

INFORMATION TECHNOLOGY SKILLS GAP:



ITI's Team, bottom row, left to right: Robbie Spencer, 23, NF; Julie Pike, 26, NS; and Giles Counsel!, NB. Top row, left to right all from Newfoundland: Ted Motty, Harvey Dawe, 29, and Shawna Leonard.
Photo by Carol Johnstone.

Brass Ring or Gold Collar for Atlantic Canadians?

You've read the headlines: "Software firms forced to import workers - Industry members say government, business must close skills gap that will leave up to 12,000 jobs vacant in '97" (*Globe and Mail*, March 20, 1997). Figures quoted in a recent *MacLean's* article (April 21) say that 30,000 IT positions are going begging.

What's going on, when we have so many unemployed at home? In its March 1997 report, Stats Can says that 9.3% (that's about 1.4 million people) are unemployed in Canada as a whole, with higher percentages in the Atlantic provinces - 18.7% in Newfoundland, 13.6% in New Brunswick, 12.8% in Nova Scotia, and 16% in Prince Edward Island (for a total of about 161,200 people).

Are Canadians trained in the information technology fields leaving for greener pastures in America? What are the opportunities? How do salaries compare? What are the intellectual challenges? Does America really have a more attractive lifestyle?

The Interactive Computer Revolution

The problem is akin to the changes that happened during the industrial revolution, when workers had to learn new skills to fit an urban manufacturing-based economy from a more rural agriculturally-based economy. The switch now is from a manufacturing/resource-based economy to a service/knowledge-based economy, which requires a higher level of education, a different mind set, and in-depth knowledge of how computers work.

Information technology is not just programming, networking, analyzing, and administering computer networks. It's also knowing how to use computers to design and make special effects in movies, diagnose or test a patient in hospital, or lay out a newspaper or magazine. Almost any job these days requires some computer expertise, and almost any industry requires an expert user or programmer, either employed full-time or hired on a contract basis.

The number of jobs created for Atlantic Canadians with a university degree tripled from 62,000 between 1976 and 1985 to 232,000 between 1986 and 1995, while 140,000 jobs were eliminated since 1986 for those holding only a high school diploma, according to Atlantic Provinces Economic Council (APEC) in its December 1996 *Report Card*. APEC also says that only one in six Atlantic Canadians aged 16 to 25 have attained the level of skills and literacy required to fulfill many of the emerging jobs.

Executive director of NovaKnowledge (an association promoting the growth of the knowledge-based economy), Kay Crinean, said that it is important that educational institutions, government, and business get together to rectify this situation - put more computers in schools at lower educational levels and involve business in creating curricu-

lums designed to train students for the new jobs.

In Atlantic Canada in the 1995-96 school year, there were about 1,670 full-time and 1,850 part-time students enrolled in a computer science program at either the B.A. (or professional), Master's, or Doctoral levels, with New Brunswick leading with 765 full-time students, followed by Nova Scotia with 692, and Newfoundland with 212. Prince Edward Island appears not to have had a separate degree program in computer science at that time, according to Stats Can.

Recruiting Trained Employees

Many articles and studies in recent days have talked about the difficulty high-tech companies have in finding qualified employees. For example, in a March 1997 report released by NovaKnowledge, 29 Nova Scotia-based companies - drawn from a base of 220 IT industries - said they collectively expect to recruit 337 people over the next three years, 246 (73%) from Nova Scotia and 91 (27%) from elsewhere. However, 75% of the respondents expected to have some form of difficulty finding the people they needed.

Kay Crinean says the situation is not all that simple. She says that Maritime employers vary considerably in the level of sophistication used in recruiting employees compared to US companies, and that they are often not willing to pay as high a salary as their US counterparts.

Some companies are also requiring 5 to 10 years on-the-job experience, according to the NovaKnowledge Survey.

The Brain Drain

Everyone interviewed, from government functionaries to school administrators, to students, to information technology study groups, say there is a brain drain going on in Canada as a whole, while not supplying actual numbers. The problem at the moment, seems to be particular to southern Ontario, where most of the large high-tech firms are located.

