Campus Alberta Needs Assessment System

Final Report

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Introduction

Alberta's 11 comprehensive community institutions (CCIs) are mandated to provide stewardship responsibilities for their geographical service region. The regional stewardship model is designed to meet Albertans' literacy and learning needs by ensuring affordable, accessible, and relevant education opportunities for all Albertans at a range of levels, in all parts of the province. Its specific goals are to enhance access to postsecondary education (PSE) in rural Alberta and smaller communities, support job growth and economic development, strengthen alignment between formal and informal educational opportunities and community needs, and improve local, regional and provincial coordination of PSE investment and community economic development. In carrying out their regional stewardship responsibilities, CCIs collaborate with community adult learning providers, government, business, and other local partners to facilitate, coordinate and plan access to foundational and postsecondary learning opportunities.

To improve alignment between the postsecondary and community adult learning systems and provide a basis for evidence-informed planning and decision making, the Community Adult Learning Task Team (2010) identified a priority need for "standardized planning processes to enhance data collection, and information sharing on needs across the community and post-secondary systems" (p. 12). Following on this recommendation, a partnership of five CCIs (Bow Valley College, NorQuest College, Lethbridge College, Red Deer College, and Olds College) and the Alberta Rural Development Network secured project funding from the Alberta Association in Higher Education for Information Technology (AAHEIT) to improve the coordination of needs assessment efforts across sectors and regions.

The project, which was carried out in collaboration with the Ministry of Enterprise and Advanced Education, was designed to provide a standardized approach to conducting needs assessments, preventing each CCI from having to "reinvent the wheel" and enabling enhanced information sharing and knowledge transfer. The project goals were to identify best practices in assessing adult learning needs, develop needs assessment tools and resources, and explore the potential for an online Campus Alberta Needs Assessment System that would assist CCIs and partner organizations to administer adult educational needs assessments, share data collected within the region, roll up shared data, create reports, and integrate data from other sources.

This report draws on the project research findings to recommend the development of an integrated Campus Alberta Needs Assessment System. As outlined in this report, the system should consist of three different technical tools, each with unique functionality to address the priority needs and concerns of those involved in the development and delivery of adult learning. This proposed technical solution will support a coordinated approach to assessing adult learning needs, enabling needs assessment data to be aggregated and used to inform effective program and service development and delivery. Step-by-step instructions to assist CCIs and community organizations to assess adult learning needs are set out in a companion document, the *Community Learning Needs Assessment Toolkit*. While it is possible to implement the process outlined in the toolkit prior to the development of the technical solution, the Campus Alberta Needs Assessment System is strongly urged as a means of facilitating and enhancing toolkit implementation.

Integration of data gathered through the Campus Alberta Needs Assessment System can aid in local, regional and provincial policy and planning. Ultimately, it is hoped that the study results will support lifelong learning, local economic development and workforce development by assisting Alberta CCIs, Community Adult Learning Councils (CALCs), other community literacy providers, and employment and training organizations to more effectively identify community learning and labour market needs, and develop meaningful program responses.

Methodology

The project was led by a six-person steering committee made up of representatives from Bow Valley College, NorQuest College, Lethbridge College, Campus Alberta Central, the Ministry of Enterprise and Advanced Education, and the Alberta Rural Development Network (see Appendix A for the list of steering committee members).

In May, 2012 Academica Group, a national firm that specializes in postsecondary education and labour market policy, was contracted to conduct the research and develop the project deliverables. The study methodology included a literature review, 19 key informant interviews, and two facilitated roundtable discussions with 36 representatives of 24 organizations to understand community learning needs assessment from the perspective of adult learning, economic development, workforce development, and community service providers, with a particular focus on the experiences of Aboriginal peoples, newcomers, and rural populations. The study was designed to enable the researchers to learn from the experiences and opinions of participants about the data sources they considered most useful to assessing the needs of adult learners, and to identify effective needs assessment strategies and methodological tools. The research also explored the potential use of technology to enhance access to identified data sources, aggregate data gathered during needs assessments, and share best practices. Prior to conducting the research, ethics approval for the project was obtained from the Bow Valley College Research Ethics Board. The key research questions addressed in the study are:

1. What information is needed to effectively assess community learning and labour market needs and enable the development of adult education programs to support lifelong learning and address identified educational and training needs? How is the information currently obtained? Where are the information gaps and how can they be addressed?
2. What strategies and processes do stakeholders in adult education, community learning, and workforce development identify as best practices in conducting community learning needs assessments?
3. How can technology assist adult education, community learning, and workforce development stakeholders to conduct adult learning needs assessments?

This report presents the final results of the study and is structured in the following sections:

- The first section situates the study in the literature on adult learning, workforce development and needs assessment. It reviews published reports on other needs assessment projects, and identifies promising approaches that could be considered.
- The next section provides an overview of findings from the key Informant Interviews and roundtable discussions. These findings contributed directly to the development of the needs assessment process outlined in the Community Learning Needs Assessment Toolkit.

- The final section offers technical recommendations for the Campus Alberta Needs Assessment System to support the implementation of the toolkit.

Literature Review

This literature review was undertaken as a first step toward determining the requirements for a technology-based solution to support Alberta CCIs in assessing adult learning needs. The review helped to contextualize the study findings through consideration of issues related to needs assessment within the adult education and workforce development literature, and exploration of completed needs assessment reports. It offers insights on processes, practices and data sources that could be applied to the development of a Campus Alberta Needs Assessment System.

Methodology

The review was conducted between May and June, 2012. The search strategy was initially informed by key background articles forwarded by the steering committee. The search terms included, but were not limited to:

> *Needs assessment, adult education, rural education, postsecondary education, adult learning, community learning, community needs, learning needs, adult literacy, literacy needs, labour market needs, labour market alignment, workforce development, regional development*

The initial search was structured broadly to maximize the capture of articles, and included a review of Canadian literature (academic and practitioner) as well as manual searches of key public policy websites such as the Canadian Policy Research Networks and the Canadian Council on Learning. Efforts were made to identify literature specific to Aboriginal learners, immigrants, and rural communities. International literature was also searched, resulting in the inclusion of US articles and reports, as well as literature from Australia, New Zealand, the European Union and the OECD. The draft review was presented to the steering committee for feedback, and was later expanded to incorporate additional themes that emerged from the key informant interviews and roundtables.

Several challenges were encountered in reviewing the literature:

- Compared to the rich literature on needs assessments within the community development and healthcare sectors, there was a paucity of resources specific to post-secondary education.
- Literature related to educational needs assessment focused more on the formative needs of individual adult learners, or training needs analysis of organizations and employees. There were few resources addressing the assessment of community adult learning needs.
- Since most needs assessments are undertaken primarily for planning purposes, the literature provides little detail about actual implementation and relatively few examples of completed reports and instruments (Altschuld & Witkin, 2000).

The review begins with an overview of the adult learning, workforce development, and needs assessment literature. It then summarizes the research on the factors most relevant to the assessment of adult learning and workforce development needs, identifies other published needs assessment studies, and describes potential approaches and data sources.

Adult Learning

Demographic change and the emergence of a global knowledge-based economy have placed increased emphasis on lifelong learning to ensure that individuals have both literary and essential skills, as well as transferable and specific skills, needed for labour market participation, social and economic well-being, and meaningful civic engagement. Given the opportunities available in Alberta's resource-based economy for individuals without a high school diploma or post-secondary education, a key labour market challenge for the province is developing the workforce needed to be competitive in a globalized economy. It is estimated that 70% of future jobs will require post-secondary education. Yet in 2011, less than 60% of Alberta students had entered PSE six years after starting Grade 10 – the lowest PSE transition rate in the last five years (Alberta Education, 2012).

In the face of an aging workforce and widely reported skills shortages, ensuring competitiveness also requires that Albertans have opportunities to develop their skills through participation in education and training. In 2008, only 52% of all Albertans aged 18 to 64 participated in some form of adult education or training, while an estimated 31 percent reported unmet training or education needs (Statistics Canada, 2010). This proportion of unmet needs is higher proportion than other western provinces, and is significant in light of the little progress that is being made in increasing the skill levels of Albertans. The most recent data from the International Adult Literacy and Skills Survey (IALSS) shows that 40% of Albertans scored low in functional literacy in 2003, a statistic virtually unchanged from the previous survey a decade earlier (AET, 2009). The Canadian Council on Learning (2008) projects only a 2% reduction in the proportion of Albertans with low literacy skills until 2031. With population growth and demographic change over the next two decades, this translates into a 41% absolute *increase* in the total number of Albertans with low literacy skills (CCL, 2008).

The consequences of low foundation skills have been well-documented, spanning the economic, health and social well-being of individuals, families and communities (Looney, 2008). Low-skilled adults are more likely to be unemployed and to earn less over their lifetimes (OECD, 2010). Low literacy is also correlated with poor health and shorter life expectancy, as well as civic disengagement. By contrast, individuals with stronger literacy skills have been shown to have higher income, better health, greater social and civic engagement, lifelong access to learning and less involvement with the justice system (AET, 2009).

Low-literacy adults are often unlikely to participate in formal adult education and training (Statistics Canada, 2010) and are largely unmotivated to pursue adult education, regardless of the financial incentives available (OECD, 2005; CCL, 2009). This disinterest or reluctance to request training is attributed to low anticipated returns on training investment and little expectation of future benefits, as well as unrewarding previous school experiences and negative attitudes to learning (OECD, 2005). Further, not only do individuals with low literacy skills tend to have lower levels of education (CMEC, 2007, OECD, 2009), they are also much less likely to participate in adult learning at work and in the community (Looney, 2008). Recent case study research from Australia and the EU reinforces findings that individuals who are already engaged in formal education and mainstream employment make the greatest use of community learning initiatives (McLachlan & Arden, 2009), creating the risk that existing inequalities may be entrenched by community learning, and that exclusion will be promoted rather than overcome (Schreiber-Barsch, 2009).

In addition to low-literacy, participation in adult learning also varies by age, educational attainment, labour force status, wages, occupation and nationality. The highest rates of participation are seen among adults who are younger than 39 years of age, who live in urban areas, and who are employed (Pont, 2004). In particular, those with the highest educational levels receive the most training, find employment that requires high skills, and have more opportunities to continue to develop their skills through training.

