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ABSTRACT

This study examined how technology funding is planned, deployed and managed in six Alberta school jurisdictions and identified best practices and recommended strategies. Specific objectives were to research and examine, via interviews with technology personnel in each jurisdiction, the funding frameworks in place, and to report on commonalties, problematic areas, and recommended practices with respect to establishing and managing technology funding. The use of site-based, moderately site-based, and centralized funding models to equip schools with modern technology infrastructures is discussed. Best practices and recommended strategies are summarized in the following areas: (1) technology governance (establishing clear guidelines for managing technology, thereby maximizing return on investment and minimizing support costs); (2) managing the impact of computer networking (reshaping technology management and expenditure streams to reflect changes in how computers are used); (3) technology planning; (4) technology investment (addressing the major challenge of ensuring the long-term viability of technology investments); (5) accounting for investment (identifying the other costs involved in technology investment); and (6) technology funding sources (ensuring consistency across jurisdictions regarding sources of funding). A list of related Alberta Education resources is appended. (AEF)

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MANAGING TECHNOLOGY FUNDING

Best Practices
For Alberta School Jurisdictions

February, 1999

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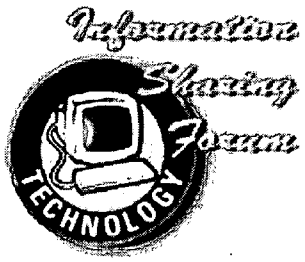

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EXECUTIVE SUMMARY

Alberta school jurisdictions are using a variety of funding models to equip their schools with modern technology infrastructures. In this study, the researchers examined how technology funding is planned, deployed and managed in six Alberta school jurisdictions and identified best practices and recommended strategies in these areas: technology governance, the impact of computer networking, technology planning, technology investment, accounting for investment and technology funding sources.

Recommended strategies are included below.

Technology Governance (Establishing clear guidelines for managing technology, thereby maximizing return on investment and minimizing support costs.)

- *Develop and implement governance principles for the whole jurisdiction.*
- *Raise awareness of the strategic importance of the role of the technology department.*

Managing the Impact of Network Computing (Reshaping technology management and expenditure streams to reflect changes in how computers are used.)

- *Accumulate a pool of funds and manage them centrally.*
- *Have the jurisdiction's central office manage technology procurement, equity initiatives, second-tier help desk support and vendor service level agreements.*
- *Manage staff development as close to the individual site as possible while also exploring opportunities for jurisdiction-wide training events.*
- *Manage the selection of non-core curricular software at the site level, but manage the installation of all software centrally.*

Technology Planning

- *Use technology plans to identify and allocate funding to three distinct technology investment categories: strategic initiatives, infrastructure expenditures and operational expenditures.*
- *Work in partnership with Alberta Education to investigate, plan for and deploy emerging technology in education.*

Technology Investment (Addressing the major challenge of ensuring the long-term viability of technology investments.)

- *Reserve funds for the regular replenishment of technology.*
- *Investigate other jurisdiction-wide programs to extend the useful life of desktop inventories; for example, recycling machines between schools.*
- *Use learning outcomes to drive technology redeployment.*

Accounting for Investment (Identifying the other costs involved in technology investment.)

- *Implement a full-cost accounting model for technology expenditures.*
- *Work in partnership with Alberta Education to develop an appropriate template for accounting for the cost of technology.*

Technology Funding Sources (Ensuring consistency across jurisdictions regarding sources of funding.)

- *Consolidate current multiple funding sources for technology into a single stream/central pool that is preset for several years.*
- *Consider providing a separate identified source of funding for one-time and ongoing school technology funding.*
- *Ensure that sufficient funds are available to carry out provincially mandated changes; for example, file format requirements for the Alberta Education student record initiative.*

Taken together, the recommended strategies presented in this report make up a framework that addresses most aspects of the management and funding of technology in Alberta school jurisdictions. For most jurisdictions, full implementation of the recommended framework would produce a shift towards more centralized technology management and funding. School jurisdictions should continue to review and update their technology plans according to their local needs to ensure the effective and efficient management of current and ongoing investments in technology.

