Human Resources Development (HRD) for Entrepreneurs in Small- and Medium-size Enterprise (SME) and for the Promotion of Regional Industry in Canada

Prepared for:
Human Resources Development for
Promotion of Regional Industry
(Okinawa, Japan)

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December 1998

EXECUTIVE SUMMARY

In Canada, SMEs (Small- and Medium-Size Enterprises) are the acknowledged generators of significant economic growth, employment and business development. In recognition of this, both governments and non-governmental agencies have initiated policies and strategies to assist entrepreneurs and to promote regional industries.

The first part of this paper/presentation is an overview of the current status of SMEs in the Canadian economy including:

- definitions used and appropriate statistical measures of success,
- the identified HRD (human resources development) needs, both for initial and ongoing training of entrepreneurs,
- training and lifelong learning for entrepreneurs in SMEs, and
- business supports such as networking, access to capital and business advice.

Many varied business supports are provided by the federal and provincial/territorial governments and by banks, and examples are provided.

Policies and programs to address the HRD needs are being embedded in Canada's education and training system, and lifelong learning strategies currently under development. The second part of the paper/presentation focuses on the status of lifelong learning in Canada, with a brief overview of the following:

- common and competing definitions used
- the societal context and the need for lifelong learning in Canada
- a snapshot of learning opportunities and participation rates
- the challenges to change and barriers to lifelong learning
- key government policies and strategies
- key conceptual initiatives in support of lifelong learning
- visions of a preferred future for lifelong learning in Canada

The concept of lifelong learning is now used to encompass new approaches to teaching and learning, to the assessment and recognition of learning, and to the learning requirements of the knowledge-based economy. Particular attention is paid to gender issues, as women make up the majority of start-up entrepreneurs in Canada, and they have relatively unique HRD needs.

The third part of the paper focuses specifically on Canadian experiences with HRD for the promotion of regional knowledge-based industry. Like Japan, Canada is divided into regions with particular geographic and industrial characteristics. Many regions of Canada have attempted to attract and develop knowledge-based industries as resource-based industries, which have sustained those regions, decline and disappear. Three knowledge-based regional development initiatives from Atlantic Canada are presented, initiatives which have incorporated four critical and interrelated factors: development of knowledge-based products and services, training and lifelong learning infrastructure for the knowledge economy and regional development, the opportunities presented the Information Technologies, and the imperative for sustainable development.

This paper is intended to be illustrative and makes no claims to be all-inclusive of policies, programs and practices in Canada relative to SMEs, HRD, lifelong learning or regional economic development. The opinions expressed are those of the author unless otherwise acknowledged.

1. SMEs AND HRD IN CANADA

Small and medium-size enterprises (SMEs) are extremely important in terms of economic and business develop, and especially in regional development. They present unique human resource development (HRD) and business support needs.

1.1. Definitions Used And Appropriate Statistical Measures Of Success

Defined by size, SMEs are businesses that employ up to 50 individuals,[1] and by sales, do not exceed $5 million.[2] In Canada, SMEs are critically important to the economy.[3]

- In 1996, 97% of all businesses in Canada had fewer than 50 employees[4] -- the operational definition of an SME.
- Small businesses account for an increasing share of total employment – 36% of total private sector employment in 1993, up from 30% in 1979.[5] Very small firms are the most consistent source of job creation.
- Employees of small businesses are typically very satisfied with their jobs, and generally more satisfied than employees of large firms. According to the Canadian Federation of Independent Business, flexibility, openness and workplace morale are key advantages to small business workplaces.
- Small firms spend more on training than their medium-sized counterparts; and their training efforts tend to be more focused and intensive.[6] Almost 75% of enterprises have put in place procedures for training; they make use of continuous education (61%), in-house programs (54%) and on-the-job training, (50%); they spend up to 5% of total salaries in training mainly in technical areas.[7]
- In 1996, only 17% of very small businesses employed workers at the minimum wage, compared to 23% for larger firms.

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1 Definition used by Statistics Canada for data gathering purposes.
2 Definition used in the federal Canada Small Business Loans Act (Government of Canada, 1993), available at http://strategis.ic.gc.ca/
3 Lagace, C. (April, 1997). Small Business Primer. Ottawa: Canadian Federation of Independent Business. Available at http://www.cfib.ca/english/research/reports/primer.htm
4 Statistics Canada, 1996.
5 Statistics Canada, 1993.
6 Statistics Canada, 1994.
7 Centre for Entrepreneurship and SME at http://www.strategis.ic.gc.ca/SSG/ae00292e.html

- At a time when the youth unemployment rate is 16.7%, almost half of SMEs that were hiring in 1996 were taking on employees in the younger age groups.
- Firms with sales under $1 million proportionally spend two- to three-times more on research and development than their larger counterparts.
- Women have been starting their own businesses at three times the rate of men. In Canada, women constitute 35% of employers, and the self-employed and women-led firms are creating jobs at four times the national average.[8] One third of self-employed Canadians are women, up from less than one fifth in 1975.
- Micro-enterprises fall into the broad category of SMEs, as a distinct sub-category. Because small, unincorporated businesses, often home-based, demonstrate interesting potential but do not contribute as vigorously to growth as other, even only slightly larger, businesses do,[9] they are not current priorities for SME policies or programs in Canada.
- For 67% of entrepreneurs, professional experience has proved most useful for their career; 60% were employed in a similar business before and 50% had started other businesses before. 72% of them have an university background and 50% have participated in development programs; almost all entrepreneurs (91%) of the new economy have an university background in a field similar to their business (68%).[10]
- 68% of entrepreneurs are between 30 and 49 years of age; 18% of those in the start-up stage are between 20 and 29 years and 50% of those in the maturity stage are between 50-59 years of age. [11]

The SME sector is expected to play an increasingly important role in the Canadian economy as economic restructuring results in the devolution of more and more public sector activities to the private sector.

1.2. The HRD Needs Of SMEs and Entrepreneurs

Considerable attention has been paid to the identification of human resources development (HRD) needs, both for initial and ongoing training of entrepreneurs in SMEs. Entrepreneurs need training and assistance with such SME details as:

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[8] *Summary Overview Issues Paper*. (Peebles, 1997). Background paper prepared for the 1997 Women Leader's Network Meeting, Hull, Canada.
[9] Business Development Bank of Canada (1997).
[10] Centre for Entrepreneurship and SME, at http://www.strategis.ic.gc.ca/SSG/ae00292e.html
[11] Centre for Entrepreneurship and SME, at http://www.strategis.ic.gc.ca/SSG/ae00292e.html

- exploring business opportunities, evaluating business ideas, and protecting ideas and intellectual property;
- marketing basics, market research, sales forecasting, and business promotions;
- business finance, equity financing, long term and short term debt financing, and alternative sources of financing;
- planning fundamentals, preparing a cash flow forecast, and preparing a business plan; and
- basic government regulations for getting started, taxes, becoming an employer and basic start up tasks.

A study of entrepreneurs in Canada resulted in the following list of entrepreneurial-managerial competency requirements: positioning / adapting competencies, represented by a clear business vision; sales planning and promotion; interpersonal skills, leadership in climate setting, communication, delegation and coaching; management and decision-making; cognitive ability and information processing; background knowledge of industry and business connections; financial capabilities, cash management and control; technical capabilities; entrepreneurship; and innovation.

1.3. Training for Entrepreneurs and SMEs

In the face of these HRD and lifelong learning needs, training for people working in small and medium-size industries is an serious need and an emerging industry. The major issues are (1) delivering skills development that is timely, effective, efficient and responsive, and (2) increasing access to quality training.

According to Industry Canada,[12] planning for and providing training within SMEs is a complicated business, made complex by such factors as recruitment levels; weakness of in-house training; lack of in-house capabilities to plan and carry-out formalized training; lack of time to carry out (or participate in) proper training; limited knowledge about external training providers or opportunities; a desire to see short-term results of training, based on solving an identified problem; lack of convincing arguments to carry out training; budget constraints, partially related to small numbers of trainees; limited number of trainees; dispersion of SME'S, in particular those in rural areas; absence of local peer groups, requiring self-motivated learners.

