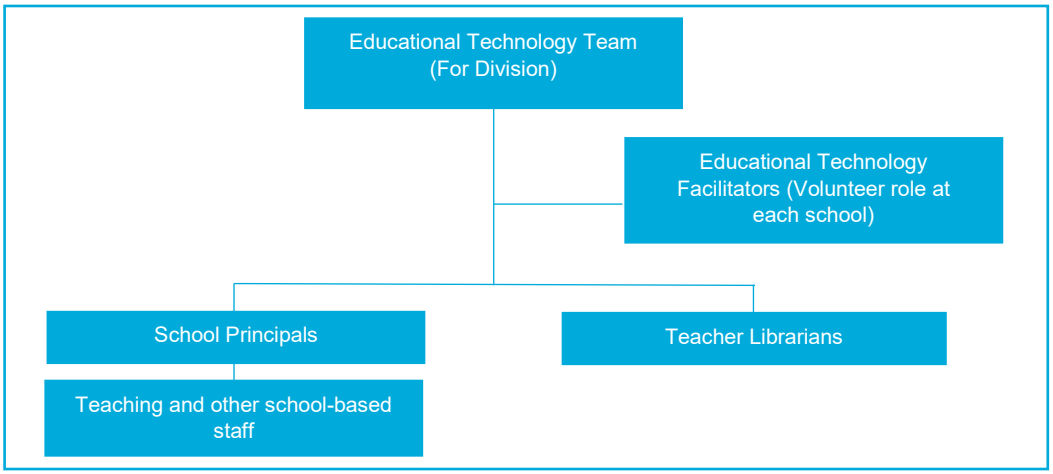
[12] Greater Saskatoon Catholic Schools, 2018/19 Learning Services *Educational Technology Plan*.
[13] www.gscs.ca/studentsandfamilies/elementaryschools/Pages/ElementaryLearningProgram.aspx (24 March 2019).
[14] Western Australian Auditor General's Report, *Information and Communication Technology (ICT) in Education*, August 2016.

4.2 Responsibilities for Supporting Integration of Learning Technology Clear

The Division clearly assigned responsibility for leading and supporting integration of learning technology; and staff sufficiently understand these responsibilities.

At the Division-wide level, the Division establishes an Information Technology Team, and an Education Technology Team; and at the school-level, it engages volunteer teachers as Educational Technology Facilitators (Facilitators) within each school as shown in **Figure 4**.

Figure 4—Role of Division Educational Technology Team and School-Level Staff



Source: Extracted from the Division's 2018/19 Educational Technology Handbook. Note in 2018–19, the Division removed the Teacher Librarian support position due to budgetary constraints.

The Information Technology Team (with 24 full-time equivalent positions) supports and maintains the Division's IT systems and processes. While their responsibilities do not include integration of learning technology, they ensure IT equipment available to teachers operate as intended, and provide staff with technical support. The Team operates an IT helpdesk helping Division staff (including teachers) resolve issues with technology (e.g., accessibility to the internet, password resets).

We found the IT Technology Team responsive to resolving identified school-level issues. For example,

- For all 10 helpdesk tickets related to school issues we tested, the IT staff resolved the reported issues within reasonable timeframes based on the complexity of the issue. For tickets we tested, the IT Team resolved simple issues (e.g., forgotten passwords) the same day, and took as many as 20 days to resolve more complex issues (i.e., equipment replacement).

- The Division purchased additional internet connections for its schools after it informally determined CommunityNet insufficiently handled school-level internet traffic.[15] School staff we interviewed noted improvements in their internet connection within the past few years.

[15] The Division receives internet through the Ministry of Education's agreement with SaskTel for CommunityNet.

The Division's Education Technology Team (with 1.3 full-time equivalent positions) is responsible for leading and encouraging the use of technology in classrooms. It leads the development and implementation of the Educational Technology Plan and provides training opportunities about learning technology to teachers, as well as assistance with planning and delivery of lessons using technology in classrooms.