INTRODUCTION

For a number of years now, Alberta school jurisdictions have been striving to equip schools with modern technology infrastructures in order to provide optimal learning opportunities for students. To achieve these goals, jurisdictions have been using a variety of methods to allocate and manage available funds. This report presents the perspectives and findings of the researchers, who have reviewed the technology funding practices of six jurisdictions across the province.

STUDY PURPOSE AND OBJECTIVES

The purpose of this study is to share information about current technology funding and management practices in six Alberta school jurisdictions, and to identify related best practices and key learnings. The following school jurisdictions took part in the study:

- Black Gold Regional Division No. 18
- Edmonton Catholic Regional Division No. 40
- Grande Yellowhead Regional Division No. 35
- Lethbridge School District No. 51
- Rocky View School Division No. 41
- Wolf Creek School Division No. 72

The specific objectives of this study were:

1. To research and examine, via interviews with technology personnel in each jurisdiction, the funding frameworks in place in six jurisdictions; and
2. Based on these findings, to report on commonalties, problematic areas and recommended practices with respect to establishing and managing technology funding in Alberta school jurisdictions.

The researchers also recorded any comments and observations that participants offered about practices that are not currently in use but should be considered for inclusion in future technology funding frameworks.

SCOPE

The study examined the following aspects of each school jurisdiction's funding framework:

- the process for establishing and managing technology funding,
- a breakdown of costs (expressed as either dollar value, a percentage of total costs, or per student unit), for technology-related expenses including personnel, telecommunications, hardware, software, Alberta Education initiatives, etc.,
- the "locus of control" or point of critical decision making with respect to technology funding,

- the use (or planned use) of funding partnerships,
- factors or characteristics that make the jurisdiction's technology funding model unique,
- shared technology deployment and site-based budgets, and
- methods that could potentially improve technology funding delivery processes.

The scope of the study did not include questions about overall education funding in the province or how technology should be used or managed in Alberta schools.

APPROACH

The focus of this study was on documenting best practices and key learnings with respect to technology funding. Information was gathered by:

- reviewing technology plans and budget summaries,
- interviewing managers responsible for technology, and
- holding a one-day group workshop with technology personnel from the jurisdictions to discuss and confirm the researchers' perspectives, opportunities and recommended strategies.

CASE STUDY PARTICIPANTS

The sample of jurisdictions included in this study is believed to represent a cross section of different technology funding frameworks, as illustrated in the following table.

Site-Based Funding	Moderately Site-Based Funding	Centralized Funding
Individual schools are responsible for policies, decision making and funding.	Central technology department or staff control and manage policies and procedures, and individual schools make day-to-day decisions.	Central technology department or staff are responsible for policies, decision making and funding.
• Black Gold Regional Division No. 18 • Wolf Creek School Division No. 72	• Edmonton Catholic Regional Division No. 40 • Lethbridge School District No. 51 • Rocky View School Division No. 41	• Grande Yellowhead Regional Division No. 35

The following descriptions of the six jurisdictions' investments in technology and methods used to manage and support technology indicate clearly that there is considerable variation across the province.

SITE-BASED FUNDING MODELS

BLACK GOLD REGIONAL DIVISION NO. 18

The Black Gold Regional Division serves 8700 students (kindergarten to grade 12) in twenty-five schools. The jurisdiction includes the City of Leduc, Nisku, Devon, New Sarepta, Beaumont, Calmar, Thorsby, Warburg and the County of Leduc.

The jurisdiction's technology plan, initiated in the spring of 1997, addresses desktop inventories, networks and technology outcomes. Funding for the plan is committed for a six-year cycle, but is allocated to specific schools on an annual basis. Funding for staff development is site based.