One of the central premises of adult education is that low-literacy adults need strong encouragement to participate in literacy programs (Ekos, 2010). Many adults, particularly those with low educational attainment and low skills, do not see value in adult learning and deliberately choose not to participate (Pont, 2004). Improving participation requires that adult learners be recognized as rational actors who are motivated by perceptions of personal benefit. Educational programming – formal, informal and nonformal – should offer practical, relevant content drawn from real-life issues (OECD, 2005). Adult learners are more likely to be willing to finance learning activities when there is an expectation of clear returns – such as increased wages – and useful content to improve their daily lives and enhance employment outcomes (OECD, 2005). There is also value in offering program options that appeal to adult learner interests and hobbies, such as music, sport and cultural activities, in order to create learning opportunities that are not explicitly training-based (Froy & Giguere, 2010).

Adult learners are also interested in attending programs close to home. Most Albertans who apply to a publicly-funded post-secondary institution in Alberta apply to the region in which they live (Government of Alberta, 2011). Even more important than regional access, however, is local delivery of adult education. Providing opportunities for adult learners to participate in educational programs that are locally delivered – using classroom or blended online formats – is viewed as fundamental to community vitality and economic development. These opportunities help prevent the out-migration of young people and highly skilled workers, increasing earnings and improving the overall quality of life within the community (BVC, 2010). They also contribute to reducing barriers to participation for those unwilling or unable to travel outside of their communities to access educational programs.

Pont (2004) suggests a number of other initiatives that could enhance participation in adult learning, including improved coherence and coordination across various adult learning programs targeting different needs; increased program flexibility; greater focus on the low skilled and long-term unemployed; measurement of outcomes; improved quality control; increased guidance and career counselling; clear information about the returns to learning; and increased public expenditures.

Workforce Development

The recent economic downtown has highlighted the fact that the local economies best positioned for recovery are flexible and adaptable. With growing acknowledgement that skill levels and employability are key drivers of economic growth, the local labour pool is now recognized across the OECD as "one of a region's most important assets – in terms of ideas, innovations, talents, skills, specializations, culture, methods and approaches to work" (Froy & Giguere, 2010, p.17).

While adult education programs have always provided skills upgrading, they were often disconnected from the local labour market, and learners often did not see any improvement in their labour market outcomes (Giloth, 2004). Conversely, workforce development programs have traditionally emphasized

rapid attachment to the labour market, leaving low-skilled individuals with few opportunities to gain the skills needed for advancement. With recent economic restructuring and rapid economic change, there is greater focus on closer integration between adult education with workforce development. Strategies have shifted from "work first" to "train first" to provide displaced workers with essential skills upgrading needed for enrolment in occupational retraining programs and to ensure more effective and efficient pathways to employment and further education and training.

Education and training are particularly valuable to maintain labour market attachment for vulnerable groups at risk of long-term unemployment (Froy & Giguere, 2010), especially if they are delivered in the workplace. By blending essential skills with technical skills training, workplace-based programs reduce the barriers to participation in adult education while enhancing the perceived personal benefits and utility (Ekos, 2009). With 70% of low-literacy adults already employed (Ekos, 2009), several recent reports have concluded that a workplace essential skills strategy is pivotal to maximizing the full potential of Canada's labour force (CCL, 2008, SRDC, 2009), and have urged greater focus on workplace-based literacy training models.

In addition to encouraging employers to make training and skills development opportunities for their employees, the OECD (2010) also highlights the value of offering training for both managers and workers, since better trained managers are likely to create more productive working environments for their staff.

Needs Assessments

One of the most frequently cited definitions of needs assessments is that formulated by Witkin and Altschuld (1995), who define needs assessments as: "a systematic set of procedures undertaken for the purpose of setting priorities and making decisions about programs or organizational improvement and allocation of resources. The priorities are based on identified needs" (cited in Altschuld & Witkin, 2000, p.7; Watkins, Leigh, Platt, and Kaufman, 1998). This view of need as the gap or discrepancy between the current state of "what is" and the desired state of "what should be" is well-established in the literature (Watkins et al., 1998; King & Jakuta, 2002). It contrasts sharply with the commonplace interpretation of need as a solution (training, technology, resources, etc.) to a given set of challenges or issues, and also clearly distinguishes needs from simple wants or preferences. Other researchers emphasize the outcomes focus of needs assessments, and the programmatic use of the findings to achieve results and implement performance improvements (Watkins, West Meiers & Visser, 2012).

Since needs assessments can be implemented at three levels – individual, organizational, and societal – it is important for needs assessments models to clearly understand the level of need that is being addressed so that the impact of performance improvement initiatives can be measured (Watkins et al., 1998). Watkins et al. (2012) further classify needs assessments as strategic, tactical, and operational. Strategic assessments are guided by the needs of society, including the needs of direct clients, indirect clients, and others in the community who benefit from an organization's efforts. Tactical assessments are undertaken when an organization wants to determine the programs and projects that should be developed to improve organizational effectiveness.   Operational assessments are directed to achieving individual results, and help determine short- and long-term decisions required for program implementation. This study proposes a hybrid model of learning needs assessment that integrates elements of these two typologies:

- Learning needs assessments focus on broader learning needs within the community or society, and are strategic in nature
- Training needs assessments focus on employee skill development within organizations, and are tactical in nature
- Formative needs assessment focus on the needs of individual learners, and are operational in nature

Asset-Based Approaches

Altschud (2004) identifies asset-based approaches as an "emerging dimension" of needs assessment, developed in response to concerns about the inherently negative focus of needs assessment on problems and deficiencies. Rather than identifying discrepancies, deficits or gaps – which can discourage people and are unlikely to motivate action – asset-based approaches focus on the strengths and resources available within the community, to consider how they can be leveraged, mobilized and expanded. Watkins et al. (2012) argue that integrating an asset-based "appreciative inquiry" perspective into a traditional needs assessment increases the likelihood of sustainable improvements since it considers existing strengths along with proposed solutions. Instead of focusing on fixing what doesn't work, an appreciative inquiry perspective views needs assessment as a process for community engagement around what is already working, in order to build capacity in organizations, programs, and projects. Appreciative inquiry can identify activities that should be maintained or expanded to accomplish the desired "what should be". In their research on asset building and community development, Haines and Green (2011) state that practitioners should not feel forced to choose one approach over the other; rather "it may make sense to begin by identifying a community's assets and then assess its needs" (p. 10).

Asset-based approaches value the skills, knowledge, connections and potential that participants bring to the needs assessment process. Instead of designing new programs and services to fill gaps, the aim is to achieve a better balance between service delivery and community capacity. Community asset mapping has been recognized as a particularly useful tool in rural community development. Community assets are considered essential for the maintenance of rural life and vital for the sustainability of the economy, society and environment in rural Canada (Fuller, Guy & Pletsch, 2002). Fuller et al. (2002) define assets as falling into five categories: natural (such as environment and water), built (physical infrastructure), social (the social aspect of living in the community), economic (jobs and a varied economy that people and communities draw on for their livelihoods), and service (healthcare and educational services).

Asset mapping has also been endorsed as an important regional economic development tool, and is supported by the US Council on Competitiveness (2007) as an effective strategy to align education, workforce development and economic development programs and strengthen the competitiveness of regions in the global economy. Asset mapping helps communities understand the resources that can be leveraged to support integrated workforce and economic development initiatives. In the economic development model, the asset base incorporates availability of skilled labor, the quality of transportation infrastructure, the cost of doing business, and proximity to customers, as well as the human, intellectual, financial, physical and institutional capital in a region. Assets also include other factors that important to innovation, such as research and development (R&D) investment, technology transfer and entrepreneurship support programs. Specific asset categories are: human capital (K-12 and

higher educational institutions), research and development institutions, financial capital, industrial base, connective organizations, legal and regulatory environment, physical infrastructure, and quality of life (Council on Competitiveness, 2007).

Needs Assessment Methodologies

Most needs assessment researchers propose some variation of the three-phase model below, originally developed by Witkin and Altschuld (1995) and later refined by Altschuld and Kumar (2010) and Watkins et al. (2012):

1. **Pre-Assessment** – Getting organized, identifying potential areas of concern, and finding out what is already known about possible needs. This phase relies on using existing information as much as possible, rather than on collecting new information, to inform decisions.
   - Focusing the Needs Assessment
   - Forming a Needs Assessment Committee
   - Learning as much as possible about preliminary "what should be" and "what is" conditions from available data sources
   - Moving to Phases 2 and/or 3 or Stopping

2. **Assessment** – Determining additional information that may be needed, deciding how to collect new data, prioritizing needs, and developing potential solutions. This phase involves implementing the assessment in a methodologically sound manner to generate valid and reliable findings on which decisions can be based.
   - Conducting a full assessment about "what should be" and "what is" condition
   - Identifying discrepancies
   - Prioritizing discrepancies
   - Causally analyzing needs
   - Preliminary identification of solution criteria and possible solution strategies
   - Moving to Phase 3

3. **Post-Assessment** – Taking action and monitoring results. The purpose of this phase is to use the needs assessment to guide decision-making, share the findings of the assessment, and implement the recommended solutions.
   - Making final decisions to resolve needs and selecting solution strategies
   - Developing action plans for solution strategies, communicating plans, and building bases of support
   - Implementing and monitoring plans
   - Evaluating the overall needs assessment endeavor (document with an eye to revisit and reuse)

Needs assessments typically combine analysis of existing information and the collection of new information, and are also highly participatory (Watkins et al. 2012; Witkin & Altschuld, 1995). They involve a range of stakeholders in planning, implementation, analysis, and application of the findings, including clients, service providers, management, community members, funders, businesses and associations, and researchers.

While the literature emphasizes the importance of sound methodological design and data collection and analysis driven by social science research practices, there is no consensus on a single "best" combination of needs assessment methods. Given the challenge of gaining a clear understanding of the current situation or the desired outcome from just one method of data gathering, mixed methods research designs are strongly supported by most needs assessment researchers (Altschuld & Witkin, 2000; King & Jakuta, 2002; Watkins et al., 2012). The value of triangulating data from many different sources and perspectives is also underscored in the literature. Watkins et al. (2012) argue that "qualitative, quantitative, hard, and soft data" can all be used effectively to point out performance discrepancies, and that descriptive perceptual differences can be as useful as numeric data drawn from a database (p. 63). While observing that quantitative surveys are the most commonly used needs assessment tool (in 60% to 70% of all needs assessments), Altschuld and Witkin (2000) also provide detailed accounts of needs assessments that rely extensively (or exclusively) on qualitative research methods in which needs are inferred rather than directly measured through survey data.

