

WINNING ON THE NEW ECONOMY BRAIN EXCHANGE

**Attracting Foreign Information Technology Workers
to Canada**

**Course: Labour Law and the New
Economy GS Law 6021P 4.5
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Date: July 5, 2006**

I. Introduction

Technology based innovations embodied by developments in the information technology industry (hardware, software, and telecommunications) are at the centre of the transformation that many call the new economy. Technology is transforming the way companies conduct business and Information Technology (IT) workers are crucial in the shift to this new economy¹. Some argue that these highly skilled workers are the artisans of the emerging technology-based information society². Indeed, exceptionally high IT sector growth is one indicator of the increasingly important contribution of IT workers in the Canadian economy. Yet, analysis and understanding of IT industry dynamics, labour market characteristics, the evolving responsibilities of IT workers and the IT worker at the epicenter of this shift, is still in an early stage. In this context of a new and evolving industry and labour force it is a particular challenge to identify and address labour market shortages.

Statistics Canada data confirms that the Canadian labour force is shrinking³. In the IT industry the labour market shortage is particularly acute; unemployment levels are consistently well below the labour force average and are indicative of an ongoing labour market shortage⁴. The impact of new economy forces: globalization (outsourcing and offshoring), the shift to non-traditional work relationships and the interface of these forces with efforts to attract foreign IT workers to Canada compound an already complex labour force dynamic. Moreover, Canada's proximity to the United States highlights the global complexity of the modern day challenge to address labour shortages with immigration-based strategies. For Canada's strategies must necessarily take into account their interface with the US demand for, and restrictions imposed upon, foreign IT workers.

The emerging IT industry portrait is of a new and evolving labour force that is particularly intertwined with the adages of the new economy – globalization, non-traditional work

¹ R.H. Downie, J. Dryburgh, & G. Ranson. *et.al.* "A Profile of Information Technology Employment in Canada." (2004) Workforce Aging in the New Economy (WANE) International Report, no.1.

² M Castells, *The Rise of the Network Society*. 2000. Blackwell Publishers: Oxford.

³ C. Vaillancourt, "A Profile of Employment in Computer and Communication Technologies Industries" (March 2003) Statistics Canada, Catalogue no. 56FOOO4MIE, no.9

⁴ R. Habtu, "Information Technology Workers." (2003) Perspectives on Labour and Income. Statistics Canada Catalogue no. 75-001-XIE, vol.4. no.7. p3.4.

relationships and labour mobility. There is a present and anticipated shortage of IT workers in Canada and there is a corresponding deleterious economic effect on the economy associated with this shortage. At the same time, there is potential for foreign IT workers to alleviate this labour market shortage and Canada, as an immigrant friendly country, is well-positioned to benefit accordingly. However, Canada's immigration-based labour market strategies must be responsive to the labour force it seeks to attract and retain in order to be effective. As such there is a critical challenge ahead.

To identify some of the challenges of immigration-based IT labour market strategies I first examine the impact of *new economy forces* on the Canadian IT labour market in order to ascertain characteristics and emerging labour market patterns of the Canadian IT labour force. In this context I compare emerging industry findings with key features of Canada's laws of admission and identify some of the challenges that Canada's present immigration laws pose to this potential. In the context of these *new economy forces*, I also consider the impact of the laws of admission applicable to similarly situated foreign skilled workers to the United States and discuss the potential interface dynamic.

II. New Economy Forces

In this paper I consider three new economy forces - globalization, the shift toward non-traditional work relationships and the competition for foreign skilled labour - critical to understanding the dynamics of Canada's IT labour force. Globalization refers to the increased movement of goods, capital and services over borders and the gradual transformation of national markets into regional and global markets⁵. While developed countries are now acknowledging and projecting future shortages of working age people; many developing countries are experiencing population growth unmatched by local employment opportunities – these countries have a workforce to spare⁶. Thus, labour mobility is emerging as an integral component of the global economy and of Canada's labour market. The prevalence of these new economy forces in the IT workforce - the re-emerging international competition for IT workers and the countervailing pressure to offshoring and outsourcing and the breakdown of the traditional employer-employee workplace relationship - provide the context for the discussion

⁵ See: "Migration in an Interconnected World: New Directions for Action", (2005) *Report of the Global Commission on International Migration*.

⁶ *Ibid.*

of the relationship between the IT industry and Canada's laws of governing the admission of foreign skilled workers.

Competition for Foreign IT Workers

Like many other industrialized nations, Canada has a declining birth rate and its population is becoming progressively older; the Canadian labour force is shrinking. There is growing appreciation that unless these demographics are addressed, Canadians can anticipate difficulty in maintaining existing levels of economic productivity, sustaining pension and social security systems and ensuring the care and health services required of an aging population⁷.

During the 1990s there was strong international competition for IT workers⁸. Many OCED (Organization for Economic Co-operation and Development) countries developed and implemented active recruitment programs for IT workers⁹. During this period of growing dot.com demand, the Canadian government first developed strategies that recognized the need to strengthen Canada's IT labour force through immigration by both attracting temporary skilled workers and permanent residents with IT qualifications¹⁰. Between 1990 and 1998 almost 70,000 people, primarily from Asia, and Europe, with the intention of working in IT occupations, became Canadian Permanent Residents¹¹.

Studies similarly confirm that the number of immigrants is proportionally higher in information technology occupations than in the general work force¹². In the 2001 Census, immigrants made up 47% of software engineers, 40% of computer engineers and 37% of computer programmers¹³.

⁷ See: T. Grant, "Nations Get wake Up call about Aging Workers" (June 6, 2006) Globe & Mail.