We found the Education Technology Team used feedback obtained from Facilitators, teachers, and school administrators to help develop its *Educational Technology Plan for 2018–19*, and kept senior management informed of its activities. For example, we found the Team:

- Obtained input from Facilitators informally throughout the year, at an annual meeting, and during meetings with teachers and principals at schools selected for the periodic renewal of their IT equipment.[16] Also, in June 2019, the Team created a new survey to seek feedback from Facilitators for use in developing its *2019–20 Education Technology Plan*.

- Periodically obtained feedback from students. For example, the Division last collected feedback from students in 2014–15. It used this student feedback to inform its 2016 plan.[17] It may benefit from collecting feedback from students on a periodic basis to inform future technology plans.

- The Team reports in writing each year to senior management on actions taken during the year. We found its reports for the past few years describe activities completed and summarize feedback received. They did not describe the extent of progress achieved in integrating technology into the classroom.

Educational Technology Facilitators (beside their teaching duties) liaise between the Education Technology Team and staff in their assigned schools. The Division clearly documents the role of Facilitators in its Education Technology Handbook. The Division gives the Handbook to Facilitators in each school.

Facilitators from each school attend annual training (one half-day session) hosted by the Educational Technology Team. At times, this session may include external presenters.

We found the 2018–19 training event focused on the role of the Facilitator, professional development opportunities, resources such as the online courses, use of its matrix (see **Figure 5**) to transform teaching and other items such as *Digital Citizenship and Acceptable Use Policies* from the Handbook.

In addition to outlining Facilitators' role, we found the Handbook sufficiently set out support and resources available (e.g., media releases, Digital Citizenship, Acceptable Use Policies, and *Working in the Cloud* course) to schools and teachers in using learning technology.

[16] While the Division surveys teachers and administrators upon their completion of a mandatory training course, the format of collected results did not allow for useful analysis. This 11-question survey included questions about how often the teacher used technology and how.
[17] *2015–16 Educational Technology Plan Report*, p. 4.

4.3 Current State of Technology Use Needed to Facilitate Assessment of Progress

The Division does not have a clear picture of the current instructional use of technology in its elementary classrooms. As a result, it does not know whether it is making progress in integrating the use of technology into its classrooms.

We noted that over the last several years, the Division's Educational Technology Plans include an educational technology strategy to improve technology integration in its schools. In addition, in late 2018, the Division developed a matrix based on best practices for integrating technology in classrooms. The matrix recognizes technology serves as an integral part of education (see **Figure 5**).

As shown in **Figure 5**, the Division's matrix describes technology integration in four instruction areas—environment, curriculum, student assessment, and instruction as a five-level continuum. The first instruction level is entry into technology use, whereas the fifth instruction level is transformation of teaching by using technology. At the entry level, students use technology to substitute other tools to complete assigned activities. At the transformation level, students participate in meaningful projects requiring problem-solving strategies, and facilitating awareness using technology tools.

Figure 5—Division's Technology Integration Matrix

Entry	Adoption	Adaptation	Infusion	Transformation
The teacher uses technology to deliver curriculum content to students.	The teacher directs students in the conventional use of tool-based software.[A] This level is recommended if such software is available.	The teacher encourages adaptation of tool-based software by allowing students to select a tool and modify its use to accomplish the task.[A]	The teacher consistently provides for the infusion of technology tools with understanding, applying, analyzing, and evaluating learning tasks.	The teacher cultivates a rich learning environment, promoting blending choice of technology tools with student-initiated investigations, discussions, composition, or projects across any content area.

Source: adapted from the Division's Technology Integration Matrix.
[A] Tool-based software includes software such as audio, graphics, photo editing, presentation, publishing, spreadsheets, etc.

We found this matrix included in the Education Technology Handbook available at each elementary school.

While the Division makes this matrix available to teachers for self-assessment, and it set a 2014–15 strategy to use the matrix as a teaching tool and an assessment/data collection tool, as of June 2019, it had not done so.[18] That is, neither the Education Technology Team nor Facilitators nor individual elementary teachers formally assessed what level on the Technology Matrix teachers and/or schools fell. Good practice suggests assessment of current state of instruction use on a periodic basis (e.g., every three to five years).