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[12] *The Customers' Perspective: Technology-based Training in the Workplace* at http://www.strategis.ic.gc.ca/cgi-bin/

Presently, SMEs access training through a variety of channels: community and technical colleges are a common source of training; suppliers of equipment or goods provide product-specific training; companies hire trainers for a specific task, to fix an identified problem; regional development councils or business interests sponsor training seminars, e.g., the Chamber of Commerce; clients may require training as part of a supply contract, e.g. in quality control; trade associations may organize training for members. Most of this training is done through seminars, lectures, demonstrations, observations and through videos and print materials.
Most provinces have schemes to promote training in and for SMEs. For example, Ontario's Skills Incentives Program reimburses up to 80% of direct expenses for training.

Technology-based training materials are emerging in training at SMEs.[13] The following examples illustrate ways in which technology-based training materials are brought to SMES, at an affordable price. Large corporate customers of small supply houses have reinforced their demands for adherence to production standards by distributing training videos. Franchise operators provide videos and computer-based training packages to franchises to achieve consistent and uniform products and services. Trade associations identify broad common training needs and commission materials that can be used by SMEs for in-house training. A Canadian supplier is setting up a commercial training centre which can be used by small and large companies. It is fully equipped with advanced technologies, training materials can be leased on an as-needed basis.

Appropriate technologies for SMEs need to support training materials which offer individualized, self paced training -- given the lack of qualified trainers, of subject experts and of peer comparison groups, the small number of trainees per company and the distance from training sources; are affordable -- this typically means off-the-shelf materials; and work on hardware that is convenient to use, easily accessible, portable and affordable.

[13] *The Customers' Perspective: Technology-based Training in the Workplace*

1.4. Business Supports for SMEs

In addition to training, SMEs require such business supports as networking, advice, and access to finances.

1.4.1. Comprehensive SME business advice

Extensive business advice for SMEs is available from federal and provincial governments, and accessible through on the Internet at such sites as:

- *Your Guide to Your Guide to Government of Canada Services and Support for Small Business 1998-1999* at http://www.strategis.ic.gc.ca/SSG/mi02983e.html
- Industry Canada at http://www.strategis.ic.gc.ca/SSG/
- Western Diversification at http://www.wd.gc.ca/eng/context/xdetail.html
- BC's small business office at http://www.sb.gov.bc.ca/smallbus/workshop/workshop.html
- *Steps to Competitiveness* at http://www.strategis.ic.gc.ca/sc_indps/service/engdoc/steps.html
- Business Development Bank of Canada at http://www.bdc.ca/

1.4.2. Networking

Canada has a nationwide network of small business support organizations. *Contact! The Canadian Management Network*[14] allows an SME to tap into this network using the Internet any time, from virtually anywhere in the country, in order to:

- access a directory of up-to-date information about small business programs and services that can improve business;
- download business start-up guides, small business advice from leading writers, small business statistics and information for business start-ups on many topics;
- network with other business people and management experts using electronic forums;
- benefit from hundreds of success stories, information on business awards and profiles on management software tools — all focused on small business; and
- connect with experts who can help understand culturally different business practices.

[14] On-line at http://strategis.ic.gc.ca/contact

To help encourage growth and innovation among small business across Canada, the Business Development Bank and many other agencies sponsor special events that promote and support Canadian entrepreneurship.

1.4.3. Finances and financial management

Heightened awareness of the potential of SMEs has resulted in increased availability, accessibility and flexibility of business financing. According to the Conference Board of Canada, Canada's financial services industry is becoming increasingly aware of and responsive to the financing needs of SMEs, and there is a widening range of products, services, and delivery modes designed specifically for the SME market. This means increased access, flexibility and convenience of obtaining debt capital, as well as improved service for SMEs. Greater flexibility has been built into SME product and service delivery through new technology, ranging from advanced credit scoring systems to Internet-based loan and lease applications. There is a growing trend toward industry and equipment specialists in commercial financing, with knowledge-based sectors receiving increased attention from traditional and non-traditional financiers alike.

The Royal Bank of Canada, for example, has sought to improve access to financing for women-led SMEs[15] through fostering change in behaviour and attitudes of account managers toward women-led SMEs by e.g., promoting greater sensitivity in requesting personal guarantees; encouraging better communication regarding approvals and rejections; recognizing that women and men have different negotiating styles; requiring account managers to always give the customer the best deal; a “Women’s Champions” program wherein account managers interact with women’s networks; focusing on education, i.e., holding seminars for women-led SMEs; and providing easier terms of credit for SMEs.

1.4.4. Management and skills development

Strong management skills are critical to SME success. In fact, studies conclude that the main cause of small business failure is not the lack of financing, but a lack of management skills and experience. The Business Development Bank of Canada (BDC)[16] offers small business owners a complete range of management services to help entrepreneurs build successful businesses and to compete in a global business environment. BDC offers SME owners custom-made

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[15] Excerpted from a speech by Anne Sutherland, Senior Vice President of the Royal Bank of Canada, at the 1997 Women Leader’s Network meeting in Hull, Canada.

[16] More information at http://www.bdb.ca/

solutions to start or expand their businesses, access new markets, achieve product or service quality standards, and strengthen their management capabilities. The Bank's one-on-one counseling services provide entrepreneurs with the specialized support they need to enhance their business performance. BDC's mentoring programs, generally delivered for a period of up to one year, combine group workshops and personalized counseling to give entrepreneurs a comprehensive learning experience.

1.4.5. Export solutions

BDC and others offer solutions designed specifically for owners and managers of small businesses with export potential. These services include evaluating and developing potential markets, exploring different entry strategies and identifying financial needs. One of BDC's solutions is NEXPRO®, the New Exporters Training and Counseling Program. Through 105 hours of dynamic workshops and individual on-site counseling, NEXPRO® helps entrepreneurs broaden their knowledge of the export process, develop an export plan and implement a successful exporting strategy. Information about markets and product development is available from Industry Canada, for example, through Sector Competitiveness Framework Series.[17]

1.4.6. Quality solutions

For companies determined to stay competitive and win contracts in both domestic and foreign markets, BDC offers assistance to achieve International Organization for Standardization (ISO) certification. The purpose of ISO standards is to facilitate the international exchange of goods and services, and to develop co-operation in intellectual, scientific, technological, and economic activity. The Bank works with a network of independent quality practitioners who coach entrepreneurs in preparing for and achieving ISO certification. Bank specialists guide entrepreneurs through the preparation process to achieve ISO certification, including the implementation of processes, the training of key people, the creation of the necessary documentation and the monitoring of procedures. BDC's ISO certification assistance helps firms improve manufacturing processes, increase product quality and access new revenue opportunities.

[17] At http://www.strategis.ic.gc.ca/sc_indps/sectors/engdoc/scf_hpg.html

1.4.7. Information technologies

Given the critical importance of technologies and innovation in productivity, *A Small Business Guide to Information Technologies*[18] has been prepared by the Canadian Chamber of Commerce, with funding from Industry Canada. It covers the following topics: identifying IT requirements, developing an IT implementation strategy, the implementation process, and the evaluation process.

1.4.8. Support for unemployed persons to start SMEs

Human Resources Development Canada's (HRDC's) Self-Employment Benefit provides individuals with income support, coaching and technical assistance to enable them to become self-employed. The program is restricted, however, to those receiving Employment Insurance benefits. The program is delivered on a local basis through expert organizations known as co-ordinators, which are local community groups funded by HRDC to assist clients' pursuit of self-employment opportunities. Co-ordinators are expected to provide clients with: orientation, coaching, and ongoing business counseling. Participants receive agreed-upon financial assistance while working to implement their business. Financial support is provided for up to 52 weeks.

1.4.9. Supports for women entrepreneurs

Women buying or creating their own SMEs face a particular set of challenges: access to markets, technology, information, human resources development, and financing.[19] In general, SMEs must successfully meet two challenges:[20] globalization and "intelligence," i.e., a combination of information gathering, 'business watch,' continued accumulation of skills, research and advice. Women entrepreneurs[21] themselves said that their priorities were creating alliances or partnerships with other companies, improving the company's management techniques, searching for new financing sources, training employees, and modifying work processes. The BDC offers business support and mentoring programs to women entrepreneurs who want to either start or expand a small business. Step In® is specifically designed for women who want to start a new business. Step Up® assists women with established businesses expand their operations. Both

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[18] Information available at http://www.strategis.ic.gc.ca/SSG/it02040e.html

[19] See, for example, speeches by Shirley Serafini, Associate Deputy Minister at Industry Canada, and Dorothy Riddle, President of Service Growth Consultants , at the 1997 Women Leaders' Network Meeting in Hull, Canada.