⁸ *Migration, Supra*, note 5 at p7. Also see: Gellatly, G. "The Canadian Economy in Transition: A Guide to Research on the New Economy." (May 2003). Statistics Canada Catalogue no. 11-622-MIE no.001 p 9. See also: Annual Report to Parliament on Immigration, 2005. p 8.

⁹ *Ibid.* at p6. See also: Nicholson, B. "Global Software Outsourcing: The Solution to the IT Gap". July 2001. Anglo-German Foundation for the Study of Industrial Society. p. 2.

¹⁰ H. Dryburgh, and J. Hamel, "CST Occupations in Demand", (Autumn 2004) Canadian Social Trends: Statistics Canada Catalogue no. 11-008 p 14. Also see: Habtu, *Supra*, note 4.

¹¹ *Ibid.* at p14. Also see: Habtu, *Supra*, note 4.p3.4

¹² *Ibid.* Also see: Habtu, *Supra*, note 4. p3.7.

¹³ *Ibid.* Also see: Habtu *Supra*, note 4. p3.7

Moreover, their representation in every IT occupation was above the overall workforce average of 20%¹⁴. Half of these immigrants came to Canada during the 1990s, most of them during the high tech boom in the last half of the decade¹⁵. As such, Canada's initial immigration- based strategies designed to address IT labour force shortages at least at first glance, met with success.

2. Globalization - Outsourcing and Offshoring

Simultaneous with efforts to attract qualified IT workers to Canada was, and continues to be, a countervailing effort to move IT work away from developed countries, including Canada, to less developed countries. Increasingly trade in services, as opposed to agricultural commodities and labour intensive manufactured goods, flows to lower income countries as companies shift various services functions to foreign-owned subsidiaries (off shoring) or to foreign-owned contractors (outsourcing).

A 2003 survey conducted by the Information Technology Association of America (also referred to as ITAA) revealed that 6% of all US companies moved IT jobs overseas¹⁶. Moreover, the survey found that among companies specializing in IT products and services (computer hardware, and software, communications, and semi conductors) the percentage increased to 12 percent¹⁷. It is clear that the types of jobs migrating outside the US are high skilled and include programming or software engineering at 67%, network design at 37 % and web development at 30%¹⁸. According to the ITAA, a projected 3.3 million American IT-sector jobs are expected to have migrated overseas by the year 2015¹⁹.

3. Technology Innovation and the CEO of the Company of Me

Turnover within traditional employment relationships and a shift toward self-employment combined with the importance of continuous education and training increasingly characterize

¹⁴ Habtu, *Supra*, note 4. p3.7.

¹⁵ *Ibid.* at 3.7.

¹⁶ See: "The Comprehensive Impact of the Offshore Software and IT Services Outsourcing On the US Economy and the IT Industry", Information Technology Association of America, October 2005.

¹⁷ *Ibid.*

¹⁸ *Ibid.*

¹⁹ *Ibid.*

the labour force as a whole. This is particularly true in the IT worker population on the vanguard of change. In this new workplace context, the onus increasingly falls upon the individual worker. “30 years ago one could expect a guarantee that if you were a good person and you worked hard you would work for 30 years and get your gold watch when you retired”²⁰. Today, self-employed consultants, contracted short-term services providers and chains of service suppliers are increasingly the norm not the exception. In this new workplace context, individuals have increased responsibility for managing their careers and this responsibility often extends national borders. Van Erden aptly describes this emerging phenomenon as the “CEO of the company of me”²¹. Put in legal terms, the old social contract of the workplace has been displaced. It follows that policy and law based on the old social contract is apt to be ill-suited to contend with dynamics of the modern day labour force. The workplace shift must also be taken into account in developing immigration-based labour market strategies.

4. Nexus

Rapid technology change and increased international competition spotlight the need for a labour force able to adapt to changing technologies and shifts in product demand. A shift in business organization and a growing importance placed on knowledge-based work favours cognitive skills such as abstract reasoning, problem solving communication and collaboration and increased interaction among highly-educated professionals. The synergies of these hubs of technological excellence will have a positive effect on the labour market as a whole. The question is therefore: Where will this occur?

Writing in the US context, Dr. Van Erden states that if high tech companies can not recruit foreign skilled workers they can “create ‘virtual visas’ by moving work to India, Israel or wherever the workers are. The companies do not care”²². As evidence of this phenomenon, Van Erden sites the plethora of US universities that are establishing campuses in traditional immigrant producing countries; the implication being that in the future foreign skilled workers,

²⁰ J.D. Van Erden, “People Aspects of Technological Change: Immigration Issues Labour Mobility, the Brain Drain and R&D - the US Perspective.” *Canada -United States Law Journal*. Vol. 25; 53, 1999 See also: “The Future at Work-Trends and Implications” (2004) Rand Labor and Population Research Brief.

²¹ *Ibid.* at p59.

²² *Ibid.*

with US degrees will work for US multi-national companies abroad²³. People and capital will be re-centered abroad and ideas will follow accordingly. As a result the originating country will lose out on the dynamics of growth and future trade opportunities. In short, the originating country will lose on the new economy brain exchange.

Immigration-based labour market strategies provide an alternative, or at least a counter balancing measure, to the scenario that Van Erden describes. However, despite a growing body of statistical data evidencing an increased need for the movement of labour over borders, economic globalization has in large part, to date, been characterized by the free movement of capital, goods and information - not labour. The emerging new economy is the impetus for this characterization of globalization to change. This in turn, brings into question the state's role in facilitating the recruitment of foreign labour to the domestic labour market.