The data sources and research methods used most often in needs assessments include secondary data analysis, such as area demographics and administrative records, as well as analysis of primary data specific to the study gathered through qualitative and quantitative research techniques. Primary data can be gathered through surveys of service users, interviews with key informants who bring particular knowledge of problems, needs and desires of the population, other stakeholder interviews, group discussions such as focus groups, and public hearings or community forums to build consensus on service and needs priorities. Advantages and disadvantages to each of these data sources are summarized in the table below.

Data Source	Advantages	Disadvantages
Secondary data	- Provides estimates of prevalence and incidence - Free or low cost - Large respondent pools and scientific sampling methods increase validity and reliability - Current and timely	- Data may not address specific research questions - May require technical expertise to analyze - Difficult to identify needs in low-incidence population, or to assess unique needs - Potential inconsistencies in scope and data definitions
Administrative records	- Can generate client profiles - Data can be tailored to address specific questions - Provides current and historical overview of types of services and numbers of participants - Can inform the selection of secondary data and primary data collection activities	- Data may not address specific research questions - No information about non-users - Time and costs involved to extract and organize the data
Surveys	- Cost effective for gathering data from a large number of people with little assistance needed - Can address attitudes, perceptions, and needs for	- May need technical expertise in sampling, questionnaire design, and/or analysis to be technically valid - Questions may not be clear to respondents

	services • Offers anonymity • Allows flexibility in assessing the expectations and needs of subgroups and other audiences concerned with the needs assessment	• Often low response rates • May create possibility of multiple replies from the same respondent (especially online surveys)
Stakeholder interviews	• Interviewer can probe, follow-up, clarify questions • High response rates • Can select respondents to represent specific stakeholder groups	• Requires trained interviewers • Possible interviewer bias • Potential for biased or skewed respondent views • Cannot be generalized statistically • Time-consuming to conduct • Time is needed to code responses • Responses may not be easy to quantify
Key informant interviews	• Knowledgeable participants can competently address topics • Only a limited number of participants needed • Relatively inexpensive	• Requires trained interviewers • Possible interviewer bias • Potential for biased or skewed respondent views • Cannot be generalized statistically • Time-consuming to conduct • Time is needed code responses • Responses may not be easy to quantify
Focus groups	• More participation by group members • Concentration on quality (not quantity) of information • Can be used to design quantitative survey instruments • Allows responses in the words of the respondent	• Relies on facilitator expertise • May lack broad representation • Cannot be generalized statistically • Time is needed to code responses • Responses may not be easy to quantify
Public meetings or community forums	• Gives community an opportunity to be heard	• May lack broad representation • Prone to the "squeaky wheel" effect or the loudest advocates making the most comments

Learning Needs Assessment

This section highlights some key findings from the literature on the factors that should be considered in assessing the needs of adult learners, employers, and Aboriginal and rural populations.

Adult Learners

The purpose of educational needs assessments is to understand the existing knowledge and skills of future learners, as well as perceived solutions, priorities and preferences (McCawley, 2009). In addition to information about existing skills and level of knowledge, it is important to gather data on socio-demographic characteristics, past training experiences, attitudes and preferences related to work habits, schedule and type of availability, learning style, job culture and values. King and Jakuta (2002) also

emphasize the value of "listening to your customers" as a critical part of the educational needs assessment process, through interaction with current adult learners via surveys, observations, conversations, discussion groups, and other methods.   The Canadian Council on Learning (2008) recommends that the following factors be taken into account in a comprehensive approach to adult learner needs assessments:

- Educational attainment (affects the level of effort required to raise literacy levels)
- Age group (influences recruitment and retention costs and learner return on investment, since older learners have shorter periods over which to amortize costs and will be more motivated to participate in programs that directly appeal to their interests)
- Presence of children in the home (may impede participation in programs, but also opens up possibility of cost-effective family literacy approaches)
- Income and employment status (potential indicators of who could fund the cost of literacy upgrading – individuals and/or employers)
- Firm size (large employers – especially those with over 100 employees – may have the infrastructure and resources to finance training programs for employees)
- Attitudes toward information and communication technologies (suggests receptiveness of adult learners to computer-aided instruction, and the need to for careful introduction and strong supports for program participants who are unfamiliar with or fearful of technology)
- Self-perception of adequacy of skill levels (feelings that current skill levels are adequate can negatively impact recruitment and retention efforts)
- Oral language proficiency (weak oral language skills will reduce the efficiency and effectiveness of literacy instruction)

Employers

Accurate labour market forecasts to anticipate training needs and improve matching of supply and demand remains a challenge (CCL, 2007). Forecasting models and analysis of job vacancies are frequently limited by the quality of the data on which they are based and by incomplete datasets (CCL, 2007; JFF, 2011). Rather than highlighting future labour shortages, outlooks based numbers of job openings may be more indicative of current shortages than of future trends. While some forecasting models have demonstrated impressive accuracy – for example, Alberta's Occupational Demand Outlook Model (AODOM) was within 2% of actuals for the 2008-2010 period – it is important to supplement larger-scale occupational forecasts with reliable local labour market intelligence. Indeed, in communicating employer training needs to postsecondary institutions, Rushbrook and Pickersgill (2008) observe that information-gathering through personal, local networks may be just as effective as more formal methods.

An employer-focused needs assessment requires gathering information about the following (Young, 1996):

- Occupational areas of greatest skill shortages
- Skill shortage areas with the best wages, job security or mobility
- Extent to which the demand will continue in the future

- Entry-level requirements in skill shortage occupations, including the education and skill requirements
- Educational background of current employees in skill shortage areas
- Number of trained graduates with the required skill set expected to hire (this year, next year, in five years, etc.)
- Wage differences between trained graduates and untrained employees hired for the same position

There are risks in determining program provision on the basis of employer perceptions of need alone, since employers may seek skills in narrow occupation-specific areas, industries with poor working conditions, or to fill low-wage jobs (OECD, 2010). They may pay insufficient attention to the transferable skills needed for mobility between firms and occupations, and may also seek to generate an oversupply of workers in order to drive down wages. Employer demands for skills and perceptions of skill shortages must be balanced by consideration of societal interests as well as student preferences. Since students are good judges of their own skills and characteristics that make them suited to particular occupations, providing them with program options that address their preferred courses of study leads to higher productivity. Students also enjoy greater well-being and satisfaction when they enjoy what they are doing, even if labour market outcomes are weaker. Coercing them into careers they do not want can be counterproductive and contributes to high rates of attrition (OECD, 2010).

While an effective system of education and training should reflect both employer demand and student preference, several factors can affect the balance (OECD, 2010). If students pay the full costs of education, then their preferences should carry greater weight than employer demand. Conversely, employer demands should be the first consideration for programs designed for direct labour market entry, but are less significant for programs that focus on generic skills.

Aboriginal and Rural Adult Learners

Although distance education is frequently promoted as a promising alternative to classroom instruction for Aboriginal and rural learners, a recent study found that the unique personal and learning needs of northern Alberta students requires special preparation for distance learners to be successful, as well as careful attention to course availability, technical support, and financial assistance (Steel & Fahy, 2011). In the absence of a strong learning culture, rural and remote learners often lack the literacy skills to function in self-directed educational environments, and experience higher attrition rates from distance education programs than from more classroom-based offerings. Australian researchers point out that rural communities, especially those relying largely on agriculture, have an almost exclusive need for part-time and casual workers, limiting incentives for employers to invest in workplace training (Farrell & Wyse, 2003). A recent report from the MLA Committee on the First Nations, Métis and Inuit Workforce Planning Initiative (2010) recommends that the Government of Alberta and Aboriginal communities engage with training providers and educational institutions to improve the quality of learner assessments (i.e. abilities, skills, interests, job prospects) to ensure an optimum fit between a client's career aspirations and government-funded training opportunities.

Examples of Learning Needs Assessments

With the exception of needs assessments conducted by three of the CCIs involved in the project steering committee (Bow Valley College, Norquest College, and Campus Alberta Central), there are relatively few examples in the literature of completed adult learning needs assessments. Brief descriptions are provided below for the methodological design of the most recent and relevant studies, presented in chronological order.

- Between 2003 and 2007, SIAST produced an annual Saskatchewan Urban Training Needs Assessment Report that included a demographic and economic scan, the results of stakeholder consultations, and summaries of completed sector partnership studies (SIAST, 2007). Industry perspectives were gathered through focus groups for the first four reports. In 2007, the industry focus groups were replaced by an online survey because of low employer participation in the groups, and additional survey data was gathered from SIAST continuing education consultants, program heads, and program advisory committee members. The purpose of the needs assessment was to identify future training needs, employment trends, and skill sets required for emerging and existing occupations in the four SIAST campus cities (Saskatoon, Regina, Moose Jaw, and Prince Albert) and across the province.

- In 2004, the Edmonton Community Adult Learning Association (ECALA) undertook a needs assessment that involved information-gathering with 80 community key informants through interviews or a written survey, an online survey of 17 ECALA members, and a survey of 317 adult learners administered by telephone to randomly selected adults and in print format to learners contacted by ECALA agencies (LeMay, 2004). The needs assessment was designed to identify interests, perceived benefits and barriers to participation in part-time, non-credit courses.

- The 2006 North Island Post Secondary Education Needs Assessment involved surveys of 190 Grade 8 and Grade 12 students, and surveys or interviews with 45 BC employers (Rutley & Rutley, 2006). The assessment was conducted to address inadequate in-region access to post-secondary education and to understand the current and future post secondary education and training needs of the North Island.

- In 2009, ECALA collaborated with Norquest College to conduct an assessment of the educational programming needs of low-income adult populations, with a focus on the educational gaps, trends and barriers for accessing learning within the city of Edmonton (Chovenac & Lange, 2010). In order to reach people who often do not participate in research studies, the methodology relied on participant recruitment through contacts in community-based organizations. Following initial research using existing data sources, open-ended interviews were held with 39 low-income adults about learning experiences, barriers and learning goals/needs. Written surveys with 105 respondents were administered in locations where low-income groups gathered, and six focus groups were organized with 39 agency staff to explore challenges and learning opportunities for low-income adults.

