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CANADIAN FORCES COLLEGE / COLLÈGE DES FORCES CANADIENNES

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## **Visions of the Canadian Forces Recruit of 2025**

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**ABSTRACT**

This paper, within the limits of prediction, examines the Canadian Forces recruiting environment in the year 2025. Given the backdrop of the 2008 Canadian Forces Defence Strategy's 20 year horizon, this paper reveals that there are many factors which will mould the CF recruit. The paper address three principal themes to conclude that the Forces will need to adapt its recruiting strategies significantly to ensure it can compete for future workforce.

First, it analysis the predicted competition for workforce. Areas such as demographics, immigration, ageing, shortage of labour, general outlook, competition for talent, and changing worker attitudes are considered. Second, it explores rapidly changing technology and its impact on the future workforce and thereby the Forces. In addition, the influence of Digital Natives, future war-fighting, and new ways of learning and collaborating are studied. Finally, the changing recruiting environment and its implications for the CF are assessed. Within the unique context of the CF, the paper challenges perceptions regarding the relative importance of formal education, performance, and success. It concludes by recommending particular incentives, areas to focus, and change in CF structure to prepare the Forces recruiting system to attract a needed broader segment of Canadian society in 2025.



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## INTRODUCTION

According to a RAND study for the US Department of Labour, there are three key factors that will have the greatest potential to affect workers and employers within the next 15 years: demographics, technological change, and globalization.<sup>1</sup> The US National Intelligence Council predicts that the international system as we know it will be virtually unrecognizable by 2025 as a result of ageing populations in the industrialized world, emerging powers embracing technology, and a globalizing economy.<sup>2</sup>

The US National Intelligence Council predicts the world population will increase from 6.8 billion to some 8 billion people by 2025. India alone will contain 1.45 billion citizens while China will be next with about 1.3 billion. Only 16 percent of the international community will live in the Western hemisphere. Populations in Russia, Eastern Europe, Italy, and Japan will likely decline up to 10 percent while Sub-Saharan Africa will add 350 million people. Countries in Latin America and Caribbean will increase their populations by some 100 million. The population of US, Canada and a few other industrialized states will see continued growth; however, the national population age structures will be more varied than ever while the youngest to oldest profiles will widen even more. In fact, rapid growth of seniors in almost every developed country will likely mean a world-wide ratio of one senior to three working people by 2025.<sup>3</sup> An older society (non pyramid like) affects a state's finances, social security system, and percentage of available workers. This means that the working groups (age 15-65) must create a

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<sup>1</sup> Lynn Karoly, *Forces Shaping the Future U.S. Workforce and Workplace: Implications for 21st Century Work*. RAND Testimony. CT-237, Testimony presented before the House Education and Labor Committee on February 7, 2007; <http://www.rand.org/pubs/testimonies/CT273/>; Internet, accessed 18 December 2008, 2.

<sup>2</sup> US Government. *Global Trends 2025: A Transformed World*. National Intelligence Council, November 2008, vi.

<sup>3</sup> *Ibid.*, 19-21.

surplus of output that can be utilized by both the youngest and the oldest member's of society. The measurement of this effect is called the dependency ratio.<sup>4</sup>

Economist David Foot informs us that "demographics explain about two-thirds of everything."<sup>5</sup> In fact, the more knowledge we have about demographic realities, the more prepared we are to cope with them. If more decision makers understood demographics, it is likely that Canada would run more efficiently. The well being of on an organization requires strategic thinkers that anticipate demographic changes. However, demographic prediction is not always straightforward. Socioeconomic factors also play a role.<sup>6</sup>

Virtually all economic forecasters were caught off guard as the global economy recently entered a deep recession. The resulting stock market losses affected a significant portion of retirement savings and pension plans within a relatively short period of time. According to a recent survey, 48 percent of employed Canadians now believe they will work beyond the retirement age of 65. The economic turmoil has shaken the confidence of Canadians across the country. Admittedly, sudden economic uncertainty may be biasing opinions in the short term. Nevertheless, the survey demonstrates how quickly people can change their plans and attitudes.<sup>7</sup>

As we make predictions there are often reasons to be optimistic. That is, extraordinary things, particularly in the area of technology, can be achieved in a remarkably short time. Some scientists and thinkers assert that, given adequate resources, almost anything can be done in 20

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<sup>4</sup> Noel Brodsky, *A Short Drive Through the 21st Century: "The Future of Energy, Trade and Demographics."* Lulu.com, 2006, 71-75.

<sup>5</sup> David Foot and Daniel Stoffman, *Boom Bust and Echo 2000 - Profiting from the Demographic Shift in the New Millennium.* 2<sup>nd</sup> ed. Toronto: Macfarlane Walter and Ross, 1998, 8.

<sup>6</sup> *Ibid.*, 8-14.

<sup>7</sup> Toronto Star Article, "Hopes fade for Freedom 55". Business Section, 30 January 2009, B-4.

years.<sup>8</sup> The rate of technological progress is accelerating. The world includes far more highly trained people than ever before. About 80 percent of all the scientists who ever lived are alive today.<sup>9</sup> In fact, some claim that the whole twentieth century was actually not 100 years of progress at today's rate of progress. Rather, it was 20 years of progress at today's rate. And we will make another 20 years of progress at today's rate over the next 14 years.<sup>10</sup> People, ideas, cultures, and goods, have always moved and changed - the difference now is the speed and scope. For instance, it took television 13 years to acquire 50 million users while it took the internet only 5.<sup>11</sup>

Looking to the future, Digital Natives, members of developed societies born after 1980, will likely move markets and transform industries, education, and global politics.<sup>12</sup> Over the coming decades, the adaptability of every society, organization, and individual will likely be tested. Thus, it is essential that we change as fast as the world around us.<sup>13</sup> The Canadian Forces (CF) is no different. Like most organizations, it will need to adapt.

Within a 20 year planning horizon, the 2008 Canadian Forces Defence Strategy (CFDS), unambiguously identifies the US as Canada's closest ally. Given North America's common defence and security requirements, it is in Canada's strategic interest to remain a reliable partner

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<sup>8</sup> Edward Cornish, *Futuring: The Exploration of the Future*. Bethesda, Maryland, Published by World Future Society, 2004, 5-6.

<sup>9</sup> *Ibid.*, 226.

<sup>10</sup> *Ibid.*, 12.

<sup>11</sup> Edward Gordon, *The 2010 Meltdown. "Solving the Impending Jobs Crisis."* Praeger Publishers, Westport, CT, 2005, 3.

<sup>12</sup> Palfrey, John and Urs Gasser. *Born Digital. "Understanding the First Generation of Digital Natives."* Basic Books, 2008, 7.

<sup>13</sup> Gary Hamel and Bill Breen, *The Future of Management*. Boston: Harvard Business School Press, 2007, 42.



in the defence of the continent. To that end, the CF to must remain interoperable with the US military and conduct bilateral training to ensure the two nations pursue effective collaboration on world-wide operations.<sup>14</sup> To achieve these objectives, the CFDS stipulates that a military force of 100,000 will be needed.<sup>15</sup> Towards that aim, the Government of Canada has set a goal to increase the number of CF personnel from about 65,000 to 70,000 Regular Forces and maintain some 30,000 Reserve Forces.<sup>16</sup> Moreover, the CFDS highlights that "rebuilding the Forces into a first-class modern military means recruiting the best and the brightest that Canadian communities have to offer."<sup>17</sup>

According to CF Strategy 2020, which is one strategic framework used for Defence planning, adaptable and innovative institutions will outperform those unable to integrate new information technologies and management practices into their business process. As the percentage of people in the workforce declines due to demographics, competition for the best and brightest will accelerate.<sup>18</sup> Furthermore, the changing demographic background of Canada will have a significant impact on the labour force and expectations for government. In addition, by 2017, one-half of the visible minority population in Canada will be either Chinese or South Asian. Based on current trends, it is likely that the larger part of the future skilled workforce will

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<sup>14</sup> Canada. Department of National Defence. *Canada First Defence Strategy*. June 2008, 8.

<sup>15</sup> *Ibid.*, 12.

<sup>16</sup> *Ibid.*, 4.

<sup>17</sup> *Ibid.*, 16.

<sup>18</sup> Canada. Department of National Defence. *Shaping The Future of the Canadian Forces: Strategy 2020*, Ottawa: Department of National Defence, June 1999; Available from <http://www.cds.forces.gc.ca/str/index-eng.asp>; Internet; accessed 2 January 2009, 4.

depend on older Canadians staying on after traditional retirement ages. Other North Atlantic Treaty Organization (NATO) militaries face a similar situation.<sup>19</sup>

Other members of the CF have studied their organization's future prospects. Lieutenant-Colonel John Cullen predicts that given the realities of the talent pool, the competition for quality personnel in the future will be fierce.<sup>20</sup> In contrast, Colonel Kevin Cotten argues that, assuming suitable financial resources and competitive salaries and benefits, the overall ageing of the Canadian population will not have insurmountable effects on the recruiting requirements of Canada's defence institutions.<sup>21</sup> In other words, the recruiting pool will be sufficient going forward based on a combination of births and immigration.<sup>22</sup>

In yet another view, Professor Adam Chapnick observes that despite recent increases in public awareness of political engagement with national expressions of allegiance to the CF, young Canadians remain less than fully enthusiastic and, as a result, recruitment goals have not been met. Others may argue that Canadian youth, with their limited knowledge of Canadian history, do not have the same sense of citizenship as their parents and grandparents and neither understand nor appreciate the wartime sacrifices made by previous generations. Since conscription is not a realistic option for Canada, the CF has to adopt new strategies and de-

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<sup>19</sup> Canada. Department of National Defence. *The Future Security Environment 2007-2030 Part One*. 8 November 2007 - Draft. Chief of Force Development, 17-19.

<sup>20</sup> Cullen J.W., Lieutenant-Colonel, "The Perfect Storm: The Canadian Forces' Fight To Retain Its People; How Can It Win In This Competitive Talent Environment". Toronto: Canadian Forces Joint Command and Staff Programme Course 34 Masters in Defence Studies Paper, 2008, 6.

<sup>21</sup> Cotten K.R., Colonel, "Old Age Security?" National Security Implications of an Aging Canadian Population. Toronto: Canadian Forces College NSSP IX Paper, 21 May 2007, 33.

<sup>22</sup> *Ibid.*, 45.

emphasize the old obsolete military culture to attract and motivate recruits in the future.<sup>23</sup>

Regardless of opinions and predictions, the CF is likely to face recruiting challenges.

Within the limits of prediction, this paper will paint a picture of the future environment which will ultimately produce the CF recruit of 2025. It will address the potential impact of increased competition for people and changing technology on the CF and recommend methods to make the Forces more attractive to the recruit. The year 2025 has been chosen to reflect that approximately 20 year outlook which fits within the future aims of the CF as set out in the CFDS.

To be clear, this paper will only focus on the attraction and recruiting part of the potential human resource challenges faced by the CF. It will not address the retention of personnel. Admittedly, there is a direct link between recruiting and retention. That is, if past, current, and future retention strategies are successful, CF recruiting goals by 2025 are likely to be manageable. In fact, a new CF retention strategy is scheduled to be released in 2009.<sup>24</sup> Nevertheless, changes in recruiting strategies to meet current and future demands will likely continue.<sup>25</sup> This paper will not take issue with any arguments that propose that successful retention is the key to improving the overall personnel health of the CF. However, today, no one knows how current or future retention strategies will unfold by 2025.

When examining the potential recruiting environment in 2025, we cannot focus exclusively on Canada and its estimated adult working age population. There are other factors

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<sup>23</sup> Adam Chapnick, "Not Necessarily Conscription... Bringing the Forces up to Strength: A Question of Motivating Youth to Serve." *Canadian Military Journal* 7. no. 2 (Winter 2006-2007), 89-91.

<sup>24</sup> Semianiw, W. Major-General, "Dimensions and Demographic Challenges of Canadian Human Resources and their effects on the Canadian Forces." *Presentation to the Joint Command and Staff Programme* 35, Toronto: Canadian Forces College, 8 December 2008, Slide 62.

<sup>25</sup> *Ibid.*, 75.

which will mould the CF recruit of 2025. Within this context, this paper will show that, due to the high demand for workers, and the impact of changing technology, the CF will need to adapt its recruiting attraction strategies significantly to ensure that it can compete for future workforce.

## **I. THE COMPETITION FOR PEOPLE IN 2025**

### **A. DEMOGRAPHICS AND IMPACT**

#### **Canada's situation today**

The 2006 Canadian Census found that there were about 31.6 million people living in the country. Canada had a higher rate of population growth (5.4%) than any other G8 country between 2002-2006. Two-thirds of that growth was attributable to net international migration. In 2006, about 25 million people (more than 80%) were living in urban areas. Approximately 14.1 million people lived in one of the six metropolitan areas with a population of more than 1 million: Toronto, Montreal, Vancouver, Ottawa-Gatineau, Calgary, and Vancouver. Virtually all the population increase occurred in Alberta, Ontario, BC, and Quebec. Ontario represents half of Canada's population growth (some 1.6 million). Canada's fertility rate has remained at about 1.5 children per woman for the last 10 years. The population is ageing. The annual number of deaths is increasing. According to projections, net immigration may become the only source of population growth by 2030.<sup>26</sup> Moreover, Canada's birthrate is about 40% below the level needed to avoid long-term population loss.<sup>27</sup>

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<sup>26</sup> Canada. Statistics Canada. "Population and Dwelling Counts, 2006 Census." *Portrait of the Canadian Population in 2006, Census year 2006*. Available from <http://www12.statcan.ca/english/census06/analysis>; Internet; accessed 2 January 2009, 5-22.