[20] W*omen entrepreneurs in SMEs.* (Ducheneaut, 1997).

[21] *Canadian Women Entrepreneurs in Growth Sectors. (*Business Development Bank of Canada, 1997).

programs offer a combination of group workshops, round table discussions and one-on-one mentoring by successful women business owners. Canadian Association of Women Executives and Entrepreneurs[22] is mandated to provide an environment for women to grow and develop in their businesses and professions and to increase the visibility of women executives and business owners through networking events, seminars, and workshops. It provides mentoring services, publications, and networking events.

[22] Information available at http://strategis.ic.gc.ca/SSG/mi00296e.html

2. HRD AND LIFELONG LEARNING IN CANADA

Canadians are the process of developing formal lifelong learning policies and strategies in the context of human resources and economic development, and global citizenship. While Canadians have always been lifelong learners, until recently, formal education and training institutions and practices have marginalized non-formal and informal learning. In the context of rapid societal change, however, emerging policies and strategies have placed an increasing emphasis on continuous learning for the individual and collective good of Canadians. There is increasing recognition that learning takes place in all environments – the workplace, the community, the home and family, leisure activities and travel. The concept of lifelong learning is now used to encompass new approaches to teaching and learning, to the assessment and recognition of learning, to the management of learning, to the learning requirements of the knowledge-based economy and to quality assurance in education and learning.

Lifelong learning is linked to such closely allied concepts as adult education, continuing professional education, labour force development, learning cultures and learning organizations. As well, lifelong learning in Canada is linked to such emerging practices as PLAR (Prior Learning Assessment and Recognition, i.e., the assessment of non-formal, experiential learning), electronic labour market information and learning records, applications of learning technologies and the Information Highway, and education for sustainable development.

2.1. Defining "Lifelong Learning"

Discussion, definitions and policies for lifelong learning in Canada have emerged largely from the fields of adult and continuing education; however, many different definitions are used in Canadian policy and research documents. The various definitions – and subsequent visions of lifelong learning -- reflect different approaches to learning and different policy environments, for example:

- *Lifelong learning is a continuous process which stimulates and empowers individuals to acquire all the knowledge and skills they will require throughout their lifetimes, and to apply them with confidence and creativity.* (Learning and Literacy Branch of HRDC, 1998)

- *Lifelong learning is a conceptual framework and organizing principle for imagining, planning and implementing reform of the existing education and training systems to enable purposeful and systematic learning opportunities for individuals throughout their lives; to enable individuals to learn wherever, whenever, and in modes appropriate to their learning styles and needs; and to enable use of the total education and training resources (both formal and non-formal sectors) of the nation. It is also a social goal which envisages a learning society in which the pervasive culture values, facilitates and celebrates learning in all forms.* (Office of Learning Technology of HRDC, 1995).

- *Lifelong learning presupposes the development of a learning society, one where active, ongoing learning of a higher order will be embraced.* (APEC - Human Resources Development in Industrial Training, 1997)[23]

In the absence of a formal and widely-recognized definition of lifelong learning, the following elements are common to most definitions:

- the recognition that learning happens in more than the formal education system, i.e., there is formal, non-formal and informal learning;
- the emerging understanding that learning is continuous need over a person's lifetime;
- the knowledge that more than formal learning is needed to cope with change in contemporary society;
- the awareness that a fully lifelong learning organization or society is a preferred future state;
- the recognition that both individuals and their communities, local and global, need to be involved in determining lifelong learning needs;
- the notion that lifelong learning is both a product of and driver for the widespread use of information technologies;
- the concept that both individuals and whole societies benefit from lifelong learning.

[23] Hatton's theory of lifelong learning, presented to the 1997 APEC HURDIT conference, can be found at http://www.apec-hurdit.org/lifelong-learning-book/hatton.html - top

2.2. The Societal Context of Lifelong Learning In Canada

The context for the emerging lifelong learning policy in Canada is characterized by:

- a rich heritage of informal learning through, e.g., public radio and public libraries, and non-formal learning in the workplace, the family and the community;
- an extensive formal education system providing for pre-school through to post-graduate education, and a well-established bureaucracy to support it;
- considerable innovation in learning technologies and distance education, particularly reflective of Canada's immense geography and leadership in telecommunications;
- a pervasive social value on schooling and a concurrent recognition that higher education typically results in financial rewards;
- considerable debate about the future of Canada, both as a political unit and as a social community with a tradition of providing for the least advantaged;
- unavoidable involvement in the global economy and the pressure to remain competitive at all cost;
- the need for new knowledge-based products and services for market.

The need for lifelong or continuous learning in Canada is not, however, any different than anywhere else on the globe. Significant social, political, environmental and economic change has affected all aspects of Canadian life; and there are profound changes in the nature of work, the workforce, family and community life, for example:

- There are fewer jobs in the goods sector -- natural resources, manufacturing and construction, and more jobs in the service sector.
- More and more women are entering the workforce.
- Self-employment, at home or elsewhere, is a growing trend.
- Many Canadians are in need of retraining, as most new jobs created in Canada are short–term.

Learning to deal with these workplace trends requires individual change – changed skills, knowledge and attitudes. The only positive way to deal with externally-imposed change is to learn to deal with it, perhaps to even manage or shape it.

2.3. A Snapshot of Lifelong Learning Opportunities and Participation Rates

Lifelong learning opportunities, particularly formal and non-formal, exist in abundance in Canada. Educational institutions are the main provider of adult education and training activities. In 1993, they accounted for one third (34%) of all providers followed by employers and commercial suppliers who share two fifths of the market each (21% and 20%, respectively).

A survey of partners and interest groups on human resource development in Canada in 1990[24] identified more than 200 principal partners and interest groups involved, in varying degrees, with education, training or the promotion of learning in Canada. Over 40 federal government agencies, departments, crown corporations, boards and councils at that time had either broad or specific interest in learning or training. Over 150 non-governmental organizations (NGOs) were involved in seeking project or core funding for their activities as well as the opportunity to influence government policies and programs. In 1998, this will be considerably higher with the proliferation of private and commercial training agencies and services.

For the many reasons listed above, and others, Canadians are avid lifelong learners. The report Adult Education and Training in Canada (Statistics Canada, 1994)[25] reveals the following.

- In 1993, 5.8 million or 28% of Canadians aged 17 and over participated in adult education or training activities. This represents a one percentage point increase from 1991. On average, Canadian adult learners participated in 1.6 activities or 103 hours per individual.
- The majority of adult learners (71%) participated in job-related education or training. Among these learners, 70% received employer sponsorship.
- Higher education stimulates adults to participate in the learning process. The participation rate for adults with high school education or less was 17% compared to 50% for those with a university degree.
- In general adult learners are not studying to obtain a degree or diploma. They are involved in part-time courses to acquire specific skills. Half of the learning was concentrated in courses concerning management/administration, engineering/applied science technologies, and trades and health professions.

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[24] Reported by Faris (1995), found at http://olt-bta.hrdc-drhc.gc.ca/info/online/part1.html - can

[25] Available in full at http://www.hrdc-drhc.gc.ca/arb/research/rsctoc_e.html

- Statistics Canada reported in 1992 that, when asked, the percentage of Canadians who had read in the previous week, a newspaper - 82.8 %, a magazine - 61.8%, and/or a book - 43.9%.

In a variety of ways, Canadians spend their leisure and work time and resources on learning opportunities.

2.4. Challenges To Change And Barriers To Lifelong Learning

In the development of a lifelong learning culture in Canada, many existing practices must be challenged and changed, particularly but not only in the systems that deliver formal learning opportunities. These changes and challenges, for systems and for individuals, form barriers to the development of a lifelong learning culture in Canada.

The most obvious barrier to implementation of a lifelong learning society is the lack of a formal policy. One of the reasons why Canada does not yet have a formal lifelong learning policy is that it is defined differently by various and competing interests. More importantly, in Canada's system of governmental levels with discrete responsibilities, it is impossible to have a national or federal policy on lifelong education and/or training. And there is no mechanism to create the same lifelong learning policy in each and every province/territory. The solution appears to be a national lifelong learning policy that reflects the needs of individual Canadians as lifelong learners and not the needs of the providers of lifelong learning opportunities.