- In 2009, a statewide needs assessment of adult education in California included analysis of demographic and economic data, field participation at statewide professional organization conferences and small group consultations in order to get an initial perspective on "driving forces" and their potential implications for the future of adult education, and a survey of 110 adult education program administrators in California about the key statewide issues they felt should be

addressed. They were also asked to rate a list of functional skills based on what they felt would be the most important in meeting the future needs of learners in the area served by their agencies on a four-point Likert scale (InfoUse, 2009).

- In 2009, Bow Valley College launched a needs assessment process that combined community consultations in targeted communities with a community survey, available in both print and online. Community meetings were held to identify adult postsecondary education priorities, existing opportunities and resources, accessibility enhancements, and community initiatives to sustain locally based adult postsecondary education services. The community survey was designed to collect an in-depth profile of the education priorities of communities, individuals and employers in the college's stewardship region. In total, approximately 90 to 100 community members and BVC staff attended the community consultations, and 578 individual and 131 employer surveys were completed. Bow Valley College's 2011 Labour Market Partnership project, developed specifically to address training needs in rural communities, identified community leader involvement as important for engaging the rural business community. Best practices for survey implementation included brevity, non-monetary incentives, multiple requests, education for participants about the difference they can make in the community, and guarantees of anonymity (Finnie, 2012).

- In 2011, Norquest College adapted the Bow Valley College survey instrument into separate community and employer versions, available in both print and online. The needs assessment was intended to help determine the types of programs and courses most needed by employers and community residents and identify barriers to accessing adult education (Norquest, 2011). The survey produced 1,273 completed responses from 239 employers and 992 community members over a five-month period.

- Also in 2011, College Campus Alberta (CAC) used the Norquest instruments to conduct a needs assessment within within the CAC stewardship region. The two versions of the survey were posted on the CAC website for a three-month period between October and December, 2011, and generated responses from 130 employers and 214 residents. In the Needs Assessment report, survey findings are supplemented with data gathered from five Community Dialogues held between April, 2011 and June 2012.

- Saskatchewan's Northlands College (2011) focused its needs assessment largely on analysis of demographic data and labour market information and trends. The assessment was undertaken in partnership with the Northern Labour Market Committee and utilized Statistics Canada Census, Ministry of Health's Covered Population statistics, Opportunity North, and other secondary information. The needs assessment also included findings from stakeholder consultations about local training needs held during annual regional program planning meetings; semi-annual meetings with all northern training-related funding agencies to determine their priorities for funding and the amounts of financial commitment; and forums representing target groups or industries in the region.

Potential Needs Assessment Technology Solutions

Several promising practices utilizing web-based tools to support the needs assessment process were identified in other sectors and jurisdictions.

Community Accounts

- Community Accounts (http://nl.communityaccounts.ca/) is an innovative information system developed by the Government of Newfoundland and Labrador that provides users with a single comprehensive source of community, regional, and provincial data. It offers a public, online data retrieval system for locating, sharing and exchanging information about key social and economic indicators organized by geography and data topic, or "accounts." These include "Education, Literacy, Skills and Training" and "Employment and Working Conditions".   Data is organized at a provincial and regional level, and can also be retrieved by community, census subdivision, and economic development zone. Once geography is selected, users can generate complete profiles with text and graphics, or tables and charts alone. The system includes a dynamic Community Infrastructure Mapping System (CIMS) that combines Google's mapping library and infrastructure with a comprehensive database of community infrastructure. Users can display various infrastructure on the map, including Colleges, Community Access Program (CAP) Sites, Libraries (Public), Literacy Centres, Schools, Universities, Advanced Education & Skills (AES), and Career Work Centres, and can select thematic overlays of urban-rural classes and degree of remoteness. CIMS data is gathered from statistical sources as well as information received from partner agencies.

Online Community Profiles

- The *Tobacco-Free Wyoming Communities Needs Assessment Workbook 2008–2009* and related website http://wysac.uwyo.edu/Tobacco/ were designed to help local coalitions conduct needs assessments related to tobacco prevention and control (WYSAC, 2008) and to develop one-year, two-year, or three-year community-based strategic plans. The workbook provides step-by-step instructions to guide coalitions through the needs assessment process, and enables reporting on four main types of data: data centrally collected and available from the online website, any pertinent pre-existing local-level data available within the community, new data collected for the purposes of the needs assessment, and other information gleaned from collective reflection and group discussions. Each section of the workbook identifies the data to be compiled and provides discussion questions that focus on trends (e.g. What has happened in recent years? Are things getting better, worse, or staying the same?), comparisons to state-level data, and discussions about what the community has done well and where future effort is needed. To assist with analysis, a scorecard is provided to help prioritize tobacco-related needs, identify community strengths and weaknesses, and inform the strategic planning process.
- A similar model was developed for Community Action Agencies in Missouri with a detailed toolkit and related Comprehensive Community Needs Assessment Web Based Tool (http://ims2.missouri.edu/maca) to help agencies understand poverty across the state through analysis and prioritization (Moore, 2009). The tool collects information from a variety of state and federal sources that can be compiled into a single downloadable and editable report for any local or county agency service area. The "Comprehensive Community Needs Assessment" report can then be enhanced with additional information collected by each agency through focus groups, surveys, and interviews. The toolkit is divided into four main arenas: *gathering* the information needed to

understand the community, *analyzing* the information, *prioritizing* the issues, and an overview of the next steps in the process. A *resource section* listing possible resources and tools for use is also included, providing a framework for agencies to move into a specific action plan with goals, outcomes, measurements, and evaluation. Each issue area includes a list of potential survey questions, related plans for reference, and potential partners.

- The Washington DC Community Action Partnership adapted the Missouri tool and created the Comprehensive Community Needs Assessment (CCNA) Online Tool (www.communityactioncna.org/). The tool provides basic data on counties and states through an online data retrieval system. Data can be used to generate a downloadable, editable, Microsoft Word document that serves as a basis for conducting a more detailed CCNA for any state or county. Information can be viewed for one or more counties or states, and users can select the indicators of interest to be included in the report. The data is summarized in easy to read tables and charts, with interpretive text and hyperlinked data sources included in the report to assist in better understanding the information.

Asset Mapping

- Alberta's Early Child Development Mapping Project (www.ecmap.ca) has developed downloadable PDF versions of asset maps by community. The maps provide an overview of Early Development Instrument (EDI) results along with SES measures for each community based on 26 variables compiled from 2006 Statistics Canada census data. Information on community resources is currently being collected and will be added to the maps.
- The Work Readiness Skills (www.disabilityaccess.org/work_readiness/community_map.htm) asset map was developed to help identify the local learning opportunities that support employability skills development for persons with disabilities in Peel, Halton, and Dufferin counties in Ontario. Information is drawn from a detailed database created through surveys with agencies. The dots on the map represent the locations of both formal and informal learning providers, and provide links to more information about the services. The project was funded by Human Resources and Development Canada's Office of Learning Technologies, which launched a Community Learning Networks project in 2002 to support communities in mapping community learning assets and identifying skill gaps. The project guidebook defines formal learning assets include apprenticeship training sites, community colleges, continuing education, elementary and high schools, language schools, private trade and vocational schools, and university campuses. Informal learning assets include community centres, community organizations, cultural organizations, elders and senior citizens, employer training at job sites, family resource centres, home-based businesses, interest clubs, library, local businesses, public institutions, public Internet sites, religious associations, self-help or health groups, and volunteer training.
- The City of Peterborough asset map (www.peterborough.ca/Living/City_Services/Social_Services/Community_Service_Map.htm) identifies social service programs for children and youth in the city and county of Peterborough. The tool identifies community assets within specific categories, and compares their geographic location to other services and community needs. Census data can also be overlaid by selecting a map from the upper right corner.

Potential Needs Assessment Datasets

There are a variety of sources that could be used to provide standardized information for the initial pre-assessment phase of the needs assessment:

- The Campus Alberta Planning Resource (CAPR) offers a valuable source of information on statistics, trends, and activities in each stewardship region. The CAPR is an annual profile of information and trends produced by Alberta Enterprise and Advanced Education to facilitate planning within the post-secondary system. Detailed supplemental profiles and projections are available for each service region and posted for post-secondary institution use on the Campus Alberta Planning System (CAPS) SharePoint site. The CAPS site was designed to be a collaboration portal for post-secondary institutions to submit information to government, access non-public resources, and engage in project collaboration. The CAPS interactive tool allows authenticated users to access, manipulate, and export datasets for the following indicators by CCI service region, which are drawn from live internal datasets: demographics (counts), post-secondary applicants, post-secondary enrolments, and population projections. Community organizations can also request information on regional population and the following additional data compiled from institutions and school boards: high school enrolments, completions, and transitions to postsecondary; post-secondary enrolments, turn-aways, and completions; and engagement in foundation learning opportunities at publicly funded post-secondary institutions. Other profile information such as literacy abilities, labour market outcomes and income levels have been compiled by Enterprise and Advanced Education for each municipality and census region hosting a funded organization (not on a service region level), and are available on the CAPS SharePoint site or upon request.
- Alberta Community Profiles (albertacommunityprofiles.com) is maintained by the Government of Alberta to assist in promoting and attracting investment to Alberta communities. The site provides Albertans with direct access to information about economics, services, location, contacts, climate, etc. on each of the communities of the province of Alberta.   Each community owns the materials and content of their own profiles, and the information is posted with the intent that it be readily available for personal and public non-commercial (educational) use. As the host of this website, the Government of Alberta provides a community profile template and each community posts their own content within the template using information from a variety of external sources. The .Net and MS SQL server web application was developed in 2009 by a local development firm for the GOA's Economic Development function and was transitioned to the Ministry of Enterprise and Advanced Education in fall 2012.
- The Alberta Wage and Salary Survey (AWSS) provides current wage, salary and skill shortage information by occupation, by industry, by geographic area and by experience level for full-time and part-time employees in Alberta. It is conducted every two years to track wage levels and to identify any skill shortages in the province. Alberta employers are surveyed on wage and salary estimates as well as on hiring difficulties and vacancy rates. Province-wide wage and salary estimates for 520 4-digit National Occupation Classification (NOC) codes are developed. The survey results allow employers and individuals to gain insight into current wage and salary levels by occupation, industry and region within Alberta. AWSS results provide a resource to assist employers and industry to attract potential employees, and to inform career and education decisions. AWSS data is available to Albertans through Alberta Works Centres, the Career Information Hotline and WAGEinfo on the

Alberta Learning Information Service (ALIS) website, and on the Alberta Enterprise and Advanced Education website. It may be possible to negotiate access to AWSS data for the Campus Alberta Needs Assessment System.