There are currently 190,000 IT jobs vacant in the United States according to the Information Technology Association of America. Bill Petrie, president of the Information Technology Association of Canada (ITAC), based in Ontario, said that at a recent Job Fair held at the University of Waterloo, about 100 US companies with teams of lawyers showed up to aggressively recruit Canadian computer graduates. *MacLeans* quotes Robyn Gordon, communications director of the Software Human Resource Council, as saying he has heard rumours that US companies are offering sign-up bonuses as high as \$50,000 US to Canadian graduating students.

Many IT students are using the Internet to look for jobs. US-based companies are generally way ahead of their Canadian counterparts in providing easy access. For example, in mid-April, Netscape (known for its web browser) had 33 pages of job vacancies containing 136 positions, with job descriptions and a fax number or a link where you could send a resume over the web directly to a recruiter. In Canada, job postings are more commonly set up by Human Resources Development Canada (HRDC), through web pages connecting job seekers with recruiters, like the National Graduate Register (<http://ngr.schoolnet.ca>).

What Atlantic Canadian Information Technology Students Have to Say

In Atlantic Canada, most students interviewed at two educational institutions in Halifax said they really would rather stay in their home province with a well-paying, challenging job, than move either to upper Canada or to the United States. Below are some comments taken from a random sampling at the

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OVER 130 CAREER TRAINING CENTRES NATIONWIDE

Information Technology Institute (ITI) and the IT campus of the Nova Scotia Community College system (NSCC).

ITI in Halifax

At ITI in Halifax, *Atlantic LifeStyle Business* interrupted a team training module - six students huddled around a few computers working out a hypothetical network problem - to ask a few questions about working in the US.

Robbie Spencer, 23, said "opportunities seem to be more plentiful there [in the United States], In Canada, the Mecca is Ottawa, and I don't want to go there." He'd much rather stay in Atlantic Canada and get a job as either a programmer or software developer, using skills yet to be learned in Access and Oracle (two high-level programming languages), supplementing knowledge gained from a B.A. in Economics at Memorial University of Newfoundland.

Julie Pike, 23 from Nova Scotia, said "my first priority is Atlantic Canada," though if she had to move to get a better paying job, she'd like to go to Florida.

Harvey Dawe, 29, said definitively, "I'm going back to Newfoundland. I like the lifestyle, and the opportunities [there] are growing day to day."

About going to work in the United States, Dawe said, "I've spent a lot of time down there . . . and all the Americans talk about is how it's the land of opportunity, but at about 6 p.m., the land of opportunity closes down." He said that when he walks down Spring Garden Road in Halifax at night he

would they move to the United States, all the students were very clear: "opportunity and money."

Chairman of ITI, Pat Bewers, said that about 70% of ITI graduates find work in Atlantic Canada, while about 30% go elsewhere. Ms. Bewers isn't particularly concerned about where ITI's students land jobs. She said, "I think it's grand. I'm really keen to see young people get opportunities." ITI also employs a specialist in helping students get TN-1 visas for easy access to the United States job market. A TN-1 visa (part of the NAFTA agreement) allows a Canadian with the appropriate credentials and a firm job offer to work in the United States for a year (renewable annually).

US-based companies are generally way ahead of Canadian companies when it comes to using the internet to recruit employees.

often thinks about how safe it is compared to walking a street in the United States.

When asked why, if they had to,

At Home with ITI student Sherri Pritchett

Over tea, in her simply decorated apartment, Newfoundlander Sherri Pritchett talked about her life and experience at ITI. Pritchett grew up in Gander, what she calls "an airport town." She worked hard and got a B.A. in English and History at Memorial University in St. John's in May 1995. She sees learning IT skills as Door #2 (Door #1 being the fisheries industry, where opportunity has dried up in recent years).

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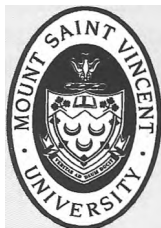
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She applied to ITI because she saw it as a sure way to get a good job, though she said with the tuition so high, \$12,600 when she applied in February 1996 (now up to \$17,600) she feels like she's "buying a job." She said that writing a test to be a Microsoft Network Administrator costs \$125 extra, something she might like to do. She gets by with savings and help from HRDC and Employment Insurance programs.