The jurisdiction's Technology Committee determines technology priorities based on a predetermined decision framework. Computer laboratories are a first priority. Other factors, in order of priority, are the age of a school's desktop inventory, what the machines are being used for and the grade level of the school. Schools have the latitude to purchase technology outside of the Technology Committee's allocation, provided that they maintain acceptable hardware

standards. Currently, very few computers are purchased outside of the technology plan. Funds are available for the purchase of both Macintosh and PC-based computers.

The jurisdiction's budget committee recommends to the administrators' association the annual funding allocations from the instructional block for technology support.

Black Gold also provides support for the Leduc schools in the St. Thomas Aquinas School Division.

The technology expenditure budget for Black Gold Regional Division in 1998/1999 is $790,300 ($96 per student). Alberta Education's Technology Integration Funding grant provides an additional $40 per student.

The Black Gold Regional Division uses a site-based technology funding model, with support from centralized technology management.

WOLF CREEK SCHOOL DIVISION NO. 72

The Wolf Creek School Division is a rural jurisdiction centred on the Highway 2 corridor just north of Red Deer. The jurisdiction serves 7850 students (kindergarten to grade 12). It is roughly rectangular in shape and extends approximately fifty-five kilometres north to south and 120 kilometres east to west. The jurisdiction has twenty-nine school sites, a regional administration office in Ponoka and a secondary administration office in Lacombe.

Wolf Creek School Division has a comprehensive wide area network that links all of the jurisdiction's classrooms and administrative offices. As early as 1988, the jurisdiction focused on developing staff skills by placing computers on teachers' desks and providing e-mail connectivity among schools. This initiative served to promote the integration of technology into education programs well before Alberta Education launched its technology outcomes initiative.

Wolf Creek's formal technology plan focuses on infrastructure and requires schools to have technology plans that focus on instruction and the achievement of outcomes. Each year, a site-based decision-making committee (comprised of representative principals, central office administration personnel and trustees) decides on central funding initiatives, including technology funding. This committee hears recommendations on specific but limited centrally pooled funding initiatives. At the jurisdiction level, Wolf Creek School Division has concentrated on establishing technology standards and practices to effectively manage its multi-million dollar technology investment.

The bulk of the technology acquisition dollars are fully site based. The total technology budget for the jurisdiction is difficult to determine, as schools allocate funds (beyond those available through grants) on an ad hoc basis. Centrally for 1998/1999, $440,000 is allocated for support staff salaries, travel expenses, all network electronics, emergent bandwidth issues, and tools and supplies for the technology department. The Technology Integration Funding grant will continue to be matched in 1998/1999, providing approximately $560,000 for new instructional workstations. This amounts to $87 per student plus ad hoc, site-based funds—over and above Alberta Education's Technology Integration Funding grant of $40 per student.

Although Wolf Creek School Division uses primarily a site-based technology funding model, it follows a central technology management philosophy. As a result, the jurisdiction faces

significant challenges regarding overall technology administration and accounting for technology costs.

MODERATELY SITE-BASED FUNDING MODELS

EDMONTON CATHOLIC REGIONAL DIVISION NO. 40

The Edmonton Catholic Regional Division serves 32,000 students in eighty-two schools in the city of Edmonton. The jurisdiction also includes two schools in Vegreville.

The jurisdiction's wide area network connects approximately 100 sites (including schools, continuing learning centres and the central office).

The jurisdiction initiated a significant technology re-investment starting in 1997 with a three-year plan (1997–2000). In 1997, the first phase of the re-investment, the jurisdiction invested approximately $2.3 million in technology infrastructure. Funding came from an allocation of $1.1 million from the jurisdiction's capital reserve and a one-time student levy of $40 per student. For the second phase, a $5 million replenishment of the schools' desktop inventories, schools provided half of the funding and Alberta Education's Technology Integration Funding grant provided the other half. Phase three will involve upgrading local networks and developing technology support in learning environments.

The jurisdiction's Technology Services office is currently addressing these hot points:

- communicating with all stakeholders about the use of technology as a learning tool,
- co-ordinating technology standards in hardware and software,
- in-service and pre-service teacher training, and
- upgrading existing data systems to meet the needs of Alberta Education and the jurisdiction.