<sup>27</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, Demographic Change Facts page.

While Canada's fertility rate is declining, life expectancy is increasing. In 2005, Canada had the second largest population of foreign born citizens (19.2%). Canada has placed a strong reliance recently on migration from developing countries, in particular China (18%), India (11%), Philippines (7%), Pakistan (4%) and Romania (4%).<sup>28</sup> Also noteworthy is that 51% of recent immigrants had university degrees. This is more than twice the proportion of university graduates among the Canadian born population.<sup>29</sup>

### **CF demographic situation today**

As of September 2008, the CF Regular Force included a total of 64,754 personnel. The Reserve Force had a strength of 33,118. The recruiting target for fiscal year 08/09 is 8,019 and the CF expects to reach at least 90 percent of it.<sup>30</sup> Within the CF, there are relatively small numbers of personnel with seven to sixteen years of service; this represents a significant experience gap.<sup>31</sup> Nevertheless, by 2025, the gap caused by that cohort will have more or less passed through the system.

The most recent CF strategy places recruiting at the heart of the CF mission and focuses on five key objectives: effective communication with Canadians, an efficient and effective recruiting process, a demographic composition more reflective of Canadian society, the enrolment of committed individuals in the right occupations, and the promotion of the CF as an

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<sup>28</sup> Lesleyanne Hawthorne, "Labour Market Outcomes for Migrant Professionals: Canada and Australia Compared - Executive Summary." University of Melbourne, Australia, December 2006, 1.

<sup>29</sup> Semianiw, Major-General, "Dimensions and Demographic Challenges of Canadian Human Resources and their effects on the Canadian Forces." *Presentation to the Joint Command and Staff Programme 35*, Toronto: Canadian Forces College, 8 December 2008. Slide 12.

<sup>30</sup> *Ibid.*, 16-21.

<sup>31</sup> *Ibid.*, 26.

employer of choice.<sup>32</sup> The CF's aim is to have an inclusive workforce representative of Canadian society. It considers diversity and creativity a source of strength that will play a pivotal role for the CF going forward.<sup>33</sup> The CF is working with Canada's Department of Immigration to determine how the system might help to increase immigrant enrolment. It is also asking former CF members to return.<sup>34</sup>

### **Canada's projected population and demographic make-up**

Statistics Canada has made a series of projections of Canada's population in the year 2026 by age group and gender. This paper will follow the standard practice of using its medium growth scenario. In 2026, Canada's estimated population will be about 37.9 million. That population will include some 18.7 million males and about 19.2 million females. There will likely be about 24.2 million adults within the traditional working age group of 15 to 65.<sup>35</sup>

By 2017, one in five Canadians will be a visible minority. Chinese and South Asian immigrants will remain the largest minority groups. They are likely to continue the trend of settling in the three largest urban centres of Toronto, Vancouver, and Montreal. By 2017, visible minorities could represent 50% of the population in Toronto and Vancouver for reasons such as proximity to family, friends, ethnic groups, availability of jobs, climate, and language. Of particular note, an increasing percentage of more recent immigrants speak neither English nor

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<sup>32</sup> Canada. House of Commons Committees - PACP (39-1). Government Response to the Eleventh Report of the Standing Committee on Public Accounts: Chapter 2 of the May 2006 Report of the Auditor General of Canada on National Defence - Military Recruiting and Retention. Available from <http://www2.parl.gc.ca/> Internet; accessed 7 January 2009, 2.

<sup>33</sup> *Ibid.*, 4.

<sup>34</sup> *Ibid.*, 10.

<sup>35</sup> Canada. Statistics Canada. "Projected population by age group according to three projection scenarios for 2011, 2016, 2021, 2026, and 2031." Available from <http://www40.statcan.gc.ca/cbin/fl/cstprintflag.cgi>; Internet; accessed 18 December 2008.

French as a first language.<sup>36</sup> By 2025, close to 25% of Canadians will be aged 65 years or older. Moreover, Canada's Standing Senate Committee on Banking, Trade and Commerce predicts there will be about 40 retirees for every 100 working-age persons. Clearly, relative to today, the CF will be recruiting from a generally older population containing more immigrants clustered mainly in the largest cities.

## **B. IMMIGRATION**

### **Canada will continue to need immigrants**

The Canadian government is committed to safeguarding the security and integrity of the immigration system while acknowledging the importance of immigrants to the health of Canada's economy. In fact, in 2009, Canada plans to take in between 240,000 and 265,000 new permanent residents. Of that number, at least 140,300 will be skilled workers and business immigrants. It is clear that immigration strengthens and invigorates Canadian society. More importantly, it contributes to the growth of the economy.<sup>37</sup>

The Center for Global Development observes that by 2006 one in five Canadians favoured increasing immigration and only 42 percent favoured reducing immigration. This suggests that Canada is the most immigrant friendly industrial country.<sup>38</sup> Furthermore, Citizenship and Immigration Canada (CIC) acknowledges the importance of immigrants to

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<sup>36</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, 7.

<sup>37</sup> Canada. Citizenship and Immigration Canada. Annual Report to Parliament on Immigration 2008. Available from [http://www.cic.gc.ca/english/pdf/pub/immigration2008\\_e.pdf](http://www.cic.gc.ca/english/pdf/pub/immigration2008_e.pdf); Internet; accessed 29 December 2008, 5.

<sup>38</sup> Lant Pritchett, Let their People Come. "Braking the Gridlock on International Labor Mobility." Washington, DC, Center for Global Development, Brookings Institution Press, 2006, 75.

Canada's short and long-term labour shortages. Canada needs more skilled workers.<sup>39</sup>

Understanding the importance of a quick integration of skilled immigrants into the Canadian labour market, CIC has implemented a fast track programme with many stakeholders to recognize foreign credentials.<sup>40</sup> This indicates that Canada will continue to place a high priority on attracting immigrants. As a result, the CF will have to place even more emphasis on attracting them as part of its recruiting strategy.

Despite Canada's reputation as being immigrant friendly and one of the best equipped among industrial countries to deal with the world demographic and jobs crisis, business author Edward Gordon predicts that Canada will have a million-person labour shortage by 2020.<sup>41</sup> Moreover, according to a report prepared for the C.D. Howe Institute, even if Canada increased its rate of immigration to one percent of its population, about 320,000 people per year, a 45 percent increase over the average level 1995-2005 time period, the future age structure of Canada's population would not significantly impact the coming shift in the ratio of older to working-age Canadians.<sup>42</sup>

Under several immigration scenarios, even if Canada was to boost labour supply by vastly increased immigration of young people, it would still be a daunting task to change the dependency ratio. The C.D. Howe Institute argues that a more realistic effective approach is to

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<sup>39</sup>Canada. Citizenship and Immigration Canada. Annual Report to Parliament on Immigration 2008. Available from [http://www.cic.gc.ca/english/pdf/pub/immigration2008\\_e.pdf](http://www.cic.gc.ca/english/pdf/pub/immigration2008_e.pdf); Internet; accessed 29 December 2008, 8-9.

<sup>40</sup> *Ibid.*, 39.

<sup>41</sup> Edward Gordon, *The 2010 Meltdown. "Solving the Impending Jobs Crisis."* Praeger Publishers, Westport, CT, 2005, 99.

<sup>42</sup> Yvan Guillemette and William B. P. Robson, *No Elixir of Youth - Immigration Cannot Keep Canada Young.* Toronto: C.D. Howe Institute, 2006, available at [http://www.cdhowe.org/pdf/background\\_96.pdf](http://www.cdhowe.org/pdf/background_96.pdf); Internet, accessed 2 January 2009, 1-2.



move the point at which the population is assumed to become inactive from 65 to 70 over the next 20 years. If for example, starting in 2008, Canada raised that age by one year every four years, that inactive age would reach age 70 in 2024. In fact, this rather modest and gradual change in the traditional retirement structure would do more to reduce the old-age dependency ratio than extreme changes to immigration policy.<sup>43</sup> This is a fair point. Even with healthy levels of immigration, to compete, the CF will have to attract much older workers than has traditionally been the case to ensure its available recruiting pool is maximized. As such, the mandatory CF retirement age should reflect necessary adjustments we see in the society. Raising the CF mandatory retirement age, incrementally, from 60 to 65 would align better with expectations of the civilian workforce.

### **Other countries will want immigrants and compete for Canadian talent**

The aging population holds challenging implications for employers in many countries.<sup>44</sup> The current UN population projections suggest that the labour force (age 15-65) of most European countries (and Japan) will not just stop growing, but actually decline in absolute terms within the next 20 years. Concurrently, the neighbours of Europe and Japan still have fertility rates well above population replacement levels. This different demographic future will likely mean two things. First, the relative populations of regions will shift in a massive way. Second,

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<sup>43</sup> Yvan Guillemette and William B. P. Robson, *No Elixir of Youth - Immigration Cannot Keep Canada Young*. Toronto: C.D. Howe Institute, 2006, available at [http://www.cdhowe.org/pdf/background\\_96.pdf](http://www.cdhowe.org/pdf/background_96.pdf); Internet, accessed 2 January 2009, 8-10.

<sup>44</sup> Roger Herman, Thomas Olivo, and Joyce Gioia, *Impending Crisis. "Too Many Jobs Too Few People."* Oakhill Press, Winchester, VA, 2003, 41-42.

changes in labour force-age populations will transform even more dramatically, creating a youth shortage in some countries and a youth swell in others.<sup>45</sup>

More than 80 percent of the world's people currently live in developing countries and 85 percent will live in developing countries by 2025.<sup>46</sup> The Chairman of the Institute for Global Futures, James Canton, predicts that the mobility of workers will be a key enabler of economies. Nations that restrict immigration will likely falter. Those that encourage immigrants and retain them will be more competitive in the global information economy going forward.<sup>47</sup> In fact, the Organization for Economic Cooperation and Development (OECD) documents movement toward more high-skill-friendly migration policies in virtually all developed countries. In addition, most countries continue to revise their formulas by which migrants are selected to place more weight on factors such as education and potential economic contribution and much less on family reunification.<sup>48</sup> Certainly, technology continues to automate and increase efficiency; however, skilled humans still beat out robots. Unlike robots, people have flexibility which increases their adaptability and ability to perform new services and make new products.<sup>49</sup>

By 2015, as a result of its one-child policy, China will experience a demographic squeeze. In fact, China's rate of ageing will likely be faster than that of any other country in

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<sup>45</sup> Lant Pritchett, *Let their People Come. "Braking the Gridlock on International Labor Mobility."* Washington, DC, Center for Global Development, Brookings Institution Press, 2006, 27.

<sup>46</sup> James Canton, *The Extreme Future: Top Trends That Will Reshape the World for the Next 5, 10, and 20 Years.* Dutton. Penguin Books Ltd. London, 2006, 206.

<sup>47</sup> *Ibid.*, 110.

<sup>48</sup> Lant Pritchett, *Let their People Come. "Braking the Gridlock on International Labor Mobility."* Washington, DC, Center for Global Development, Brookings Institution Press, 2006, 107-108.

<sup>49</sup> Edward Gordon, *The 2010 Meltdown. "Solving the Impending Jobs Crisis."* Praeger Publishers, Westport, CT, 2005, 18.

history.<sup>50</sup> China enjoys a rich tradition of innovation and invention. At present, the country is rapidly deploying new technology. As China's economy grows, so does its gross national income. China, with over one billion people, will be a large and fast-growing market with a much larger middle class in the immediate future.<sup>51</sup> The birth rate in India is dropping. Moreover, Europe is no longer a source of much immigration. Therefore, Canada will have to compete for immigrants.<sup>52</sup>

By 2025, international migrations' human capital and technological transfer effects will begin to favour the stable Asian and Latin American countries. There will likely be a return of many wealthy and educated Asian and Latin Americans from the US, Canada, and Europe to improve competitiveness and reduce skilled labour shortages in China, India, Brazil and Mexico.<sup>53</sup> As India's domestic economy grows and its middle class expands, the country will likely begin to fight for high-skilled workers for its own high-tech economy. Japan, which as a country is less enthusiastic than most about immigration, is ageing so rapidly it will need some 600,000 immigrants every year until 2050 just to keep its workforce stable. Furthermore, Edward Gordon estimates that between 2010 and 2030, at current immigration rates, the European workforce faces an overall decline of 20 million people.<sup>54</sup> In fact, by 2030, Africa will

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<sup>50</sup> *Ibid.*, 90.

<sup>51</sup> Noel Brodsky, *A Short Drive Through the 21st Century: "The Future of Energy, Trade and Demographics."* Lulu.com, 2006, 54.

<sup>52</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, 28.

<sup>53</sup> US Government. *Global Trends 2025: A Transformed World.* National Intelligence Council, November 2008, 24.

<sup>54</sup> Edward Gordon, *The 2010 Meltdown. "Solving the Impending Jobs Crisis."* Praeger Publishers, Westport, CT, 2005, 91-93.

be the last place with a large low-skilled labour force.<sup>55</sup> As a result of this world-wide competition for people, Canada may have to focus its immigration strategies on Africa since traditional sources of immigration such as China and India may decrease substantially. As result, the CF may see more candidates of African origin at recruiting centres.

Given predictions which show declining and ageing populations, even Europe may start to compete directly with Canada to find workers from the same countries that Canada currently attracts it immigrants. Since 2000, immigration has represented more than 60 percent of the population growth in Canada.<sup>56</sup> Therefore, it is likely that Canada will be competing more intensely with other countries for immigrants by 2025. If Canada falls short of its immigration goals, the availability of workers will reduce thereby indirectly exacerbating the competitive pressures to find and attract CF recruits.