A second major barrier is the prevailing view of learning as a formal education activity. The existing system of delivering formal learning opportunities is highly entrenched in legislation and custom, and forces with vested interests make change very difficult. The terms "learning" and "education" have been used synonymously until recently; however, clear distinctions are now made between, for example, (1) education, training, and learning; (2) education/training systems and learning systems; (3) formal, non-formal and in-formal learning. These distinctions are important because, for most, the "creation" of lifelong learning culture or society requires:

- de-coupling education/training and learning, with the former being a formal system of provision and the latter being the attributes (acquired or changed levels of skill, knowledge and attitudes) of the recipient, the learner;
- finding means to assess and recognize or valuate all forms of learning, whether they are acquired in formal education/training systems (e.g., publicly- and privately-funded education systems, K-12 through to advanced post-secondary), non-formal training and learning environments (e.g., paid and/or volunteer work, family and community responsibilities), or informal learning environments (e.g., travel, reading).

The concept of lifelong learning essentially changes the focus from the providers and venues of learning opportunity – whether formal, non-formal or informal – to learners themselves. The established formal public education and training system does not welcome this change of focus, as it raises questions about their exclusive right to grant credentials.

A related barrier to the implementation of lifelong learning in Canada is the glacial pace of education reform in Canada. A study by Faris (1994) concluded that Canada lags far behind other developed economies in making the necessary changes to remain competitive in the global knowledge-based economy, i.e., it has yet to establish national education/training goals and objectives, a lifelong learning strategy, or national curriculum and standards. Canada has made rudimentary gains in developing closer links between education and the economy, and in encouraging greater system efficiency through use of learning technologies. Without a national office of education and training, education reforms are piecemeal and highly resisted.

A different set of barriers to lifelong learning exist for learners themselves. A study by the Canadian Association for Adult Education (1982) found that individuals faced considerable obstacles presented by high fees and insufficient personal finances, institutional practices like scheduling and residency requirements, attitudinal barriers like lack of self-confidence, physical and geographic barriers to access, lack of support systems and lack of information. A study by the Women's Reference Group to the Canadian Labour Force Development Board (1994) reinforced these conclusions, grouping barriers around access and entry, finances and other necessary supports, and the quality of the training.[26] The main barriers to job-related training needs reported by employees were the lack of time and money, followed by inconvenient time or location, absence of the desired course or program and lack of employer support.[27]

The societal context for lifelong learning is two-sided: necessity on one side, and opportunity on the other. Both create challenges for Canada. With the emergence of the Knowledge-based Economy, we have begun to understand that learning must keep pace with other societal change, and that appropriate learning opportunities must be provided, together with the necessary supports. The role of a lifelong learning policy and of governments is to (1) remove those barriers to lifelong learning that can be removed; (2) circumvent those which can't be removed; and (3) work to change attitudes that perpetuate barriers.

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[26] The entire inventory of barriers is reproduced in *Gender and Lifelong Learning: Enhancing the Contributions of Women to Small- and Medium-sized Enterprises in Canada for the 21st Century* (Barker, 1998), available at http://www.futured.com/

[27] *Adult Education and Training in Canada* (Statistics Canada, 1994).

2.5. Key Government Policies And Strategies

In Canada, the 13 provincial and territorial governments have jurisdictional responsibility for the formal provision of education and training. The federal government has distinct and different responsibilities; and the promotion of lifelong learning in embedded in strategies and policies related to national human resource development (HRD), social, economic and cultural development. In essence, the federal government acts on behalf of individual Canadians who access various systems and services. Clearly, provincial and federal governmental policies and strategies will be different, but they often partner on initiatives that they can agree to. For example, the Pan-Canadian Indicators Project[28] is a joint federal-provincial initiative to measure the success of parts of Canada's education system.

Canada's federal government can concern itself with "learning" as an individual activity through, e.g., financial supports for post-secondary students and unemployed workers, research related to occupational skill standards, and innovation specific to the knowledge-based economy; and with the provision of informal and non-formal learning through, e.g., public radio and TV, and support to libraries, the electronic telecommunications infrastructure, and industry sectoral councils. The federal government works with the provinces and other partners to *build a stronger Social Union,*[29] and to particularly assist children, workers, persons with disabilities, aboriginal peoples, and seniors to live lives as full participants in Canadian society.

In the context of lifelong learning, HRD and social development, key initiatives are undertaken by Human Resources Development Canada (HRDC). With a stated commitment to promoting human development, the objectives of HRDC are to help Canadians prepare for, find, and keep work; assist Canadians in their efforts to provide security for themselves and their families; promote a fair, safe, healthy, stable, cooperative, and productive work environment that contributes to the social and economic well-being of all Canadians. Within these objectives, and aimed at promoting lifelong learning, HRDC specifically provides the following:

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[28] Information on this and other pan-Canadian education and training initiatives is available at http://www.cmec.ca/

[29] Taken from a key HRDC document, typically alludes to addressing the issues of child poverty, child development, and employment opportunities for disadavantaged and/or equity-seeking groups.

- targeted programs for designated equity-seeking groups: women, visible minorities, aboriginal peoples and persons with disabilities;
- special initiatives for children, e.g., through family literacy initiatives, and youth, e.g., through youth employment strategies;
- considerable research and information specific to employment, occupational and career development;
- a particular focus on literacy and other aspects of lifelong learning to help Canadian adjust to a changing society, and to equip them to participate fully in the knowledge-based economy;
- efforts to promote a strong workplace learning culture, e.g., in partnership with labour organizations, and community-based learning networks;
- initiatives to understand and utilize the Internet and electronic communications to increase learning opportunities and access to information;
- support to youth and adult students to further their education and/or access post-secondary education; and
- research and innovation in the assessment and recognition of prior learning (PLAR), essential skills for knowledge work, and quality assurance in education/training.

HRDC is discussing the development of formal lifelong learning policy to incorporate and reflect it's mission *to enable Canadians to participate fully in the workplace and the community*[30] through an integrated, lifecycle approach to human development, with a particular focus on those at risk. It will implement preventative measures that enable Canadians to identify risks and opportunities earlier, make better choices, contribute to economic growth, and gain access to resources; and community-capacity building and new partnerships.

As a partner in building a culture of lifelong learning, the federal government established the Office of Learning Technologies (OLT) within HRDC to raise awareness about the opportunities, challenges and benefits of technology-based learning and act as a catalyst for innovation in the area of learning and skills development enabled by technologies. The OLT's vision is to*: contribute to the development of a lifelong learning culture in Canada* and its mission is to *work with partners to expand innovative learning opportunities through technologies.* Among its key activities is help to develop policies and strategies to guide the evolution and application of learning technologies in ways that best meet lefelong learning needs.

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[30] From *Making a Difference in Human Development: A Vision for HRDC* (1998), available at http://www.hrdc-drhc.gc.ca/dept/mission/mission.shtml

Another key initiative in support of lifelong learning is the development and promotion of the "Information Highway" by Industry Canada and its partners. Industry Canada assembled an Advisory Council on the Information Highway (IHAC), of which one working group focused on learning and training in the context of electronic and telecommunications.[31] It's vision that lifelong learning become a defining feature of Canadian society has served as a key design element of the Internet or electronic information highway.[32] The report of the Learning and Training Working Group concluded that new technologies increase access to learning systems and support services for learners, regardless of their geographic location, socio-economic status, gender, racial origin or disabling condition; and that electronic communications will enable more cost-effective, productive and relevant education and training through increased opportunities for home-based learning, training options closer to home, training in the workplace, customized training services to industry, just-in-time learning, and school-to-work-to-school transitions. It is expected at global telecommunication systems and information technology will enhance access through international recognition of vocational and academic credentials, data banks for student records and program information, advisory and counseling services, and distance delivery of world-class learning resources.

Industry Canada has subsequently developed many telecommunications-based initiatives in support of lifelong learning, e.g., SchoolNet, the Computers for Schools Program, the National Graduate Register and the Community Access Program.[33] Industry Canada also supports private training enterprise as a growth industry.