For 1998/1999, Edmonton Catholic's centrally administered technology expenditure budget is $2.5 million ($78 per student). It is estimated that schools will spend an additional $1.5 million on school-based technologies.

LETHBRIDGE SCHOOL DISTRICT NO. 51

The Lethbridge School District, which operates public schools in the city of Lethbridge, serves 7300 full-time equivalent students in seventeen schools and five outreach programs.

Between 1994 and 1997, the jurisdiction built up a technology reserve of $950,000. In 1996/1997, after completing a comprehensive technology review and strategy development exercise, the jurisdiction began a comprehensive re-investment in technology. The outcome of the assessment was the approval of a five-year technology plan with an associated budget of $4.7 million. The plan, which is reviewed annually, is standards driven for purchases of hardware/software and staff/student applications of technology. As part of the initiative, a teacher from the jurisdiction was seconded to lead and manage the technology investment and plan.

In the first year of re-investment, the jurisdiction spent $2.43 million on technology infrastructure, including networks and one-time purchases of desktop inventory. Schools then received Technology Integration Funding together with a matching amount from the jurisdiction office, to buy additional computer workstations (at a cost of approximately $2600 per desktop). The jurisdiction has deployed a wide area network and local networks in each school. In support of this initiative, as part of their service agreement with TELUS Advanced Communications (TAC), the jurisdiction also purchased network equipment from TAC on a five-year amortized lease.

After year two of the plan, schools will receive an allocation (as budget permits and in accordance with Alberta Education Technology Integration Funding) to assist with additional desktop purchases. Schools can purchase technology equipment from this allotment in accordance with the minimum standard configuration set by the jurisdiction technology and steering committee.

The Lethbridge School District has joined a consortium to obtain a purchasing discount and other value-added features such as a three-year on-site parts and service warranty. All procurement is centralized to take advantage of the discount.

The technology expenditure budget for the jurisdiction in 1997/1998 was $1.4 million ($98 per student over and above the $45 per student from Alberta Education's Technology Integration Funding grant). This decreases to $800,000 in 1998/1999 as part of the overall five-year budget. This budget includes technology allocations to schools, software purchased centrally, technology staffing, Internet feed costs, network management costs, etc. In addition, individual schools contributed a minimum of $150,000 to meet the matching grant allocation from Alberta Education between 1996 and 1998. In those years, most schools spent beyond the $150,000 target.

ROCKY VIEW SCHOOL DIVISION NO. 41

The Rocky View School Division, the sixth largest school jurisdiction in Alberta, supports approximately 13,000 students in thirty schools. This rural jurisdiction surrounds the city of Calgary on three sides, and includes such centres as Bragg Creek, Airdrie, Cochrane and Beiseker. The jurisdiction is organized into three divisions: primary (kindergarten to grade 4), middle schools (grades 5 to 8) and senior schools (grades 9 to 12).

Rocky View School Division does not have a wide area network. Schools are connected via dial-up, dedicated phone lines, and some schools are using ISDN technologies.

A "scale-of-issue" approach is used to allocate funds for hardware, desktop technology and networks. Each school receives a preconfigured technology package for their respective division level along with the following minimum allocations: primary schools receive twenty-five to thirty desktop machines, including servers and network equipment; middle schools receive a minimum of thirty desktop machines and network equipment; and senior schools receive thirty to thirty-five desktop machines plus network equipment.

The jurisdiction purchases desktop technologies on a three-year rotation. Every six years, a school receives an upgraded, preconfigured technology package.

The jurisdiction's proposed 1998/1999 expenditure budget for technology is $847,945 ($65 per student).

Rocky View uses a moderately site-based technology funding model, but has several technology committees that manage and support technology investment and planning.

