



First Nations Technology Council

Community Technology Plan Toolkit

GUIDE

February 2006

Preface

In the 21st century, the world is going to experience remarkable change and realize great benefit as nations and communities learn how to take fullest advantage from living in the Information Age and using technology to improve the quality of life for all members of the community. The global knowledge economy will continue to grow. New technologies will continue to be developed. These changes will make it easier for individuals and communities to do more, do it faster, and do it more cost-effectively. Even the most remote First Nations communities will be able to use technology to access better health care, to provide a wider variety of quality educational materials to learners of all ages in the community, to access global markets for community-based businesses, easily stay in touch with members who have left the community, forge more collaborative relationships with their government and industry partners, and improve data gathering and accountability.

For communities and community members to thrive, in Canada and around the world, community members and community institutions must be connected – both to the Internet and through local-area and community networks. Everyone in the community must have access to first-class computers in the home, in the classroom, and in the workplace. Everyone must have access to always-on high-speed broadband connections to the Internet. And everyone must have all the technical skills they need to accomplish their goals, whether working offline at their computers or online surfing the Internet.

The Community Technology Plan Toolkit has been created to help the First Nations communities in British Columbia to prepare their plans for installing and using information and communications technologies (ICT) so their communities and community members will be able to participate actively and fully in the Information Age.

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Introduction

The First Nations Technology Council (FNTC) was created by the First Nations Summit Chiefs in Assembly with a series of clear and specific mandates. These mandates include:

- Developing a Technology Plan addressing information and communication technologies needs for BC First Nations communities;
- Promoting the use of technology as a tool in support of the revitalization of culture and language in First Nation communities;
- Upholding that broadband Internet connectivity is basic community infrastructure like electricity and roads; and
- Leading the FIT (Fully Integrated Technologies) Community proof-of-concept project, demonstrating the uses of ICT to strengthen and sustain First Nations communities.

In fulfilling these mandates, FNTC advocates with government and the private sector for ICT infrastructure development and user-skills capacity building for BC First Nations. FNTC sponsors workshops, conferences, and youth camps presenting ICT information and skills-development training to First Nations citizens. FNTC has launched the FIT (Fully Integrated Technologies) Community project and will be sharing best practices and lessons learned from the project. In addition, FNTC has developed and published a number of “tools” to assist First Nations communities to plan and implement information and communications technology projects. These tools include the *First Nations Community Broadband Business Plan* (to access online, click [here](#)), *Community Wireless Handbook* (to access online, click [here](#)), *Choosing an ISP* (to access online, click [here](#)), *Traditional Knowledge Protocol Template* (to access online, click [here](#)) and, now, the Community Technology Plan Toolkit.

The Community Technology Plan Toolkit has been developed by the First Nations Technology Council to help First Nations communities integrate and expand their community ICT planning initiatives – thereby helping every First Nations community become a FIT Community. The toolkit includes a step-by-step Plan Template, a set of eight Plan Worksheets, and this Plan Guide. For easy cross-reference, the three pieces of the toolkit use a common numbering system for content sections.

The Plan Toolkit is intended to assist community leaders, community ICT champions, and community technology planning teams during the first six steps in the community technology planning process, which include preparing to do a community technology plan, assessing the community’s ICT environment and completing ICT equipment and service inventories, and defining and documenting the community’s ICT needs and priorities.

The Plan Template sets out in sequential order the recommended steps that you can follow in developing a community technology plan. Each step includes a series of reminders. The Template is a handy to-do checklist for you. The Template is a convenient place to jot down which resource has been assigned to which task, and what the timelines are for completing the assigned task.

The eight Plan Worksheets are organized in sequential order for you to use at various stages in the process. The worksheets have been designed so that they may be used as an on-screen electronic form or printed off for use with a clipboard and pencil. You may find it more convenient to complete the worksheets first by hand, and then type the information into the electronic copies. While the worksheets have been organized in sequential order, depending on the amount of work to be done at each step in the planning process and depending on the



resources available to you, you may find it more efficient to work on more than one task at a time.

Be sure that information being prepared in earlier tasks, and needed to complete a later task, is complete and available before beginning the later task.

Some sections of the worksheet formats have been “locked” for your convenience. This will prevent anyone from accidentally deleting or reformatting one of the worksheets or deleting one of the calculation formulas. The worksheets can be unlocked to allow you to do worksheet format revisions. Be sure to re-lock the worksheet after the revisions have been completed. The default password for unlocking the worksheets is **FNTC**. You may continue to use the default password or change to a secret password known only to you.

The Plan Guide provides background information and how-to instructions for both the Plan Template and the Plan Worksheets. For easy reference, the Plan Guide uses the same section number sequence as the Template and the Worksheets. The Plan Guide also provides web addresses for additional community technology planning information available from the FNTC website and from other websites that FNTC recommends. You should take a few minutes to read through the Guide and become familiar with its content before starting work on your community technology plan.

If you have any questions concerning use of the Community Technology Plan toolkit or suggestions for further developing the toolkit, please contact FNTC at info@fntc.info, 604-926-9903, or 866-990-9939 toll-free.