- The Access and Support to Education and Training Survey (ASETS), the Adult Literacy and Life Skills Survey (ALLS) and the forthcoming International Study of Adults (ISA) are three key Statistics Canada data sources. ASETS was last conducted in 2008 and addresses issues relating to motivations and barriers to accessing post secondary education, including the role of student financing and participation in adult education and training. ALLS, last conducted in Canada in 2003, is a large-scale international survey to measure foundation skills including prose literacy, document literacy, numeracy and problem solving. Additional skills assessed indirectly include familiarity with and use of information and communication technologies. The ISA was conducted as part of the Programme for the International Assessment of Adult Competencies (PIAAC), with results to be released in late 2013. The survey aims to provide a clear picture of the challenges Canada faces in developing a more skilled workforce in the 21st century, offers insights into the daily activities of adults, including reading, finding information, and using computers and technology, as well as their participation in education, work experience and use of key work skills on the job.

- The Alberta Economic Dashboard will be available in early 2013, to provide real-time open access to economic indicator data about Alberta's economy. The site is being developed to support broader dissemination of the information currently provided in PDF format in the *Monthly Economic Review* (MER), which is posted online at http://albertacanada.com/business/statistics/economic-highlights.aspx.   The first five indicators available on the dashboard are unemployment rates, employment rates, retail trade, housing starts, and merchandise exports, created with data drawn from Statistics Canada, CMHC, and MLS as well as other sources. As the project moves forward and features are enhanced, there is the potential to add additional indicators and datasets. Users will be able to view data visually using charts (generated by amCharts in .net and html format), and the site will be optimized for viewing on multiple platforms. The tool can be re-used by other ministries, and third parties will also be able to build their own applications to republish the data. Currently the tool will only allow provincial comparisons, however, regional applications may be considered for future development.

- To better understand and respond to future labour market needs, Alberta Human Services developed the Alberta Occupational Demand and Supply Outlook Models to project the demand and supply for different occupations between 2011 and 2021. The models calculate imbalances between demand and supply to forecast future occupational shortages or surpluses. Each model can be broken down into sub-models, which use many data sources. The Alberta Occupational Supply Outlook Model (AOSOM) has 30 linked sub-models and over 100,000 data series. The Alberta Occupational Demand Outlook Model (AODOM) has been used for the past ten years and has proven to be reliable. For the 2008-2010 period, labour market demand forecast for Alberta using GOA's labour market forecasting model was within 2% of actuals. Short-term projections to 2015 are also available from Alberta Human Services in the *Alberta Career and Industry Outlook*. The outlook provides information about global trends affecting Alberta's economy and society; includes profiles and employment outlooks for 18 provincial industry sectors; and offers employment projections for 130 occupational groups.

- Working in Canada (www.workingincanada.gc.ca) is the government of Canada's central dissemination platform for labour market information. The site provides one-stop access to labour market information (LMI) and includes occupational and career data about educational requirements, main duties, wage rates and salaries, current employment trends and outlooks. The tool includes a video tutorial for users, and allows the generation of reports based on occupation and location. The tool dynamically pulls information from a variety of Government of Canada sources, including CMHC, COPS, CanLearn.ca, Citizenship and Immigration Canada (CIC), Essential Skills, Foreign Credentials Referral Office (FCRO), Human Resources and Skills Development (HRSDC), Job Bank, and NOC. Local LMI content interpretation is generated by Service Canada/HRSDC analysts.
- The federal Community Information Database (www.cid-bdc.ca/) provides socio-economic and demographic data and information for all communities across Canada. It offers access to over 500 pieces of data about population, education, income, employment, families, and much more, as well as an interactive map for displaying and accessing data.
- The National Adult Literacy Database (NALD) is a digital library that links the diverse players in the literacy sector to provide learning and research materials as well as an annotated bibliography of resources; host websites for literacy organizations; research and organize educational material found elsewhere on the Web; connect partners with experts in the field; and publicize literacy-related activities and events.

Research Findings

This chapter summarizes the insights gathered during the key informant interviews and roundtable discussions. Key informants and roundtable participants were selected to ensure the inclusion of provincial perspectives, cross-sector experiences, and representatives of both urban and rural communities.

Key Informant Interviews

Data was collected through 19 structured interviews, approximately 45 minutes to one hour in length, with 21 key informants conducted in July and August, 2012. The purpose of the interviews was to identify best practices based on key informant experiences with needs assessment across different sectors and to better understand needs assessment challenges and preferred supports, specifically the Campus Alberta Needs Assessment System and toolkit.

Approximately 115 potential key informants were initially identified in consultation with the steering committee and through online web searches. Additional key informants were identified in discussion with the Community Learning Network, and through referrals from interview participants. Email invitations were sent by Academica Group to 50 potential key informants in July, 2012, along with the Informed Consent Letter outlining the purpose of the study and the ethical provisions in place to protect participants. Key informants were provided with the discussion guide in advance on request.

Ten of the 19 key informants were directly involved with the adult learning sector (see Appendix B for the list of key informants). The remaining key informants brought insights and expertise based on their knowledge of the postsecondary education, economic development, workforce development and community sectors. The interviews were audio-recorded and transcribed, and key informants were given an opportunity to review interview notes following the completion of the interviews. The data was analysed and coded using N-Vivo software to identify key themes, and compare and contrast needs assessment experiences.

Needs Assessment Activities

The frequency, intensity, and methods used to conduct needs assessments varied widely across the organizations represented by key informants. One CALC key informant had been using the same group process and same three questions every year for the past 10 years, while other CALCs used feedback from their program evaluations as their main needs assessment tool. Although most key informants had been involved in conducting a formal needs assessment at one point in time, few had regular, formalized processes in place, and more often relied on data collected informally from clients and community members to assess adult learning needs.

 Organizations with formal needs assessment processes expressed a strong preference for qualitative methods, often some type of small group discussion, focus groups or world café, addressing three to five key questions. For example, Alberta libraries are required to conduct needs assessment and use a method called Community Planning Committees produced by the Public Libraries Association in the United States. Community Planning Committees bring together a group of about eight to 12 people selected to represent their community. The committee meets for three to four hours and is guided

through a series of questions. The library sector is very positive about this process, since it starts with community-level conversations and encourages people to think about what they want in their community.

One-on-one interviews were also used across several sectors, in particular, by economic development officials to assess employer needs, immigration service provider agencies to assess newcomer needs, and by community organizations to assess the needs of Aboriginal youth and elders. While most key informants believed that qualitative methods provided richer data, allowed people to feel heard, and helped to build relationships, they also recognized that qualitative research tends to involve fewer people, and that the information gathered may not reflect actual population needs.

Although quantitative survey methods were used much less often to conduct needs assessments, many CALC key informants gained an understanding of unmet needs through data collected from program/course evaluations. In this case, the evaluation data served a dual purpose of assessing program quality while shaping future CALC program development by providing insights into the kind of programming adult learners wanted to see in their community and learner preferences for future program offerings.

A range of informal processes were also used by key informants, including networking at interagency meetings and anecdotal client feedback. Interagency meetings in particular were mentioned by CALCs and other service organizations as a rich source of information about community needs. Key informants reported engaging in ongoing discussions with other organizations within their communities, and with the clients they serve. In many cases, these informal processes were described as the main needs assessment activities.

Continually re-engaging the community was highlighted by a number of respondents, as demonstrated by this quote: "*I'm not going out and doing one education needs assessment and setting goals to fill those needs. I'm just basically re-engaging the community over and over again, and trying to figure out their evolving needs*."

Needs Assessment Information Sources

About three-quarters of the key informants made some use of existing data in assessing community learning needs. At the same time, many raised concerns that they don't always know where to find relevant data or how to make use of it, and that online data was not always easy to access. Statistics Canada was often mentioned as a secondary data source, however, key informants pointed out the lack of timeliness for census information and the lack of granularity for community-level data.   Some key informants made use of data from their municipality, in the form of population data or municipal planning documents and reports.

 Other secondary sources of data identified by key informants included:

- Community Foundation Vital Signs reports
- Third party market analysis (for example, a local radio station report with information about community demographics)
- School board data on numbers of ESL learners (as an indicator of numbers of newcomer families coming into the community)

- National Adult Literacy Database
- Community profiles (in particular, the community profiles produced by Bow Valley College at http://bowvalleycollege.ca/community-vitality.html)
- Alberta labour market information (Annual Alberta Labour Market Review, Alberta's Occupational Demand and Supply Outlook, and Alberta Career and Industry Outlook)
- Public library data (programs offered and numbers of participants)

Needs Assessment Challenges

Key informants identified a number of challenges facing CCIs and community partners in the assessment of adult learning needs:

- **"Invisibility" of learning needs** – People's reluctance to identify as having basic literacy or other learning needs means that many organizations often focus needs assessment efforts on current learners within their programs, rather than others in the community who are not currently accessing their services.
- **Community engagement** – It can be challenging to get enough people around the table, ensure that the diversity of the community is represented, and balance different voices.
- **Acting on results** – As indicated in the literature review, effective needs assessments are outcomes-focused. Needs assessment should not be an end in itself, but should help guide movement forward. Without demonstrated evidence of results being used to inform community planning, concerns may be raised that needs assessments are nothing more than data collection exercises. This was identified as a particular concern within Aboriginal communities.
- **Keeping up with needs that are continually changing** – There is often an ebb and flow to community learning needs. Many key informants stated that as soon as they think they have a handle on needs they have already shifted.
- **Time and resources** – The methods required to conduct formal needs assessments were viewed as time-consuming and labour-intensive, particularly in light of the importance of relationship-building to effectively engage the community in the needs assessment process.
- **Organizational capacity** – Establishing common approaches to needs assessments across the province must take into account the varying levels of capacity (including staff, budget, and technology) within different organizations, and the sometimes high staff turnover within CALCs and CCIs.
- **Too much focus on negatives rather than positives** – One key informant questioned the language of "needs assessment" with its implicit focus on deficits rather than strengths.