She's looking for a job as a programmer or network expert, saying "I absolutely love programming," and that knowing Oracle and Powerbuilder will assure her of the highest salary. While she has reservations about working in the team approach preferred by ITI, she says she will go through the program "to get that piece of paper" (her diploma).

Pritchett says she'll only go back to Newfoundland if she has an assured job offer. "I didn't want to have to go through [this] program and then go back to Mom and Dad."

When asked about what she does for fun - to relax from the pressures of a very involving school programme - she said, "I read." She laughed when she said that her current book was *Microserfs* (about working at Microsoft) by Douglas Copeland, author of *Generation X*.

Nova Scotia Community College

At the IT campus of the Nova Scotia Community College system, Ann Collings, 29, is studying to be an electronic engineering technician, specializing in the bio-medical field. Because of her family situation, she plans to stay in Nova Scotia and "hopes to get work in a local hospital."

Sean Warnar, 22, of Halifax, wants to get work with either an internet provider, become a sales rep, or get work as a technician, installing T3 lines (which give direct access to the internet instead of over a telephone line). He hopes to make between \$20,000 and \$60,000 and would like to stay in Atlantic Canada, but would go "west," or to Toronto for the greater potential opportunities and higher salaries.

Craig Marriott, 23, from New Brunswick, would like to augment a business degree from Acadia with his training at NSCC to "hopefully work in the United States, where the money is" either in the South (read Florida) or on the Eastern Seaboard. He's been using the internet in his job search.

i Salaries - the Good News and the Bad

: The good news is that businesses
; should be attracted to the Atlantic region on

the basis of low operating costs. The bad news is that as an employee, it's better to go elsewhere, in particular, the United States, in order to make more money.

In a March 1995 study conducted by KPMG of Vancouver that compared seven location-sensitive costs in eight Canadian and seven American industrial cities, KPMG found that across the board, the cost of doing business in Canada was substantially lower (averaging 15.7% lower) than in the United States, including salary levels.

In the software industry, labour costs in Canada were 18% lower than in the United States (in US dollars), and in the telecommunications industry, labour costs were 13% lower. On a regional basis, East Coast locations tend to have the lowest costs. The lowest cost city in Canada in which to do business in all seven location-sensitive areas was Charlottetown, with costs 8.4% below the American average.

Chairman of ITI, Pat Bowers, says that in general, students graduating from ITI can expect wages varying between \$28,000 to \$42,000. A student needs a B.A. at another institution and to pass stringent aptitude tests to be admitted. In Halifax, 92% of graduates of ITI's September 1996 class were placed in

information technology jobs and 85% of the December 1996 class were so placed. ITI currently has campuses in Halifax, Ottawa, Toronto, and a new one that opened up in Moncton. Current number of students at the Halifax campus is about 280 (1,300 Canada wide). The tuition for a nine-month program is \$17,600. Students pay tuition from savings and ITI has a student loan arrangement with four banking institutions.

NSSC, with 20 campuses throughout Nova Scotia, accepts students with a high-school degree or equivalent. In a 1995 graduate follow-up survey conducted by NSSC, 47% of graduates were employed in fields related to their training and 21.9% in unrelated fields. Wages varied from \$10,700 to \$30,000 per year for jobs ranging from computer programming technician to computer programming in business. The tuition for a one or two-year program is \$1,000 per year. Students pay tuition with the help of student loans (about 50%), and through various HRDC, Employment Insurance and Vocational Rehab programs.

In contrast, in a 1995 survey conducted by Source EDP, a US recruiting firm, 75,000 computer professionals submitted their current salaries. Annual salaries varied from a median

income of \$23,000 US for a data centre operator to \$34,000 US for a junior mainframe programmer to \$49,000 US for a systems analyst, with salaries rising as the crunch gets tighter.

One IT Company's Solution

The wage situation is compounded by other factors as well - which institution you graduate from, how much education you have, how much experience, as well as where you want to work, and what kind of work you want to do.