Most provincial governments make the distinction between childhood/youth education, post-secondary education, and adult/continuing education, and make provisions for them all. Growing interest in lifelong learning is reflected in emerging policies and long-standing practices that support continuous, non-formal learning in community centres and groups.

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[31] More information is available at http://olt-bta.hrdc-drhc.gc.ca/info/online/highway.html
[32] According to Faris (1995).
[33] Information on all these programs is available at http://www.strategis.ic.gc.ca/

2.6. Key Conceptual Initiatives in Support of Lifelong Learning

2.6.1. New approaches to teaching and learning

Traditional approaches to teaching and learning, as reflected by the formal education system, have set teachers up as experts and students recipients of their wisdom. New approaches to teaching and learning in Canada include, but are not limited to (1) the development of learning organizations and (2) innovative applications of learning technologies.

First, within Canada, businesses and public institutions are exhorted to become learning organizations,[34] and to model lifelong learning by:

- investing in their own future through the education and training of all their people;
- creating opportunities for, and encouraging, all their people in all their functions to fulfil their human potential as employees, members, professionals or students of the organization; as ambassadors of the organization to its customers, clients, audiences and suppliers; as citizens of the wider society in which the organization exists; and as human beings with the needs to realize their own capabilities;
- integrating work and learning, inspires all their people to seek quality, excellence and continuous improvement in both;
- empowering ALL their people to broaden their horizons in harmony with their own preferred learning styles;
- applying up-to-date open and distance delivery technologies appropriately to create broader and more varied learning opportunities;
- learning and relearning constantly in order to remain innovative, inventive, invigorating and in business.

HRDC itself – as evidenced by the 1998 HRDC Mission -- is attempting to become a learning organization in its mission to promote a lifelong learning culture in Canada, leading by example.

Secondly, Canada's extensive telecommunications infrastructure and expertise in education is evidence of new approaches to teaching and learning. Canada has a premier reputation for blending the fields of distance education, learning technologies, and telecommunications – all in aide of lifelong learning, social cohesion, and economic development. Information and resources to apply learning technologies in support of lifelong learning are available from, e.g., the Office of

[34] The principles of the learning organization as enunciated at the First Global Conference on Lifelong Learning, in December, 1994 in Rome.

Learning Technologies,[35] the Knowledge Connection Corporation,[36] and Industry Canada[37] in general, and the IHAC report[38] and Technology-based Training in the Workforce[39] in particular.

2.6.2. New approaches to the assessment and recognition of learning

Traditional approaches to assessment of learning have been post-teaching and norm-based; traditional recognition of learning has been credits and credentials from formal education providers and certifying bodies. New approaches to the assessment and recognition of learning are reflected in the development of Prior Learning Assessment and Recognition (PLAR) and the Skills and Knowledge Profile (SKP), work led at the national level by the Canadian Labour Force Development Board (CLFDB)[40] and FuturEd.

In Canada PLA/PLAR is being promoted, by the CLFDB and others, as a means by which to improve education/training, support lifelong learning, and increase access to employment. PLAR is defined as a process of identifying and recognizing what a person knows and can do; the emphasis is on learning rather than experience, and all learning is valued. PLAR is being developed, largely within post-secondary education, all across Canada. The CLFDB has undertaken substantial work leading to a stated PLAR policy and national implementation strategy, recommended national quality standards, and a method of quality assurance.[41] The intention is to ensure that Canada's workforce development system in general, and PLAR processes and practices in particular, are effective, efficient and equitable. The CLFDB has identified six public policy objectives that quality PLAR practices and services can positively address: the efficient use of resources, the development of a lifelong learning culture, the advancement of social justice, co-ordinated and coherent labour force development, education and training reform, and the management of change.

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[35] Home page is at http://olt-bta.hrdc-drhc.gc.ca/
[36] Information on *The Lifelong Learning on the Information Highway Series* is available at http://www.kcc.ca/project/library/p1004.html
[37] Home page is at strategis.ic.gc.ca
[38] Located at http://strategis.ic.gc.ca/SSG/
[39] Available at http://www.strategis.ic.gc.ca/cgi-bin/
[40] General information is available at http://www.clfdb.ca/
[41] Information is available at http://www.plar.com/

Work on PLAR has led to preliminary work on a learning record called a Skills and Knowledge Profile (SKP). The CLFDB Working Group has defined the Skills and Knowledge Profile (SKP) as a tool by which an individual can express his/her formal and non-formal learning in a standardized and credible manner to a wide variety of stakeholders for personal, economic and education/training development. Hypothetically, the systematic application of a such an SKP can increase educational productivity, enhance economic productivity and resource utilization, and enable individuals to maintain balance and a sense of self in turbulent times. In speculating about this hypothesis, and creating recommended SKP quality standards, the Working Group and FuturEd concluded that a learning record can be a mechanism by which individuals inventory or catalogue their acquired learning for purposes of skill upgrading, credential acquisition, and lifelong learning. An SKP may be a means by which to account for lifelong learning, translating the individual's learning achievements from, for example, a workshop, a good book, or a university course into a list of skills and knowledge that can be continuously added to. It can become a tool to promote transitions from school to work to school to work throughout a lifetime. The development of a learning record is related to innovations in human resources accounting and human capital management,[42] part of the new approaches to management of learning discussed below.

2.6.3. New approaches to the management of learning

Traditional approaches to the management of learning have focused on the provision of education and training as preparation for life and work. New approaches to the management of ongoing learning include, but are not limited to such diverse initiatives as (1) macro-management of labour exchange and labour market planning, particularly in electronic form, (2) gender-based analysis, (3) a lifecycle or key life transitions approach to learning, and (4) human resources accounting.

First, considerable research and innovation has been directed at efforts to manage labour exchange, improve labour market planning and enhance labour force efficiency through the management of human resources. Specifically, this mean better understanding the requirement of jobs, the skill banks and proficiencies of potential workers, and matching processes such as the Electronic Labour Exchange[43] where employers and employees can be matched up via the Internet. There are increasingly vast amounts of critical and timely information by which individuals can identify their own skills gaps, work and training opportunities to fill those gaps, and efficient uses of their lifelong learning resources.

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[42] For more information see Miller (1996).
[43] Canada's Electronic Labour Exchange is found at http://www.ele-spe.org/

A second important, but totally different, initiative in support of lifelong learning is a move towards gender-based policy analysis. All aspects of lifelong learning – identified needs and barriers, opportunities and incentives – need to be assessed with gender in mind. Canada's federal office of the Status of Women Canada has provided an exemplary model by which to ensure, through its Gender-Based Analysis model,[44] that women and men are treated equitably but differently in the design and delivery of lifelong learning opportunities and supports.

A third innovation in the management of learning is growing interest in implementing lifelong learning according to a life cycle or key life transitions model. Among other things, this puts the focus on the learner rather than on the provider of learning opportunity, and allows for coherent intervention strategies. Considerable study of done in this area by the Strategic Policy branch of HRDC.[45] Two of the visions of lifelong learning incorporate this thinking about the timing and the nature of lifelong learning requirements.

The fourth, but no means last, innovation is human capital accounting. It has been recognized that investment in human resources, or non-tangible assets, is crucial to productivity, growth, and individual participation in the knowledge-based economy. Within the context of lifelong learning, HRD experts have recommended the following public policy priorities:[46] providing basic skills education; supporting efficient human capital markets through information, counseling, and standard-setting; promoting linkages within the education sector, between that sector, labour markets, and industry technology diffusion policies; and addressing inequitable access. They conclude that the focus for human resource development policies should be to ensure basic skill foundation is strong, to provide infrastructure, and to ensure that workers and employers *get the financial incentives right.* It is this last point that generates controversy and innovation, i.e., an effort to understand and use financial incentives for lifelong learning.