5. Canada's Response

In his writings Professor Reitz asserts that Canada is moving toward a post-industrial knowledge-based economy and that it is therefore consistent that immigrants are recruited to respond to this economic imperative – hence the policy shift from agriculture and industrial-based to knowledge-based recruitment²⁴. In the past, Canada's temporary immigration programs focused on unskilled service and agricultural workers. Contemporary examples however include highly skilled workers designated programs. Moreover, the latest variant of temporary admission has developed as an outgrowth of trade agreements such as the *General Agreement on Trade in Services* (also referred to as GATS) and the *North American Free Trade Agreement* (also referred to as NAFTA) with their attendant mobility provisions. In Canada strategies for attracting and retaining highly skilled foreign workers have, over time, become widely perceived as requisite for success in the new economy²⁵.

While there is potential for immigration-based labour market strategies, the corresponding laws of admission, in their present state, present a number of obstacles. An examination of these

²³ *Ibid.*

²⁴ J.G. Reitz, "Tapping Immigrants' Skills: New Directions for Canadian Immigration Policy in the Knowledge Economy". (February 2005) IRPP Choices. vol.1, no 1. p5.

²⁵ *Ibid.* E.g.: Annual Report to Parliament p7. See also: "Notes from the Address by the Honourable Monte Solberg Minister of Citizenship and Immigration at the Meeting of the Standing Committee on Citizenship and Immigration." Ottawa, June 7, 2006.

laws, as they apply to foreign IT workers highlights some of the inconsistencies between the laws and the realities of the new economy. If immigration-based labour market strategies are to be effective, applicable immigration laws can not be incongruent with contemporary and emerging IT industry patterns and labour force characteristics.

III. Canada's Information Technology Labour Force

In order to consider the relationship between IT industry characteristics and immigration laws, it is first necessary to identify such characteristics of the industry. Data on Canada's IT labour force is from two primary sources. The Software Human Resources Council (SHRC) has conducted an annual independent survey of approximately 55,000 households since 2000²⁶. This Labour Force Survey data provides an important counterbalance to most other analysis of the IT industry which is based on Statistics Canada's Census data²⁷. While not identical in their findings both primary sources point to a number of established characteristics and patterns of the post-dot.com boom/bust IT industry. Both identify high growth and substantial evidence that employment in this industry is predominantly in central Canada (Ontario and Quebec), both agree that the industry is dominated by university educated younger men²⁸. More detailed analysis reveals a number of additional emerging characteristic and patterns; some in sync with shifts in the larger labour force and others particular to the IT industry. Below is a summary of and commentary on these findings.

1. Supply – the Growth of a New Industry

Rapid growth of the information, communication and technology industries in the 1990s resulted in a surge in demand for people in computer specialties. Between 2000 and 2003 Canada's IT labour force grew from a base of about 540,000 workers to a peak of about 625,000 workers²⁹. There was decline at the end of 2003 to approximately 600,000 workers, a level maintained since then, except for a swift contradiction and recovery in the first half of 2005³⁰.

²⁶ This survey is called the *Labour Force Survey Data for the Information Technology Occupations*; it is published by the Software Human Resources Council.

²⁷ E.g.: Habtu, *Supra*, note 4. See also: Vaillancourt, *Supra*, note 3.

²⁸ W. Wolfson, "Analysis of the Labour Force Survey Data for the Information Technology Occupations 2000-2005", Software Human Resources Council, 2005. p3. See also: Vaillancourt, *Supra*, note 3. Abstract.

²⁹ Wolfson, *Supra*, note 28, p2.

³⁰ *Ibid.* at p2.

The 2001 Census documented for the first time, 406,700 people in computer-related occupations, more than double the level estimated in 1991³¹. As further evidence of the growth of the IT industry, a 2002, analysis of Canada's 2000 census results indicated that the information and communications technology sector contributed more than 6% of the country's Gross Domestic Product - a significant increase from 4% in 1990³². While there is consensus with respect to industry growth, optimizing the demand – supply relationship is the impetus for this paper.

2. Occupational Responsibilities

Canada's 2001 Census was the first to collect information about new IT occupations using the National Occupational Classification (NOC) to categorize and describe the occupations. While some IT occupations existed prior to the 1996 Census, the numbers within each occupation were not large enough to warrant a separate occupational code³³. According to the 2001 Census three quarters of Information Technology workers in 2001 were working in the following four occupations - Information Systems Analysts, Computer Programmers, User Support Technicians and Computer/ Network Operators and Web Technicians³⁴. Of the remaining workers over half were computer and software engineers³⁵.

The most detailed portrait of evolving IT occupations and attendant responsibilities is provided by the Software Human Resources Council (SHRC). In its 2005 report, the SHRC uses an expanded list of 21 IT occupations referenced within the updated National Occupations System (NOC) classification system³⁶. The list includes occupations within the NOC Occupational Groups: Managers, Engineers, Analysts, Programmers, Technicians, and Other IT workers³⁷.

³¹ "Shaping the Nation's Workforce: Immigrants, Demand for Skills and An Aging Population (2001) Statistics Canada Census. Also See: Habtu, *Supra*, note 4. p3.1.

³² Statistics Canada, Innovation Bulletin 2003. vol 4. no.3.

³³ Habtu *Supra*, note 4. p3.1.

³⁴ Habtu *Supra*, note 4. p3.1.

³⁵ Wolfson, *Supra*, note 28.