Despite the current recession, the structural demographic forces are now in place for a war for talent for at least the next 20 years. In the US, in the decade following 2010, the principal talent pool for managers and workers under age 45 will shrink by 6 percent. In 2000, 27 percent of the US population was 18 or under, and 21 percent were 55 or older. By 2020, only 25 percent will be under 18 and 30 percent will be 55 or older.<sup>57</sup> As a result of worker shortages, the US, which has a long tradition of being a "brain drain" for Canada, could entice even more Canadians to work south of the border. Moreover, in the OECD ranking of education skills,

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<sup>55</sup> Noel Brodsky, A Short Drive Through the 21st Century: "The Future of Energy, Trade and Demographics." Lulu.com, 2006, 100-101.

<sup>56</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, Demographic Change Facts page.

<sup>57</sup> Edward Gordon, The 2010 Meltdown. "Solving the Impending Jobs Crisis." Praeger Publishers, Westport, CT, 2005, 13.

Canada placed third and fifth in reading and math respectively in 2003 while the US placed fifteen and twenty-fourth.<sup>58</sup> Although increased investment by the US in early childhood and public education could improve its relative standing, it is unlikely that this relative difference in education standards between Canada and the US will change significantly. Therefore, given its close proximity, Canada's biggest competitor for workers will likely be the US. This is not to suggest that those individuals leaving Canada to fill jobs in the US would be likely candidates to join the CF. Nonetheless, out of necessity, if the US competes head to head with Canada for its workers, the corresponding ripple effect simply means fewer workers in the potential CF recruiting pool. This may not be the most significant concern for the CF. However, the point to highlight is that employers in Canada, and therefore the CF, will face competition for available workers from within and outside the country.

### **Immigrants will still be attracted to Canada**

Canada's health care system, local planning, criminal-justice and immigration policies are comparatively successful. Literacy is high, crime rates are low, and life is civil.<sup>59</sup> The OECD states that Canada is well positioned, relative to many other countries, to deal with the challenges of an ageing population.<sup>60</sup> Moreover, by 2025, Canada is likely to be considered a climate change winner. Most of the country will likely be spared serious North American climate-related factors such as intense hurricanes and alarming heat waves. Warming is likely to open up millions of square kilometres to development and resources. Improved access to Hudson Bay

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<sup>58</sup> *Ibid.*, 72.

<sup>59</sup> Richard Carlson and Bruce Goldman, *Fast Forward*. "Where Technology, Demographics, and History Will Take America and the World in the Next Thirty Years." Harper Collins Publishers, New York, NY, 1994, 92.

<sup>60</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, 39.

and other parts of the Canadian arctic will likely be a geopolitical and economic bonus. Moreover, the agricultural growing season will increase, net energy demand will decrease, and forests will expand. Relatively speaking, access to fresh water will be stable.<sup>61</sup> Given the growing concern over the environment and climate change, Canada could achieve an even more enviable reputation for the quality of life of its peoples. Despite some looming challenges, Canada will be a desired destination for immigrants around the world for the foreseeable future. It is this promise of quality of life factor which is likely to keep a reasonable flow of immigrants settling in Canada. As a result, the CF will need to attract candidates from immigrant communities to sustain recruiting goals.

### **C. GENERAL OUTLOOK BY 2025**

#### **The Global, US, and Canadian situation**

The US National Intelligence Council predicts that the eight largest economies in 2025 will be, in descending order: US, China, India, Japan, Germany, UK, France, and Russia. Over the next few decades, the number of people considered to be in the middle class will dramatically increase from 440 million to 1.2 billion - most of whom will be from China and India. Within ten years, it is likely that China and India will achieve near parity in scientific/human capital and business innovation and compete in other areas. Regardless, it is likely that the US will remain in the lead in business sophistication and creativity.<sup>62</sup> Four billion people will be doing internet

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<sup>61</sup> US Government. Global Trends 2025: A Transformed World. National Intelligence Council, November 2008, 52.

<sup>62</sup> *Ibid.*, 7-13.

commerce in the near future.<sup>63</sup> Total information technology and communications spending worldwide, by 2015, is likely to exceed \$5 trillion.<sup>64</sup>

Although the US economy is facing serious challenges in the current global recession, a CF Chief of Force Development Document predicts that the US will remain the world's only superpower (diplomatic, social, economic, and military) able to promote its interests in every part of the world through the period to 2030. Its allies will be challenged to keep pace with US military technology.<sup>65</sup> Concurrently, it is likely that the US will remain Canada's primary trading partner to at least 2030 and beyond.<sup>66</sup> Therefore, the CF, not surprisingly, will have to pay close attention to US military equipment, technology, and training to remain interoperable. In addition, given the special close relationship, trends, practices, and lessons learned from the much larger US military in regards to recruiting may be transferable to CF recruiting strategies of the future.

As Canada remains economically intertwined with the US, Richard Florida argues that Toronto is the foundation of a bi-national mega region with a population of more than 22 million people and an economy of some \$530 billion, making it the fifth largest mega-region in North America and twelfth largest in the world. A mega region is a concentration of talent, innovation, and creativity which due to its clustering force becomes an engine of economic growth. Toronto is a significant economic centre with superb universities, arts, entertainment, design, and culture industries with the most diverse population in the world. Relative to other mega-regions, it is

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<sup>63</sup> James Canton, *The Extreme Future: Top Trends That Will Reshape the World for the Next 5, 10, and 20 Years*. Dutton. Penguin Books Ltd. London, 2006, 51.

<sup>64</sup> *Ibid.*, 55.

<sup>65</sup> Canada. Department of National Defence. *The Future Security Environment 2007-2030 Part One*. 8 November 2007 - Draft. Chief of Force Development, 4-5.

<sup>66</sup> *Ibid.*, 24.

safe, affordable, with a wide mix of prosperous economic classes.<sup>67</sup> Furthermore, Canadian academic Rudyard Griffiths predicts by 2020, of the 250,000 immigrants who pick Canada yearly, almost half will settle in Toronto. The city could therefore be home to a population of 8 million.<sup>68</sup> Even if this prediction falls short, the draw of Toronto will continue for immigrants since it appears to offer labour market advantages for degree qualified migrants. In fact, the development of significant settlement services has resulted in Toronto becoming a major immigrant-receiving location.<sup>69</sup> As a consequence, recruiting strategies must target Toronto in particular since that is where most of the immigrants, which the CF will need, will live.

Author Richard Florida's map of global innovation clearly shows a world composed of innovative hot spots. Among the pack of leading world cities for innovation, Toronto and Vancouver are highlighted.<sup>70</sup> However, those Canadian non-core regions and small towns will not benefit from immigration or internal migration in the future. Consequently, it will be difficult for Canada's less populated areas to renew their labour force.<sup>71</sup> Urbanization is likely to be a continuing trend in Canada. In fact, in a report prepared for the CF Chief of Force Development predicts that by 2027, the proportion of the Canadian population living in urban

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<sup>67</sup> Richard Florida, *Who's Your City? "How the Creative Economy is Making Where to Live the Most Important Decision of Your Life."* Random House Canada, 2008, 53.

<sup>68</sup> Rudyard Griffiths, *Postscript to Canada in 2020. Twenty Leading Voices Imagine Canada's Future.* The Dominion Institute. Key Porter Books, Toronto, Ontario. 2008, 214.

<sup>69</sup> Leslyanne Hawthorne, "Labour Market Outcomes for Migrant Professionals: Canada and Australia Compared - Executive Summary." University of Melbourne, Australia, December 2006, 11.

<sup>70</sup> Richard Florida, *Who's Your City? "How the Creative Economy is Making Where to Live the Most Important Decision of Your Life."* Random House Canada, 2008, 25.

<sup>71</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, 27.



centres larger than 10,000 will surpass 80 percent. In particular, four areas are emerging. They are: Ontario's Golden Horseshoe, Montreal and surrounding area, BC's Lower Mainland/South Vancouver Island, and the Calgary-Edmonton corridor.<sup>72</sup> The continuing shift from rural to urban along with immigrant preference for large cities will impact future CF recruiting strategies and force structure. It is clear where most of the Canadian population will live and why they will live there. As a result, the CF will have to focus even more recruiting resources and infrastructure close to the cities (innovative hot spots) because that is where most of its potential recruiting pool will be.

### **Myths about ageing populations**

More baby boomers in the future could mean more retirees, but not necessarily the total dependency that is often predicted.<sup>73</sup> Although his findings are debateable, James Canton predicts that cognitive brain-science will protect the ageing mind, refresh memories, improve physical agility, and promote human performance. By 2025, longevity medicine could make living beyond 100 a possibility for many. Medicine by 2025 could be more predictive, preventative, restorative, performance enhancing, augmentative, and life-extending than ever before. As a result, societies will likely have more productive workers for a longer period. Moreover, it is probable that enhanced memory, long-range vision, wide-spectrum hearing, on demand strength augmentation, and infrared night vision will become more available to ageing workers.<sup>74</sup> Regardless of these specific predictions, it is fair to assume that advances in science

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<sup>72</sup> Canada. Department of National Defence. *The Future Security Environment 2007-2030 Part One*. 8 November 2007 - Draft. Chief of Force Development, 20.

<sup>73</sup> Edward Cornish, *Futuring: The Exploration of the Future*. Bethesda, Maryland, Published by World Future Society, 2004, 25.

<sup>74</sup> James Canton, *The Extreme Future: Top Trends That Will Reshape the World for the Next 5, 10, and 20 Years*. Dutton. Penguin Books Ltd. London, 2006, 118-127.

and medicine will continue to assist older workers adapt to the physical and mental challenges of ageing.

The CF now welcomes older recruits. The Forces' approach is consistent with renowned expert economist James Schulz's observation that chronological age is a poor indicator of ability. In fact, mental and physical capacity varies widely at all ages. Furthermore, good attitudes and job performance know no age limit and older workers score as well or better than their younger colleagues on test of creativity and flexibility. Despite concerns by some, they are able to learn new skills, have lower rates of absenteeism, fewer accidents, and less job turnover. Moreover, potential performance declines by older workers are often offset by experience and higher rates of productivity.<sup>75</sup>

To recognize the realities of the labour shortages, CF recruiting initiatives must target older talent. Organizations must eliminate mandatory retirement practices, make work accommodations such as flex-time, part-time, phased retirement and implement measures to enhance work-life balance. In fact, the Canadian Standing Senate Committee on Banking, Trade and Commerce recommends that compulsory retirement age be eliminated.<sup>76</sup> Given demographic realities in 2025, it is important that older workers (beyond 65) remain part of the workforce if they so choose. The CF must accept this reality as it competes for recruits. It was not that long ago that the CF raised the mandatory retirement from age 55 to 60. Certainly the CF is unique compared to civilian organizations and requires its members to meet different if not more rigorous fitness and medical standards. As a result, having a CF mandatory retirement age

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<sup>75</sup> James Schulz and Robert Binstock, *Aging Nation. "The Economics and Politics of Growing Older in America."* Praeger Publishers, Westport, CT, 2006, 161.

<sup>76</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, 16-19.

of 65 is a reasonable compromise while still reflecting the trend in Canadian society which is adapting to older workers. Attracting the older candidate will reduce pressure on the CF recruiting system in its competition for younger workers.

### **People likely to re-think retirement**

Retirement is a phenomenon of modern industrial society. Older members of previous generations simply did not retire.<sup>77</sup> Baby boomers in Canada, those born between 1945-1960, will be 60 to 75 years old by 2020. Retirement, and economic down turns, places financial pressures on the Canadian pension plans. By 2025, Canada can expect the public pension cost for each worker to increase by some 75 percent. To illustrate, today, health care and public pension costs represent some 15 percent of GDP. If current rates continue, by 2025, no less than 25 percent of all economic output Canada produces will be needed to cover healthcare and public pension costs. To alleviate financial strain on any given pension plan or system, by far the most effective solution is to delay retirement. In fact, putting off retirement for five years reduces the cost of contributions by some 40 percent.<sup>78</sup> As pensions face financial strain and people delay retirement, the CF has an opportunity to implement a revised pension plan which would attract recruits at various life stages. This recommendation will be examined later in the paper.

### **Worker attitudes and expectations**

According to a futurist in workforce issues, Roger Herman, in the past, when job-hopping was frowned upon, work was not necessarily supposed to be enjoyable, meaningful, and rewarding. Today, however, attitudes and behaviours are different. People feel that work should

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<sup>77</sup> James Schulz and Robert Binstock, *Aging Nation. "The Economics and Politics of Growing Older in America."* Praeger Publishers, Westport, CT, 2006, 145.

<sup>78</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, 34.

be fun, meaningful and rewarding. For the most part, society condones this career freedom. Therefore, successful employers respond to employee needs and desires, aligning workers' preferences with their own and their institution's needs. It is likely that people graduating from university will hold an average of eleven jobs in their working lifetimes. Herman observes that the hierarchy of the well-ordered, work-based social system has shifted. When there are plenty of employment opportunities available, workers no longer need to protect their positions in the company. North America is home to an employee-centred work environment. An emerging sense of worker autonomy has become part of the employment environment.<sup>79</sup> Admittedly, economic factors of the day may affect worker attitudes in the short term. However, the CF recruiting strategy of the future will have to market the CF as a job as much a career.

Most successful companies have restructured work tasks in ways that would allow them to attract more women into their workforces - particularly women with family responsibilities.<sup>80</sup> Lateral and downward mobility will be essential for a workforce with roughly equal numbers at all ages. Furthermore, flexible career ladders may accommodate workers' changing health, family, and financial needs in the future. The reformulation of pay, benefits, and working conditions where a job can fit into workers' life stages will be necessary. As just one case in point, the US military is currently struggling to recruit and retain young adults, particularly once they start to have families.<sup>81</sup> With both parents working, raising children has become a challenge. Often, childcare is the biggest concern. Working long hours and managing

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<sup>79</sup>Roger Herman, Thomas Olivo, and Joyce Gioia, *Impending Crisis. "Too Many Jobs Too Few People."* Oakhill Press, Winchester, VA, 2003, 53-62.