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[44] Available at http://www.swc-cfc.gc.ca/publish/gbabro-e.html

[45] Studies are available at http://www.hrdc-drhc.gc.ca/arb/publish/bulletin/contents.html

[46] Taken from *Priorities for Government* at http://www.hrdc-drhc.gc.ca/stratpol/arb/research/change/prior_e.html

2.6.4. Learning requirements of the knowledge-based economy

Learning requirements for Canada's industrial- and resource-based economy are different from those required for the post-industrial knowledge-based economy. Increasingly, Canadians are aware that our formal education and training systems do a good job of preparing individuals for an industrial-based economy/society that no longer exists, and do an inadequate job of preparing individuals for the knowledge-based economy; and the current forms of recognition of learning – credits and credentials – may be meaningless in both a lifelong learning culture and a knowledge-based economy. To resolve this, considerable effort is being put into understanding the new learning requirements:

- essential or foundational skills, i.e., literacy, numeracy, communications;[47]
- critical and generic employability skills such as academic, personal management and teamwork skills[48] identified by the Conference Board of Canada;
- science literacy for the world of work, e.g., basic uses of science, technology and mathematics[49] identified by the Conference Board of Canada;
- occupational skill requirements for various jobs, i.e., Canada's National Occupational Classification system continuously updated by HRDC;
- labour market information (LMI) such as career possibilities and career development tools, through, e.g., WorkInfoNet[50] and Job Futures;[51]
- competencies of highly-skilled workers in the IT industry;[52]
- a conceptualization of the skills and knowledge required of Knowledge Workers.[53]

All of these efforts serve to target training and skills upgrading for individuals and industries, specify education and training outcomes for providers, and make lifelong learning resource expenditures more effective and efficient.

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47 HRDC Essential Skills Research Project at http://www.hrdc-drhc.gc.ca/
48 From the Conference Board of Canada: http://www2.conferenceboard.ca/nbec/pdf/emskill.pdf
49 From the Conference Board of Canada: http://www2.conferenceboard.ca/nbec/pdf/literacy.pdf
50 LMI information is available from WorkInfoNet at http://www.workinfonet.ca/cwn/english/main.html
51 Job Futures is located at http://www.hrdc-drhc.gc.ca/JobFutures/english/index.html
52 *Survey on Human Resource Issues in the Information Technology Industry*, available at http://www.strategis.ic.gc.ca/SSG/it04514e.html - E10E1
53 *Skill Profiles for Higher Skill Level Occupations*. (Barker, 1997)

2.6.5. Quality assurance in lifelong learning

Not surprisingly, with all the lifelong learning initiatives and opportunities, the issue of quality assurance has surfaced and been addressed to some degree. The following learning-related quality assurance measures are in place.

- Recommended national training standards, developed by the CLFDB (1995), describe all the elements of quality career and professional training programs and services from a consumer's point of view.[54] Recommended national quality standards for PLAR[55] and for LMI[56] have also been developed by the CLFDB and its labour market partners.
- CanLearn Interactive, an omnibus education and training web site, will house a number of consumer's guides to learning products and services that are being developed by FuturEd.[57]
- Industry Canada and its partners have developed guidelines for learning software, or "learnware."

As the cost of lifelong learning opportunities rise, there is a greater demand for accountability and return-on-investment.

2.7. Visions Of A Preferred Future For Lifelong Learning

There are many, many different views of a preferred future for lifelong learning, but they seldom contradict each other. They are simply created from different perspectives.

One vision of a preferred future for lifelong learning is based on the concept of developing and maximizing human potential and human resources within the context of economic and social development. Human Resources Development Canada (HRDC), Canada's largest federal department, has this responsibility; and it has begun to articulate it's view of lifelong learning within its Vision Statement.[58] In the context of enabling Canadians to participate fully in the workplace and the community and to manage transitions in their lives, HRDC views lifelong learning as a measure that helps Canadians *to identify risks and opportunities earlier, make better choices, contribute to economic growth and gain access to the right government and community resources*. To promote lifelong learning and other preventative measures, HRDC plans to take a leadership role, forge partnerships and build community capacity. HRDC and others in Canada

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[54] The national training standards are at http://www.clfdb.ca/english/library/train_e.pdf
[55] PLAR quality standards are found at http://www.plar.com/about_plar/what_should_it_look_like.html
[56] Information available at http://www.clfdb.ca/english/library/lmi-eng.pdf
[57] The *Consumer's Guide to Training* is currently at http://www.futured.com/
[58] Available at http://www.hrdc-drhc.gc.ca/dept/mission/mission.shtml

would like to achieve a "lifelong learning society" in which all citizens have (1) equitable access to lifelong learning opportunities that are effective and efficient, and (2) the preparation and propensity to be self-motivated or self-directed learners. The achievement of this vision would see that all Canadians – from those in need of basic skills to those making advances in knowledge work – would have the preparation for and access to appropriate lifelong learning to maximize their human resources potential.

A second vision of a preferred future for lifelong learning is based on the concept of developing and maximizing applications of technology to improve access to information and to lifelong learning. This is the purview largely of Industry Canada (IC), the federal ministry responsible for business development in general and the high tech sector in particular. It convened an Information Highway Advisory Council, of which the Learning and Training Working Group's vision[59] suggested that Canada needs to provide all Canadians with access to the widest possible variety of learning opportunities so that they succeed in the rapidly changing knowledge economy. The concluded that, to reach this goal, Canada must realize the full learning and training potential of the Information Highway. In their vision of a preferred future, the emphasis would be on a Canada that embraces learning as a central feature of its national identity, on the provision of learning opportunities for every Canadian, and on making available a wide variety of different learning techniques, as well as subject matter, geared to the individual learner. The Working Group was convinced that providing the widest possible variety of learning opportunities to Canadians of all ages would revolutionize lifelong learning in Canada. They asserted that learning and training should be a major focus for applications developed on the Information Highway, and that public and corporate policy was needed to create, reinforce and implement these applications.

A third vision of lifelong learning is based on the perceived benefits of lifelong learning to all individuals and the need for grass-roots implementation. Advocates for lifelong learning as members of the Canadian Link to Lifelong Learning (CLLL) have as a vision statement: *lifelong learning is an integral part of every Canadian's life*. At the 1996 Lyceum of the CLLL,[60] proponents of lifelong learning concluded that a national advocate for lifelong was required, and

[59] Available in full at http://csg.uwaterloo.ca/~industry/part-2e.htm
[60] More information is found at http://www.connect.ab.ca/~tllink/strategy.htm

they called for the development of a national strategy for lifelong learning. They noted that increasing numbers of individuals, professionals, business leaders, union officials, interest groups, communities, agencies, governments and non-for profit organizations have come to understand that their survival is dependent upon continuous learning; that an investment of energy, time and financial resources in lifelong learning is essential; and that the return on the investment is protection, preservation and prosperity within and for themselves, their interest group and the broader society. In their vision, *learning in the 21st century will be a continuous affair, valued and recognized as such. The shift in focus from teaching to learning will be completed and the emphasis on learners and learning organizations sharpened. Shepherded and supported by lifelong learning champions and working collaboratively, the learning system required for societal preservation, protection and prosperity will be in place.*[61]

A fourth vision of lifelong learning is based on the timing of lifelong learning interventions. With lifelong learning as an organizing principle and social goal, Faris and others have proposed a vision of lifelong learning as a conceptual framework in which opportunities and necessary supports are provided throughout one's life span. Elements of this vision include the development and promotion of learning organizations, i.e., human collectivities in which the lifelong learning of its members is systematically appreciated, encouraged, invested in, and used as a central corporate strategy. The overall goal, or vision, is to prepare Canadians for the information-based global economy of the 21st century by ensuring that they possess the skills, knowledge, attitudes and values needed to participate fully and productively in the nation's social, cultural and economic development. It is recommended, by Faris (1997), that this be achieved through the following four strategies at key intervention points: preschool children, youth in the formal education system, adults, and seniors. The kinds of supports that would be required for this provision of lifelong learning would include social supports to enhance readiness to learn for children and to enable adults to access learning as they needed to.

A final vision of a preferred future for lifelong learning is of a radically transformed learning environment – one in which all elements of the traditional education and training system have been changed and integrated into a much larger learning environment. Some characteristics of this radically transformed learning system, identified by Barker (1996) are that it would be:

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[61] Excerpted from Building a National Strategy for Lifelong Learning at http://www.connect.ab.ca/~tllink/strategy.htm

1. a holistic and integrated system of inputs and resources, processes and practices, outputs and outcomes, with feedback loops and accountability mechanisms – rather than the fragmented elements that currently exist;
2. an open system, responding to the feedback loop and integrated with the external environment – rather than the existing closed "system;"
3. individualized, using current knowledge of how people learn and enabling technologies – rather than bureaucratic;
4. responsive to emerging and changing learning demands – rather prescriptive about what needs to be learned;
5. cyclical, with continuous and open entrance and exit – rather than linear, age-based and time-based;
6. learner-enabling, i.e., ensuring that all learners are successful to the degree that they can be – rather than learner-screening;
7. a global concern, taking into account the elements of global citizenship and international work opportunities – in addition to being a local concern;
8. promoting change – rather than maintaining the status quo;
9. teaching by modeling and facilitating – rather than by direct instruction;
10. an industry that demonstrates effectiveness, efficiency, innovation and accountability – rather than a costly, labour-intensive social agency;
11. consumer-oriented – rather than provider-based, self-serving decision-making;
12. learning-focused – rather than credential or completion focused.