Step 1: Community champion and community technology vision

1-1 Why do a community technology plan. Information and communications technologies have the potential to bring transformative change to every BC First Nations community. ICT utilization cross-cuts every program and activity in the community. Before starting the community technology planning process, your community should have an understanding of what ICT planning and development can do to help bring transformative change to your community. To start the discussion, here are some ideas:

- First Nations community health centres need high-capacity bandwidth connectivity and advanced video-conferencing equipment to support real-time triage and medical diagnosis, recuperation and rehabilitation case management, and routine health check-ups.
- First Nations schools need high-capacity bandwidth connectivity to enable students to participate in classroom sessions presented from classrooms hundreds of miles away and to access online tutorial and other learning applications. Schools also need first-class computer labs and sufficient numbers of networked computers to provide students with as much computer time as they want and need, and to keep young students in the community.
- First Nations communities need broadband connectivity in order to be part of the global economy. Small and home-based businesses are the fastest growing sector of the Canadian economy and, without broadband, First Nations communities will not be in a good position to broaden their economic base.
- First Nations families need broadband connectivity and first-class computers to source information on health, nutrition, parenting skills and other topics that promote family well-being. Families need to access lifelong learning and job-skills training courses available on the Internet. Families need the ability to communicate with family members living away from the community.
- First Nations communities need broadband connectivity, digital recording devices, and first-class computers to support community efforts to preserve and revitalize traditional language and culture. Communities need public access video-conferencing locations to enable all community members to enjoy the benefits of real-time interaction for personal and professional development purposes.
- Every First Nations community member needs to have the opportunity to receive ICT user-skills training in the community so they can get the most pleasure and benefit from time spent working and playing on the Information Highway.
- To effectively interact with government and other organizations, Band administration offices need high-capacity broadband Internet connectivity and computers powerful enough to manage the content-rich administration, reporting, and community governance applications in use today.

Developing a community technology plan will give your community the opportunity to decide how ICT development can benefit the community and what the community's ICT priorities will be.

1-2 Community technology vision. Before beginning to develop a technology plan for your community, it will be helpful to collect the community's ideas, preferences, and priorities regarding ICT into a community technology vision statement. Having a well-defined vision that has been endorsed by the community will provide both a solid foundation and reliable guidelines when building the community's technology plan. During the development of the technology plan, you are sure to be given many suggestions and specific requests for pieces of ICT infrastructure to be built and software applications to be installed. The community's technology vision will be very useful in helping both the community and you to decide which suggestions and requests will be most important and most useful in fulfilling the community's ICT vision. Having a community technology vision will help set priorities among the many important ICT projects your community will plan. A technology vision will also help set budgets for each ICT project planned for the community.

To create a community technology vision statement, the community may find it useful to follow these steps:

1. Make a list of computer-based functions - basic computer functions such as document management, advanced computer activities such as desktop publishing and document collaboration, computer training, Internet access, video-conferencing, telephony, software development - that Band administration and community members need or want to perform.
2. Identify the community members who will use the various functions detailed above, including the degree of importance of the function for the community member.
3. Decide when the community needs to have each of the functions available.
4. Decide how long the community will use each of the functions – before discontinuing or upgrading the function. This isn't always easy to determine so you may have to take an educated guess. Technology changes rapidly so you may want to plan for a three to five year upgrade as a rule of thumb.
5. Decide how often the community will want to review and revise the community technology vision statement.

Review the information gathered from the community regarding the community's technology vision. What do community members see as the community's general ICT priorities? What is the level of urgency to address any specific priority? How many in the community will directly or indirectly benefit from addressing the priority? Is there a cost-benefit that will bring the community a return on investment from addressing the priority? The answers to these questions and to other questions of particular interest to your community will provide input into your technology vision statement.

The community technology vision statement should be one clear statement that everyone can understand. The statement should be forward-looking, clearly describing what technology will be doing for the community as of a target future date or other time frame. The statement needs to be practical, factual, and direct. Your community technology vision needs to be the long-distance road map that recognizes where your community is today as you begin community technology planning and where your community wants to be some years down the road having successfully executed your community technology plan. You will want to review your community technology vision statement as planned and update or revise the vision statement as targets are met and goals achieved.

1-3 Community champion. Every program, every project, and almost every activity in any community starts with one or two community members who see the purpose and benefit to the community in undertaking and completing a program, project, or activity for the community. These individuals are community champions. Community champions may be already-established community leaders, but they can also be anyone, any age, having the passion and drive to persuade other community members to support the activity the community champion is proposing to bring to the community.

Your community technology planning initiative really needs a community technology champion. The community champion may be the planning team leader, an advocate for community technology planning, or an advisor to a planning team, but, to be effective, a community champion must have a clear grasp of the community's technology vision and be enthusiastic. He or she must enjoy working with a team, sharing the challenges and the successes as the community technology plan gets developed and implemented.

Oftentimes a major program or project, like a community technology plan, has two or more community champions: one during the planning stages of the project having skills in communications, detailed information gathering, and problem-solving; a second during the implementation stages of the program or project with skills in project management, delegation, and budgeting; and even a third community champion to operate the program or project once implementation is complete. This community champion may be skilled in administration, cost control, and forward planning. Your community may benefit from having more than one community champion sharing the workload as the community plans and implements its ICT initiatives.

Step 2: Gaining community support

2-1 Engaging Chief and Council. Developing a community technology plan and developing ICT infrastructure and ICT-user skills capacity are very important activities for your community. ICT development can be instrumental in bringing transformative change to your community. Therefore, it is essential that you gain the support of Chief and Council and community members. You will want to work with Chief and Council and community members to identify and prioritize the community's ICT needs – from the mission critical to the nice-to-have. You will want to work with Band administration and community members to develop the ICT user-skills training programs that Band administration staff and community members want and need. In addition, as ICT infrastructure development projects get underway, it should be community members who receive preference for employment doing project work.