Adult Learning Delivery Challenges

In addition to challenges associated with the implementation of needs assessments, key informants also identified challenges related to the post-assessment development and delivery of community adult learning and CCI credit offerings in particular. These challenges included:

- **Local programming –** Community members consistently express a strong preference for learning opportunities to be provided within their local communities, rather than nearby urban centres.

While there is support for online or videoconference delivery of learning modules, concerns were raised that these formats do not work for all learners.

- **Coordinating program offerings –** The diversity of players involved in the adult learning sector (CCIs, CALCs, Volunteer Tutor Adult Literacy Services (VTALS), other community literacy providers, public libraries, e-Campus Alberta, employment and training providers) was viewed as adding complexity to the effective coordination of adult learning programming.
- **Policy alignment –** Several key informants pointed to the need for improved alignment across ministries to ensure consistent access policies and funding supports for adult learners.
- **Large size of stewardship regions –** Given large geographic distances, diverse community needs, and sometimes sparse population, CCIs have difficulty making their presence felt across their stewardship region and developing programs that can address disparate needs and interests. Many communities lack a sense of connection to the CCI within their stewardship region, and may feel intimidated accessing programming from a postsecondary institution.
- **Lack of program evaluation –** Without information on outcomes associated with many adult learning programs, there is little to attract prospective learners to programming.
- **Finding the right media channels –** Many mainstream media sources that typically advertise college programs do not reach low-literacy adults, who are also unlikely to access traditional print promotional materials.

Best Practices – Assessing Community Learning Needs
Key informants identified a range of practices they considered to be particularly effective at the community level:

- **Review available data** – Key informants who began their needs assessments with an analysis of secondary data felt that it was extremely useful to contextualize the issues and provide a baseline understanding of the community.
- **Community mapping** – Several key informants recommended community mapping of existing services to provide an overall sense of the type and location of existing programs and services, as well as the clients served.
- **Ongoing relationship-building** – The value of building strong relationships was repeatedly emphasized by key informants. Interagency meetings were highlighted as providing valuable opportunities to network and strengthen connections between community groups.
- **Personalized approaches** – Many key informants found that advertisements did not draw many participants or respondents, and that one-one-one invitations to specific invitations was one of the best ways to engage the community in needs assessment activities.
- **Qualitative data collection** – Most key informants felt that qualitative methods yielded better and richer data, and relatively few key informants used survey methods. They perceived that qualitative approaches offered benefits of building community, sparking new relationships among participants, and helping to give voice to different members of the community.
- **Focussed questions –** As with any form of research, needs assessment relies on carefully constructed instruments and questionnaires, in order to gather the most useful data to inform decision-making.

- **Targeted sectors** – One key informant recommended a sector approach to assessing employer needs, leveraging opportunities that may exist within the sector to engage employers where they already gather.
- **Offer food!** – Almost all key informants stressed the value of making food available for any format that brings people together. In smaller rural communities, it was noted that it is even better if local caterers are used.
- **Incentives for participation** – Key informants believed that it was important to recognize participants' time through small tokens of appreciation, and to provide incentives for participation in needs assessment activities.

Best Practices – Assessing Employer Needs

Many key informants commented on the difficulty engaging employers in needs assessment efforts, and recommended the following practices to help increase employer involvement:

- **Engage employer networks** – The Chamber of Commerce and industry/sector organizations are important stakeholder groups, whose support can help facilitate access to other employers. Business Industry Liaisons (BILs) can be leveraged for their industry contacts and knowledge of the business community.
- **Promote the benefits of involvement** – Individual employers are more likely to participate in the needs assessment process when they understand how the results will be used to address workforce needs.
- **Use face-to-face methods** – The highly successful Business Retention + Expansion program relies on teams of employers who participate as volunteer interviewers to conduct in-person interviews with community businesses. Employers respond well to face-to-face with other employers.
- **Adapt approaches to size of community** – In larger communities, "tagging on" to Chamber of Commerce meetings can be an effective strategy to raise employer awareness of needs assessment activities. In smaller communities, approaching employers individually and asking for a few minutes of their time over coffee can work equally well.
- **Employers-as-learners –** Be aware that employers are also potential learners. In addition to gathering information about employee skill levels and potential gaps, employers should also be asked about their personal learning interests and goals.

Best Practices – Assessing Aboriginal Learner Needs

Effective engagement with Aboriginal communities was viewed as requiring not only the development of strong relationships with local community organizations, but also the willingness to give up some control. Best practices identified by key informants included:

- Be flexible and follow the lead of the First Nation you are working with.
- Involve elders in the process of assessing needs.
- Learn about the culture and honour cultural protocols.
- Approach the community about hosting culturally appropriate events and activities, such as talking circles and community feasts.

- Leveraging personal relationships that are already established, such as with public health nurses who are well-known by First Nations members, can be helpful when new partnerships are being developed.

Best Practices – Assessing Newcomer Learner Needs

Key informants recommended a variety of strategies to facilitate needs assessment with newcomer populations:

- Engage respected community leaders to become ambassadors for the needs assessment process and to encourage other members of their community to participate.
- Make an effort to understand the culture and observe cultural protocols.
- Work with schools and local employers to help identify newcomer populations in the community
- Provide training for volunteers to conduct one-on-one interviews with newcomers in different languages.
- Address transportation barriers by holding events in locations that are near to where newcomers live.

Best Practices – Assessing Rural Learner Needs

Many key informants shared their experiences working with rural communities, and offered insights into effective practices:

- Identify and engage a community "sage", the person who knows the community inside out and has extensive network of relationships.
- Attach needs assessment processes to events that draw people, such as a community meeting, or to venues that people frequent, such as a supermarket or hockey arena.
- Given inconsistent access to reliable technology, don't rely solely on online surveys, but offer in-person or paper-based survey formats methods to assess needs.
- Be aware of seasons/farming cycles and do not plan events during harvest or planting season or as no one will show up.

Campus Alberta Needs Assessment System

Key informants expressed a high level of interest in the proposed development of the Campus Alberta Needs Assessment System, and indicated their willingness to contribute information to enhance understanding of community learning needs. A number of content suggestions were offered to improve the relevance and usefulness of the toolkit, including:

- Different levels of needs assessment to take into account differences in experience, funding and capacity of the partners involved.
- Variety of methods and data collection options, since different populations respond better to some formats over others.
- Simple, flexible processes, with little cost attached.
- Clear guidelines on conducting an assessment from start to finish, with helpful tips on facilitating community consultations, framing questions, and interview probing techniques.
- Standardized questions, along with information on how to develop additional questions.

- Suggested calendar and timeline of needs assessment activities, with advice on how often to assess needs.
- Clear instructions on what to do with the information after it is gathered, to ensure that the results are put to good use.
- Culturally competent resources, to improve understanding of diverse populations.
- Contact information for people who have done needs assessments.
- Names of potential facilitators.
- Budget ranges for various components.

Community Roundtables

Two facilitated roundtable discussions, approximately two hours in length, were held in September, 2012 in Cochrane and Red Deer, involving a total of 36 participants from 24 organizations (see Appendix C for the participating organizations). The purpose of the roundtables was to clarify and add depth to the findings from the literature review and key informant interviews, and enable cross-sector knowledge exchange. Each session followed the same format, beginning with a presentation of findings from the literature review and key informant interviews, and moving into small group discussions on best practices in assessing adult learning needs, and requirements for a Campus Alberta Needs Assessment System.

The roundtables were organized with the assistance of steering committee members from Bow Valley College, Lethbridge College, and Campus Alberta Central, who helped to coordinate the meeting arrangements and identify potential participants. Email invitations were sent by Academica Group to potential participants in early September, along with the Informed Consent Letter outlining the purpose of the study and the ethical provisions in place to protect participants. The roundtables were held during business hours, and refreshments were provided. Notes from the roundtables were transcribed and manually coded to identify key themes. The analysis below integrates findings from both roundtables and reflects experiences and aspirations that were shared by participants across the two groups.

Best Practices in Assessing Needs

Roundtable participants identified the following as best practices in the assessment of community learning needs:

Make effective use of available information – Participants emphasized the value of situating the needs assessment within the context of existing research and information about the community, region, or stakeholder group. They also highlighted potential opportunities to aggregate data about current learners from individualized learning plans or employment assessments to gain a better understanding of adult learners within the community. "*It all starts with individual learning assessments, then rolling these up to the community level.*"

Map community resources – There is a need to fully understand existing community resources across the education and training, community service, and workforce development sectors, to provide learners with a single point of access to the full range of community adult learning programs offered within the community.

Strengthen collaboration and partnerships – Interagency collaboration and coordination at both the community and sector level was viewed as critical to break down silos and prevent duplication of effort across agencies. Participants appreciated the opportunity to have greater consistency in needs assessment processes across sectors and expressed interest in collaborative learning needs assessments and joint discussion of next steps. Communication across agencies, and sharing of best practices through interagency meetings, was viewed as key to effective collaboration. Communication within organizations was also recognized as important, to train staff on working in partnerships, and to support secession planning. Better coordination of needs assessments across the health, library, PSE, K-12, private training and community service sectors was identified as a particular issue for small and rural communities, which can become saturated with multiple surveys for similar purposes. Government has a vital important role to play in encouraging cross-sector partnerships, and ensuring that funding models do not create disincentives to cooperation.

Create formalized partnerships but let the community drive the process – Participants recommended that a lead or champion organization be identified to pull the process together and keep everyone on track. At the same time, they urged that the process be designed to empower community leadership, with informal activities as well as formal events. It should involve a broad cross-section of stakeholders – multigenerational (youth to seniors), multicultural (immigrants and Aboriginal), cross-section of industry – across all phases, from planning the assessment to acting on results. The participation of government was recognized as essential, since many believed that there is greater community buy-in when the information is being requested by government.