Hence, a lifelong learning culture, as set out by Gallagher (1995), exists in a society that:

- supports people, young and older, to be continuously engaged in learning, both structured and unstructured;
- encourages and enables citizens to assume responsibility for their own learning;
- values educational and training institutions acting as co-operating components of a nation-wide learning network; and
- targets its limited resources for learning to those in greatest need of those resources

The kinds of supports that would be required for this provision of lifelong learning, identified by FuturEd, would include but not be restricted to equitable access to learning opportunities; assurance of quality learning opportunities; preparation for learning (acquisition of learning skills); accurate, current and accessible information about learning opportunities; accurate,

current and accessible information about learning requirements; tools for assessing learning and making learning plans; means of assessing and recognizing all forms of learning; motivation for the acquisition of new skills and knowledge; and incentives for continuous learning.

For futurists, lifelong learning is critical to sustaining human existence and to preventing further environmental and social disintegration. Indeed, leaders in HRD and lifelong learning have a special responsibility for the future – providing environments in which others can learn the changing skills and knowledge required for the future while managing to change and model lifelong learning themselves.

3. HRD FOR REGIONAL ECONOMIC DEVELOPMENT AND KNOWLEDGE-BASED INDUSTRIES

Canada is a large country, divided roughly into five regions. Resource extraction – lumber, oil, fish, grain, minerals -- has been the primary industry in four of the five; manufacturing has predominated in only one. For a variety of reasons, there are pronounced regional disparities[62] in terms of many measures: per capita income, level of education, new economic development. Some efforts at lessening the disparities have, therefore, focused on industrial adjustment strategies and labour force development for new knowledge-based industries and for SMEs.[63]

To address this on the regional level, HRDC has initiated, among other things, the Local Labour Market Partnership. Human Resource Centres of Canada (HRCCs) work with community partners to assess community development goals, the needs of unemployed individuals and the community's capacity to create employment opportunities and stimulate economic growth. The planning process encourages all levels of government, employers and community organizations to take responsibility for assessing the challenges and developing the solutions. The Local Labour Market Partnerships (LLMPs) support measure provides HRCCs with the capacity to work with employers (company level), employee or employer associations, community organizations and others to consider innovative strategies to build employment. It also provides a capacity to address human resources issues in both upside and downside adjustment situations.

Regional economic development activities are organized throughout Canada by separate, regional based agencies. The Atlantic Canada Opportunities Agency, an arm of the federal government, coordinates many programs and services, as does, e.g., the Western Diversification Fund in western Canada. Regional economic development activities are varied, and some common growth industries are tourism and food processing. Initiatives aimed at regional economic development are premised on, but not limited to the following five realizations:

1. new, knowledge-based industries are needed to replace the collapsing resource-based industries such as fishing and forestry;

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[62] *Regional Disparities in Canada: Characterization, Trends and Lessons for Economic Policy* at http://www.strategis.ic.gc.ca/SSG/ra01580e.html

[63] Many examples are listed at http://www.198.103.247.24/edd/edd_brief.brief_index.

2. training and lifelong learning are key to positive, long-term change for human resources development, economic diversification, and community sustainability;
3. economic and social development opportunities are presented by information and telecommunications technologies;
4. small- and medium-sized enterprise is a logical and preferred alternative for business development in most communities, and particularly in rural and remote communities;
5. new industries and initiatives must contribute to sustainable development.

The importance of SMEs and lifelong learning have been set out already in this paper; therefore, this section focuses on HRD for knowledge-based and/or IT industries, and sustainable development in regional economic development. The following examples Atlantic Canada[64] - one region - are illustrative rather than all-inclusive.

The concept of knowledge-based economic development incorporates (1) the nature of knowledge-based industries and the necessary infrastructure; (2) the role of information technologies (IT) and telecommunications infrastructure; and (3) the necessity for sustainable community and economic development. In Atlantic Canada, there is growing recognition that a sustainable economy is one that gives its people - both now and in the future - a high quality of life as measured by objectives such as secure and improving incomes, job opportunities, social and political stability, education, health and a clean environment. It promotes human welfare through the integration of economic, environmental and social objectives and the balanced consideration of the needs of present and future generations. Central to this integration and longer-term perspective is knowledge.[65]

3.1. The Knowledge-based Economy in Atlantic Canada

In order to achieve economic growth and prosperity, like many other industrialized nations, Canadians in Atlantic Canada are focusing economic development on the generation and use of knowledge. They recognize that the firms that will be the most successful in this new economy

[64] Atlantic Canada, made up of two island provinces (Prince Edward Island and Newfoundland / Labrador) and two coastal provinces (New Brunswick and Nova Scotia), has been selected for this paper because it may have most in common with the Okinawa Prefecture in terms of (1) resources, (2) geographic proximity to the industrial and governmental center, and (3) and economic development challenges.

[65] Taken from the Industry Canada Sustainable Development Strategy.

are those that continuously create, acquire and apply knowledge. The following are three initiatives to develop the knowledge-based economy in Atlantic Canada.

- Under the Knowledge Economy Partnership (KEP), the federal government and province of Prince Edward Island (PEI) have committed to establishing a world-class environment for the cultivation of knowledge workers and knowledge industries. Knowledge workers are highly-skilled individuals who, as defined by the Atlantic Provinces Economic Council, *produce information technology products, provide communications and processing infrastructure or process information/research into knowledge products and services.* To address a recognized shortage of knowledge worker skills in the PEI labour force, the federal and provincial governments, in collaboration with the private sector, have launched a Knowledge Worker Demand initiative. The initiative involves two phases, the first being to conduct a Knowledge Worker Demand Survey (KWDS) which will be used to produce a three-year forecast of the demand for knowledge workers. The second phase will see the development of knowledge worker supply strategies that address the growing demand. As set out by the World Bank Knowledge Assessment process, the objectives are to determine the current number of qualified knowledge workers with information technology skills in the PEI labour force; to determine the demand for public (federal and provincial) and private sector knowledge workers on PEI over the next three years; and based on the survey results, propose an appropriate strategy for Island-wide knowledge worker development and training. Knowledge worker demand will be assessed by surveying public and private sector organizations to determine the kinds and numbers of knowledge workers needed. The Information Technologies Association of PEI will take responsibility for survey coordination within the private sector. Tools have been developed to assist organizations in determining the ideal survey participants, to orientate survey participants to the knowledge economy and the characteristics of knowledge work, and to solicit and analyse knowledge worker demand information. The results of the demand survey will form the basis for development of both short- and long-term supply strategies to meet the growing need for knowledge workers in PEI.