³⁶ Wolfson, *Supra*, note 28. p5. See Chart "Analysis of the LFS Data for the IT Occupations 2000-2005, entitled "Occupational Groupings"

³⁷ *Ibid.*

As technology evolves, so do the responsibilities of those that develop, design, implement and maintain it. The SHRC data and analysis best identifies and attempts to describe and classify the occupations of this rapidly evolving and expanding labour force but its clear that this is an ongoing task as the IT labour force is evolving³⁸.

3. Age

High rates of entry fueled information technology industries in the 1990s. As a result, IT workers tend to be relatively young; the 2000 census results indicate that the average IT worker was 36 years old as compared to 39 for all other occupations³⁹. SHRC data similarly indicates that 46% of workers are less than 35 years of age⁴⁰. IT industry characteristics pertaining to age do not therefore reflect patterns found in Canada's labour force as a whole.

4. Education

IT workers are, relative to the labour force as a whole, highly educated. 44% of IT professionals have at least a bachelor's degree; more than double the proportion of the labour force population as a whole at 20%⁴¹. SHRC data reveals an even higher percentage of university graduates thus confirming this industry characteristic⁴². Note however, that in 1990 only 22.8% of IT workers were university graduates⁴³. At first instance the increase in percentage would appear indicative of the increased importance of university education in the industry but, further analysis reveals that in the intervening years IT workers with non-university certificates also made important

³⁸ Differences in the occupations included in the various studies inevitably contribute to some of the divergence in data analysis. For instance, Vaillancourt used an ICT sector definition developed by the OECD in 1988 based on the International Standard Industrial Classification and a concordance drawn with the 1997 North American Industry Classification System (NAICS). The SCHR has used a 21 occupational classification system but has recently developed yet another classification scheme. See: "A Comparison of the SHRC Occupational Skills Profile Model (OSPM) to the HRSDC National Occupation Classification (NOC)", (March 26, 2005) Software Human Resources Council.

³⁹ Habtu, *Supra*, note 4. p3.2.

⁴⁰ Wolfson, *Supra*, note 29.

⁴¹ Habtu, *Supra*, note 4. p3.2.

⁴² Wolfson, *Supra*, note 28. p13.

⁴³ Vaillancourt, *Supra*, note 3, p8.

gains in employment and, that their growth within the IT industry was, greater at 90.95⁴⁴. As such, while formal education may be a key characteristic of the IT labour force it would appear that non-university post-secondary education is increasingly valued.

5. Gender

According to Census data, men hold 73% of all IT positions⁴⁵. The SHRC data puts the percentage of male IT workers slightly higher at 75 percent⁴⁶.

6. Remuneration

The earning gap between IT workers and workers in the rest of the Canadian labour force appears to be widening⁴⁷. Median incomes for IT occupations indicated high returns; IT workers generally had higher earnings than those in the rest of the Canadian labour force⁴⁸. Increased relative remuneration may be another indicator of increased labour market demand.

7. Self-employment

Statistics Canada data indicates that nearly 90% of Information Technology workers were employed in 2001- roughly the same percentage as were workers in other occupations⁴⁹. There is growing evidence that self-employment is becoming a key feature of the IT labour force as the percentage of self employed IT professionals is growing at a rate unmatched in the labour force as a whole⁵⁰. The percentage of self employed varies by IT occupational category. For example, more than one in four Web Designers is self-employed⁵¹.

⁴⁴ *Ibid.* at p8. Also see: R. Lerman, "Emerging Trends in the Information Technology Job Market: How Should the Public and Private Sector Respond?" (1998) Urban Institute for a discussion of this phenomenon in the US IT industry context.

⁴⁵ Habtu, *Supra*, note 4. p3.5.

⁴⁶ Wolfson, *Supra*, note 28. p12.

⁴⁷ Habtu, *Supra*, note 4. p3.4. See also: Vaillancourt, *Supra*, note 3. p9.

⁴⁸ *Ibid.* at p3.4

⁴⁹ Vaillancourt, *Supra*, note 3. p10.

⁵⁰ *Ibid.* at p10.

⁵¹ *Ibid.* at p 11.

Vaillancourt's work best illustrates the increased propensity for self-employment in the industry highlighting the rapidly closing gap between the IT labour force and the labour force as a whole⁵². Specifically, she compares the 1998 data for self-employment in all other industries at 17.3% with 14.6% for IT industries (one year later) and points out that this represents a near doubling in relative importance from 1990⁵³. She notes that between 1990 and 2002 growth of self-employment in the IT sector was 216.9 % as compared to 53.9% for other employees – nearly four times greater⁵⁴. This growing phenomenon presents challenges particular and peculiar to a workforce on the vanguard of the new economy. That is, new economy forces globalization - the suitability for offshoring and outsourcing juxtapose with the international competition for foreign workers - makes the impact of the growing self-employment phenomenon particularly complex.

8. Unionization

Statistic Canada data for employed IT workers puts the percentage of unionization at 20%⁵⁵. The SHRC data shows a similar percentage: 20% of the IT labour force is covered by a collective bargaining agreement with 18% union membership⁵⁶. The IT industry is thus largely not unionized; when the growing self-employed numbers are factored in, percentage numbers for unionization in the industry are even smaller.

9. Tenure

The data suggests that job tenure is on the increase. SHRC data states that the percentage of IT workers with job tenure longer than four years has increased from approximately 40% in 2000 to over 50% in 2005⁵⁷. Still, in stark contrast to traditional expectations and norms, in 2005

⁵² *Ibid.* See Chart "Employment in CT- Industries 1990-2002" and Chart "Employment in all Other Industries, 1990-2002" at p10. But see: Wolfson, *Supra*, note 28. p15. Note that the SHRC data does not address self employment growth rates within the industry.