Rather, to June 2019, the Educational Technology Team focused on gathering information about the reliability of technology provided to teachers and students.[19]

[18] *2014–15 Educational Technology Plan*, p. 2
[19] *2015–16 Educational Technology Plan Report*, p. 4.

Having a clear understanding of the current level of integration of technology use in the classrooms (by grade, by school) would provide a reference point for assessing whether the Division is making progress in improving technology integration.

In addition, it would assist in determining the desired level of integration, and determining how long the Division would need to achieve the desired level. This in turn, would help the Division achieve its Educational Technology beliefs (see **Figure 3**).

1. **We recommend St. Paul's Roman Catholic Separate School Division No. 20 periodically determine the extent it integrated technology use in its elementary schools' classroom instruction.**

4.4 Desired Level of Learning Technology Use Unclear

The Division has not determined to what extent or how fast it would like elementary teachers to integrate the use of technology into classrooms. As a result, teachers remain unclear as to what extent and how fast they are expected to do so.

Neither the Division nor the Education Technology Team set the desired level of instruction integration for individual grades, or schools (e.g., adoption, adaptation, or infusion), or by when (e.g., within five years).

Unlike good practice, the Division's broad goals and related education technology plans do not set out its desired level for the use of learning technology in classrooms (e.g., overall basis, by grade, by school). As previously noted, its strategies focused on improving integration.

Management reiterated the use of technology in the classrooms remained optional. In addition, they noted the Division's limited resources to advance its use.

However, good management practice indicates a clear vision (knowing how far by when) helps an organization more optimally direct its resources.

In our interviews with elementary teachers, many indicated they remain unclear of what the Division expects for the future use of technology in the classroom (e.g., adoption level versus adaptation level). They also noted a clearer understanding for the Division's future vision would help them determine their professional development needs and priorities, and help inform their requests for classroom IT devices and supports.

Not determining the current state or desired future state of technology use in schools means the Division cannot reasonably assess whether its current actions are sufficient and appropriate. Furthermore, not establishing and communicating a clear vision may make engaging teachers in meaningful use of technology in classrooms difficult.

2. **We recommend St. Paul's Roman Catholic Separate School Division No. 20 determine the extent it wants to integrate technology use in its elementary schools' classroom instruction and by when.**

3. **We recommend St. Paul's Roman Catholic Separate School Division No. 20 communicate its future vision of integrating technology in the classroom to its teachers.**

4.5 Actively Engaging Teachers in Using Technology in Classrooms

The Division used a variety of ways to engage teachers in using technology in the classroom.

The Division allocated various types of devices, other than 3D printers, to specific schools.[20] We found it varied the availability methods for these devices in each of its 43 elementary schools based on consultations with staff in the schools. For example, its elementary schools make devices available for student use using one or a combination of the following:

- Having a dedicated computer lab (i.e., students only use devices in the lab)
- Using portable carts with varied devices (e.g., laptop or tablet carts) to readily move devices between classrooms
- Assigning specific computers or tablets to a classroom to make them always available to that classroom teacher, unless the teacher lends them to another classroom

As noted in **Section 4.2**, school-based Facilitators and its Educational Technology Team provided elementary teachers with both ongoing and requested support. Through working with school-based Facilitators, the Division recognized that comfort levels of elementary teachers' use of technology varied, and continued support was essential.

We found, during 2018–19, the Educational Technology Team focused teacher training on security and privacy matters related to using technology in the classroom (e.g., acceptable use policies, *Working in the Cloud* training course, digital citizenship). The Educational Technology Handbook also included a focus on privacy. Focusing on security and privacy matters are both good practice and reasonable first steps in using technology in classrooms appropriately.

In addition, the Division required all teachers take the *Working in the Cloud* training course. We found the course contains basic information on privacy and sharing of information online.