Leverage community knowledge and connections – Personalize approaches are critical to build trust in the process. Participants recommended talking to community "sages" with "fingers on the pulse" of the community to gain a deep understanding of community dynamics, and ensure that key informants best represent groups or sectors. Data collection activities should harness the connections that already exist within groups (in schools, service agencies, or cultural groups) and ask group members directly about their goals and interests. Needs assessment processes should be aligned with events or public activities that already bring the community together (famer's markets, Career Week). Time of day matters when attempting to engage members of the community who are managing family or work responsibilities. Incentives should be offered to encourage participation and thank people for their contributions, and food should be shared to strengthen the sense of community.

Engage employers – Participants stressed the importance of strong linkages with employers, who may have insights on the needs of "less visible" adult learners, such as those with low skills or low literacy. Employers can also be enlisted to help to raise awareness of the needs assessment among their employees and encourage their participation.

Be culturally competent and aware of diversity – Participants commented that many professionals lack cultural experience dealing with people of different cultures, and emphasized the importance of understanding cultural protocols. In working with FNMI communities, it is necessary not just to give up power, but to give over power, and to acknowledge cultural traditions and supports.

Use multiple methods to ensure a diversity of views – While ensuring adequate numbers of participants is important, the goal is quality over quantity, with a methodologically sound design that generates valid

and reliable results. Face-to-face methods of data gathering should be balanced with other formats, including online, to respond to community preferences and to make the process more manageable for those involved.   Methods need to be culturally sensitive, intergenerational, and tailored to lower literacy levels and different levels of skill. Instruments should be written using plain language and questions that are easy to understand. Interviewers should be trained, and translation services should be available to include newcomer populations.

Share solutions and act on results – Once the community has been mobilized and engaged, frustration can set in if the process does not produce positive, observable changes.

Campus Alberta Needs Assessment System

Similar themes emerged in the roundtable discussion about how the Campus Alberta Needs Assessment System could support community learning needs assessment efforts.

Clarify who does what – The system could facilitate community mapping, and capture information about different organizational roles and responsibilities, resources, services, and clients, as well as data about the local labour market.

Improve opportunities for collaboration and partnerships – The system could help to create a culture of sharing, enabling "system-level linking" to enhance collaboration across agencies, expand opportunities for interaction and knowledge exchange, and make better use of community resources.

Inform community decision-making – By offering standardized assessment processes across regions, the system offered the potential for data to be aggregated, synthesized and shared, helping to generate evidence about barriers to access.   The system should rely on agreed-upon standards and tools, with user-friendly technology and interfaces, and appropriate privacy and security provisions to safeguard respondent data.

Enhance access to existing information – The system could gather baseline data from Statistics Canada and municipal planners, as well as data generated through program intake and essential skills evaluations.

Expand reach – By harnessing technology in assessing needs and also to deliver learning, the system offered the potential to engage outlying or isolated communities, and the capacity to provide information in multiple languages. At the same time, participants cautioned that technology must be accessible to users or it can exclude certain populations (for example, those with low computer literacy, or English language learners). Many participants recommended the integration and use of videoconferencing to gather data and/or share results.

Needs Assessment Information Sources

Participants identified many different kinds of information that are necessary to assess learning needs, including:

- Data about current participants
- Existing adult learning programs and services
- Economic indicators

- Community demographics
- Population projections
- Skill gaps
- Learner goals and interests
- Program outcomes
- Barriers to access

They also identified the following as useful sources to obtain information:

- Central Alberta Economic Partnership
- Conversations with staff, board members, learners
- Personal, F2F is important
- Partner organizations
- Internal reports to funders
- Canadian Council on Learning
- Statistics Can
- Provincial government agencies
- Municipalities

Technical Review

The final section of the report offers recommendations on the requirements for a technical solution for a Campus Alberta Needs Assessment System to guide the next phase of the overall project and inform the development of a prototype. The review considers the high-level technical requirements associated with the end-user needs identified during the interviews and roundtable discussions. It provides a discussion of key technological considerations, as well as data and design issues, that are essential to the build of an intuitive, user-friendly system.

Based on the findings from the literature review and field research, Academica Group prepared a *Community Learning Needs Assessment Toolkit* (available as a separate document) to facilitate the needs assessment process by Alberta CCIs. The toolkit outlines a series of activities that can be undertaken by CCIs in partnership with CALCs, community literacy providers and other community organizations to assess needs for specified geographic areas within the stewardship region. These activities include (see the toolkit for details):

- Analysis of student/client administrative records
- Development of community learning profiles for defined geographic communities within the stewardship region, using administrative records and secondary data sources
- Creation of community asset inventories
- Analysis of asset enablers, linkages, barriers and gaps
- Key informant interviews to identify asset linkages and gaps
- Online survey of education and training providers
- Employer interviews
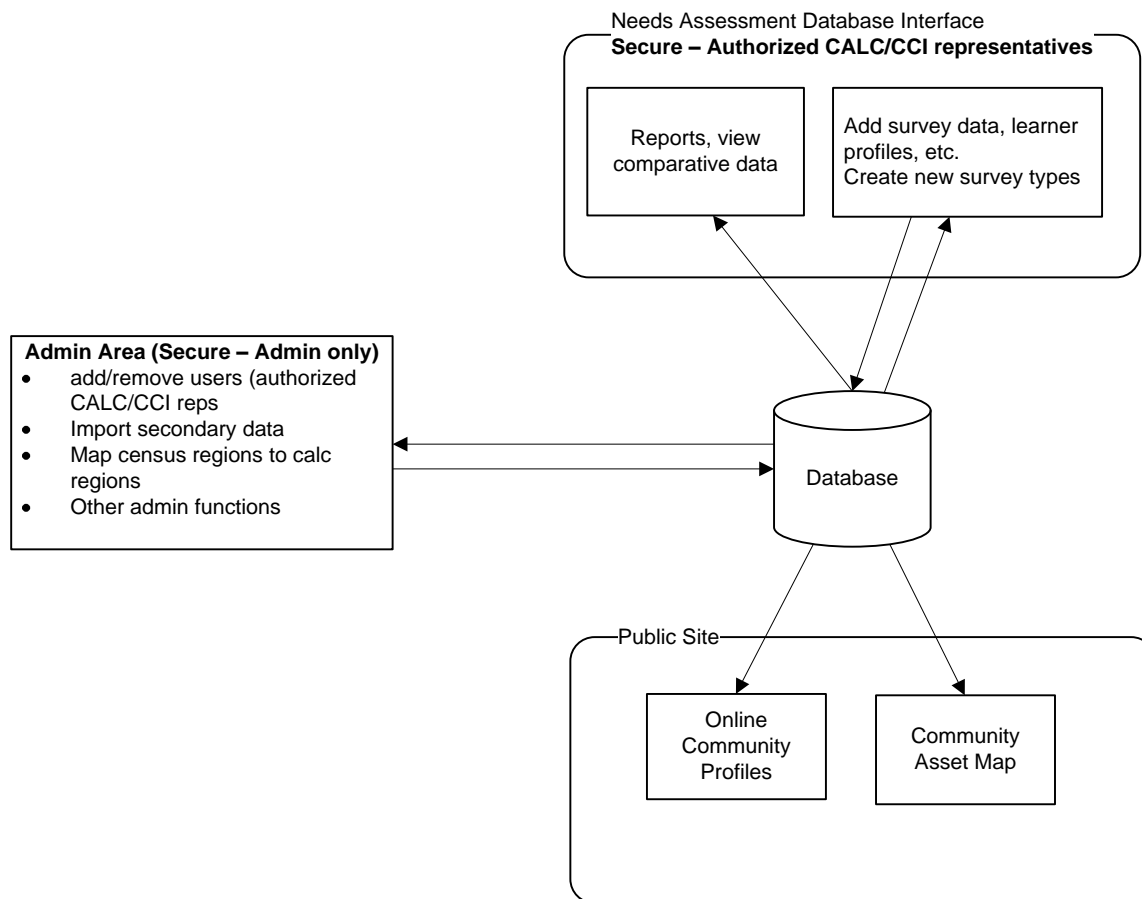- Focus groups with prospective learners
- Community forum

While the needs assessment process described in the toolkit can be implemented without the use of technology, it would be significantly enhanced by technological support. Based on the research conducted for the project, Academica Group is recommending the development of a technical tool, with the three main functions below, to support the proposed activities:

1. Community learning profile tool (see www.communityactioncna.org/)
2. Asset mapping tool (see www.peterborough.ca/Living/City_Services/Social_Services/Community_Service_Map.htm)
3. NA database

The toolkit was reviewed by the project steering committee, and Academica Group was directed to conduct a more detailed exploration of the three potential solutions. To assist in conducting the technical review, Academica's technical specialist contacted representatives from Statistics Canada, the Campus Alberta Planning System (CAPS), the Alberta Wage and Salary Survey, the EAE Economic Dashboard, and Environics Analytics.

The diagram below shows how data and functionality will be shared across the three areas of the tool to create a single integrated Campus Alberta Needs Assessment System. The system would provide profiling capability similar to the Newfoundland and Labrador Community Accounts site (http://nl.communityaccounts.ca), but with fewer geographic and formatting options. Unlike the Community Accounts site, our proposed interactive asset mapping tool would use Google Maps Application Programming Interface (API) rather than flash, and would create printer-friendly asset maps instead of downloadable PDFs. In addition, our proposed Campus Alberta Needs Assessment System includes an administrative feature to enable users to enter the asset inventories and other primary data collected during the needs assessment, and to capture online survey data directly into the NA database.

The build of the integrated system would require the central database to be developed first, with a user interface to enable data entry by authorized users. The central database would continue to grow as new primary data collected during the NA process was entered, secondary data was updated with new releases, and additional indicator data was added. The database would feed both the community learning profile tool and the asset mapping tool. The database would also enable reports and queries to be run directly from the database – for example, to generate aggregated tables of employer skill needs.

Needs Assessment Database Interface
Secure – Authorized CALC/CCI representatives

Reports, view comparative data

Add survey data, learner profiles, etc.
Create new survey types

Admin Area (Secure – Admin only)
- add/remove users (authorized CALC/CCI reps
- Import secondary data
- Map census regions to calc regions
- Other admin functions

Database

Public Site

Online Community Profiles

Community Asset Map

General Application Features

The application will allow users to select a region, and navigate between the three different areas (Community Learning Profiles, Community Asset Map and NA Database), while retaining the selected region. From anywhere in the application, the user can change the current region selected.