⁵³ Vaillancourt, *Supra*, note 3 at p10.

⁵⁴ *Ibid.* at p10.

⁵⁵ Statistics Canada (2001b) "Information and Communications Technologies in Canada: A Statistical Profile of the ICT Sector", (December 2001).Catalogue no. 56-506-XIE.

⁵⁶ Wolfson, *Supra*, note 28. p18. See: Chart: "Analysis of the LFS Data for the IT Occupations 2000-2005 Profile: Union Membership".

⁵⁷ *Ibid.*

more than 30% of the Canadian IT labour force had job tenure of less than 24 months⁵⁸.

10. Unemployment – The Ongoing Demand for IT Workers

The unemployment rate for IT workers is consistently below the national average for the labour force as a whole. It has also been more volatile; the dot.com boom/bust of the early 2000 is reflected in data provided by both sources⁵⁹. Interestingly both sources indicate that IT workers disproportionately were impacted by the recession, and were slower to recover, but experienced higher post-recovery growth⁶⁰. Unemployment in the IT industry rose from a low of 2% in the fall of 2000 to a high of 5.8% in the summer of 2002. At the end of 2005 the IT unemployment rate stood at 1.9 percent – indicative of a very competitive market⁶¹.

IV. The Law - Admission to Canada of Information Technology Workers

Among Canadian policy makers there is a growing appreciation that immigration policy plays a key role in alleviating demographically based labour market shortages. Indeed, an underlying objective of the *Immigration and Refugee Protection Act* (also referred to as IRPA) is to address existing and anticipated labour market shortages by attracting suitably skilled foreigners to this country⁶². Given this appreciation, the effectiveness of the vehicles for admission in facilitating the entry of suitably skilled workers is a logical objective.

Overview of Canada's Economic Immigration

The Canadian economic immigration program is characterized by an applicant-driven application process for permanent residence and an employer-driven application process for temporary immigrant status (i.e. Work Permit). The success of the former in attracting skilled

⁵⁸ *Ibid.* at p16. See also: “Adding Value...Growing Careers: The Employment Outlook in Today’s Increasingly Competitive IT Job Market” (September 2004) Information Technology Association of America for similar statistics on the tenure of the American IT labour force.

⁵⁹ Vaillancourt, *Supra*, note 3 p5. See also: Wolfson, *Supra*, note 28 p2.

⁶⁰ Vaillancourt, *Supra*, note 3 p5. See also: Wolfson, *Supra*, note 28. p8. See also: G. Boulby & S. Langois, “High Tech Boom and Bust” (2002) Perspectives on Labour and Income” where the authors point out that but for the computer and telecommunications manufacturing sub-sector, the recovery would have been even more phenomenal.

⁶¹ *Ibid.* at p8.

⁶² *Immigration and Refugee Protection Act*, R.S.C. 2002. 3(1) (c) and (g).

immigrants to Canada is discussed earlier in this paper⁶³. The interface of the latter, the focus of the paper, is discussed below.

1. Overview of Temporary Immigration

In 2004 a total of 93,316 foreign workers were issued work permits authorizing temporary work in Canada⁶⁴. In 2005 the projected number, based on a third quarter figure of 80, 618 will be higher⁶⁵. While data specific to IT workers is not collected, many IT occupations were classified under Natural and Applied Sciences and for which there were 3,199 workers admitted in 1993⁶⁶. By the peak of the IT boom in 2003 more than 9,500 workers were under this classification⁶⁷. In 2004 the number dipped to 5,689⁶⁸. The rise and fall of the numbers corresponds to the dot.com boom / bust and thus suggest that admission is responsive to labour demand and that changes in flows reflect the domestic labour market.

I will turn now to the specifics of admission and consider the three main vehicles for admitting IT workers on a temporary basis to Canada.

3. Labour Market Opinion Approval - The General Rule and Last Resort

In order to obtain a work permit, the *Immigration and Refugee Protection Act Regulations*⁶⁹ normally require that an Immigration Officer make a determination on the basis of a Labour Market Opinion (LMO) as to the economic effect of the employment on the Canadian labour market.

⁶³ I use the word ‘attracting’ as there is a growing body of academic research which points to the underutilization of foreign professionals’ skills due to a lack of infrastructure designed to assess and permit upgrading of their foreign credentials in order to ensure consistency with Canadian standards. Moreover, there is growing evidence that a percentage of these immigrants do not ultimately stay in Canada. See: Report to Parliament, *Supra*, note 8. p44.

⁶⁴ “Foreign Workers” (2005) The Monitor, Citizenship & Immigration Canada. Note that Foreign Workers are foreign nationals who have been authorized to enter and remain on a temporary basis as workers. These numbers do not include foreign students with Work Permits or people authorized Work Permits for humanitarian reasons.

⁶⁵ *Ibid.* at p9.

⁶⁶ *Ibid.* at p9.

⁶⁷ *Ibid.* at p9.

⁶⁸ *Ibid.* at p9.

⁶⁹ *IRPA, Supra*, note 62 Regulation § 203.(1)

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A positive opinion will be issued where Service Canada concludes that employment opportunities for Canadian citizens and permanent residents will not be adversely affected by the admission of the foreign worker and that the foreign worker is otherwise suitable for the job⁷⁰. The regulatory test is whether temporary employment of the foreign national is likely to have a neutral or positive economic effect on the labor market in Canada⁷¹. The factors considered are⁷²:

- Whether the work is likely to result in direct job creation or job retention for Canadian citizens or permanent residents;
- Whether the work is likely to result in the creation or transfer of skills and knowledge for the benefit of Canadian citizens or permanent residents;
- Whether the work is likely to fill a labor shortage;
- Whether the wages and working conditions offered are sufficient to attract Canadian citizens and permanent residents, and to retain them in that work;
- Whether the employer has made, or has agreed to make, reasonable efforts to hire or train Canadian citizens or permanent residents; and
- Whether the employment is likely to adversely affect the settlement of any labor disputes in progress or the employment of any person involved in the dispute.