The following are important points to discuss when you meet with Chief and Council:

- ICT has become a basic community infrastructure and a public utility like water and electricity. BC Chiefs have passed a Summit Resolution and the Leadership Council is currently lobbying for government to formally recognize and confirm ICT as basic community infrastructure.
- ICT has the potential to bring a wide range of benefits to the community. The following are some examples.

Supporting community sustainability:

- ICT helps the community to preserve and revitalize traditional language and culture through the use of audio and video digital recording technology to record the words of Elders, speakers, storytellers, and others. These recordings can be stored electronically for future generations to enjoy.
- ICT gives the community the ability to more easily, accurately, and continually monitor water quality.
- ICT helps the community to manage resources by recording and analyzing production yields, monitoring future stocks, and helping to improve resource utilization. Through GIS technology, the community has the ability to develop more complete and accurate information on reserve lands and territorial boundaries, and to more easily resolve land title disputes.
- Through e-learning applications and video conferencing technologies, ICT allows community members to access advanced and specialized educational curriculum thereby allowing students to remain in the community while completing high school and pursuing a post-secondary education. ICT allows lifelong learners to access family wellness information, take job-skills training, pursue personal and leisure time interests, and much more.
- The community can use ICT to help with emergency preparedness planning, natural and man-made hazard monitoring, and emergency communications, prior to and during a community emergency, within the community and to emergency responders outside the community.

Supporting community economic development:

- On a worldwide basis, the knowledge economy is becoming an increasingly significant portion of total economic output. This includes work completed and distributed directly from a computer; work facilitated, managed, and measured

(Beta version)

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from a computer; and work completed in support of the knowledge economy infrastructure including new technology development. First Nations communities are beginning to come on-stream as knowledge economy centres – operating call centres, computer assembly and maintenance shops, regional Internet and telecommunications providers, software development shops, etc.

- ♦ Home-based and small businesses are currently the largest creators of employment in Canada and, as First Nations communities begin to shift from a resource-based economy to a more diverse economy, ICT will become an essential tool.
- ♦ Communities are utilizing e-business applications to build new online and Internet-integrated businesses and to reach new markets and new suppliers for established businesses. Here are some of the ways that your community could use ICT to build the community's economic output; you can probably think of others.
 - Operators of heavy equipment will be able to have web-pages advertising their services and customers will be able to reserve the equipment online.
 - Eco-tourism is a growing industry among First Nations. Visitors from abroad want to be able to take a "virtual tour" of the community and book their reservations and activities online.
 - Community gas-stations and stores can order their supplies online – even setting up automatic ordering thereby improving the efficiency of their operation.
- As ICT helps the community develop new economic opportunities and strengthen established businesses, this economic growth will create meaningful employment opportunities for community members. In many circumstances, the new jobs will require new skills. Broadband Internet service in the community will allow workers to go online for at least some part of the job-skills training they may need to be successful in their new positions. When a business in the community needs to train a number of workers at once, a computer-networked training classroom or lab can be established in the community. Opportunities would then exist to have a training coordinator and a skilled trainer in the community to manage the training.

Supporting family health and well-being:

- Receiving effective, efficient, and timely health care delivery is a right for every Canadian resident. Broadband Internet connectivity offers the potential for the community to enjoy a wider range of health care services delivered in the community, including real-time tele-health examination, diagnosis, and treatment via video-conferencing technology. Better health service in the community means fewer community members being forced to leave the community to get proper care. Better health service in the community means that community members will more often have the option of recuperating from illness or injury in their own homes rather than being forced to remain in care away from the community. Tele-visitation will allow community members to visit a hospitalized family member or friend through video-conferencing without leaving home.
- In addition community members can access family and personal online counselling and support services, career counselling services, crisis support, and a wide range of other online guidance and information services. Community

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members need quality computers and broadband Internet connectivity so they might access these support services in the privacy of their home.

- Communities often have members living away from the community. With quality computers and Internet service in the home, families in the community will have the ability to give family members living away the help, support, and encouragement that reinforces a sense of well-being for every family member.

What opportunities and benefits can your community possibly create through further developing ICT infrastructure and user-skills capacity in your community? Completing a community technology plan will be very helpful in answering this question for your community.

2-2 ICT needs to be a budget line item

ICT is still not recognized by government as basic community infrastructure. This will soon change, however First Nations communities cannot wait to begin planning and preparing budgets to manage, maintain, and develop ICT infrastructure and to develop ICT user-skills in the community. To be successful, communities must have processes in place to support ICT infrastructure and programs after they have been built or launched.

ICT needs to be a community budget line item. In reality, ICT needs to be as many as four budget line items. The operating budgets developed by Band administration should include:

1. Annual budget provisions for additional and ongoing ICT equipment purchases and upgrades;
2. Quarterly budget provisions for routine ICT infrastructure maintenance and repair and for emergency repair;
3. Annual budget provisions for ICT user-skills training for Band administrative staff and other community members identified as in need of community-paid user-skills training;
4. Budget for training and employing a community-based certified technician, qualified to maintain and repair the computer equipment and networks in use in Band offices.

2-3 Help from Chief and Council

You will want to ask Chief and Council for their support with respect to the following planning issues and concerns.

- Current community planning documents, community asset inventories, and other planning and assessment documents may have information of use during the community technology planning process. Will Chief and Council give permission for you to have copies of current community planning information?
- Being able to work closely with Band administrative staff will be very important for you during the community technology planning process. Perhaps Chief and Council can ask Band administration to lend its support to the planning process.
- You will need guidance from Chief and Council regarding ICT development priorities for the community. Perhaps one or more members of Council could become regular advisors for you in the community technology planning process.