For example, Keane Inc., a US-based firm that provides project-based and expertise-based consulting services to the United States and Canada has agreed to hire 200 ITI graduates per year, according to ITI spokesperson Natalie Doyle. Keane describes its ideal candidate for its six-week Accelerated Software Development Program (ASDP) as:

- A college graduate with a minimum GPA of 3.0 on a 4.0 scale (MIS or Computer Science degree not required)
- A bright, articulate, well-rounded individual
- Ambitious and confident; someone who wants career growth
- Secure in projecting a highly professional image and solid interpersonal skills
- Very analytical, though not necessarily technically oriented

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CROSSING BORDERS: *The TN-1 Visa*

How easy is it to cross between the United States and Canada to work? It appears that it is easier to cross over into the United States to work, using a TN-1 temporary work visa (ITI has a specialist that works with students who wish to work in America) than it is for an American to come to work in Canada. The TN-1 visa was born out of the North American Free Trade Agreement. In Canada, this visa is called Form 1442.

There are 30 general categories, of which only one, computer systems analyst (not programmer) is directly computer related, though it is possible with some of the other categories, such as graphic, industrial, or interior designer, research assistant, teacher (college, university or seminary), or technical publications writer to be stretched to include IT professionals.

All either a Canadian or American need do is present proof of their specific professional qualifications (including at least a bachelors degree), Canadian or US citizenship (landed immigrants from other countries do not qualify), and a job-offer letter from the US or Canadian employer. For most of the job classifications listed above (including systems analyst), the potential immigrant also needs to show proof of three years paid experience in the field. These documents then need to be presented at a Class "A" Port of Entry to either country. TN-1 visas are good for one year's work in the United States and can be renewed.

The Canadian federal government has reputedly agreed to ease immigration rules to allow between 1,500 and 3,000 additional software designers into the country this year, according to an April 21 article in *MacLeans*.

However, as of mid-April, directives for loosening up work permits for Canada have not yet come down the line, according to the Foreign Worker Program Officer for HRDC in the greater Halifax area. The Program Officer, who preferred not to be named, said importing foreign workers isn't that easy to accomplish.

Each application from an employer needs an initial assessment, to advertise the position Canada wide for one month, and then have the application processed, taking from two to four months time. He said that last year less than 10% of his business volume of 750 foreign workers went into the electronics field. Temporary work permits vary in length of stay between one week and one year, with most being of three to four months duration - one-year temporary work visa are rare. ■

- Enthusiastic about learning new skills quickly
 - Someone with a strong understanding of the principles of programming and program structure, not necessarily related to a particular programming language
 - Able to pass a programming aptitude test and a COBOL proficiency test, and
 - Willing to travel and/or relocate
- (Source: Keane's web page)

About 50 ITI students have passed through the ASDP training program in Boston in the last year, according to Keane Canada spokesperson Laura Chapman. She says, "but, again, we can't get enough entry-level people at Keane . . . [though] we're fairly comfortable with the training people coming out of ITI have." Chapman says that generally they add a few weeks training at Keane in Halifax (instead of the six-week programme in Boston) to the specialized training students receive at ITI to bring them completely up to speed.

Chapman also says, "If we're hiring people from Halifax and there are opportunities to stay here then that's where they'll stay . . . [though] there are a large number of them who want to go to the States, where they can sort of try it on and come back later . . . not a bad thing necessarily." Keane also has offices in Toronto. It uses the TN-1 visa to send Canadians to work in their US offices.

Solutions

If our IT industry wants to end the "brain drain" to Upper Canada and the United States, it could begin by raising entry-level salaries and expanding opportunities and benefits for its current workforce. Crinean of NovaKnowledge said the industry also needs to increase communication with educational institutions to develop programs more tailored to industry needs now and in the future."

Government and IT associations can help by not only encouraging IT businesses to develop with reduced taxes and financial incentives, but also encouraging and developing ways for IT professionals to connect with IT businesses by holding job fairs, developing interesting web sites, and working harder at recruitment.

Government, educational institutions and business need to get together and develop ways for students and the current workforce to gain access to affordable education or upgrading that will train them for the future, beginning in primary school and going all the way through to graduate institutions.



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