<sup>80</sup> John Messenger, *Working Time and Workers' Preferences in Industrialized Countries - Finding the Balance.* International Labour Office, Geneva, Switzerland, 2004, 148-149.

<sup>81</sup> Mitchel, Olivia, et al, *Benefits for the Workplace of the Future.* Pension Research Council, The Wharton School of the University of Pennsylvania, University of Pennsylvania Press, Philadelphia, 2003, 37-38.

conflicting shifts means workers want different relationships with their employers. They want a better work-life balance.<sup>82</sup> The ability of workers to influence their life-work balance is usually a win-win situation and appears to have the strongest impact on worker performance and productivity.<sup>83</sup> For the CF, due to the nature of its employment, guaranteeing an acceptable work-life balance can be challenging. Nevertheless, to attract sufficient recruits, particularly those with families, the CF must consider offering geographical guarantees, an idea which will be addressed later in this paper.

Due to worker shortages, future employers will have to address learning needs and provide the necessary education, training, and personal development. At first glance, this may seem like a huge expense. But it is an expense that employers must take and the return on investment is likely to be substantial. Herman argues that certain perceived credentials listed on a resume can be overstated. In the end, what employers of the future need are people who can reason, think, solve problems, and communicate effectively with others. Efforts must be made to enhance the labour force options available to seniors and those approaching retirement age if Canada is to prosper.<sup>84</sup> In addition, so called obsolete workers, with a solid employment record, will need to be retrained. Many of them will be older.<sup>85</sup> Many of them could be targeted by and retrained in the CF.

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<sup>82</sup> Roger Herman, Thomas Olivo, and Joyce Gioia, *Impending Crisis. "Too Many Jobs Too Few People."* Oakhill Press, Winchester, VA, 2003, 70.

<sup>83</sup> John Messenger, *Working Time and Workers' Preferences in Industrialized Countries - Finding the Balance.* International Labour Office, Geneva, Switzerland, 2004, 187.

<sup>84</sup> Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008, 12-13.

<sup>85</sup> Roger Herman, Thomas Olivo, and Joyce Gioia, *Impending Crisis. "Too Many Jobs Too Few People."* Oakhill Press, Winchester, VA, 2003, 85-93.

International Labour Office expert John Messenger observes that family formation and young children have a strong gender-differentiated impact on labour market participation and working time patterns.<sup>86</sup> In Canada, for instance, 70 percent of men age 40 or older work 40 or more hours per week. Yet, only 36 percent of women in the same age group do so.<sup>87</sup> What this means for CF recruiting is that relative to men, women over 40 are underrepresented in the fulltime workforce. This fact is likely brought on by family commitments. Family commitments and stability will be a serious consideration regarding the choice of job selection for future recruits. The CF recruiting system will have to adjust accordingly by showing potential female recruits that geographical service guarantees will assist in alleviating their family concerns.

### **People want jobs that provide them with an opportunity to create**

As a result of technological improvements, it has never been easier for humans to create. Digital technology is rapidly democratizing the tools of creativity and allowing human imagination to flourish. Large organizations are full of creative people and they hold collective wisdom. Formal credentials and years of experience are no longer considered the most prominent indicators of potential creativity.<sup>88</sup> A report prepared for the US National Research Council regarding implications for military recruitment shows that men and women rank having a job which is interesting as their top priority.<sup>89</sup> Information technology and associated networks

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<sup>86</sup> John Messenger, *Working Time and Workers' Preferences in Industrialized Countries - Finding the Balance*. International Labour Office, Geneva, Switzerland, 2004, 96.

<sup>87</sup> John Messenger, *Working Time and Workers' Preferences in Industrialized Countries - Finding the Balance*. International Labour Office, Geneva, Switzerland, 2004, 113.

<sup>88</sup> Gary Hamel and Bill Breen, *The Future of Management*. Boston: Harvard Business School Press, 2007, 195-196.

<sup>89</sup> Paul Sackett and Anne Mavor, *Attitudes, Aptitudes, and Aspirations of American Youth. "Implications for Military Recruitment."* National Research Council, The National Academies Press, Washington, D.C., 2003, 162-163.

will generate a shift toward more participatory high performance work systems that give workers more authority opportunities and flexibility to work in teams. As a result, coordination and control across organizations in a more decentralized manner will be the norm. Therefore, increasingly, we can expect organizations to move away from command and control structures to form a culture and environment within which more autonomous workers operate.<sup>90</sup> This trend could become cumbersome for the CF. The CF and militaries in general have a well-defined rank based structure with responsibilities assigned accordingly. However, within realistic limitations, the CF will have to show recruits of the future that they will have opportunities to create once employed in the CF. One way to alleviate potential concerns of recruits' perception of a rigid hierarchy is to offer personal creativity budgets. This recommendation will be discussed later in the paper.

## **II. CHANGING TECHNOLOGY BY 2025**

### **A. IMPACT**

#### **People born after 1980 are Digital Natives**

They were born after 1980, when social digital technologies came on line. They all have access to networked digital technologies. And they all have the skills necessary to use those technologies. You see them everywhere, the teenager with the IPOD and the summer intern who knows what to do when your e-mail does not work. They include young children that can beat you at any video game. They make your powerpoint slides seem inadequate. Clearly these kids and young adults are different. They study, work, write, and interact with each other in different ways than previous generations. They read blogs rather than newspapers. They meet on line

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<sup>90</sup> Lynn Karoly, *Forces Shaping the Future U.S. Workforce and Workplace: Implications for 21st Century Work*. RAND Testimony. CT-237, Testimony presented before the House Education and Labor Committee on February 7, 2007. <http://www.rand.org/pubs/testimonies/CT273/>; Internet, accessed 18 December 2008, 4.

before they meet in person. They would rather send an instant message than make a phone call. Digital Natives, young people born in developed countries, are changing society. Virtually every part of their lives including social interaction, friendship, and civic involvement are mediated by digital technologies. Moreover, they have never known any other way.<sup>91</sup> To be sure, there are limits to how much information people can process effectively. Even more striking is the ever-growing gap between the vast amount of information available and the limited ability of human beings to process it. However, within society, Digital Natives are learning to cope with this gap and therefore well positioned for the future.<sup>92</sup>

### **Virtually all CF recruits 17 to 45 years of age will be Digital Natives**

The adoption of digital technologies by more than a billion people worldwide has occurred over the span of just a few decades. The world is experiencing the most rapid period of technological transformation ever.<sup>93</sup> By 2025, virtually all CF recruits under the age of 45 will be Digital Natives. Digital Natives bring technological skills and a certain way of thinking and learning. They are comfortable collaborating and with team based learning activities. They are strong researchers, multi-taskers, and creators. Their creative impulse is nothing new, but the impact on cultures and society will likely be greater than it has been in the past. Digital Natives take the breakdown of old hierarchy for granted. They see themselves as shapers.<sup>94</sup> They are putting into practice the idea of bottom-up innovation better than any population group before

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<sup>91</sup> John Palfrey and Urs Gasser, *Born Digital*. "Understanding the First Generation of Digital Natives." Basic Books, 2008, 1-2.

<sup>92</sup> *Ibid.*, 185-186.

<sup>93</sup> *Ibid.*, 3.

<sup>94</sup> *Ibid.*, 124-125.



them.<sup>95</sup> To them, connectivity is essential to the formal and informal ways that things get done. To the Digital Native, hierarchies constrain capabilities. Collective endeavours are the way of the future.<sup>96</sup>

The first decade of the 21st century has brought about a new way of social engagement and new modes of production. Network technologies are easing the emergence of self-organized groups and accelerating the things that they can achieve without managerial oversight.<sup>97</sup> The key to success will be our willingness to evolve to employ technologies to their maximum effectiveness. Yet, personnel, not technology, will still be the key.<sup>98</sup> Digital systems offer highly efficient means of leading lives in networked societies around the world.<sup>99</sup> Moreover, sophisticated gaming and Human Machine Interface (HMI) improvements are making learning more intuitive and faster. Network technologies have the potential to facilitate and leverage the human capital and fully engage CF personnel.<sup>100</sup> Virtually all future CF recruits in the year 2025 will be comfortable with technology since it will have been part of their lives.<sup>101</sup>

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<sup>95</sup> *Ibid.*, 233.

<sup>96</sup> John Verdon, Bruce Forrester, and Zhingang Wang, *The Last Mile of the Market: How Networks, Participation and Responsible Autonomy Support Mission Command and Transform Personnel Management*. Draft Technical Memorandum. Directorate of Military Personnel Force Development. 2008, 31-38.

<sup>97</sup> *Ibid.*, 52.

<sup>98</sup> Dion, Major J.C.A.E. 2005, "*e-Soldiers; Canadian Military Human Resources Facing the 21<sup>st</sup> Century Challenges*" Director General Strategic Planning, Force Planning and Program Coordinator 3-4. NDHQ. 1 October 2005. <http://www.cda-cdai.ca/pdf/eSoldiers.pdf>; Internet, accessed 2 January 2009, 2.

<sup>99</sup> John Palfrey and Urs Gasser, *Born Digital*. "Understanding the First Generation of Digital Natives." Basic Books, 2008, 39.

<sup>100</sup> John Verdon, Bruce Forrester, and Zhingang Wang, *The Last Mile of the Market: How Networks, Participation and Responsible Autonomy Support Mission Command and Transform Personnel Management*. Draft Technical Memorandum. Directorate of Military Personnel Force Development. 2008, 13.

<sup>101</sup> Paul Sackett and Anne Mavor, *Attitudes, Aptitudes, and Aspirations of American Youth*. "Implications for Military Recruitment." National Research Council, The National Academies Press, Washington, D.C., 2003, 29.

## Worker skills

Effective January 2009, the CF Air Navigator Classification was changed to Air Combat Systems Officer. The directive implementing the change high-lighted that the present name of Air Navigator no longer accurately reflected the jobs performed by the officers with that classification.<sup>102</sup> At one time air navigators, when performing their primary job onboard an airplane, simply navigated. Now, with advances in technology such as the global positioning system (GPS), navigators have the time and skills to perform tactical and mission specialist roles on a variety of platforms. This recent name change is just one example of what is likely to be the new reality in the future. The need for entirely new occupational specialties will increase. As a case in point, at the end of 1998 in the US military, no occupational code for computer hacking existed. Since then, however, the number of occupational specialties has increased, and will continue to increase in many areas.<sup>103</sup> This reality will challenge organizations and defence planners. Since Canada must remain interoperable with the high-tech US, the CF will have to procure new equipment and adapt smartly.<sup>104</sup> Given the large pool of Digital Natives, the CF recruiting system should have little trouble finding people possessing technology skills. Even people older than 50, although likely a step behind (can be retrained as required), will have been exposed to technology most of their adult lives. As a result, the CF recruiting system will be well positioned to supply technologically savvy recruits to fill those future jobs to keep pace with the US military.

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<sup>102</sup> Canada. Message: Implementation Plan - Air Navigator Name Change, DPGR 001/09, 071853Z January 2009.

<sup>103</sup> Mark Mandeles, *The Future of War. "Organizations as Weapons."* Potomac Books, Inc Washington, D.C., 2005, 104-109.

<sup>104</sup> Canada. Department of National Defence. *The Future Security Environment 2007-2030 Part One.* 8 November 2007 - Draft. Chief of Force Development, 41-42.

In the case of the CF, occupations that may be essential to the institution in ten years may not even exist or be imaginable today.<sup>105</sup> It is likely that today's recruits will be filling occupational work not yet known with technology not yet discovered. It will likely be the capacity to know that is the real source of power. This may be the most important training philosophy that the CF can deliver to its personnel. Strengths in the future will include one's ability to search, sort, validate, and synthesize knowledge quickly. Inherent within networks will be the requirement to share, along with extensive collaboration. Moreover, the power of real time collective learning is the capacity to connect the right people to the right situation at the right time along with universal access to information.<sup>106</sup> Digital Natives, who will be the Forces largest recruiting pool by 2025, are well suited to fill this role.

Military and commercial industries are integrating. NATO militaries, including Canada's, are increasing employing the private sector to provide goods and services. This trend will likely continue. Civilian contractors will likely be more involved in operational theatres in conjunction with the CF in the future. This will blur traditional boundaries between the civilian and military realms.<sup>107</sup> Competing with corporations in a prosperous civilian economy to recruit military personnel will not be easy. The range of knowledge and skills obtained through military service in the future military will be applicable to a wide range of civilian tasks and jobs as well.<sup>108</sup> For the CF recruiting system, one way to adapt is to expand on the willingness of the

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<sup>105</sup> John Verdon, Bruce Forrester, and Zhingang Wang, *The Last Mile of the Market: How Networks, Participation and Responsible Autonomy Support Mission Command and Transform Personnel Management*. Draft Technical Memorandum. Directorate of Military Personnel Force Development. 2008, 46.

<sup>106</sup> *Ibid.*, 59-61.

<sup>107</sup> Canada. Department of National Defence. *The Future Security Environment 2007-2030 Part One*. 8 November 2007 - Draft. Chief of Force Development, 49.

<sup>108</sup> Mark Mandeles, *The Future of War. "Organizations as Weapons."* Potomac Books, Inc Washington, D.C., 2005, 122-123.

Forces to actively recruit former members of the CF by embracing a revolving door policy. Former members should actively be encouraged to return full or part time with valuable new skills acquired through their civilian experiences.