- You will need direction from Chief and Council on the scope of the community technology plan – should you limit the focus of the plan to Band administration offices; should all community homes and non-Band offices be included in the plan?
- While the community champion will most likely be completing the plan as part of his or her job, there will be some amount of expense involved in completing the community technology plan. Will the Band provide some agreed amount of financial support for out-of-pocket planning expenses?

2-4 Measuring return on investment

Many of the ICT infrastructure development projects and user-skills training programs that will result from your community technology planning will have a direct, positive, and measurable impact on the performance results and current costs of Band administration, business operations, and service delivery in the community. Taking dollars-and-cents measures of the likely performance and cost improvements and comparing these amounts to the costs of completing a development project or skills training program will give your community a return-on-investment (ROI) evaluation for any planned project or program.

To measure performance improvements and cost savings, first identify what the performance measures are for the organization or service. Every First Nations Band administration office has the burden of an enormous volume of inter-governmental reporting to be completed monthly, quarterly, and annually. ICT can reduce the burden of reporting in a number of ways. High-speed broadband connectivity to Band offices gives the administration work group the ability to download, complete, and then upload reports much more quickly, sometimes completing the report entirely online. A stable, high-speed local network in the office can increase the work group's ability to share and retrieve documents and collaborate real-time in preparing reports. To take fullest advantage of improved connectivity, administration employees need first-class computers and advanced user-skills. What is the ROI for your community that can result from more efficient, more accurate, and more timely report preparation and faster report delivery?

Another measure of performance in Band administration offices is likely to be the number of person-hours it takes to complete routine tasks. This measure is particularly useful when looking at regular and repetitive tasks. Which tasks in the administration office can be accomplished more quickly, with less supervision and follow-up, or using fewer supplies thanks to new or upgraded ICT equipment, services, and skills in the office? Reducing the time needed to accomplish routine tasks will give the Band administration work group time to take on new activities and projects. What additional services can the administration work group take on that will benefit the community? Increased service delivery can be an additional return on investment.

ICT can create improvements in the costs and the quality of the delivery of services to the community. Water quality can be monitored on a non-stop basis across the community network and alarms can be set to sound an alarm as soon as water quality falls below acceptable quality standards. Community supplies like propane, heating oil, and diesel fuel for community generators can be monitored automatically using sensors inside the storage containers, with alarms to signal low supply. What are the possible costs to the community if water quality falls below health standards? What are possible costs if the community's supply of heating fuel runs too low and new supply takes weeks to deliver?

All forms of service delivery have performance measures and cost factors. For schools, the most important measure is student success – course grades, completing school, taking advanced and challenging courses. Education also has faculty costs, occupancy costs, curriculum development costs, and equipment and supplies costs. When calculating the ROI for an ICT project in the school, also consider the costs to the community and to the young community member if the student is not successful in school. What are the costs for additional community and social services support for a young adult if he or she is not in school?

For health services, there are similar cost and performance measures. For example, one piece of health service performance may be measured by the number of trips community members must make out of the community. In most cases a sick person does not travel alone and, therefore, there's a cost (perhaps a loss of pay) for having someone travel with the patient, cost of meals not covered by Health Canada, motels, mileage, etc. Health service delivery has many cost factors, some of which can be influenced by ICT – for example, reducing the waiting time to see a specialist means earlier diagnosis and a greater chance of a positive outcome. Broadband Internet can support the use of tele-health applications and high-capacity video-conferencing to stabilize injured and ill community members, to do at least preliminary diagnoses of injuries and illness, and to manage treatment regimens.

While these are only a few simple examples of factors that can influence an ROI calculation for an ICT project, it is important when doing an ROI calculation that you consider all the measurable impacts from completing an ICT project. It is equally important that all the costs associated with planning and completing the ICT project be included in the calculation of the “investment.” Worksheets 6 – 8 can be used to prepare a complete calculation of project cost for any ICT project or program undertaking by your community.

To paraphrase an old saying, “If you can measure it, you can manage its performance and its costs.” And if you can measure it, you can also measure the ROI that may result from using ICT to improve performance or reduce cost.

Step 3: Getting started

3-1 Community technology plan skill-sets. Earlier in the Guide, the importance of having a community champion to lead your community technology planning initiative was discussed. As in a project, a team approach will distribute the work and responsibility so, when possible, the community may bring other resources together to help complete the community technology plan.

Developing a certain set of skills will ensure the success of the community technology plan. The following skills will contribute to successfully completing the community's technology plan:

- Ability to organize and plan for each step in community technology planning process, including defining tasks, assigning tasks, and making sure that tasks are completed completely, accurately, and on-time.
- Ability to communicate clearly and confidently about what the community technology planning project is and about how the project is coming along. This may involve public speaking, and it certainly requires someone who can write clearly and concisely.
- Basic knowledge of ICT hardware and software to be able to correctly identify and describe the community's technology environment and to accurately complete ICT equipment inventory. Having someone with a good knowledge of ICT hardware and software experience will be helpful, especially when planning future technology projects; however this skill can be hired on an as-needed basis.
- Ability to gather and record data so that the data is well-organized and the details are accurate.
- Ability to sort, store, and manage information, in spreadsheets and in larger communities possibly in a database, and to keep complete and accurate records of work completed, equipment and services purchased, permits and licenses needed and received, and other project-related information.

Note: Contact FNTC for suggested resources if you are missing some of the above skills.