In many instances, prior to issuance of the LMO, the Canadian employer is required to advertise the job position in both a national newspaper and/or local newspaper or trade journal. Once the

⁷⁰ *Ibid.* at 203(1)

⁷¹ *Ibid.* at 203(1) Note that regulation 203(2)(b) provides the authority for a ‘group of employers’ to request an LMO opinion thus providing for the possibility of a ‘blanket’ opinion, one not issued on the basis of a specific offer of employment.

⁷² *Ibid.* at 202(3) (a)-(f).

employer obtains a positive LMO, it then submits an application for a work permit to immigration authorities.

The challenges presented by this two step process are numerous:

First, from a practical perspective, the process leaves much to be desired. It can be time-consuming as adjudication can take up to nine weeks for a standard request. It is subjective – there are no processing guidelines and processing practices differ among each provincial office. As such, many Canadian employers find the process and the time required to obtain a positive opinion from Service Canada cumbersome and impractical.

Second, from a theoretical perspective, this traditional approach to labour market demand assessment, which requires an independent analysis of *each* employment position, is inconsistent with the notion that immigration-based strategies for attracting highly skilled workers to address Canada's labour market shortages are a requisite for success in the new economy.

Third, the LMO process is employer driven and does not contemplate or accommodate the rise in non-employment work relationships.

4. *The NAFTA Professional Computer System Analyst*

The *North American Free Trade Agreement* Professional category permits designated Mexican and American professionals to enter Canada to engage in their profession on a temporary basis⁷³. Appendix 1603.D.1 lists the eligible professionals and the educational credentials and experience required for admission for each enumerated occupation⁷⁴. Listed IT professions include Computer Systems Analysts, Management Consultants, Graphic Designers and Scientific Technicians⁷⁵.

⁷³ *North American Free Trade Agreement*, (hereinafter NAFTA) Appendix 1603.D.1.

⁷⁴ *Ibid.*

⁷⁵ *Ibid.* Schedule 2.

The profession, Computer Systems Analyst illustrates the main strengths and weaknesses of this category of admission as an immigration-based labour market strategy. To qualify as a Computer Systems Analyst, a professional must have a baccalaureate or licenciatura degree, or post-secondary diploma or certificate and three years of experience. The professional must also intend to perform the duties of the profession⁷⁶.

The professional may be entering Canada on behalf of a US or Mexican employer to fill a contract for services between a US or Mexican company and a Canadian company or entering to work for a Canadian company in Canada or a US or Mexican company in Canada⁷⁷.

As an immigration-based labour market strategy, the NAFTA professional category presents some challenges:

First, with respect to the occupational responsibilities identified in part two of this paper. It allows for entry of limited types of IT workers and does not reflect their expanded occupational responsibilities captured in the SHRC data or its new OSPM classification system.

Second, again with reference to occupational responsibility descriptions, the Computer Systems Analyst description, in this country is based on the outmoded NOC description thus further limiting its applicability.

Third, with respect to education and age, while the educational criteria does allow for non degree holding professionals who possess post-secondary diplomas and certifications, and is therefore consistent with findings of increased demand for this subset of IT workers, it requires that diploma holding profession have a minimum of three years experience. It thus excludes many recent entrants to the professionals. Conversely the degree requirement is by policy routinely interpreted as having to be in a related subject⁷⁸. This interpretation, not found in the NAFTA itself, effectively curtails the

⁷⁶ *Ibid.* Schedule 2.

⁷⁷ Foreign Worker Manual, Citizenship & Immigration Canada p134-135.

⁷⁸ *Ibid.* at p135.

applicability of the category to older members of the profession who graduated before computer specific degrees were part of the university curriculum.

Fourth, all NAFTA provisions are only applicable to US and Mexican citizens.

In contrast to other basis for temporary admission, the NAFTA professional category does contemplate and allow for a range of non - employment workplace relationships. Under this category it is not strictly necessary that a worker have a Canadian employer, a foreign employer may suffice thus allowing for short-term assignments and contracted client servicing by a foreign employer. Additionally, the professional could potentially be self-employed.

5. *The IT Worker Professionals Software Program*

In response to the need of employers to fill critical shortages in the software industry, Citizenship and Immigration Canada (CIC) collaborated with then Human Resources and Skills Development Canada (now Service Canada), Industry Canada and the Software Human Resource Council (SHRC) to develop a pilot program that streamlined the entry of certain IT workers with skills in high demand in Canada's software industry⁷⁹. In 2004, 1221 workers, primarily from India but also from France, the UK and the United States were admitted under this category⁸⁰.

Qualifying applicants do not require a Labour Market Opinion (LMO) approval as they are deemed to have no negative impact on Canadian and Canadian Permanent Resident job seekers and workers. The program, a creature of policy, replaces a job-specific LMO with a national confirmation letter which states, among other things, that certain software positions cannot be filled by Canadian citizens or permanent residents⁸¹.

⁷⁹ Note that the SHRC is no longer a partner in the program.

⁸⁰ Monitor, *Supra*, note 64. p12.