### **War-fighting**

Conflict will continue to evolve over the next 20 years as science and technology and improving weapon capabilities change modern warfare. The growing importance of information technology will threaten an adversary's critical economic, logistical, political, and military essential information systems. By 2025, some states will deploy weapons designed to destroy or disable information, sensor, and communication networks. The evolution of unconventional conflict will also continue. The adversary's access to modern communication and information systems and other technologies will drive its ability to organize, coordinate, and disperse operations. Non-kinetic means of warfare will continue to play a role in the battle. This warfare will be based on cyber, economic, resource, psychological planes engaged in the media where public opinion and support is the battlefield facilitated by the 24 hour news cycle. Finally, long range precision weapons and newer forms of conflict such as cyber and space warfare will expand the traditional battlefield.<sup>109</sup>

Going forward, cyber-terror attacks will become increasingly threatening as the world relies more on the linkage of all essential services.<sup>110</sup> The potential of the internet to destabilize authoritarian regimes is so obvious that many such regimes restrict access to it or use it as a mode of surveillance or both. Some 25 countries are already refining these practices of

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<sup>109</sup> US Government. *Global Trends 2025: A Transformed World*. National Intelligence Council, November 2008, 71.

<sup>110</sup> James Canton, *The Extreme Future: Top Trends That Will Reshape the World for the Next 5, 10, and 20 Years*. Dutton. Penguin Books Ltd. London, 2006, 210.

ensorship and surveillance online.<sup>111</sup> The goal for militaries is to develop innovative technologies that allow a soldier to engage and destroy the enemy at longer ranges with greater precision and with devastating results. To that end, one can expect better communication devices and advanced situational software aided by GPS. In fact, one might see the helmet of the future being a sealed unit that contains communications, vision enhancements, a laser for target ranging, and a heads-up display showing information on friendly and enemy forces.

On the physical front, the future exoskeleton may augment the strength of a soldier and enhance mobility, speed, endurance, range, and load-carrying capabilities.<sup>112</sup> To improve physical performance, soldiers will carry high-temperature relief when microclimate cooling systems are incorporated into the combat uniform. Heat stress will be mitigated allowing soldiers to do jobs more safely and effectively. Cooling can be a force multiplier as troops can work longer without breaks while consuming less water.<sup>113</sup> Breakthroughs in robotics could soon provide a self-powered exoskeleton to effectively take the load off soldiers' backs (they carry up to 120 lbs). Equipment like this could become an invaluable tool for anyone who needs to travel long distance by foot with a heavy load, particularly infantry and special forces.<sup>114</sup> New fibres will one day replace the respected but heavier Kevlar as soldiers will wear lighter protective armour thereby decreasing their load and increasing their mobility.<sup>115</sup> Moreover,

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<sup>111</sup> John Palfrey and Urs Gasser. *Born Digital*. "Understanding the First Generation of Digital Natives." Basic Books, 2008, 269.

<sup>112</sup> John Edwards, *The Geeks of War*. "The Secretive Labs and Brilliant Minds behind Tomorrow's Warfare Technologies, AMACOM books, New York, NY, 2005, 13.

<sup>113</sup> *Ibid.*, 109-110.

<sup>114</sup> *Ibid.*, 128-131.

<sup>115</sup> John Edwards, *The Geeks of War*. "The Secretive Labs and Brilliant Minds behind Tomorrow's Warfare Technologies, AMACOM books, New York, NY, 2005, 180.

biotechnology promises revolutionary changes. These changes could improve human beings' physical, mental, and emotional capabilities. They could reduce human fatigue and sleepiness.<sup>116</sup> Thanks to ongoing research, future generations of soldiers will receive even better treatment for wounds and illnesses and improved comfort in the field. While war will always be difficult, technology will help ease some of the discomfort and suffering.<sup>117</sup> We see a trend away from the brute physical strength and stamina which has often been associated with the young soldier. What this shows is that some military tasks traditionally reserved for younger soldiers because of rigorous physical requirements may begin to diminish. Although physical fitness will always be a factor, it will become less important as technology makes military tasks less physically focused. Consequently, the CF, which will be faced with a relatively smaller younger demographic pool, can recruit older candidates knowing that the traditional physical demands of soldiering will be less critical.

After 2020, it is likely that nano-devices such as nanobots will emerge. In addition, targeted drug delivery systems, brain-machine interface, and highly adaptive clothing will be prominent. As a result of nanotechnology, applications for sensing, displays, autonomous networking, mobile threat detection, and other applications will be relatively common.<sup>118</sup> At the same time, digital technology will be embedded and distributed in most objects which can

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<sup>116</sup> Edward Cornish, *The Exploration of the Future*. Bethesda, Maryland, Published by World Future Society, 2004, 19-20.

<sup>117</sup> John Edwards, *The Geeks of War*. "The Secretive Labs and Brilliant Minds behind Tomorrow's Warfare Technologies, AMACOM books, New York, NY, 2005, 100.

<sup>118</sup> Canada. Department of National Defence. *The Future Security Environment 2007-2030 Part One*. 8 November 2007 - Draft. Chief of Force Development, 38.

communicate with each other. One can always be connected wirelessly.<sup>119</sup> Future US military missions (some of which will include Canada as a coalition partner), coupled with advances in technology, are expected to require military personnel to make much greater use of technology.<sup>120</sup> The proliferation of information-processing and calculation tools will require skills in operating all sorts of modern computer, communications, electronic equipment, and a high ability to innovate to achieve objectives.<sup>121</sup> Digital Natives, who will be ubiquitous in Canadian society and as a result part of the CF recruiting pool, are well suited for this military role since they are comfortable with technology.

### **Education and training**

Learning has undergone a transformation. The internet, aided by Google and Wikipedia, is changing how children and college students research and learn. Some may feel that the way Digital Natives study is not as effective as the way their grandparents learned. However, there is no evidence to suggest that the Digital Native way of learning is inferior. Certainly the method of learning is different.<sup>122</sup> Due to technology, HMI skills such as drawing, movement, voice, and other inputs are improving. As a result, more ideas will be presented through media

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<sup>119</sup> Futurelab, 2007. *Opening Education: 2020 and beyond: Future scenarios for education in the age of new technologies*. [http://www.futurelab.org.uk/resources/publications/reports\\_articles](http://www.futurelab.org.uk/resources/publications/reports_articles); Internet, accessed 2 January 2009, 6.

<sup>120</sup> Paul Sackett and Anne Mavor, *Attitudes, Aptitudes, and Aspirations of American Youth. "Implications for Military Recruitment."* National Research Council, The National Academies Press, Washington, D.C., 2003, 2.

<sup>121</sup> Mark Mandeles, *The Future of War. "Organizations as Weapons."* Potomac Books, Inc Washington, D.C., 2005, 23-24.

<sup>122</sup> John Palfrey and Urs Gasser, *Born Digital. "Understanding the First Generation of Digital Natives."* Basic Books, 2008, 239-241.

(visualization tools) other than written text.<sup>123</sup> James Canton predicts that real-time access to 80 percent of all information in the world will be provided for free. In 20 years, cheap personal computers will exceed the power of the supercomputers sold today to governments and large corporations. This means that powerful and inexpensive tools will be readily available to enable learning, commerce, trade, health care, and communication on a scale never seen before. Moreover, there will likely be real-time access to all information, resources, solutions, collaborations and opportunities on a global scale. By 2025, future computers will likely have become wearable devices providing communication with virtually anyone on the planet.<sup>124</sup>

Collaboration and peer cooperation is becoming the norm. For instance, although not without its faults, Wikipedia has been incredibly successful.<sup>125</sup> Wikipedia is not written by professionals it is rather written collaboratively by thousands of volunteers. It ranks among the top twelve most visited sites in the world.<sup>126</sup> What the success of Wikipedia demonstrates is that the combinations of networks and PCs has made it particularly easy to arrange collaborations. Open source projects too ambitious for a single person have been made possible by cheap networking. People with complementary talents who otherwise would not have known or met each other, much less found a way to collaborate without significant logistical challenges, can be brought together to work on a project. Creativity has been enhanced for individuals and

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<sup>123</sup> Futurelab. 2007. *Opening Education: 2020 and beyond: Future scenarios for education in the age of new technologies*. [http://www.futurelab.org.uk/resources/publications/reports\\_articles](http://www.futurelab.org.uk/resources/publications/reports_articles); Internet, accessed 2 January 2009,25.

<sup>124</sup> James Canton, *The Extreme Future: Top Trends That Will Reshape the World for the Next 5, 10, and 20 Years*. Dutton. Penguin Books Ltd. London, 2006, 60-78.

<sup>125</sup> Jonathan Zittrain, *The Future of the Internet And How to Stop it*. Yale University Press, 2008, 86-88.

<sup>126</sup> *Ibid.*, 136-137.



groups as a direct result of the linkage of PC and the internet.<sup>127</sup> There will likely be pressure for more democratic team-based shaping of ideas within a technologically advanced interactive society.<sup>128</sup>

When it comes to mobilizing effort, communities generally outperform bureaucracy. In a community, capability and disposition are more important than credentials and job descriptions in determining who does what. Compared to hierarchy, communities encourage and inspire passion and commitment.<sup>129</sup> This reality must be factored into the environment of 2025 as the Forces compete for potential recruits. In fact, within the unique context of the CF, the value of formal education credentials, particularly a degree, must be analyzed to determine if current policies needlessly eliminate a vast pool of potential candidates. The requirement for officers and non-commissioned members to hold an undergraduate degree for entry level positions will be examined in detail later in the paper.

### **III. IMPLICATIONS FOR CF IN 2025**

#### **A. RE-THINK EDUCATION CREDENTIALS AND PERFORMANCE**

It is important to differentiate between education and training when addressing the type of formal credentials needed to perform effectively within the CF. Education is defined as giving intellectual instruction or the process of learning. In contrast, the definition of training is to teach or be taught a particular skill(s) or type of behaviour.<sup>130</sup> The CF trains its recruits. In the CF, for the most part, with the exception of a few such as doctors and lawyers, everyone

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<sup>127</sup> Jonathan Zittrain, *The Future of the Internet And How to Stop it*. Yale University Press, 2008, 94.

<sup>128</sup> *Ibid.*, 92-93.

<sup>129</sup> Gary Hamel and Bill Breen, *The Future of Management*. Boston: Harvard Business School Press, 2007, 56-62.

<sup>130</sup> *Pocket Oxford English Dictionary*, Ninth Edition, Oxford University Press, 2001.

starts at the bottom whether it be as a private or lieutenant. Moreover, the military has no way of knowing how many people it will need, or skill sets it may require, ten or twenty years into the future. If the military guesses wrong or is restricted by its government, it ends up with no choice but to sacrifice strategic vision for a policy of reactivity.<sup>131</sup>

The CF will need people who can be trained to conduct or support the operational art. The CF defines operational art as: "the skill of employing military forces to attain strategic objectives in a theatre of war or theatre of operations through the design, organization and conduct of campaigns and major operations."<sup>132</sup> To be sure, even within the classrooms and halls of the CF Joint Command and Staff Programme (JCSP), there is rigorous debate on what factors such as skills, attributes, training, and education are required to prepare someone to be effective at the operational art. However, regardless of personal views, the CF is the institution through which one learns skills to conduct and support the operational art.

The CFDS uses the slogan "Best and the Brightest." This slogan describes the type of people that any organization wishes to recruit. Yet, there is no explicit consensus on what exactly the "Best and the Brightest" means at the practical level of military service. According to CF Strategy 2020, the key to CF success is well motivated full and part time multi-skilled people who are part of a strong self-disciplined workforce. The CF must focus on teamwork, intellectual capital, knowledge management and innovation to achieve operational

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<sup>131</sup> Philip Gold, *The Coming Draft. "The Crisis in Our Military and Why Selective Service is Wrong for America."* Ballantine Books, Random House Publishing, New York, 2006, 40.

<sup>132</sup> Canada. Department of National Defence. *Canadian Forces Operations Manual. B-GJ-005-300/FP-000, Ch2, 2005-08-15, GL-7.*

effectiveness.<sup>133</sup> There is no reason for this paper to disagree with that assessment. Nevertheless, the CF, in the year 2025, must move away from this generic and poorly understood "Best and Brightest" approach. It is not necessarily the brightest (or our traditional perception of the brightest based on formal education credentials and academic achievement) who succeed. Malcolm Gladwell, in his popular book, observes that it is striking how often this lesson is overlooked.<sup>134</sup>

### **MND 10 Policy Decision and requirement for a degree**

As the CF keeps its eye on the operational art, Colonel Randall Wakelam argues that the time for debate regarding the Minister of National Defence's 1997 policy decision (MND 10) requiring an undergraduate degree for CF officers is over. Given that CF officers are considered professionals, the bachelor's degree serves as a recognized credential of the level of intellectual ability that society expects of its professionals. In addition, he observes that any degree from the recognized academic disciplines which includes broad categories such as the humanities, social sciences, sciences, and engineering, meets the requirements of intellectual growth. Moreover, it is this ability to obtain knowledge, analyse, and to understand that must be imparted to future officers.<sup>135</sup> One can only assume that the 1997 policy was implemented based on a well proven link or strong correlation between officer competence in the CF and post secondary education.

In 1997, in the aftermath of the Somalia Affair, analyst and historian Jack Granatstein observed that "the CF has a remarkably ill-educated officer corps, surely one of the worst in the

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<sup>133</sup> Canada. Department of National Defence. *Shaping The Future of the Canadian Forces: Strategy 2020*, Ottawa: Department of National Defence, June 1999; Available from <http://www.cds.forces.gc.ca/str/index-eng.asp>; Internet; accessed 2 January 2009, 8.