CENTRALIZED FUNDING MODEL

GRANDE YELLOWHEAD REGIONAL DIVISION NO. 35

The Grande Yellowhead Regional Division is a rural jurisdiction covering a geographical strip from Jasper to Grande Cache to Evansberg. In May 1995, the Grande Yellowhead school board approved a Technology Concept Plan for the jurisdiction that laid a foundation for developing a communications network to service curricular and administrative applications. The jurisdiction's wide area network, called GYRDnet, currently connects thirty buildings and incorporates 1800 Windows-based personal computers, eighty file and/or application servers and 7500 partnered students from Gerard Redmond and Vanier Community (of Living Waters Regional Catholic) and Grande Yellowhead Regional Division. This $8 million network extends 340 kilometres from end to end. It includes the communities of Grande Cache, Jasper, Hinton, Edson, Robb, Niton, Peers, Fulham, Wildwood and Evansberg, and services not only schools but also community libraries and community learning societies in the west Yellowhead communities.

Grande Yellowhead's formal technology planning process extends over several years and is structured into phases. Technology funding for the jurisdiction matches the phases (the jurisdiction has formalized technology funding forecasts that extend up to three years). The jurisdiction also has established reserves to cover unexpected, ad hoc technology expenditures. School principals have ratified a new three-year term for the technology plan starting in September 1998.

The 1998/1999 technology expenditure budget is $586,579 ($132 per student over and above the $40 per student from Alberta Education's Technology Integration Funding grant). Approximately $360,000 is placed in capital reserves each year, along with all external grants, to fund planned three-year capital investments and technology support services, contracts and wide area network operating costs. These are currently the three most pressing demands:

- The jurisdiction is unable to "evergreen" its existing asset base.
- There is insufficient support staff.
- Central technology personnel are having difficulty meeting the growing demands and expectations regarding the deployment and use of technology in the schools.

FINDINGS: BEST PRACTICES AND KEY LEARNINGS

TECHNOLOGY GOVERNANCE

Establishing clear guidelines for managing technology, thereby maximizing return on investment and minimizing support costs.

Discussion

The role of information technology is evolving.

As Alberta school jurisdictions invest millions of dollars in technology, personnel are increasingly being called upon to recommend the best possible uses for this technology; that is, how best to focus on the learning outcomes that technology will support.

A division of authority for decision making has translated into a division of budgetary authority.

Jurisdictions have developed hybrid organizational models that blend centralized service and local autonomy.

Technology standards and rules of use help to focus technology investments.

Technology departments are acting as integrators—providing infrastructure services such as communications and hardware/software configurations as well as direction about additional technology investments over and above jurisdiction-level investments.

The role of the information technology director has evolved.

Technology directors are no longer simply administrators of resources. They are identifying how information technology can be leveraged to provide educational and administrative advantages and help individual schools deal with change. Other organizational structures (such as technology planning committees) are being created to engage principals, teachers and administrators in the integration of technology into the jurisdictions' educational and business practices.

For example, the Wolf Creek School Division's site-based decision-making committee, consisting of principals, a trustee, and some central office staff, reviews the technology plan annually and recommends directions for the subsequent year. Black Gold Regional Division also involves a representative committee in technology planning (the committee includes teachers, principals, support staff, parents and the board chair.)

Recommended Strategies

- *Develop and implement governance principles for the whole jurisdiction.*

  The purpose of technology in schools is to support learning. To ensure that this goal is achieved, governance principles might make the jurisdiction's information technology office responsible for setting policy and prioritizing investments in technology (including the co-ordination of one-time or block technology investments and re-investment in infrastructure).

- *Raise awareness of the strategic importance of the role of the technology department.*

  Technology is becoming central to the attainment of educational goals, and technology investment involves the expenditure of large portions of the school board's budget. Therefore, jurisdictions should consider ways to ensure that information technology management staff have input into decisions made by the senior administration team.

THE IMPACT OF NETWORK COMPUTING

Reshaping technology management and expenditure streams to reflect changes in how computers are used.

Discussion

Computer networks have enhanced learning environments in the schools and increased overall productivity.

Stand-alone computing provides only a portion of the learning environment that technology makes possible. Network infrastructures support intra- and inter-school communications, shared data management, Internet connectivity and application sharing.