3-2 Gathering background materials. The more information that is available for the community technology plan, the better the community ICT assessment and future planning for community ICT projects will be. The following are useful background materials that may be available in your community.

- Topographical map of the community and the surrounding area, useful for planning extensions to the community network and planning for connecting remote community buildings;
- Registered Index Plan showing community infrastructure;
- Hand-drawn maps with supporting photographs, where necessary. If topographical maps are not available, then you will need to copy or draw accurate maps showing the location of community buildings and other community structures such as power poles, satellite dishes, radio towers, and water towers. If future work includes extending the community network to reach remote buildings, you will need to draw accurate maps showing the distances, types of terrain, and obstacles such as hills, trees, water, and buildings along the route of the planned community network extension;
- Community site survey for last-mile broadband distribution prepared under the direction of FNTC, if one has been completed for your community;

- Community population and housing information;
- Other community plans or reports on infrastructure or computer usage.

There is a wide variety of online resources to help with planning. Many are excellent, but some are really marketing and sales presentations for companies selling ICT equipment and services. Make sure that sources you use provide fair and balanced discussions of ICT projects and project implementation. Here are three trusted websites that you can visit for more information.

- www.techsoup.org (A complete list of TechSoup.org online articles can be found at the back of this Guide.)
 - ♦ [TechSoup Technology Planning Articles](#)
 - ♦ [TechSoup: Technology Planning Worksheets](#)
- www.fntc.info (First Nations Technology Council website)
 - ♦ [First Nations Community Broadband Business Plan](#)
- www.bc3.ca (BC Community Connectivity Cooperative website)

3-3 Arranging for project workspace. To work efficiently and to keep project planning documents and materials safe and secure, it will be helpful if you have a workspace assigned to the technology planning project. You should have access to:

- A high-quality computer, loaded with standard office software;
- A connection to the Internet;
- A good-quality printer, preferably with 11" x 17" paper capacity for printing maps and other oversized documents
- Telephone and fax access
- Access to a community meeting room

Step 4: Assessing the community ICT environment

4-1 Define Band ICT hardware and software standards (Community Technology Plan Worksheet #1 – Band Administration ICT Standards). Having gathered community support for developing a community technology plan, the next step in the planning process is to assess the community's ICT environment. There are two significant activities in completing the community ICT assessment. The first is to define and document the make, model, component, and performance criteria that will become the minimum standard for Band administration ICT equipment in future ICT project planning and the software type, publisher title, and version that will become the software standard for future ICT project planning.

Worksheet #1 – Band administration ICT Standards gives you an easy to use framework for documenting ICT equipment standards. For each type of equipment, the worksheet lays out the specific pieces of information that will define the standards. When defining the standards, it is important to consider the following factors:

- What will be the total cost of ownership for the brand and model of equipment you define as the standard? Will the equipment be easy and inexpensive to service? Does the manufacturer have a reputation for reliability?
- What will be the average useful life of the brand and model of equipment you define as the standard? What information can you find about the equipment's performance history? Will the equipment continue to perform at an acceptable level for the number of years required?
- Will the brand and model of equipment you define as the standard be compatible with future ICT project requirements? What is the equipment's potential for reuse, perhaps for another purpose or by another computer user in the community, when Band administration technologies are upgraded?

The First Nations Technology Council supports ICT equipment standards already established by the First Nations Education Steering Committee and Chiefs Health Council/Health Canada ICT. Where possible, it will be useful for future community ICT project planning if the Band administration ICT standards are coordinated with First Nations Education Steering Committee and Chiefs Health Council/Health Canada standards. Adhering to these standards will mean your technology will support education, health, and other basic service and business applications.

To assist you in accurately defining standards, here are suggestions when defining standards for the different types of equipment included in the worksheet. If you are uncertain about any of the definitions, please contact FNTC.

For workstation computers and notebook computers:

- For larger office work groups, there may be both advanced (power) computer users and basic computer users. Consider a different set of standards for those individuals in the work group whose work demands greater computer functionality.
- Define and document processor speed, (random access) memory, and hard drive size in standard industry numeric terms.
- In most offices and for most users, operating systems need to be compatible for all computers. This increases flexibility and reduces cost in moving equipment between users.



- The important definitions for computer monitors and notebook screens are screen size and graphics support specifications.
- The Ethernet connection will be defined by whether the Band administration has or is planning to install a wireline or wireless network, and, if wireline, what will be the standard wireline capacity.

For printers, scanners, and fax machines:

- Expected volume of use and the number of users will be important in defining what capacity of printer, scanner, and fax machine will be the standard, as will be how your organization is organized, both physically and functionally to share resources. Small desktop printers are oftentimes not rugged enough to handle network user volumes.
- Both optional paper sizes and the number of paper trays are important printer standards for larger office work groups. It becomes a time-consuming nuisance if members of the work group need to print on different sizes of paper and need to change the paper in the paper tray for each change of paper size.
- In most circumstances, the cost of the ink or toner the printer, scanner, or fax machine uses will over the life of the equipment be greater than the cost of the equipment itself. Be sure to investigate the cost of the ink or toner replacement cartridge before selecting standard printers, scanners, and fax machines.

Defining video-conferencing equipment and network equipment standards requires advanced technical knowledge. If your community does not have a trained technician, consider using an outside technical expert to assist in setting video-conferencing equipment and network equipment standards, or contact FNTC who can connect you with someone who can help.

4-2 Doing an assessment of Band administration ICT. To prepare for the Band Administration ICT equipment and services inventory, you will need to get direction from the Band Council or Band Manager regarding what offices will be included in the technology planning process and visit each participating office. This may include the Band administration offices, the community school, the community health centre, the Elders' centre, the community water treatment plant, the community hall, and the community fire hall.