<sup>134</sup> Malcolm Gladwell, *Outliers: The Story of Success*. Little Brown and Company, New York, 2008, 268.

<sup>135</sup> Wakelam R.T. Colonel, "So What's in a Degree," *Canadian Military Journal*. Vol. 4, no 2, 24 September 2003, 65.

Western world."<sup>136</sup> Moreover, in his extremely critical assessment of the CF's Command and Staff College (CFCSC now called JCSP) performance, he boldly stated that no officer over 35 years of age should attend CFCSC as a student. In fact he argued that skill on the battlefield, character, judgement and leadership were shaped by formal education. He therefore recommended a degreed officer corps. He stated that officers deal in complex situations requiring judgement and intelligence where among other things, ethical standards will be tested. In addition, in light of Somalia, he noted that it may be instructive for the minister of national defence to determine just how many of the officers implicated in the Somalia Affair had university degrees.<sup>137</sup>

Is Granatstein implying that degreed officers in the CF, or any military for that matter, would never find themselves caught up in the tragic isolated circumstances experienced in Somalia? Or, that somehow degreed officers, unlike non-degreed officers, will automatically be predisposed to possessing all those important attributes and skills when conducting the operational art, under stress, on the battlefield? It appears that is indeed Granatstein's point. It would be difficult to prove that non-degreed officers that successfully filled the operational classifications of the CF for decades were necessarily inferior simply because they did not hold a degree. Moreover, Granatstein's inference that a fully degreed officer corps would have prevented the rare and isolated tragic events associated with Somalia offers no meaningful correlation.

### **The limited value of a degree within the CF**

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<sup>136</sup> Jack Granatstein, Report to the Prime Minister, "For Efficient and Effective Military Forces", A Paper Prepared for the Minister of National Defence, Canadian Institute of International Affairs, 25 March, 1997, 19.

<sup>137</sup> Jack Granatstein, Report to the Prime Minister, "For Efficient and Effective Military Forces", A Paper Prepared for the Minister of National Defence, Canadian Institute of International Affairs, 25 March, 1997, 19-21.

Admittedly, formal education shapes a person in some way which is likely for the better. However, virtually any other human endeavour or activity can shape the individual as well. It seems that within the unique context of the military, Granatstein is ambiguously mixing formal education and training within his recommendations. The CF must provide the necessary training in skills and behaviour to allow its soldiers to effectively perform the operational art. Overstating the importance of a degree is counterproductive. The completion of a fixed number of academic credits does not guarantee that the student has actually learned very much. In addition, Granatstein does not specify what level of achievement was required within the degree, or within particular courses. That is, he seems to suggest that the value of a degree achieved by someone who barely passed was no different from that of someone who excelled.

Within the unique context of the CF, the problem is measuring the value of formal academic learning and correlating it directly to appropriate judgement and ethical behaviour by officers, under significant stress, operating in a complex battle space. Moreover, Granatstein's recommendation limiting JCSP attendance to officer students under the age of 35 certainly does not take into account the demographic realities facing recruiters in the year 2025. In fact, indirectly, his policy recommendations leave little room for the CF to fairly recruit officers from among an older adult cohort (too old to attend JCSP within CF career) that will necessarily form an increasingly critical target group for the Forces in the future.

When considering the MND 10 policy, it is important to note the decision for a degreed officer corps was made in 1997: a period of significant downsizing in CF equipment, personnel, and overall spending. However, when the CF has found itself in need of officers in the past, it has managed to overlook the requirement for an undergraduate degree. As just one case in point, before MND 10, the Officer Candidate Training Plan (OCTP) was the primary method for the

CF to recruit Air Force operational classification officers. In fact, between 1988 and 1992, the OCTP accounted for about 50 percent of the applicants, followed by other university entry programs.<sup>138</sup> Nevertheless, over the last ten years, when recruitment targets have not been reached, the Continuing Education Officer Training Plan (CEOTP) has filled the gap. Under this program, qualified high school graduates can join as Operational MOC officers, complete operational training, and then have up to nine years to obtain an undergraduate degree while serving in the CF. The CEOTP was implemented as an interim solution in the periods 1996 - 2000 and 2002-2003<sup>139</sup> Lieutenant-Colonel Conrad Namiesniowski argues that with an average training failure rate of 30 percent, the Air Force cannot afford the time and cost to send officers to university before it validates their occupational skills. For those non-degreed recruits, it make more sense to have officers prove themselves by completing basic training and operational training before working on a degree.<sup>140</sup>

Today, the Royal Military College (RMC) still places much of its efforts toward producing and graduating officers with engineering degrees. Yet, as has already been suggested in this paper, some of those engineering skills are likely to become perishable and obsolete very quickly. This is not to say that all the other training and experience the cadet receives at RMC is not valuable and linked to becoming an effective officer. However, we know that virtually any undergraduate degree from a recognized university is acceptable to fill the education square requirement to enrol as an officer in the CF. Hence, the CF recruiting system, to meet the

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<sup>138</sup> Namiesniowski, Conrad, Lieutenant-Colonel, "Addressing The Canadian Air Force Recruitment and Training Issues Within The Constraints of a "Degreed" Officer Corps." Toronto: Canadian Forces Staff College 31 New Horizons Paper, 29 April 2005, 7.

<sup>139</sup> *Ibid.*, 9.

<sup>140</sup> *Ibid.*, 23-24.

MND10 mandate, will accept virtually any undergraduate degree from a potential officer candidate often before formal selection determines what CF officer classification that particular candidate will pursue. In reality, therefore, the CF recruiting system is clearly acknowledging that the topic (field of study) of the degree is largely irrelevant to the operational officer occupation one chooses. Of course, it is important to note the difference between operational and support officer classifications. It is understood that doctors, dentists, lawyers, social workers and others fall within a necessary special support officer classification category where their content learned in their degree will matter for various reasons. Regardless, the CF trains its members in those skills and way of thinking that are necessary to be effective to conduct or support the operational art.

### **Measuring success in the CF**

In contrast to the CF, within the Canadian civilian workforce, there is a direct correlation between formal education and earnings. A report for Human Resources and Skills Development Canada observes that educational attainment is generally associated with higher wages. In fact, a possible reason for the finding that higher education improves wage growth is that individuals with higher education may attract more and better job offers than otherwise similarly endowed workers.<sup>141</sup> This paper acknowledges that the most likely path to success, as measured by wages and attractive job opportunities, is by acquiring formal education credentials. However, the CF is a unique organization that trains its recruits after entry for the operational art. As result, demanding an undergraduate degree for officers needlessly eliminates potentially capable people from the recruiting pool. In addition, potential officer recruits with degrees in hand will likely

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<sup>141</sup> Canada. Human Resources and Skills Development. Education and Early Labour outcomes in Canada - December 2007, Tables 8-10. Available from [http://www.hrsdc.gc.ca/eng/publications\\_resources/learning\\_policy/Internet](http://www.hrsdc.gc.ca/eng/publications_resources/learning_policy/Internet); accessed 19 March 2009.

have more and better civilian job options with better wages. Consequently, these individuals are more likely to be selective and perhaps less likely to join the CF relative to a non-degreed capable recruit with fewer quality job opportunities.

In keeping with the formal education argument and academic performance in general, Malcolm Gladwell emphasizes and observes that there has been much research done to determine a person's performance on an IQ test and how that translates into success. A score of 100 is average, one probably needs about that to handle university. To succeed in a competitive graduate program one likely needs an IQ about 115. However, anything higher than an IQ of about 120 does not seem to translate into any measurable real-world success.<sup>142</sup> He points out that psychologists highlight something called practical intelligence. This form of intelligence is about knowing how to do something without necessarily knowing why you know it or being able to explain it. At the core, it is practical in nature. In other words, it is knowledge that helps you read situations correctly and get what you want. This form of intelligence is different than analytical intelligence. Yet, few people have lots of both.<sup>143</sup>

In some cases, the opportunity to achieve success, even within groups where people have similar capabilities and attributes, simply comes down to timing and opportunity. For instance, creativity is a human aptitude, like intelligence, or eye-hand coordination. However, like any aptitude, it can be improved through training. For instance, over a two year period, there was no significant correlation between achieving demanding officer air defence controller skills and academic success based on previous formal education. In fact, generally, those officers with no

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<sup>142</sup> Malcolm Gladwell, *Outliers: The Story of Success*. Little Brown and Company, New York, 2008, 79.

<sup>143</sup> *Ibid.*, 101.



degree performed just as well or slightly better than those officers with a degree. What mattered most was attitude and aptitude.<sup>144</sup>

David Foot informs us that, due to demographic realities, those people born in 1961 (late boomer part of a huge cohort) had the misfortune of being born in one of the worst years in that century. He assumes that life was a relative struggle for that year group in terms of finding good jobs and moving up the career ladder.<sup>145</sup> Along the same theme, in contrast, the current cohort of CF members with 7-16 years of service (the experience gap within the CF) will generally have more promotion opportunities and achieve higher rank (a significant gauge of success in the CF) simply because there are fewer of them. Therefore, based simply on timing and supply and demand pressures, members of this CF cohort will have more opportunities to be successful in their military careers. Furthermore, within the context of military service, Philip Gold argues that in no particular case does a mediocre set of initial qualifications automatically preclude later success. In fact, many individuals succeed once they are challenged beyond their previous experiences and find a new meaning and purpose within the military.<sup>146</sup> The main point for the CF recruiting system to understand is that results and perceptions can be inaccurate when we talk in terms of correlating the best and brightest with success.

Certainly within the military recruiting context, critics may argue that high technology and electronic related occupations would be more mentally demanding and thus require

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<sup>144</sup> The author of this paper, Major RM Black, was the Chief Instructor and Course Director of the Basic AWC Course at AWC&CS, CFB North Bay Ontario, 1992-1994. This observation was collaborated with Major L Martel, Instructor, AWC&CS, CFB North Bay, Ontario, 1991-1995, in a discussion with the author regarding observed correlation of practical/academic performance and student formal education credentials, 11 March, 2009.

<sup>145</sup> David Foot and Daniel Stoffman, *Boom Bust and Echo 2000 - Profiting from the Demographic Shift in the New Millennium*. 2<sup>nd</sup> ed. Toronto: Macfarlane Walter and Ross, 1998, 9.

<sup>146</sup> Philip Gold, *The Coming Draft. "The Crisis in Our Military and Why Selective Service is Wrong for America."* Ballantine Books, Random House Publishing, New York, 2006, 41.

individuals with a high degree of proficiency and formal education. If the case, it would be expected that the military will need to increase the requirement for higher-quality personnel. However, Mark Eitelberg and Stephen Mehay argue that this link is difficult to make since specifications concerning qualitative manpower requirements are for the most part arbitrary. In other words, there are no definite rules for judging how smart or how well educated individuals must be to perform effectively in the military. It is difficult to measure general military output and job performance. Job performance depends on many characteristics and numerous intangible factors. All are interrelated and relative importance varies within a given occupation. Furthermore, some military skills are difficult to measure in a peacetime environment. Therefore, the challenge of building individual profiles and predictors of performance is so difficult, military personnel quality is often described in the default-like, non-creative, and easy to measure terms of educational levels and standardized test score attainment.<sup>147</sup> It is important to emphasize that some of the more complicated tactical level jobs rely on training within the military more than any formal education credentials on the resume.

In fact, a report prepared for the US National Research Council recommends, despite pressures on military recruiting in the US, the US Military should resist the notion that recruit aptitude and education targets must continue to be raised based on perceived capabilities needed for future technologies.<sup>148</sup> Given the CFDS clear stance that aligns the CF with the US military in terms of equipment, interoperability, training, and cooperation, the CF should resist formal

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<sup>147</sup> Mark Eitelberg and Stephen Mehay, *Marching Toward the 21st Century*. "Military Manpower and Recruiting." *Contributions in Military Studies*, Number 154. Greenwood Press, Westport, CT, 1994, 173-177.

<sup>148</sup> Paul Sackett and Anne Mavor, *Attitudes, Aptitudes, and Aspirations of American Youth*. "Implications for Military Recruitment." National Research Council, The National Academies Press, Washington, D.C., 2003, 253.

education "credential creep" so its recruiting pool can be maximized in its search to attract more capable people.

Colonel Wakelam acknowledges that holding a degree does not guarantee a well developed intellect or the ability to deal with complex issues. Furthermore, he points out that there is also no guaranteed link between a degree and the intellectual reasoning and skills to meet the complexities of modern military operations (operational art). Moreover, since World War II, the CF, for decades, has had large segments of its operational classifications filled with non-degreed officers.<sup>149</sup> Colonel Wakelam is a strong proponent of a degreed officer corps. Nevertheless, his acknowledgement challenges some of Granatstein's arguments linking a degree with better judgement and ethical standards by officers conducting the operational art within the complexities of modern warfare. Regardless, the rigid MND 10 policy stance continues.

The CF policy document *Duty with Honour* makes it clear that "all regular force and primary reserve members of the CF, of all ranks, are members of the profession of arms."<sup>150</sup> One of the main reasons given for a degreed officer corps is to keep pace with other civilian professionals. We call this societal credibility. Others might suggest that CF officers need the academic accreditation to be taken seriously by their allies (who also require academic degrees.) However, neither Granatstein's recommendations nor MND 10 policy mentions that all CF non-commission members (NCMs), who are also professionals, need a degree to perform effectively or be taken seriously. We know that experienced senior NCMs are the backbone of virtually any military. Senior NCMs, at the tactical level, face the same complex battle space that junior

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<sup>149</sup> Wakelam, Colonel R.T. "So What's in a Degree," *Canadian Military Journal*. Vol. 4, no 2, 24 September 2003, 64-65.