- According to experts at the Memorial University of Newfoundland, the export of knowledge-based services has particular appeal in islands and peripheral areas like Prince Edward Island, Newfoundland and Labrador, Iceland and the Isle of Man because it combines high value with low export cost. A study of the Export of Knowledge- Based Services was initiated in November, 1996, with funding from public and private sources and is part of the

North Atlantic Islands Program.[66] Through an analysis of the international knowledge-based services sector and nearly 40 case studies of service export initiatives in four North Atlantic jurisdictions, the authors of this report identify the most important ingredients of successful exporting and how government, industry associations and financial institutions can support the growth of service exports in the regions studied. *The study identifies the most important elements to the successful exporting of services as:*

- *making a long-term commitment, recognizing that export activity requires a substantial investment of time (usually 1-3 years) and resources (time of key personnel and cash- usually tens of thousands of dollars) before realizing any returns;*
- *developing a flexible strategic export plan capable of adjusting to the rapidly changing technologies and demands of the knowledge-based sector;*
- *investing in skills development and undertaking initiatives to retain professional staff. (The business is dependent on the individual capabilities of its staff or the staff of partner firms.);*
- *investigating potential markets and understanding local customs prior to initiating export activity;*
- *utilizing information from local contacts (in the foreign market) when developing export strategies;*
- *developing affiliations with appropriate, respected local partners to decrease up-front investment costs and increase export opportunities. (Good partners can enhance a firm's image and accessibility to potential clients who might otherwise be concerned about working with an unknown entity. They can also help your firm adapt to the local market and alert the firm to the possibility of additional work.);*
- *focusing on key export markets, as it is more valuable to be an expert in a few markets than to only be familiar with many; and*
- *producing high-quality work, as reputation is everything in international work.*

Governments need to increase their support of service export activity. Specifically, they should promote export activity in the following ways:

[66] *Small Places, Big Ideas: Exporting Knowledge-Based Services from the Atlantic Periphery* is available at http://www.mun.ca/cibs/EKBS/ekbs1.html

- *increase awareness of the knowledge-based sector by acting as a mechanism for information collection and dissemination;*
- *facilitate communication and knowledge transfer by introducing or revising customs and immigration regulations to ease staff transfers between countries;*
- *continually educate staff about the characteristics and nature of the services sector and the export of knowledge-based services. (Many public servants have been trained to deal with the export of goods but are unfamiliar with services and their export.);*
- *decentralize decision-making so that staff members have the flexibility to personalize programs for individual exporters. ("One-size-fits-all" policies are particularly ineffective with the export of knowledge-based services.);*
- *avoid creating unfair competition within domestic markets through targeted financial subsidies which are not available to all firms within that sector;*
- *enhance development of the services sector through contracting out and privatization; and*
- *help firms to overcome difficulties in accessing finances necessary to undertake export work.*

The study has additional recommendations for industry and professional associations, and for financial institutions. The report's broad conclusion is that island firms which are committed to the export of their knowledge-based services can be very successful in the lucrative international services market. In addition, the report concludes that there is ample opportunity for profitable inter-island cooperation among island firms and governments. This report predicts a very bright future for the export of knowledge-based services in the North Atlantic Islands.

- A third initiative was a study[67] of the prospects for knowledge-based industrial cluster development in six industrial domains in Atlantic Canada: the information highway, geomatics, aquaculture, ocean technology in Newfoundland, medical devices / services in Nova Scotia, and food processing in New Brunswick and PEI. Knowledge-based industrial clusters are regional or urban concentrations of firms supported by a technical and socio-economic infrastructure made up of universities/colleges, financing/business institutions, and advanced

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[67] *Prospects for Growing Knowledge-Based Industrial Clusters in Atlantic Canada* is available at http://www.acoa.ca/english/news/reports/info_frame_pofg.html

communications/transportation systems. The characteristics of this clustering are set out, together with a snapshot of current clustering, and a strategy to stimulate industrial clustering. *The four point strategy is as follows:*

- *all levels of government should stimulate the development of linkages among the key players in individual clusters. This means their programs and activities should be aimed at the formation of alliances among firms, and between firms and technical and business support institutions.*
- *upgrade management skills by training entrepreneurs, managers and staff of existing firms; attracting seasoned managers and mentor to be retained by existing firms; and providing management services on a contractual basis.*
- *bridge the skills people gap by identifying the human resource needs of each sector in order to put in motion those education and training programs needed; recruiting specialists; contracting-out around the world; attracting Atlantic Canadians working elsewhere; and through strategic alliances between firms.*
- *attracting external investment by working closely with Foreign Affairs and International Trade Canada, and Investment Partnerships Canada to develop appropriate approaches and activities*

3.2. Training for the Knowledge-based Economy

From the three knowledge-economy initiatives, it is clear that a training and lifelong culture is critical to knowledge-based industries and to regional economic development. A large number of reports have linked prosperity and competitiveness to the issue of learning,[68] indicating that the development of a well-educated, skilled and adaptable work force is essential to economic development. Training appears to be a profitable investment. A positive correlation was found between per capita training expenditures and return on investment. Several major firms – large and small -- have identified training as the key to enhancing their competitive advantage. The challenge, then, is to build a system of lifelong learning that provides all Canadians with relevant skills.

[68] E.g., *Focus on Competencies: Training and Development Practices, Expenditures and Trends* at www2.conferenceboard.ca/press/prev/1997/177-96.htm

Broadly speaking, in Atlantic Canada the following are areas of concern to training: large numbers of high school drop-outs; an aging workforce; high rates of unemployment; skills shifts within occupations; and inadequate skills training. The training challenges which result from these concerns include the following: to improve the level of basic education; to keep employed workers updated; to create life-long learning systems which suit part-lime adult learners, who have family and work obligations; provide opportunities for people with limited or interrupted work experience; provide the workforce with skills that are portable between different companies and occupations; and which take into account the learning styles and needs of older workers, of younger workers, of women and of a culturally and linguistically-diverse society; and to allow access to training where and when it is needed.

Much of the training infrastructure exists, and more is continually added with commercial training ventures and Internet offerings increasing in number. Again, quality assurance and equitable access are the key lifelong learning issues.

3.3. The Role of Information Technology

The role of IT vis-à-vis lifelong learning and regional economic development is two-fold: as an emerging knowledge-based industry itself, and as a critical factor in the development of other knowledge-based industries. Having studied the desired attributes of highly-skilled workers[69] (postive attitude, willingness to learn, possession of technical knowledge, ability to work with others, ability to work independently, creativity, communication skills, and strong business skills) and having identified the human resource issues in the IT industry,[70] efforts are under way in Atlantic Canada to both develop IT industries and train IT workers for them.[71] IT has become both a focus for lifelong learning and a means of providing lifelong learning; both an SME opportunity and a tool for SMEs.

Economic development priorities differ from region to region in Canada, but high-growth sectors are a priority for most government policies and programs. The IT sector – including the related areas of science, engineering, and technical trades − is a priority because technology is substantially changing the workplace, and because the IT industry is a high employment-creation and profitability sector.

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[69] Available at strategis.ic.gc.ca/SSG/it04510e.html - E10E4

[70] *Survey on Human Resource Issues in the Information Technology Industry*, available at http://www.strategis.ic.gc.ca/SSG/it04514e.html - E10E1

[71] For example, *Information Technology: Closing the Gap in Newfoundland and Labrador*, available at http://www.online.nf.ca/people/report.htm

3.4. Sustainable Development

Having watched their industrial resource bases – fisheries, mines and forests – being depleted, many people in Atlantic Canada are determined new industries be sustainable. Canada places considerable emphasis on sustainable development (SD), e.g., working to:

- develop measures for SD, e.g., Environment Canada's ongoing indicator work, and the "human and ecosystem well-being" approach of the National Round Table on the Environment and the Economy;[72]
- understand SD concepts, measures, market and policy failures at the open economy, industry and firm levels, and links to environmental economics;[73]
- implement a national SD strategy, *Industry Canada Sustainable Development Strategy 1997*[74] that sets out the global challenge, the Canadian context, and a strategy that includes the marketplace climate, innovation, trade and investment, and stewardship and management components.

In Atlantic Canada, the knowledge-based economy provides significant opportunities for sustainable development. Industry Canada notes that effective application of knowledge has the potential to enable new products to be developed in an environmentally sound manner. The use of knowledge produces few of the by-products and little of the waste associated with material factors of production. Knowledge-based industries free up natural resources and contribute to sustainable development. Many of the sectors which have been experiencing rapid growth in both output and employment are knowledge-intensive. The majority of these sectors, including information and environmental technologies, aerospace, pharmaceuticals, and education, offer important enabling effects that can contribute to sustainable development.

Taking advantage of the opportunities of the knowledge-based economy in advancing sustainable development will be challenging. It will require the continuous upgrading of the understanding of how key economic factors - including a healthy marketplace climate,

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[72] Information at http://www.strategis.ic.gc.ca/SSG/ra01575e.html
[73] Information at http://www.strategis.ic.gc.ca/SSG/ra01574e.html
[74] Located at http://www.strategis.ic.gc.ca/SSG/sd00050e.html

innovation, trade and investment - can support a knowledge-based, sustainable economy. A greater understanding of these relationships can lead to more effective ways to use knowledge to advance sustainable development. In conclusion, regional economic development is tied closely to initiatives to support lifelong learning and SMEs in the knowledge-based economy.

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