

# **Knowledge-Based Service Sector - Information Technology**

## **Niche Profile**

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# **Knowledge-Based Service Sector/IT Technicians**

## **Introduction**

The Knowledge-based Service Sector is a large and rapidly growing part of the Alberta economy. This “sector” is really a collection of industries that focus on providing services, rather than producing goods and which require their workers to have high levels of technical expertise. Perhaps the easiest way to define these industries is that the use of computer technology is essential to all of them. The main industries that fall under this heading are:

- Information technology (computer services, etc.)
- other business services
- management consulting services
- engineering and scientific services
- environmental technologies

The Clearinghouse has examined the employment and training demand in several of these areas. Reports on; local area network administrators, Wireless Communications, GIS/GPS, training for small businesses and land reclamation specialists have all pointed to increasing levels of demand for these fields, though not always with enough clear training demand to support new programs.

This report will examine the training needs and demands for the information technology industry in northern Alberta.

## **Methods**

This report is based on a combination of secondary research, largely via the Internet, and interviews with several individuals working in the IT sector in northern Alberta.

## **Service Sector Growth**

The service-producing sector is the source of most of the new jobs created in Canada today. Between 1976 and 1997, 95% of the 3.9 million new jobs across the country were created in service producing industries. In Alberta the service sector accounted for 79.2% of all jobs in 1996. This sector grew by 18.8% between 1986 and 1996 in this province.

Knowledge and, in particular, information technology expertise, are playing ever-increasing roles in Canada’s economy. A recent federal government report on “Jobs and Growth in the Knowledge-Based Economy” points to the “Information Highway” as being “central to creating a knowledge-based economy in Canada and essential to Canada’s success in the global marketplace.” The growing use of electronic communication and electronic commerce will increase the role of information technology in the lives and work of Canadians. The information technology sector grew from 5.5% of Canada’s gross domestic product (GDP) in 1990 to 7.6% in 1995. Growth since then has likely increased its pace.

The growth of the IT sector has led to an increased demand for workers with a wide range of computer skills, from data entry to high-end programming. This report focuses on the need for trained personnel in hardware and software support as well as computer-based communication networks.

### **The IT Service Sector in Northern Alberta**

Most of the Information Technology jobs in northern Alberta fall into one of two categories; computer service technician or computer networking specialist. These are flexible definitions and many people fall in between the two categories but they do represent the tasks and training requirements in the field.

Service technicians usually install and maintain hardware, install software, provide technical advice and install system upgrades. In some cases, technicians will install and maintain local computer networks. People in this position often work on a contract basis, perhaps for several small businesses at once. Other northern employers are large corporations, government departments and schools.

Most employers prefer service technicians to have a post-secondary certificate in computer systems, though experience in the field will generally make up for a lack of formal training.

At the other end of the scale in this region are computer networking specialists. Networking specialists work with organizations to analyse their communication needs, evaluate their current equipment, design and install a computer communications network and maintain that network. In addition, many people working at this level also operate as “Webmasters”, designing and maintaining an organization’s Internet website. As with service technicians, networking specialists may work with a large company or institution, or may work as a consultant, providing service to many organizations.

Networking specialists are more likely to have a post-secondary diploma or degree in computer science or a related field, as well as several years of experience in the field.

Both of these occupations have above average employment growth prospects, according to AECD’s Occupational Profiles, as do other related positions such as computer programmers. This can be a difficult field to break into however, as most employers look for extensive work experience before looking at training levels. This is especially true at the higher skill levels.

It is nearly impossible to determine the number of people currently working in this field in northern Alberta because they work in many different industries and are not tracked in any standard labour market data. In many cases these roles are taken on by one person in an office who has a particular interest in computers and has taken it upon him- or herself to develop this expertise and become the workplace’s *de facto* IT expert or “alpha geek”.

## **Training Issues**

Information technology is an extremely fast-changing field. Innovation is crucial to success for companies developing hardware and software. As a result, people working in this field must update their knowledge on a constant basis. This means that the market for ongoing training in IT is growing, especially for networking specialists. This training is best presented in short, modular courses. Much of this could also be delivered at a distance, via the Internet.