<sup>150</sup> Canada. Department of National Defence. *Duty with Honour, The Profession of Arms in Canada*, 2003,11.

officers encounter. Nonetheless, it is simply understood that there is no realistic way nor requirement for the CF to fill all its NCM ranks with members holding undergraduate degrees.

To follow the logic, then, the reserve force administration specialist corporal and the regular force major infantry officer (both are considered professionals by the CF) deployed in Afghanistan should have completed degrees. Yet we know now, and based on many decades of military service in the past, a degree is not required for either of those military positions to perform effectively. To avoid any misunderstanding, in no way is this paper claiming that formal education has a downside. Nevertheless, either CF officers and NCMs at the point of entry require a degree or they do not. Clearly they do not. Unquestioned adherence to MND 10 neglects the importance of creativity, flexibility, and capabilities possessed by non-degreed candidates favouring instead a quantifiable, but qualitatively immeasurable demonstration of academic test-taking ability. As the CF faces potential recruiting challenges in the future, for practical reasons, it must reinstate the OCTP.

## **B. INCENTIVES FOR RECRUITS IN 2025**

### **Formal education opportunities**

The gap in average wages between university graduates and high school graduates has increased substantially over the last ten years. In the US, the National Security Council recommends that increasing mechanisms to permit military service and pursuit of a university degree to occur simultaneously. The most dramatic attitudinal and behavioural change within society is the substantial increase in educational aspirations and university attendance.<sup>151</sup> Those who leave university before finishing are likely to choose other alternatives to postsecondary

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<sup>151</sup>Paul Sackett and Anne Mavor, *Attitudes, Aptitudes, and Aspirations of American Youth. "Implications for Military Recruitment."* National Research Council, The National Academies Press, Washington, D.C., 2003,7.

education. Some of them will consider military service. Regardless, most university drop outs will eventually obtain a university degree later in life.<sup>152</sup> To be clear, this paper has argued that the recruit does not need a degree to begin military service. However, the opportunity to acquire one should be used as an attraction tool because many recruits will desire a degree based on societal pressure or future job opportunities outside the military.

Younger adults today make decisions about education and careers much later than they used to.<sup>153</sup> Success in the recruiting market in the future will require innovative ways to combine military service with the pursuit of higher education.<sup>154</sup> Aggressive marketing of education opportunities within the CF will be needed. In addition, we know that Canadian immigrants, an even large segment of Canada by 2025, place a high value on obtaining a university degree. The CF should market itself as a proponent of higher education opportunities acquired in conjunction with military service after occupational training. Rather than emphasizing the recruitment of university graduates, the CF should place extra effort on those who do not have a degree and provide them with basic and occupational training immediately. If they complete training, the CF might then support their pursuit of a degree in conjunction with a predetermined period of military service. This strategy would be well suited to younger and older recruits alike. There are good part time programs now to complete university education while serving. However, the CF must advertise this fact better.

### **The CF gold-plated pension plan**

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<sup>152</sup> Paul Sackett and Anne Mavor, *Attitudes, Aptitudes, and Aspirations of American Youth. "Implications for Military Recruitment."* National Research Council, The National Academies Press, Washington, D.C., 2003,139.

<sup>153</sup> *Ibid.*, 6.

<sup>154</sup> *Ibid.*, 117.

According to Statistics Canada, Canadians in their forties and fifties have pushed back their retirement plans. Perhaps this is to be expected, given that retirement may be 10, 15 or even 20 years ahead for these individuals and much can happen in the intervening period.<sup>155</sup> In the midst of the current recession, the *Toronto Star* states: "Freedom 55 crashes into reality check - With RRSPs sinking and pensions underfunded, many people will work longer or retire on far less."<sup>156</sup> The *National Post* observes: "Thanks to government largesse, public servants have little to worry about when it comes to retirement. Typically, their pension plans are of the Rolls Royce variety, generous defined-benefit schemes well-insulated from the ravages of inflation." The article goes on to say, "...in the world of pensions, there is a stark divide between the haves and the have-nots...20% of Canadian workers are employed in the public sector, but they own about 70% of the assets in employer-sponsored pension plans."<sup>157</sup> The CF pension plan falls within the "Rolls Royce" variety and it should be marketed accordingly to recruits in a flexible practical way that attracts people in the different stages of workforce life.

According to the CF Pension Plan Annual Report, force members are part of a contributory defined benefit pension plan. A contributory plan is one in which both the employer and employee make contributions. A defined benefit plan is one in which the benefits payable on retirement are specified in the plan. The benefits are directly related to the employee's salary and period of pensionable service. Members of the CF contribute 4.6 percent of salary up to the Canada Pension Plan Yearly Maximum Pensionable Earnings (YMPE), and

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<sup>155</sup> Canada. Statistics Canada. Article, 2007 Social Survey Report, 11-19. "The Retirement Plans and Expectations of Older Workers" 9 September 2008, available at <http://www.statcan.gc.ca/pub/11-008-x/2008002/article/10666-eng.pdf>; Internet; accessed 19 March 2009.

<sup>156</sup> Toronto Star Article, "Freedom 55 crashes into reality check", 15 March 2009, A1.

<sup>157</sup> National Post Article, "The Pension Problem", 14 March 2009, FP5.

8.1 per cent when the salary exceeds the YMPE, in respect of basic pension benefits and their indexation. Each year the Government as the employer contributes amounts that are sufficient to level the benefits earned by employees in respect of that year. In FY 2006-2007, the employer contributions were three dollars and four cents for every dollar put in by the employee. CF members who retire with 25 or more years of CF service, or with less regular force service or less pensionable service in certain circumstances, receive an immediate annuity based on two per cent of the plan member's average salary during the best five consecutive years of pensionable earnings times the number of years of pensionable service to a maximum of 35 years. The Plan also provides for survivor benefits. Annuities, member and survivor annual allowances are subject to cost of living increases pursuant to plan legislation. Applicable increases reflect the rise in the Consumer Price Index.<sup>158</sup>

At the end of FY 2006-2007, the balance of the Canadian Forces Superannuation Account was \$43,287 million. The financial statements indicate that the Plan assets exceeded the Plan liabilities by \$4,328 million in FY 2006-2007. Members contributed \$214 million during the year. At 31 March 2007, there were 65,272 active contributors. The Government of Canada contributed \$662 million during the year. This amount includes an actuarial estimate of the government contributions receivable for member past service contributions. Benefits paid during the year totalled \$2,210 million. Pensioners and surviving spouses and children received \$2,209 million in payments, while an additional half-million dollars was paid as minimum benefits to

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<sup>158</sup> Canada. Department of National Defence. Annual Report, Canadian Forces Pension Plan, 2006-2007, 1-3.

recipients in cases where no survivors existed. At 31 March 2007, there were 84,728 pensioners, 22,580 surviving spouses and 183 surviving children in receipt of monthly annuity payments.<sup>159</sup>

Even though the CF offers an attractive pension plan, a typical 18 year old, with generally different goals and priorities than a typical 45 year old, often does not realize the benefits of a pension until later in life. Given the move within society for instant gratification, changing the CF pension plan structure and marketing it appropriately to particular age groups could significantly assist the recruiting effort. For example, a young recruit may not see the value of a 25 year pension because it seems too far in the future and may not be looking for a career within the CF anyway. However, a proportional 5 year pension (about the time it takes to complete an undergraduate degree) may seem attractive given the relatively shorter time horizon.

As shown, worker attitudes are changing significantly. The idea of a career is fading as people think more in terms of shorter jobs. At the same time, it is likely to be even more difficult to find the private sector offering the same secure and generous pension that is provided to CF personnel. Therefore, as part of the recruiting strategy, the CF needs to showcase its pension plan. However, to position itself well in the future to suit the various age groups and personal situations of the potential recruiting pool, it will have to make the CF pension much more flexible. For instance, the CF pension of 2025 could have flexible options such as a 5, 10, 15, 20, 25, 30, 35 year plans.

David Foot states "if you know how many people of each age are around today, you can make a reliable forecast about how those same people will behave tomorrow."<sup>160</sup> The CF needs

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<sup>159</sup> Canada. Department of National Defence. Annual Report, Canadian Forces Pension Plan, 2006-2007, 8.

<sup>160</sup> David Foot and Daniel Stoffman. *Boom Bust and Echo 2000 - Profiting from the Demographic Shift in the New Millennium*. 2<sup>nd</sup> ed. Toronto: Macfarlane Walter and Ross, 1998, 13.



to apply this most useful demographic variable of age composition to its recruiting advantage. For instance, at the point of entry, the young recruit could be drawn in to join the CF by a pension after only 5 years of service. At the same time, having a flexible pension plan is just as likely to attract middle aged recruits. A typical 40 year old, married, with a mortgage, and perhaps teenagers lined up for university, is likely to see the value of a pension much more than a young recruit. A 50 year old, depending on personal circumstances, may find a 10 or 15 year pension, along with the job security, extremely appealing as he or she reaches an age when serious retirement plans are often underway. A flexible pension plan, particularly when compared to the private sector, if marketed skilfully, could be a potential boon to attracting recruits of all ages.

Although well beyond the scope of this paper, it is likely that the total cost for this proposal is reasonable and affordable. For example, the government's contribution currently about three dollars for every one dollar the member pays into now could be adjusted based on years of service. For instance, an individual receiving just a 5 year pension may only get a payout that proportionally equals only a one for one dollar match formula by the government. In addition, pension indexing policies could be adjusted so that only those with say 20 years or more of service would have the benefit of inflation indexing. In another approach, individuals with less than 20 years service would be limited to an annuity based on 1.5% per year of service rather than the 2% per year of service formula. In a fair manner, anyone serving less than 25 years would simply get proportionally fewer pension benefits thereby making associated costs for the government manageable. Critics may argue that pension annuities paid to any member with less than say ten years of service would be too modest to be financially meaningful as an attraction incentive. However, against the backdrop of what most private sector pensions (or

lack thereof) are likely to offer, some potential recruits may not agree. Others may observe that implementing this recommendation would be a bureaucratic challenge to say the least.

Nevertheless, in contrast, the challenge would be minimal relative to chronically falling short of recruiting goals. Regardless, for many potential recruits, given Canada's demographic and likely pension plan realities in 2025, the attraction of a stable and secure CF pension stands on its own.

### **Immigrants possess valuable language skills**

Given that it is likely that Canada will continue to encourage immigration for the foreseeable future, the demographic changes coming to Canada will likely impact its two official languages, particularly French. As a result of immigration, the percentages of Canadians who speak French as their mother tongue, or even as a second language, will likely decrease. Some immigrants coming to Canada will not speak either language well or will just speak English since it is their second language learned back at country of origin. Arguably, given that English is the dominant language of international business (and coalition military operations for that matter), it is likely that some immigrants, particularly outside Quebec, will be less than enthusiastic or motivated to learn French while serving within the CF. However, some of those same immigrants may have particular language skills that could be valuable to CF operations of the future. For instance, more emphasis is being placed on cultural and language knowledge within international military operations. Even the US Marine Corps, a hard-charging combat focused force better known for fighting skills than language skills, is adapting by placing more emphasis on training recruits in a second language. In fact, Brigadier General Richard Lake, the top intelligence officer for the US Marines, believes the Marine Corps needs to help encourage more Marines to learn foreign languages, so they can better serve the Corps and themselves on

the battlefield. He observes, “We are out among different people, and with better language skills we would have an easier time navigating the human terrain in foreign places.”<sup>161</sup>

The CF should entice recruits with important language skills. Recruits should be shown that their valuable second language profile will give them potential promotion advantages later on within the same framework that the CF places on a second language (English or French) profile today. Not surprisingly, this attraction approach would likely be controversial in some circles, political and otherwise, particularly in Quebec. To be clear, in no way is this paper suggesting that the federal government's commitment to official bilingualism should be subverted. Like today, designated CF positions and appointments will require an ability to communicate effectively in both official languages. In addition, there should be no change in language policy for those relatively few officers in a position to compete for the rank of colonel and beyond. Regardless, immigration is so important to Canada's prosperity that the political and language environment of Canada will continue to change. As shown, immigrants will be a significant portion of the potential CF recruiting pool. This language recognition attraction program, at relatively little administrative cost, could aid attraction within that valuable segment of recruits with particular language skills.

### **Highlight Creativity Opportunities**

What accounts for the long-term military advantage against an adversary is long-lasting leadership which is often the product of fundamental advances in military doctrine and organization. In fact, Gary Hamel and Bill Breen observe that history has shown that consistently victorious militaries have consistently imagined new ways of motivating, staffing,

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<sup>161</sup> US Military.com <http://www.usmilitary.com/9017/new-training-supports-lifetime-learners-in-marine-corps/> Internet, accessed 23 March 2009.

training, and deploying soldiers. In some ways they have been management innovators.<sup>162</sup> In 21st century Canada, organizations that seek to move forward must shape their management processes to respond to the needs and concerns of those working on the front lines.<sup>163</sup> In the case of the military, the days of the senior staff as the only valid source of knowledge are numbered. Given the expectations and attitudes of Digital Natives, the military is likely to move to a peer-to-peer structure of working. In other words, knowledge and intelligence of the collective is the key to victory.<sup>164</sup> The recruits of the future, instead of looking to the CF for instructions, might want to teach themselves. Peer to peer production will be invaluable. People have genuine interests and passions that extend beyond the parameters of a particular job. If they feel important to the organization, it is likely that vast amounts of their knowledge will remain unused.<sup>165</sup> Moreover, the majority of workplace learning occurs informally.<sup>166</sup>

It is unrealistic to suggest that the CF military hierarchy (or perception thereof) can be eliminated. However, the CF will have to find a way to minimize the negative implications of hierarchy where possible to meet recruits' expectations. Furthermore, at the very least, it will have to acknowledge and understand the tension between creativity and the institution. The operational capability of the CF is directly linked to its people. Relative to previous generations,

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<sup>162</sup>Gary Hamel and Bill Breen, *The Future of Management*. Boston: Harvard Business School Press, 2007, 25.