In addition, it made online training available to teachers at some elementary schools to support technology use in classrooms. For example, its online school called Cyber School contains resources for adapting teacher lesson plans.[21]

Other training opportunities and resources for teachers include Division partnerships. Partners such as the Saskatchewan Industry Education Council and Apple Education Canada provide in-class training opportunities or professional development for teachers.

[20] Teachers can arrange to borrow the 3D printers to use in their classroom.
[21] These online resources are not available for all elementary classes.

4.6 Existence of Devices Not Periodically Confirmed

The Division does not periodically confirm devices assigned to schools continue to exist.

As noted in **Figure 1**, the Division assigned over 9,000 different technological devices for student use in classrooms. It lists (referred to as a master list) devices assigned to schools. This master list shows the device type and its location (e.g., school name). It does not show age of devices, or include devices schools bought or received through fundraising or donations.

The Division does not use processes to keep the master listing accurate or complete. It does not periodically determine whether devices on the master list continue to be at the assigned location, are elsewhere, or disposed of, or lost.

We found the six schools we visited kept track, to varying extents, of devices assigned to their school. For example, one school tracked specific devices like iPads; whereas another school only tracked devices on its portable carts including damaged ones.

We also found the master list at June 2019 disagreed with school listings. For example, our comparison of a device listing for one school to the Division's master list found significant differences. The school's listing for 90 devices recorded 22 less devices than the Division's master list.

Not periodically (e.g., in conjunction with purchasing new devices) verifying the accuracy of the master list for devices increases the risk of not detecting missing devices, or knowing the location of devices. This results in devices being unavailable for teachers and students to use in the classroom.

4. **We recommend St. Paul's Roman Catholic Separate School Division No. 20 periodically verify the existence and location of educational technology devices available in its elementary schools.**

4.7 Periodic Cost-Benefit Analysis of Purchasing Approach Needed

The Division has not analyzed the cost versus benefit for its decision to purchase and support different device brands and IT platforms for its elementary schools.

The Division updates educational technology devices provided to schools on a four-year rotational cycle.[22] Every four years, it allocates a budget to each school to buy some new technology devices for classroom use. We found the use of a four-year cycle reasonable and generally consistent with the pace of changes in technology.

In 2018–19, the Division budgeted $320,000 (2017–18: $320,000) to buy new educational technology devices, and distributed this budget among ten schools.

The Division does not restrict the device brands (e.g., Dell, Chromebook, iPad, HP), or type of IT platforms on which devices operate (e.g., Microsoft, Google, Apple).[23] Rather, the

[22] Some schools also receive technology donations or have the ability to use in-school funds to purchase additional technology for the school (e.g., through their school community councils)—this varies from school-to-school.
[23] An IT platform is the software (operating system) on which to run software applications.

Educational Technology Team gives schools with allocated budgets a list of various devices (e.g., Dell, Mac, Netbooks, iPads, Chromebooks) and prices to guide decisions on what devices to buy for classroom use. The listing includes items such as stationary items like smartboards or accessories such as storage carts.

We found the 2018–19 school year listing included about 35 different devices (e.g., desktops, laptops, tablets) from different brands (Dell, Mac, Netbooks, iPads, and Chromebooks) and operating on differing platforms (Microsoft, Google, Apple). The Team could not readily explain or show how it decided which devices to include on its listing. The Team confirmed its prior year listings also included devices operating on differing IT platforms, and potentially differing versions of those platforms. The Team supports this approach as it thinks students can benefit from exposure to different device brands and IT platforms.

While this view has merit, we found the Division has not analyzed the cost-benefit of taking a multiple brand and IT platform approach instead of a common brand and IT platform approach (e.g., use of either one or specific brands or IT platforms).

Research shows a multiple brand and IT platform approach reduces bargaining power (lower volume purchases decrease the opportunity for negotiating volume discounts). Variations in different brands for devices and platforms increase costs and time for IT support, and staff training. Teacher transfers between schools with differing brands of educational devices using different IT platforms require added support to enable teachers to use these devices effectively.