There are four purposes for these visits:

- To gain an understanding of the technical environments that are currently in place in the office and to arrange with the manager for a return visit to complete the ICT equipment and services inventory;
- To collect copies of a current ICT equipment list which, if a list is available, will be useful in planning for the ICT equipment and services inventory;
- To ensure that any disabled computers or other ICT equipment at the office are repaired and restored to the newly established Band administration ICT standards;
- To stabilize the local-area network, if the office has an internal network. Work on the network can include installing, or upgrading if necessary, and testing network firewalls and virus protection; establishing IT protocols and policies; and confirming data back-up equipment is working, back-up protocols are being followed, and secure offsite storage is being used for data back-up discs or tapes.

Step 5: Community ICT equipment and services inventory

5-1 Completing ICT equipment inventories (Community Technology Plan Worksheet #2 – Band Administration ICT Equipment Inventory). Your plan will probably include all community offices. Scheduling your visits so as not to interrupt work will help build community support for the community technology planning project.

Note: An inventory-completion visit to an office may last a half-day or more, depending on how many key individuals you need to interview.

Inventory visits need to be properly planned. Be sure you arrive equipped with clipboards, pens or pencils, flashlights, and whatever other materials you may need to complete an ICT equipment and services inventory. Remember, all the Community Technology Plan Worksheets have been formatted so that they can be printed and used to write down the information being collected during the inventory. After all ICT equipment inventories have been completed and the hand-written worksheets have been reviewed to be sure they are complete and readable, information from the worksheets should be entered into the computer on the electronic version of the worksheets for permanent storage and for easy information sharing within the technology planning project.

If you are working from an existing ICT equipment list, confirm that all the ICT equipment listed is available and add new equipment that may not be on the list. This may be the time to implement an Asset Management System so consider tagging each piece of equipment as you complete the inventory. This will make it easy to track the location and operating status of your ICT assets.

Note: Be sure to move through the office in a systematic way so as not to miss recording any piece of equipment in your inventory.

Worksheet #2 includes a section to record the value of each piece of ICT equipment listed in the Band Administration ICT equipment inventory. There are a number of different ways to place a value on a current piece of equipment. In most circumstances, the most useful value to give a piece of equipment is the dollar cost to replace the piece with a new piece of the same or similar equipment, in the event the existing piece is lost or damaged beyond repair. Knowing the replacement value may be helpful when negotiating insurance coverage for Band Administration equipment or filing a claim for loss or damage. If you are unsure about how to value Band Administration ICT equipment, ask the Band Manager for advice on what sort of value will be of most use to Band Administration.

All the information to be completed on the equipment inventory worksheet is the same or similar to the information contained in the ICT equipment standards previously completed. The age of a piece of equipment may be difficult to determine. If there is no handy documentation about the equipment, there may be a person working in the office that can give an accurate estimate of how long the equipment has been in use.

5-2 Optional – Completing a community ICT equipment survey (Community Technology Plan Worksheet #3 - Community ICT Equipment Survey). If you are going to complete ICT equipment inventories outside of Band administration, use Worksheet #3 – Community ICT Equipment Survey. The first sections of Worksheet #3 are set up the same way as Worksheet #2 - Band Administration ICT Equipment Inventory.

The section of Worksheet #3 available to complete a survey of ICT equipment in community homes is structured somewhat differently. The survey is designed to allow the

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community and you to gain an accurate picture of the age and capability of computers, printers, and other ICT equipment in community homes. This information will be important for community technology planning. For the community to be able to fully utilize ICT, all community members need to have easy access to first-class computers, broadband connectivity, and user-skills training. Therefore, in the community's technology planning, you will need to consider whether ICT equipment that is currently in community homes can adequately serve the computing requirements of community families, and develop plans to improve ICT capacity for homes needing more capacity.

Worksheet #3 includes a section to record the value of each piece of ICT equipment listed in the community ICT equipment survey. As discussed in Section 5.1 above, in most circumstances the most useful value to give a piece of equipment is the dollar cost to replace the piece with a new piece of the same or similar equipment, in the event the existing piece is lost or damaged beyond repair. Knowing the replacement value may be helpful when negotiating insurance coverage or filing an insurance claim for loss or damage.

Note: Unlike completing an ICT equipment inventory for a Band office, completing a community ICT equipment survey does not necessarily mean gathering information about every home or every computer. Some families may choose not to participate in the survey. Some families may not want or need a computer in their home. If doing a community ICT equipment survey, you need to be sure that the information gathered from the community families and non-Band offices that choose to participate is complete and accurate. Completing a good quality sample of the community will still give the community and you a useful picture of the current state of ICT capacity in the community.

5-3 Documenting telecommunication services in the community (Worksheet #4 - Community Telecommunications Appraisal). To do an effective community technology plan, it is as important to get an accurate picture of ICT services in the community as it is to get an inventory of ICT equipment. Completing Worksheet # 4 - Community Telecommunications Appraisal will give you important information on the quality, reliability, and cost of telephone service and broadband Internet service in the community, and the quality of service and rate structure of the community's Internet service provider.

Worksheet #4 is an appraisal, meaning that you will need to accurately estimate the cost and quality of service, the age of equipment, and other ICT service factors using information taken from a sample survey of community buildings and community homes. As with the community ICT equipment survey, an accurate sampling from the entire community can provide a useful indicator of the cost and quality of service experienced by the community as a whole.