Data will be linked to the smallest geographic region possible – likely based on the most fine-grained census regions. For displaying data by county, stewardship regions, health regions, school district, and any other geographic units identified by the steering committee, data will be aggregated from the smaller geographic regions that are contained within each.

The site will be available to the public, however, authorized users will be able to log in, and have access to both the public data, as well as any restricted data when working with the maps, profile tool, and reports.

A single database will be used by the tool. It will house secondary data indicators, as well as any primary data, security information, application settings, etc.

Community Learning Profiles

This area of the tool would allow end-users to choose the geographic regions to be included in the needs assessment, likely corresponding to boundaries for the CCIs or county/community. If the user selects the CCI boundary, the tool will aggregate data within the CCI region. Users would then be able to select the indicators to be included in the profile. The indicators would be organized by type, with indicator data pulled initially from secondary data sources, and from primary data sources as they are entered. As outlined in the toolkit, indicator types would include:

- Community Demographics
- Learning Indicators
- Aboriginal Demographics
- Immigrant Demographics
- Labour Market Information
- Economic Overview

Users would be able to select profile information to be displayed in list or table formats, chart format, or as actual report text. These format options can be set globally, or by indicator. For example, population could be available in all three formats, while major employers in the region could be set for list or table format only.

Once the user had selected the geographic units and indicators, the tool would generate a profile in either HTML, PDF, or docx format. While PDF format would ensures consistent appearance of profile across multiple platforms (whether print, emailed, or viewed on a PC, tablet, mobile phone, etc.), the option of generating the profile as an editable Microsoft Word document would allow users the ability to modify and add to the profile after it has been created. For example, additional information gathered during the needs assessment through the surveys, interviews and focus groups could be included, along with the analysis and prioritization. There are various Java and .net frameworks available to enable the creation of docx or PDF files, including the following:

- http://poi.apache.org/ - apache open source java framework for creating word docs
- http://www.docx4java.org/trac/docx4j/ - another java tool for creating word docs
- http://pdfbox.apache.org/ - apache open source java framework for working with PDF documents

For text descriptions of statistics, the database could store text with variables to be replaced, such as:

Population by gender within the {0} region is shown in Table {1}. According to the 2011 Census population counts for the report area, the female population made up {2} of the report area, while the male population represented {3}.

Each variable would then be programmatically replaced with the relevant data. This feature would involve the preparation of template text, creating a secure administration area to allow the text to be entered and updated, and defining the data source represented by each variable.

Once the profile tool is in use, additional resources may be required to expand the number of indicators included, and to develop new text for the editable document option.

Community Asset Mapping

This interactive feature of the tool would utilize the Google maps JavaScript API (https://developers.google.com/maps/documentation/javascript/) to map the physical locations of assets identified within the selected region. While this would be somewhat similar to the tool developed by Early Child Development Mapping Project Alberta (ECMap.ca), it would display maps dynamically online rather than as downloadable PDF documents. A dynamic map could be instantly updated to reflect community changes instead of requiring revisions to PDF documents, and also allows users to filter the assets they want to display, zoom in and out on areas, and print only what is filtered.

Users could select one or more categories of community assets, and then display them on the map. As outlined in the toolkit, these categories include:

- Informal Learning Assets
- Institutional Learning Assets
- Connective Organizations
- Labour Market Assets

Two options could be considered for storing the data (representing the points on the map):

1. **Google spreadsheet** ("In the cloud") – This would allow multiple users to edit the data online. Each user will be required to have a Google account, and be granted access to the spreadsheet. This would be the most cost effective solution, since the spreadsheet can be easily created, and there are JavaScript libraries available that make importing location data from a Google spreadsheet into a Google map very easy.
2. **Government of Alberta database** – If the community learning profile tool and/or the NA database are also developed, this database would allow data to be shared cross the tools. An advantage of this approach is that users who will be controlling the data will not need to create Google accounts. Greater data security would be available for the lists of "individual assets"

which would be entered into the database, but would not be displayed on the physical map. However, more effort would be required to retrieve the data for the asset map, since an administrative user interface would need to be designed in order to allow non-technical personnel to modify the data.

Similar to the Peterborough asset mapping website, the tool could allow census or other data to be overlaid as choropleth map layers in addition to allowing users to select categories of physical assets (see www.statcan.gc.ca/pub/92f0138m/2008003/figures/5200001-eng.htm). Choropleth map layers can be created for any Statistic Canada data, using downloadable boundary data from http://geodepot.statcan.gc.ca/2006/04012001161815042103 2019/0215211404011825060912 0519_05-eng.jsp. Step by step instructions on how to merge census and boundary data are available from www.lib.uwaterloo.ca/locations/umd/digital/documents/MakingachoroplethmapwithGoogleFusionTables_2012.pdf. Choropleth map layers could include unemployment rates, proportion of population with low income, SES data developed for ECMAP.ca, future population projections from Environics, or other sources. The overlay of indicator data against the physical locations of institutional learning assets would assist in the identification of service gaps and needs.

There is also the potential to map new data as it is collected and stored in the NA database. For example, IT skill needs could be mapped by area and compared to a layer showing locations that offer IT training. This would give a clear picture of areas where there is a high need for certain skills, but a shortage of education and training opportunities.

NA Database

The purpose of the database is to store new primary data that is collected during the needs assessment process, including the asset inventory, education and training provider survey results and employer skill needs.   The database will also enable the aggregation of data across regions. The database will support the creation of the community learning profiles and provide layers for the asset map. The data can then be used to continually feed the online community profiles and the community asset maps.

In order to access and administer the database, a secure website would need to be built, with the host entity responsible for site ownership and access oversight.   CCI staff and other authorized users (as determined by the NAC) would be granted access to the secure site to upload new data as it is collected. If standard forms were created for the collection of CALC learner profiles and course evaluation data, this administrative data could be entered into the database through the secure web site. The database would allow records to be created, updated and deleted.

The site would include a survey function to enable CCIs to implement the online survey of education and training providers recommended in the toolkit. The basic survey would be preprogrammed, but authorized users would be able to modify the instrument before sending email invitations to participate in the survey. Survey data would be captured directly in the database. Other data collected from employer phone surveys, print surveys, interviews, or any other manual process, would require a tool within the secure site to enable the data to be entered and uploaded. This process should be generic, to allow new types of surveys to be added at any time. Users could either choose to add survey results for an existing survey type, or create a new survey type.   When adding survey data, users would first select the geographic unit to which the data applies.

The database would enable reports to be generated by CCI, other geographic units, or the entire province, and would also allow the comparison of data across geographic units. Options could be provided to enable comparisons by date, for example, to display employer survey results from the past two years. Open source tools would be used to support the creation of charts and tables. Charts would be available in predetermined formats, but would be created based on current data each time (see JFreeChart www.jfree.org/jfreechart). An administrator would decide which sets of data should be available publicly, and which should only to be seen by authenticated staff.

Secondary Data

To feed the community asset maps and community profiles, as well as the charts and reports, indicator data would need to be imported into the database. The most challenging aspect would be loading data from different sources with mismatched regions into the database, and mapping the data to the appropriate CCI. While mapping to the county/community level would be preferred, it is recognized that some data may only be available at the level of CCI or Economic Region. Initially, the database would mainly be drawn from Statistics Canada and Alberta government data sources. For Statistics Canada census data, census subdivisions would be mapped to the geographic units included in the tool. Other data, such as the Alberta Wage and Salary Survey, and Stats Canada data that is not collected by census divisions, will need to be mapped, then collected and stored based on community, county and/or CCI regional boundaries.

Statistics Canada census data would be simple to import, and could also be used as overlays for the asset mapping tool. Data could be stored as is (for example, by census subdivision), and linked to each geographic unit in a separate database table. Other potential data sources available in flat file format or comma separated files would be relatively easy to import into the database, using a simple tool to parse the files and load them into the database. Access to the import functions can be provided through the system administration area. (More detail on system administration is provided at the end of this section.)

Determining how to import secondary data sources into the database, and creating tools to do so, will be a major part of the development effort. In general, the more data sources required, the longer it will take.

Technical Implications

It is important to note that any solution involving importing secondary data sources into the database will require ongoing maintenance. Some examples are provided below of situations that will require administrative changes (not a complete list):

- Importing new releases of existing data
- Adding new indicators, possibly from new data sources
- Removing outdated indicators
- Adding new primary data to asset inventories for community asset map
- Developing new type of survey
- Providing access to new users for data entry (this could use an existing source, such as LDAP, Active Directory, etc.)

- Revising template text associated with specific indicators for the community learning profile tool
- Adjusting mapping of data to regions

The option of including a basic web application to provide secure administrative access to a limited number of users to tools to enable administrative changes should be considered. The cost of developing this side of the application would have to be weighed against the costs of having a developer (either internal or contracted) make changes when needed. However, investing in developing a flexible administrative side upfront could reduce long term maintenance costs.

Detailed Technical Specifications

If a decision is made to proceed with the tools outlined above, the next step would be to define detailed technical specifications, and to conduct a detailed investigation of the availability of data sources. It will also be necessary to determine the institutional or ministry host for the system, and the infrastructure in place to support system development and implementation. Once the secondary data to be used for the profiles and asset map layers has been confirmed, a database schema and system architecture can be developed, and the frameworks and tools needed to build the application can be decided upon. It is important that the database schema will not only support data from all secondary data sources that are initially decided upon, but be generic enough to accommodate other secondary data sources in the future.

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Appendices

Appendix A – Steering Committee

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Appendix C – Participating Organizations

Cochrane Roundtable
Accredited Supports to the Community

Bow Valley College

Bow Valley Learning Council

Chestermere Public Library

Foothills Community Immigrant Services/Calgary Catholic Services

Golden Hills School Division/Sequoia Outreach School

Rocky View School Community Learning

Siksika Employment & Training

Town of Chestermere

Town of Cochrane Family & Children's Services

Red Deer Roundtable
Alberta Works

Bashaw CALC

Campus Alberta Central

Career Assistance Network

Community Learning Campus

Community Learning Network

First Nations Training for Employment

Hanna & District Association for Lifelong Learning

Henday Association for Lifelong Learning

Lethbridge College

Life Long Learning Council of Red Deer

Mountain View Communities Adult Learning Society

Neutral Hills CALC

Norquest College

Paintearth County

Red Deer College

Rocky Community Learning Council

Stettler & District CALC

Sunchild E-learning Community