Site-based management is not practical in highly complex, networked environments.

Site-based technology funding and management was possible when technology in Alberta schools predominantly consisted of stand-alone desktop computing and dial-up access. However, technology management is becoming much more complex—from the process, support and organizational perspectives.

There is a critical need for enterprise management of technology (managing technology centrally as a communal resource for all schools). However, this approach can create conflict when individual schools believe they "own" and should therefore control their desktop technology. In some instances, information technology personnel are required to manage increasingly sophisticated networks, while sites

control information technology budgets, spending and priorities. Jurisdictions that use site-based funding models will have to address this major issue over the next few years as their network infrastructures continue to evolve.

Recommended Strategies

- *Accumulate a pool of funds and manage them centrally.*

  Network-enabled schools have different expenditure patterns and management issues. Additional expenditures include the cost of retaining highly trained support personnel, procuring and maintaining network technologies and equipment, and increased telecommunications. For example, in the Edmonton Catholic Regional Division, thirty-two people are involved in various technology support functions. These costs may be best managed centrally as a communal resource for all schools.

- *Have the jurisdiction's central office manage technology procurement, equity initiatives, second-tier help desk support and vendor service level agreements.*

  Since standardization is critical in networked environments, centralized purchasing and maintenance of technology makes sense. The technology department of Grande Yellowhead Regional Division negotiates hardware pricing with vendors in order to obtain superior pricing and standardization of machines across the jurisdiction. Wolf Creek School Division also recommends that networks use only one brand of hardware with the same motherboard and sound card. Centralized management of the procurement process has allowed the jurisdiction to standardize on two personal computer configurations. Through centralized purchasing, schools generally get higher quality technology for a price that is lower than they could get on their own. Schools also are assured that the technology will be fully compatible with the jurisdiction's computing infrastructure. This practice has become an integral part of the jurisdiction's forward planning process and has allowed the jurisdiction to support its networks remotely across a wide geographic area.

  In addition, jurisdictions should consider optimizing the selection of software in relation to the relevant generation of hardware. If the jurisdiction makes only periodic software upgrades, then hardware retains its usability over time, which in turn reduces

the cost of hardware upgrades and extends the hardware's useful life.

- *Manage staff development as close to the individual site as possible while also exploring opportunities for jurisdiction-wide training events.*

  There may be opportunities for large-scale, jurisdiction-wide training events, where the jurisdiction could potentially negotiate favourable terms with third-party providers. For example, some types of standardized training (for example, Microsoft Office) might be provided for all staff.

- *Manage the selection of non-core curricular software at the site level, but manage the installation of all software centrally.*

  The installation and use of some software products can potentially impede the operation of the network and drive up overall support costs. For example, Grande Yellowhead and Wolf Creek have reviewed and selected a set of core curricular software to be used across the jurisdiction. In this way, the jurisdictions can better control network integrity, minimize network support costs and provide jurisdiction-wide training initiatives.

TECHNOLOGY PLANNING

Discussion

Jurisdictions have technology plans covering more than one year.

The six jurisdictions included in this study have developed technology plans as part of their budgetary planning process and in consultation with their technology planning committee structures. Edmonton Catholic Regional Division has a three-year plan, the Lethbridge School District has a five-year plan and Black Gold Regional Division has a six-year plan. Each jurisdiction undertakes annual reviews of the technology plan, and in each case, management of the plan and status reporting are the responsibility of the central information technology organizations.

These plans—which include wide area networks, school desktop inventories and equity planning, administrative technology requirements, technology outcomes, support and organizational considerations and evergreening—set the tone for technology direction and spending in the jurisdiction.

Recommended Strategies

➢ *Use technology plans to identify and allocate funding to three distinct technology investment categories: strategic initiatives, infrastructure expenditures and operational expenditures.*

Strategic initiatives are investments in technology that support a fundamental shift in direction and/or a change in the way the jurisdiction uses technology on a daily basis; for example, changes in operating system or platforms, initial investment in WANs, etc.