Not periodically and formally analyzing the cost-benefit of its decision to both purchase and support multiple brands of devices using different platforms increases the risk of not using the Division's limited resources efficiently. As a result, the Division may be paying more for devices and experience increased technology support costs.

5. **We recommend St. Paul's Roman Catholic Separate School Division No. 20 periodically assess the cost-benefit of its decision for using differing device brands and IT platforms for classroom use in its elementary schools.**

4.8 Better Collection of Technology Use Information Needed to Support Purchasing Decisions

The Division does not assess technology requirements against the Technology Integration Matrix when buying new IT devices for classroom use. Also, when the Division buys new educational technology devices for a school, it does not take into account the nature and number, or age, of devices in operation at the specific school.

We found that despite the quantity of available devices (on a per student basis) at each elementary school varied, quantities showed, on an overall average, above acceptable averages aligning with good practice. Good practice recommends 0.33 devices per student as acceptable averages for elementary schools. At September 2018, the ratio of devices per student ranged from 0.4 devices per student to 1.37 devices per student for the

Division's 43 elementary schools. Based on this data, the Division's average student to device ratio equated to 0.66 devices per elementary student.

Our discussions with staff at the six school we visited and with the Educational Technology Team found some variations in number and types of devices resulted from certain schools using fundraising and donations to buy additional devices. As noted in **Section 4.6**, the Team does not keep up-to-date listings of devices available at schools or the age or state of repair; and its listing does not include devices schools bought or obtained through fundraising or donations.

Principals at the six schools we visited also confirmed when they budget to buy new devices, the Educational Technology Team meets with them to discuss technology at the school-level and help them determine which devices would be the best fit for the school.

In late 2018, the Division developed a form to help school administrators engage its teachers about technology purchase decisions, and guide Educational Technology Team discussions with school administrators about technology purchases and use. It expects to use the form to gather information on the following three areas: where is the school currently, where do you want to go, and how we can support (see **Figure 6**).

Figure 6—St. Paul's School Division Technology Purchase Considerations

<table>
<tr><th>Where is school currently?</th><th>Where do you want to go?</th><th>How can we support?</th></tr>
<tr><td>What is the comfort level with technology within the school?</td><td>Devices to consider:
iPads: tech totes, mirroring software, wired keyboards, apps
Chromebooks: printing, storage carts, cloud-based
Laptops: more robust functionality</td><td>Cloud course, digital citizenship, digital literacy, specific tools/apps (i.e. O365, Google, etc.)</td></tr>
<tr><td>How is technology already being used?</td><td>Pedagogy First: What kind of learning environment do you hope to create?</td><td rowspan="5">Other types of support</td></tr>
<tr><td>How many staff completed the Cloud Course?</td><td rowspan="4">Management Plans/Logistics</td></tr>
<tr><td>Acceptable Use Policies in place (school wide and classroom specific)</td></tr>
<tr><td>Review of Digital Citizenship Planning Checklist (e.g., student safety online, student learning, student devices)</td></tr>
</table>

Source: Adapted from St. Paul's School Division Technology Refresh Planning Document.

However, while using the form will collect information to provide the Division with some insight into school-level actions related to these three areas, the form does not provide a clear link to the Division's Educational IT plan or to the Technology Integration Matrix. In addition, the form does not clearly show whether planned purchases is a renewal or update for an existing device, or a new device that would advance the school's use of technology in the classroom, and student technology skills.

In addition, at June 2019, we found the Division used this form only once. Our review of the completed form found it largely incomplete.

Not assessing whether individual technology purchases support the technology goals of the Division through the Technology Integration Matrix increases the risk that limited resources are not used to their full potential.

Effectively using assessment information from schools when purchasing technology would provide the Division with valuable information about where schools are at in technology integration. In addition, it would provide insight into what schools are planning to do to with technology in the classroom, see **Section 4.3** and **4.4**.

6. **We recommend St. Paul's Roman Catholic Separate School Division No. 20 better link technology purchasing decisions to its Educational Technology Plan (or equivalent documents).**

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