Note: A random sample of 15% of households will provide you with a reliable appraisal of ICT service costs and service quality. Be sure the sample is as random as possible. Do not focus on any specific type of household; for example, do not limit your sample to families with members working for Band administration.

In addition to surveying the cost and quality of service, the community telecommunications survey also records information about important technical aspects of broadband Internet service to the community. This information will be useful when the community technology planning process considers extending the community network or connecting a remote community building to the community network. Completing an appraisal of broadband service in the community requires some technical knowledge. If you are not a trained

certified technician, and need some advice in this area, contact FNTC who can connect you with someone who can help.

The community may have more than one Internet service providers managing Internet service and email for Band administration and community household subscribers. Even if the community only has one Internet service provider, the cost of service, and possibly the quality of service, could vary between Internet service subscribers. Information gathered about the fee structure and quality of service of the community's Internet service providers needs to include all different Internet service arrangements.

5-4 Current community technical support (Community Technology Plan Worksheet #5 – Technology Support Appraisal). Worksheet #5 – Technology Support Appraisal will help you to accurately estimate the quality and cost of technical support available in the community, both in-house technical support and outside support brought to the community. Gaining a clear understanding of the community's current level of technical support is an important element in the community technology planning process as ensuring immediate, reliable and cost-effective technical support is critical to the community's ability to have a first-class technical environment.

The technical support appraisal is intended to gather information on the level of technical training of all community-based technicians. If a community-based technician needs and wants to upgrade his or her technical skills, this could be a project within the community technology plan. The technical support appraisal is also intended to gather information on the amount, quality, and cost of outside technical support hired by the community. This information will be helpful in demonstrating the return on investment for the community in supporting the development and upgrading of the skills of in-community technicians.

The third area of the appraisal is information on the speed of response from the community's technical support providers, whether community-based or traveling to the community, and the effectiveness of the service delivered. As the community comes to rely more and more on to support and improve life in the community, the ICT infrastructure and services must be maintained at the highest level of readiness possible, and on a cost-effective basis.



Step 6: Defining and documenting the community's ICT needs

6-1 Completing the information needed to define and document the community's ICT needs. Through the earlier steps in community technology planning process, you have been collecting information about the amount and the quality of ICT infrastructure and services that currently exists in the community. You have also defined minimum technical standards for ICT equipment. All this information can now be used to help define and document needed improvements to the community's current ICT infrastructure and services and to define and document new ICT infrastructure projects and new services.

Three worksheets are available to be used to define and document requirements and prepare preliminary cost estimates for future community ICT infrastructure and service capacity development projects:

- Worksheet #6 – ICT Project Requirements;
- Worksheet #7 – Technical Support Requirements;
- Worksheet #8 – ICT User-Skills Requirements.

Each of the worksheets will help you to gather information from Band administration managers on what the ICT needs are that will help Band administration to operate more productively, more cost-effectively, and more reliably. You will be able to use this information, together with information already gathered about the office's existing ICT equipment and services, to define and document requirements and to prepare a project cost estimate based on community ICT standards and the timeframes needed to complete the project.

Note: Part of your job is to translate the business needs described by non-technical managers into ICT terminology.

It is important to gain an understanding from the manager about the level of priority for the community and the degree of urgency for completing each ICT project identified by the manager. Be sure to have the manager confirm his or her needs once your data gathering has been completed.

Note: Break down each ICT need into a series of tasks or projects, and define and document each task or project separately. This will make it easier for you to prepare well-defined project cost estimates. For example, if Band administration needs a new business application to be available to the entire work group, this need likely has two separate tasks: (1) install the new application on the network server, and (2) train the work group on using the new application. It will be much easier, and more effective, for you to define these two very different ICT development tasks separately.

6-2 Defining the community's ICT infrastructure and service needs (Community Technology Plan Worksheet #6 – ICT Project Requirements). Be sure to read Guide Section 6-1 above before beginning work defining and documenting the community's ICT infrastructure and service needs.

To assist you in accurately defining and documenting ICT project requirements, here are suggestions on using Worksheet #6.

- Worksheet #6 has been set up to define and document requirements for a single ICT project. Use a separate copy of the worksheet for each ICT project.

- When defining and documenting ICT project requirements, be sure to review the background materials gathered when first starting the community technology planning process and include relevant information from these materials in project requirements.
- Be sure to fill in all the information asked for. When preparing the worksheet, some pieces of information may seem obvious and not necessary to record. However, other people may need to use the worksheet in the future and may be unaware of the importance of missing information.
- Don't limit the information you gather to the size of the spaces available on the worksheet. If more information is required, a second page of the worksheet can be created, or a page of additional information can be attached to the worksheet.
- All "Total cost" calculations are built into the worksheet so when numbers are inserted in "Quantity," "Unit cost," and "Delivery cost" for each item required for a project, the "Total cost" and "Total Project Cost" will be automatically calculated.
- The cost of delivery of equipment and materials, particularly for remote and isolated First Nations communities, can be significant and must be included in project cost estimates. In some instances, delivery can cost more than the cost of the item itself. Vendors will have information on shipping weight and size of equipment items which will help you to calculate delivery cost.
- Including required dates for equipment, materials, and professional contractors will help you to properly schedule a project and will assist in cost-effectively managing the project when it is undertaken.
- Some projects may require professional contractors to complete specific parts of the project. Be sure to include all the costs of employing outside contractors including travel, meals, and overnight accommodations.
- Day labour is typically project-related, less-skilled work performed in support of the professionals working on the project.