Infrastructure expenditures are investments in the technology infrastructure to adapt to and exploit the evolution of technology; for example, replenishing hardware and software, and telecommunications upgrades.

Operational expenditures are ongoing funds for the infrastructure to sustain current levels of technology; for example, telecommunications costs, personnel costs, training, etc.

➢ *Work in partnership with Alberta Education to investigate, plan for and deploy emerging technology in education.*

For example, school jurisdictions could work with Alberta Education on these and other initiatives:

- establishing a representative assembly made up of the technology leaders from each jurisdiction to examine emerging technologies and issues in Alberta schools,
- establishing an Alberta Education Testing and Training Centre for new technologies,
- continuing co-sponsorship of "ways and means" studies, and
- providing incentive grants for new technology exploration, etc.

TECHNOLOGY INVESTMENT

Addressing the major challenge of ensuring the long-term viability of technology investments.

Discussion

There has been a burst of growth in technology investment.

In 1997, Edmonton Catholic Regional Division spent approximately $7 million on the first two phases of its technology investment plan, and the Lethbridge School District spent $2.635 million in the first year of implementing its new technology plan.

Technology investment is sometimes erroneously viewed as a one-time cost.	Through Alberta Education's Technology Integration Funding, a significant number of desktop computers have now been purchased and deployed, but evergreening and replenishing obsolete technology is emerging as the next big challenge. There was a funding gap for technology replenishment/ evergreening in some of the jurisdictions reviewed.
Some jurisdictions are actively recycling desktop computers and planning for the disposal and replenishment of older units.	In Rocky View School Division, when a school purchases new computers to replace old ones, schools across the jurisdiction are notified of the availability of the old inventory.

Recommended Strategies

➢ *Reserve funds for the regular replenishment of technology.*	At a minimum, the replacement of desktop technology should occur on a five-year cycle.
➢ *Investigate other jurisdiction-wide programs to extend the useful life of desktop inventories.*	This could include recycling machines between schools.
➢ *Use learning outcomes to drive technology redeployment.*	Equipment should generally be replaced without bias; for example, a grade 2 class should have access to technology equivalent to that of a grade 11 class. In other words, the redeployment of technology should not degrade the quality of technology available to students in the lower grades.

ACCOUNTING FOR INVESTMENT

Identifying the other costs involved in technology investment.

Discussion

The level of technology expenditures is difficult to estimate.	In some jurisdictions, the accounting systems may not be defining technology-related costs such as staff development and building improvements (for example, wiring) as technology expenditures. Consequently, the true cost and/or level of technology investment is likely to be understated.
Some jurisdictions have implemented charge-back processes.	If the accounting and budgetary systems are set up to bill back expenditures over and above the allocations in the technology plan, the jurisdiction will have a better idea of how much technology is

actually costing. For example, the Rocky View School Division charges an hourly fee to schools for special technology requests. This approach also gives schools a more accurate accounting of their use of central technology resources.

Staff development and support costs, which are often hidden, are escalating.

There is an increased demand for technology skills and the deployment of more sophisticated networks, and these expenditures are often not fully accounted for. If these costs are not managed, jurisdictions could find they are spending more than they can afford.

Recommended Strategies

- *Implement a full-cost accounting model for technology expenditures.*

A full-cost accounting model accounts for all direct costs associated with technology along with a fair share of indirect costs. Direct costs for technology, for example, include the salaries and benefits paid to staff working in the technology area and expenditures associated with the jurisdiction's wide area network, local area networks, desktop computers and software. Examples of indirect costs include a portion of staff development costs that relate to training in the use of technology.

- *Work in partnership with Alberta Education to develop an appropriate template for accounting for the cost of technology.*

By developing and establishing a full-cost accounting model, jurisdictions would be taking a pre-emptive step towards establishing a single source of provincial technology funding.

TECHNOLOGY FUNDING SOURCES

Ensuring consistency across jurisdictions regarding sources of funding.

Discussion

Sources of technology funding vary, and they can be inconsistent.