Perhaps the most crucial post-diploma training is in vendor-specific programs such as Microsoft's Certified Technician program, or Novell's CNA designation. These rigorous training and examination programs are recognized by employers and are often more valuable in the job market than more general college diplomas. Many IT professionals in northern Alberta travel to Edmonton and elsewhere to obtain this training. While the northern market may not be large enough to support new programs in this area, it may well support northern colleges delivering courses developed elsewhere.

All of those contacted for this report stressed the importance of practical, hands-on training and experience. As mentioned above, experience often counts for more than theoretical courses when applying for work in this field. Hands-on experience, possibly in a work-place setting, would be a valuable addition to any classroom-based course of study.

IT service personnel generally work in business environments. The work that they do supports the overall work of any organization. As a result, many in the field see a significant value in adding business training to IT training programs. The better able an IT technician can understand the work of his or her organization, the better that the system that he or she develops will serve that organization.

In addition to business skills, other "soft" skills such as communication skills, customer relations, organizational skills, teamwork and leadership are important for IT personnel who hope to move up within their organizations. Many of these could be included within pre-employment training. What are harder to train for are professional attitudes and a strong work ethic, though their importance can be stressed in training.

## **Available Training**

There is no shortage of training for IT technicians in Alberta. AVC - Lesser Slave Lake, Lakeland, Keyano and Grande Prairie Regional Colleges all offer certificate and/or diploma programs in computer and information technologies, as do other institutions throughout Alberta. In addition, many private trainers offer specific computer courses. PBSC Computer Training was mentioned by one contact. This company, like others, offers courses leading to certification by vendors such as Microsoft, Lotus and Novell. Microsoft is looking to increase the number of trainers for their programs. These trainers must receive specific Microsoft training themselves.

## **Implications for the Clearinghouse Partners**

Employment demand is fairly high throughout Alberta, though not quite as high in the North. This demand level will continue to support the programs currently available in the region but would not likely support the development of new pre-employment programs.

The strongest market is for ongoing training, particularly courses geared toward recognized vendor certification. These courses have been developed and could be delivered through brokering arrangements.

Institutions with certificate and diploma programs should consider including “soft” skills and business training as part of their programs. In addition, hands-on training, perhaps in the form of practicum sessions would make valuable additions to most programs.

## Sources

Alberta Advanced Education and Career Development, Alberta Learning Information Service, Occupational Profiles; Computer Programmer, Computer Service Technician and Computer Networking Specialist, [Http://www.alis.gov.ab.ca/occinfo/system/public/](http://www.alis.gov.ab.ca/occinfo/system/public/)

Alberta Economic Development, "The Tech Files", Sector Profiles, Telecommunications. <http://www.gov.ab.ca/edt/techfiles/sectors/t1.htm>

Maria Behan, "Career Survey: Going Places", Beyond Computing Magazine, March 1998. <http://www.beyondcomputingmag.com/archive/1998/03-98/coverst.html> .

Industry Canada, "Job Growth in the Knowledge-Based Economy", prepared by Mark Lee and Geoffrey Oliver for the Steering Committee on Economic Growth and Job Creation of the Information Highway Advisory Council, April, 1997. [Http://strategis.ic.gc.ca/SSG/it03946e.html](http://strategis.ic.gc.ca/SSG/it03946e.html)

----"Survey on Human Resources in the Information Technology Industry", prepared by Statistics Canada, March, 1998, [Http://strategis.ic.gc.ca/SSG/it04514.html](http://strategis.ic.gc.ca/SSG/it04514.html) .

---- Service Industries and Capital Projects Branch, <http://strategis.ic.gc.ca/SSG/sc01223e.html> .

Microsoft Certified Professional Magazine, January, 1999, February, 1999, May, 1999.

Microsoft Skills 2000 Website: <http://www.microsoft.com/skills2000/>

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