6-3 Defining the community's technical support needs (Community Technology Plan Worksheet #7 – Technical Support Requirements). Be sure to read Guide Section 6-1 above before beginning work defining and documenting the community's ICT infrastructure and service needs.

To assist you in accurately defining and documenting technical support requirements, here are suggestions on using Worksheet #7.

- Worksheet #7 has been set up to define and document requirements for a single technical service required by Band administration. Use a separate copy of the worksheet for each technical service required.
- Be sure to fill in all the information asked for. When preparing the worksheet, some pieces of information may seem obvious and not necessary to record. However, other people may need to use the worksheet in the future and may be unaware of the importance of missing information.
- Don't limit the information you gather to the size of the spaces available on the worksheet. If more information is required, a second page of the worksheet can be created, or a page of additional information can be attached to the worksheet.
- All "Total cost" calculations are built into the worksheet so when numbers are inserted in "Estimated hours," "Cost per hour," and "Materials cost" for each task required for a required technical service, the "Total cost" will be automatically calculated.

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- Some required technical services may require professional contractors to complete specific parts of the service delivery. When inserting the “Cost per hour” for contractors, be sure to include all the costs of employing the contractor including travel, meals, and overnight accommodations.
- Worksheet #7 includes space to create a registry of the names, technical skill-sets, and standard rates for technicians involved in delivery of the required services. This registry can also include information on alternative technical service providers to call when a preferred technician is unavailable or when a special skill is required.

6-4 Defining the community’s ICT user-skills development needs (Community Technology Plan Worksheet #8 – ICT User-Skills Requirements). Be sure to read Guide Section 6-1 above before beginning work defining and documenting the community’s ICT infrastructure and service needs.

To assist you in accurately defining and documenting ICT user-skills requirements, here are suggestions on using Worksheet #8.

- Worksheet #8 has been set up to define and document requirements for a single required ICT user-skills training course. Use a separate copy of the worksheet for each ICT user-skills training course required.
- Be sure to fill in all the information asked for. When preparing the worksheet, some pieces of information may seem obvious and not necessary to record. However, other people may need to use the worksheet in the future and may be unaware of the importance of missing information.
- Don’t limit the information you gather to the size of the spaces available on the worksheet. If more information is required, a second page of the worksheet can be created, or a page of additional information can be attached to the worksheet.
- All “Total cost” calculations are built into the worksheet so when numbers are inserted in “Total hours of training,” “Cost per hour,” and “Materials, travel cost” for each item required for a project, the “Total cost” will be automatically calculated. In addition, “Total hours of training” calculations are built into the worksheet. When numbers are inserted in “Number of sessions” and “Hours per session”, the “Total number of hours” will be automatically calculated.
- Some required user-skills training may require outside professional trainers to conduct the training. When inserting the “Cost per hour” for outside trainers, be sure to include all the costs of employing the trainer including meals and overnight accommodations. Travel and the cost of training materials will be inserted separately in the space indicated.
- Sometimes it may be easier, more timely, and more cost-effective for individuals needing ICT user-skills training to travel to a training centre. To define and document required ICT user-skills training at a training centre, list each individual taking the training separately, and insert the required information concerning the training including the cost of travel, meals, and overnight accommodation for each individual.
- Worksheet #8 includes space to create a registry of the names, training competencies, and standard rates for trainers involved in delivery of the required ICT user-skills training. This registry can also include information on alternative trainers to call when a preferred trainer is unavailable or when a special training curriculum is required.

6-5 Next steps. The worksheets prepared for each required ICT project required, each required technical service required, and each required user-skills training should be reviewed with the Band administrator and each manager. This review will allow the manager to gain an understanding of the projected costs to fulfill each ICT need identified. This review may cause a manager to decide to revise the description of the ICT need to reduce cost or to change the needed outcome from the ICT infrastructure or services project. If this is the case, you will need to work with the manager to redefine and re-document the project. Following this process, the community technology plan worksheets are ready to be used to provide the basis of a written community technology plan. The next step is to gain community approval, seek funding, and begin planning how to implement your community's technology plan.

Step 7: Writing the Community Technology Plan (section in development)

Step 8: Implementing the Community Technology Plan (section in development)



Reference information

The following are links to information published by TechSoup.org, a one-stop technology resource providing free information, resources, and support for community organizations.

Engaging with the community

[Why a Technology Plan?](#)

[Introduction to Technology Planning](#)

[Technology Leadership in the Community](#)

Assessing a community's ICT resources

[Hardware Assessment](#)

[Local Area Network \(LAN\) Assessment](#)

[Word Processing Software Assessment](#)

[Technology Use Assessment](#)

[Technology Support Staff Assessment](#)

[Technology Inventory Worksheets](#) (PDF)

Assessing a community's ICT needs

[Technology Planning for Civil Emergencies](#)

Identifying a community's ICT solutions

[Introduction to Wireless Networking](#)

[Networking Basics](#)

[What to Look for in a Hardware Warranty](#)

Writing a community technology plan

[What's Involved in Technology Planning?](#)

[Planning a Public-Access Community Technology and Training Center](#)

[Increasing the Accessibility of Public Access Computing](#)

Funding to implement a technology plan

[How to Write a Superior Technology Proposal](#)

[Writing a Winning Grant Proposal](#)

[Frequently Asked Questions about Grant Proposal Writing](#)

Implementing a technology plan

[Implementation Planning](#)

[Structuring a Volunteer Project](#)

[Technical Skills Assessment of Volunteers](#)

[Training Assessment](#)

[Train Your Trainer](#)