In some school jurisdictions, technology departments receive a preset amount of their funding from the instructional block for a three-year term (as in Grande Yellowhead). In others, technology support funding is allocated from the schools on an annual, per student basis (as in Black Gold Regional Division). In Wolf Creek, matching funds are returned to the schools that originally allocated the funds to qualify for Alberta Education's Technology Integration Funding grant, and there is no central

technology pool. In Rocky View School Division, an allocation committee decides how technology funds will be utilized across the entire jurisdiction.

Other sources of funding are being used in the jurisdictions, including the TELUS Bright Futures grant, the Operations and Maintenance Budget, funds from the Administration Block, one-time student levies, funding for Career and Technology Studies (CTS), Building Quality Restoration Plan (BQRP) funds, Sparsity and Distance Grants,

Alberta Education made funds available to jurisdictions through the Technology Integration Fund. Some schools undertook fund-raising initiatives.

Lethbridge School District purchased technology with funds accumulated from the sale of three schools that were no longer operating.

Each jurisdiction is actively working towards sustainable equity targets of one computer for every five students, but Grande Yellowhead Regional Division is the only jurisdiction that has achieved this target to date. There is no evidence available to show whether or not this target is achievable for most jurisdictions, based on current technology funding.

Jurisdictions depend on miscellaneous, third-party funding sources to support day-to-day technology operations.

The TELUS Bright Futures grant and other similar sources are being used to support basic infrastructure. In these cases, there is a high risk of instability or degradation of technology service if or when these unsecured funding sources are no longer available.

There are many competing technology priorities.

Jurisdictions are finding it difficult to cope with activities that unexpectedly become priorities; for example, file format requirements for the Alberta Education student records initiative.

Strategic technology investments may not be made because operational requirements use up available funds.

The need to support ongoing operational requirements and ad hoc Alberta Education initiatives, along with funding instability, can make long-term planning difficult.

Recommended Strategies

➢ *Consolidate current multiple funding sources for technology into a single stream/central pool that is preset for several years.*	Having to manage multiple funding streams on a year-to-year basis not only creates a significant amount of administrative work but also makes technology funding levels unpredictable (the technology department may face shortages if or when one or more miscellaneous funding streams is deleted).
➢ *Consider providing a separate identified source of funding for one-time and ongoing school technology funding.*	This source of funding could be based on current levels of spending (once these are known through an examination of the full costs of technology spending in each jurisdiction). Restrictions on the use of the funds should not prevent school jurisdictions from continuing to follow their technology plans.
➢ *Ensure that sufficient funds are available to carry out provincially mandated changes; for example, file format requirements for the Alberta Education student record initiative.*	A jurisdiction's technology planning and funding priorities can be compromised by unexpected changes. For example, one jurisdiction has estimated that it will cost approximately $170,000 to convert to the new student record package.

APPENDIX
RELATED ALBERTA EDUCATION RESOURCES

Computer Network Security: Best Practices for Alberta School Jurisdictions (1999).

Developing A Three-Year Technology Integration Plan: A Resource for School Jurisdictions (1998).

FOIPP and Technology: Best Practices for Alberta School Jurisdictions (1999).

FOIPP and Technology Highlights: Best Practices for Alberta School Jurisdictions (1999).

Implementing and Managing Web Site Development in Education: Best Practices for Alberta School Jurisdictions (1999).

Network Design: Best Practices for Alberta School Jurisdictions (1999).

On-Line Learning: Best Practices for Alberta School Jurisdictions (1999).

Preparing to Implement Learner Outcomes in Technology: Best Practices for Alberta School Jurisdictions (1999).

Professional Development for Teaching Technology Across the Curriculum: Best Practices for Alberta School Jurisdictions (1999).

Technical Support Planning: Best Practices for Alberta School Jurisdictions (1999).

Technology Implementation Review, Grande Yellowhead Regional Division No. 24 and Wolf Creek Regional Division No. 32: Best Practices and Key Learnings with Respect to Technology, Its Implementation and Management in Education (1997).

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