⁸¹ "Facilitated Processing for Information Technology Workers" at Citizenship and Immigration Canada website: www.cic.gc.ca/english/work/itw.html.

Shortcomings of the program relate to its limited application and the specific basis of qualification which are at odds with the characteristics and patterns of the IT labour force identified in earlier in this paper.

First, to qualify for this expedited process, the IT position offered must fit within one of only seven pre-determined job descriptions⁸². The seven eligible occupations do not cover the range of occupations that constitute Canada's IT industry. This facilitative program thus is only viable to certain workers in the software sector and has limited applicability.

Second, the eligible job descriptions are based on older NOC classifications and are inconsistent with the expanding occupational responsibilities of IT workers as evidenced by the 21 occupational classifications identified in by the SHRC. As set out in the introduction of a recent SCHR report "The NOC is very limited in the way IT occupations can be classified, and the available classifications do not reflect that the industry has grown tremendously in recent years"⁸³.

Third, the program's potential as an immigration-based strategy to alleviate labour market shortages is additionally limited in that admission is for a maximum of one year at a time. While status can be renewed or extended upon application, this limitation circumscribes its potential as a retention mechanism.

Fourth, the program is employer driven - an employer must typically request the admission of the foreign IT worker and as such the program does not address the challenges presented by the percentage of self-employed IT workers.

The program eliminates the delay associated with the job-specific LMO process and represents a theoretical shift consistent with the appreciation among policymakers that immigration policy plays a key role in alleviating labour market shortages. The program is an example of a concerted effort to recruit certain skilled workers to alleviate Canadian labour market shortages. Moreover,

⁸² *Ibid.*

⁸³ Note that the SHRC has since adopted a model that further expands upon its earlier classification system. See: "A Comparison of the SHRC Occupational Skills Profile Model (OSPM) to the HRSDC National Occupational Classification (NOC)". See note 38.

an evaluation of the predecessor software development worker pilot project completed found that the pilot project contributed to alleviating the skills shortage problem and found no evidence that Canadian workers were being displaced; of downward pressure on wages paid to Canadian workers in the same industry; it did find evidence of skill transfer from foreign workers to existing staff⁸⁴. In short, this program represents a viable model upon which to build further immigration-based labour market strategies.

6. Other Programs

There are other vehicles including various intra-company transfer provisions that can also be used by IT workers, but are not specifically oriented to this part of the labour force and as such are not covered in this paper. Briefly the *Immigration and Refugee Protection Act* regulations pertaining to intra-company transfers are applicable to all nationals. The NAFTA provisions are applicable to US and Mexican nationals and the GATS provisions apply only to nationals of signatory states. Common to all three versions, the intra-company transferee must have been employed by a branch, subsidiary or parent company outside Canada for a minimum period preceding the application for Work Permit. As such, the intra-company provisions uniformly contemplate a traditional employer-employee relationship.

V. Retention - Competing with the US on the Brain Exchange

In the recent past, Canada has admitted more than 200,000 immigrants a year⁸⁵. Of this number approximately half were selected based on their age, education, occupation demand, work experience, language capability and personal suitability⁸⁶. These skilled foreign nationals become permanent residents on the basis of their ability to become economically established in Canada. As detailed earlier in this paper, many of these immigrants were IT workers and in this limited context, the success of Canada's skilled worker selection program in attracting IT workers has been a success.

⁸⁴ Ekos Research data as reported at "Facilitated", *Supra*, note 80.

⁸⁵ Report to Parliament, *Supra*, note 8.

⁸⁶ The skilled worker selection criterion now consists of six factors: Age, Education, Language, Work Experience, Arranged Employment and Adaptability.

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There is a growing body of work however that questions the overall success of this program as an immigration-based labour market strategy when retention is factored in⁸⁷. Professor DeVoretz points out that in the same period that Canada received 50,578 high tech people it lost 48,670 such people to the United States⁸⁸. Moreover, there is increasing evidence that the NAFTA Professional provisions, as described above and incorporated into US immigration legislation, provide a facilitative avenue to foreign born Canadians to leave Canada for the United States⁸⁹. DeVoretz points out that while Canada had a net admission increase of roughly 200 IT workers during this period the process of gaining these people was extremely expensive. He attributes much of this cost to the fact that in Canada we subsidize post-secondary education⁹⁰. As such we lose on our investment as taxpayers when an individual for whom we have paid for the education, departs Canada to be an economic contributor in the United States or elsewhere in the world⁹¹. He also points a finger at the Canadian tax system as an exacerbating factor noting that in taking taxation into account many IT workers who leave Canada for the United States are simply making a rational and strategic decision⁹².

The US immigration program is not, in contrast to its Canadian counterpart, premised on a wide spread appreciation that immigration policy plays a key role in alleviating demographically based labour market shortages. It is characterized by an employer driven non-immigrant (temporary) and an employer driven immigrant (permanent) petition system. Unlike the Canadian system, with rare exceptions, it is not possible for economic immigrants to self-petition.

⁸⁷ D. DeVoretz, "People, Aspects of Technological Change: Immigration Issues, Labour Mobility, the Brain Drain, and R&D-A Canadian Perspective. Canada -United States Law Journal vol.25; 53, 1999. p67.

⁸⁸ See: D. DeVoretz, & K. Zhang, "Citizenship, Passports and the Brain Exchange Triangle" (January 2003). Research on Immigration and Integration in the Metropolis. Also see: D. DeVoretz & Z. Ma "Triangular Human Capital Flow between sending, Entrepot and the Rest of the World Regions". (April 2006) Canadian Population Studies 29(1):53-59. T. Pedwell, "Volpe Wants Out of County Canadians to Come Home" (November 13, 2005) The Canadian News. But see: K. Richardson, "Sieve or Shield: NAFTA and its Influences within Cascadia. (2002) Research on Immigration and Integration in the Metropolis.

⁸⁹ People Aspects, *Supra*, note 86. p71.

⁹⁰ People Aspects, *Supra*, note 86 p71.

⁹¹ *Ibid.* at p71.

⁹² *Ibid.* at p71.

The main vehicle for the temporary admission to the United States of IT workers is H-1B “Specialty Occupation” status. Established by the *Immigration Act* of 1990, the H-1B non-immigrant category allows U.S. employers to augment the local labor force with highly skilled temporary workers⁹³. The H-1B program is used to employ foreign workers in specialty occupations that require theoretical or technical expertise in a specialized field. H-1B petitions must be filed on behalf of professionals. Professionals are people who hold at least a Bachelors degree, or the equivalent, in a specialized field of knowledge relating to their employment, where holding such a degree ordinarily is considered a prerequisite to entering the field⁹⁴. H-1B workers are admitted to the United States for an initial period of three years, which may be extended for an additional three years⁹⁵. Among typical H-1B occupations are engineers and computer programmers⁹⁶.

As a point of comparison, the H-1B exhibits elements lacking in the Canadian LMO, the NAFTA Professional Computer Systems Analyst and the Canadian IT Workers program.

First, unlike the NAFTA Professional category, it contemplates an evolving list of qualifying professionals.

Second, unlike the NAFTA Professional and the IT Worker Program it allows for experience in lieu of education.

Third, although, like the LMO process it is based on an assessment of labour market demand, in the US context this is an automated process and the results are typically provided within minutes. Thus the delay associated with the assessment of each position on an individual bases that characterizes the Canadian LMO process is nonexistent.

Fourth, it allows for retention as beneficiaries of H-1B status can remain in the United States for an initial period of up to three years.

⁹³ *Immigration Nationality Act* (1990) Pub.L.no. 101-649,104 stat.4978 (IMMACT90).

⁹⁴ *Ibid.* Also see: R. Bacon & L. Kurtz, “An Overview of Specialty Occupation in the H-1B Context” *Immigration & Nationality Law Handbook* 65 (2001-02).

⁹⁵ *INA*, §214(g)(4);8CFR S214.2(h)(13)(iii)(A0,(h)(15)(ii)(B)(1).

⁹⁶ Bacon, *Supra*, note 92.

For all its accolades however the H-1B category is subject to an annual cap congressionally mandated. The current cap, at 65,000, is woefully inadequate in alleviating US labour market shortages in the IT industry and otherwise⁹⁷. The United States, a major competitor in the international competition of IT workers, ironically has a program that exhibits many of the qualities that its Canadian counterpart lacks but the effectiveness of the H-1B program is curtailed by self-imposed restrictions as to availability. As Professor De Voretz's work indicates, there is growing evidence however that *despite* these self-imposed limitations of US non-immigrant and immigrant programs the US nonetheless represents a very formidably opponent to Canada on the new economy brain exchange.

6. Conclusion

Many of the laws and regulations that govern Canada's labour market evolved in an earlier era and are no longer viable in a labour force characterized by the new economy forces of globalization, increased self-employment and labour mobility⁹⁸. This juxtapose is particularly evident in the IT industry with specific reference to Canada's immigration-based strategies designed to alleviate IT labour market shortages.

Canada's immigration laws and strategies are, in large part, based on these same labour law norms appropriate of an earlier era and their effectiveness is accordingly curtailed. The need to move beyond the traditional individual assessment of each employment position offered to a foreign national, the root of the LMO process, toward increased industry-based analysis of labour market shortages is critical. The IT Worker Program is a viable example of the type of program that the Canadian labour market of the future will require. The employer-employee paradigm of work is clearly not viable when we consider the growing range of work relationships emerging within the IT market today. In this respect, the applicable NAFTA Professional requirements provide the best existing precedent as to how future immigration-based labour force strategies might be structured. Turnover within traditional employment relationships and

⁹⁷ L. Lowell, "Information Technology Companies and US Immigration Policy: Hiring Foreign Workers (2000) Fourth Annual International Metropolis Conference. Also see: B. Cohen, "ITAA Says H-1B Cap Needs Significant Increase", IT Services Press Release. August 2005. See also: L. Lowell, Comparative Experiences with Temporary Workers: The United States Third Annual Metropolis Conference, November 1998. Also see: "H-1B Visa Cap Reached" (June 2006) American Immigration Lawyers Association Press Release.

⁹⁸ Rethinking the Employee-Employer Relationship" (2004) Is Work Working? Law Commission of Canada Discussion Paper.

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a shift toward self-employment combined with the importance of continuous education and training, as opposed to traditional university degrees, increasingly characterize this worker population on the vanguard of change. The US H-1B program provides a possible starting point for addressing this new labour force reality.

Immigration laws must be brought into conformity with contemporary IT labour market realities if Canada is to win on the brain exchange. Efforts to attract IT workers to Canada are presently hindered by such incongruence and, there is increasing evidence that Canada cannot afford to be handicapped on the brain exchange. While existing immigration-based labour market strategies do not fully acknowledge much of this reality there are components of existing programs discussed in this paper that provide a suitable departure point for the immigration-based labour force strategies of Canada's future. Demographic, cultural and historical factors make Canada well-suited to the immigration –based labour force strategies that will play an important part in our national effort to win on the new economy brain exchange in the future.