<sup>163</sup> *Ibid.*, 182.

<sup>164</sup> John Verdon, Bruce Forrester, and Leesa Tanner, *Understanding the Impact of Network Technologies on the Design of Work – Social and Peer Production*. Technical Memorandum. DMPFD TM 2007-04. April 2007, 3.

<sup>165</sup> *Ibid.*, 33-34.

<sup>166</sup> *Ibid.*, 35.

they expect and demand that their experience, expertise, professionalism be respected. Some would say they are strategic corporals.<sup>167</sup>

At first glance, promising potential recruits their own personal work-related budget, after successful completion of basic and occupational training, to create solutions with peers, may sound simply unmanageable and too expensive. Others may claim that the budget would be misused. Certainly, oversight and guidelines would need to be adopted. However, over the long run, given attitudes and expectations of Digital Natives regarding peer to peer collaboration and cooperation, a personal budget to create and find solutions for the CF may provide positive outcomes that are simply unimaginable to our current structure and way of thinking. We know that people possess talents that are often not ever recognized. If people are passionate about something, they will focus enormous amounts of energy towards a particular goal. Marketing a personal "creativity budget" to the potential recruit of the future may appeal to the Digital Native in particular. This type of attraction vehicle could go a long way to breaking down the perception of hierarchy in the CF while concurrently giving recruits the feeling that they will be part of the solution early within their military service.

This individual creativity budget would be expensive. For instance, if 5000 new recruits (\$2K total career budget each) were to opt in each year it would cost the CF about \$10 million per year. A limited trial period/programme could be adopted initially to assess the results. It is understood that most people would likely consider this idea radical to say the least. However, that is the point. It would be an experiment. Given the attitudes and expectations of Digital

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<sup>167</sup> Dion, Major J.C.A.E., "*e-Soldiers; Canadian Military Human Resources Facing the 21<sup>st</sup> Century Challenges*" Director General Strategic Planning, Force Planning and Program Coordinator 3-4. NDHQ. 1 October 2005; <http://www.cda-cdai.ca/pdf/eSoldiers.pdf>; Internet, accessed 2 January 2009, 4.

Natives, this way of thinking may facilitate attraction to what some may consider a bureaucratic hierarchy-rigid CF organization.

### **C. FOCUS EFFORTS IN 2025**

#### **Less emphasis on the 17-24 year old age group**

Lieutenant-Colonel McCurdy argues that logic dictates that to get the most potential long-term cost-benefit value for the recruiting dollar, it is necessary for the CF to place its primary focus on the 17-24 year old demographic. In addition, given the physical demands of combat, that age group is more likely to meet the fitness and medical requirements.<sup>168</sup> Yet, placing significant emphasis on this age group eliminates the largest swath of available recruits. For example, in the US, where service members are engaged in combat more than most countries, the National Research Council recommends that the military should investigate mechanisms for recruiting of people older than the traditional target of high school seniors.<sup>169</sup> Moreover, in the case of the CF, many occupations are not exposed to direct combat conditions. Furthermore, the paper has shown that advances in technology will make the physical component of military service relatively less important. As well, we know that trends indicate people are looking for jobs, not careers, which makes the long-term cost benefit for the recruiting dollar that much more difficult to achieve.

This paper has shown that we can expect people to be healthier and live longer aided by technology, medicine, and drugs to enhance physical and mental performance. In addition, based on demographics, likely out of necessity, the CF will have to draw from the 17 - 60 year old pool

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<sup>168</sup> McCurdy L.D., Lieutenant-Colonel, "Recruiting: Policy Change vs. Extinction." Toronto: Canadian Forces Joint Command and Staff Programme Course 34 New Horizons Paper, 2008, 9.

<sup>169</sup> Paul Sackett and Anne Mavor, Attitudes, Aptitudes, and Aspirations of American Youth. "Implications for Military Recruitment." National Research Council, The National Academies Press, Washington, D.C., 2003, 265.

of society. To be sure, there are certain health and physical implications which are linked with age. Clearly, being physically fit has many positive benefits. However, many CF occupations, at the home unit or deployed, require no special level of fitness beyond a basic degree of good health. This paper is not arguing that any current health or physical fitness standards be lowered. Rather, as the percentage of individuals within the 17-24 year age groups faces a relative decline, the CF will have to acknowledge that more of its recruiting efforts will have to focus outside the younger age group as demand for workers increases.

As a case in point, the CF Rangers, which are the critical eyes and ears of Canada's north and possess unique skills, are expected to operate in some of the harshest conditions in the world. Yet, many are middle aged and there is no mandatory retirement age. They just have to be able to be capable of performing this important military function. In fact, a recent Ranger recruit, who met all the standards of formal Ranger training, is 70 years old and has an artificial leg.<sup>170</sup> Likely out of necessity, the CF needs to place more emphasis on older age groups. Based on people's likely view on the notion of retirement in the future, the CF should increase the mandatory retirement from the current age 60 to age 65 by the year 2025. This is not to suggest that people over age 60 will suddenly overwhelm recruiters or be picked for the infantry. However, adjusting the retirement age upwards simply provides more opportunities to meet recruiting goals. This change in policy opens up another segment of society that is currently excluded to fill CF occupations at a time when youthful robust physical fitness is generally less important relative to other capabilities.

### **Build marketing plan based on specific age groups**

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<sup>170</sup> Baldwin, Wayne, Master Warrant Officer, CF Ranger briefing to JCSP 35 during FSE to Iqaluit, February 2009. Slides 1-39.

Richard Florida observes that young people are the most likely to move of any demographic group. The likelihood that one will move peaks at around age 25 and then declines steeply until age 45 and continues to trail off into retirement age. A 25 year old is three times more likely to move than a 45 or 50 year old. In addition, the chance of moving increases with one's level of education. In the US, some 45 percent of people with advanced degrees eventually leave their home state. Therefore, the place where one chooses to locate and settle after university can have a huge effect on one's future. In other words, cities will continue to win out (long term advantage) as the educated stay and raise their families.<sup>171</sup> In addition, young singles between the ages of 25-34 were 33 percent more likely to live in a close-in neighbourhood (within 5 kilometres of city centre) than other demographic groups.<sup>172</sup> Traditional geographical sources of recruits in Canada will likely change. As shown in this paper, the mega city of Toronto and other large cities will continue to be a huge draw to future immigrants and Canadians from rural locations. Therefore, proportionally, the CF will have to focus on Toronto and the big cities like never before.

When looking to the cities, the CF has to be flexible in its recruiting strategy. If younger recruits want to join the military to see the world and experience other parts of Canada then that is what the CF will have to highlight. However, if middle-aged recruits want to join the military mainly for job security assuming they and their families can remain close to the city and or each other, the CF will have to accept this reality. The point is that the CF will have to be realistic and flexible understanding the different life priorities for individuals and general age groups and market accordingly. Fast paced action packed commercials showing CF personnel training and

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<sup>171</sup> Richard Florida, *Who's Your City? "How the Creative Economy is Making Where to Live the Most Important Decision of Your Life."* Random House Canada, 2008, 226-227.

<sup>172</sup> *Ibid.*, 243.



conducting domestic and international operations will always appeal to some. However, emphasis on pension and family stability will also attract others. Therefore, the recruiting system should produce commercials that directly compare the CF's competitive pay, pension, education opportunities, benefits, and family stability programmes with selected civilian occupations.

#### **D. CHANGE STRUCTURE BY 2025**

##### **Make no distinction between Regular and Reserve Force**

The military will have to compete against civilian employers for persons with specific required skills or proven capacity to acquire those skills quickly. Those individuals with the experience and required skills will become attractive for many kinds of high-paying civilian jobs. One way to compete is to adopt a revolving door policy whereby a member could substitute a set of short-term assignments for a long-term commitment.<sup>173</sup> To that end, the CF will need to establish a force and philosophy emphasizing that there is no such thing as a regular or reserve member. In fact, use of those labels should be removed. Clearly, this idea is neither new nor original. However, the CF still has a reserve and regular force structure. Reservists can apply for regular force service (various Class A, B, C contracts) now. Yet there should be no distinction. There should only be CF members who work full or part-time. Certainly, as is done now, a person could work fulltime within the CF for 35 years. Or, they could serve only 3 days a week for 35 years, or they could construct for mutual advantage, virtually any other combination of full or part time service based on the needs of the CF. For example, a recruit could sign a 3 year military contract, and then leave for 3 years to work in the private sector, then return. We know that CF regular and reserve members work well together on bases, in domestic operations,

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<sup>173</sup> Mark Mandeles, *The Future of War. "Organizations as Weapons."* Potomac Books, Inc Washington, D.C., 2005, 179.

and international operations (including Afghanistan) already. This CF approach could attract the potential recruit of all ages promising negotiated opportunities outside the CF at various stages along the way, free of administrative hassles knowing the CF will welcome their return to duty years later. This approach could appeal particularly to those looking for jobs rather than a career.

### **Geographical Location of CF Facilities**

People, particularly as they get older, generally want to establish roots and stability for their families. Family factors may even be more of a priority for women and immigrants. Therefore, the CF should offer geographical incentives to attract the future recruit. A geographical area of service could be guaranteed. For example, recruits could sign-on knowing that all their future postings would remain inside the province of Ontario. Or, a recruit could select a location in Canada as a personal home station. That is, home and family could remain in Calgary while the individual served in various locations across Canada (and abroad if necessary). Of course the member will still have to deploy on temporary duty (TD) as necessary to conduct training and operations. Although not desired by everybody, this self imposed restriction would enable recruits to make long-term plans within the context of their home station thereby providing stability for the family. At first glance, offering geographical incentives may seem to address retention over recruiting. However, this geographical certainty could be a considerable point of attraction for recruits with family concerns regarding family stability while costing the CF less due to the reduction in the number of postings.

To facilitate these geographic incentives, it will be necessary for the CF to incrementally build its infrastructure close to the major cities. The recruit of the future will still have to deploy to what some might consider less desired locations in and outside of Canada to conduct operations, exercises, and train on TD (not a posting). However, for the day to day activities and

routine training of the military recruits would report to their units close to the city. It is understood that Canada's vast geography makes implementing geographic incentives more challenging. However, if the CF wants to attract more recruits, particularly those with families, posting location guarantees will be attractive for some.

The Minister of National Defence, Peter MacKay, recently announced that the government will complete \$400 million worth of infrastructure projects at different Canadian military bases. In fact, as part of the plan, the federal government is spending more than \$40 million dollars on infrastructure projects at CFB Edmonton. More than \$21 million will be spent to construct a training accommodation building at CFB Edmonton. The 97-unit building will house troops from other Canadian military bases who come to Edmonton for training.<sup>174</sup> One can use this most recent announcement to determine a rough order of magnitude regarding building of new infrastructure costs in today's dollars on an existing CF base. For instance, it would seem that one could house 500 troops, assuming 1 person per room (this is very conservative - one could assume 2 per room), for about \$100 million. Some 500 troops is about the size of a large army battalion. Therefore, for about \$500 million, one could probably house and provide general administrative/support/work space for a large army Brigade (approximately the number of CF personnel in Afghanistan). In fact, in the case of Toronto, the CF already has bases relatively close in locations such as Downsview, Borden, Trenton, and Kingston. Clearly, this new infrastructure would be expensive. However, to put CF costs in perspective, the four C-17

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<sup>174</sup> CTV News, Edmonton, "Alberta military bases to get \$40 million federal boost", 15 March 2009, [http://edmonton.ctv.ca/servlet/an/local/CTVNews/20090315/EDM\\_militaryfunding\\_090315/20090315/?hub=Edmonton Home](http://edmonton.ctv.ca/servlet/an/local/CTVNews/20090315/EDM_militaryfunding_090315/20090315/?hub=Edmonton Home); Internet, accessed 19 March 2009.

transport planes recently purchased by the Canadian government will cost about \$3.4 billion.<sup>175</sup>

As shown in this paper, Toronto is part of Canada's mega region where much of Canada's population, and CF recruiting pool, will reside. Given that the CF will face stiff competition for workforce in the future, the CF will have to adapt its structure and spending priorities to keep military service in the CF attractive to the potential recruit with family stability concerns.

## **CONCLUSION**

This paper has examined the potential recruiting environment in 2025 considering various trends, predictions, views and challenges against the backdrop of the CFDS 20 year outlook. The paper has revealed that we cannot focus exclusively on Canada and its estimated adult working age population. There are other factors which will mould the CF recruit of 2025. Within that context, this paper has shown that, due to the high demand for workers, and the impact of changing technology, the CF will need to adapt its recruiting attraction strategies significantly to ensure that it can compete for future workforce.

In 2026, Canada's estimated population will be about 37.9 million which will include some 24.2 million adults within the traditional working age group of 15 to 65. By 2017, one in five Canadians will be a visible minority settling in the three largest urban centres of Toronto, Vancouver, and Montreal. The Canadian government plans to take up to 265,000 new permanent residents in 2009. Immigration is vital to Canada's long term labour shortages and economic prosperity. Canada, although an attractive destination, will have to compete for immigrants. However, immigration alone still cannot relieve the challenges of an ageing population for Canada. The aging population holds implications for employers in many countries.

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<sup>175</sup> CTV News, "Canada's C-17 transport plane lands in Afghanistan", 30 August 2007, [http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20070829/c17\\_afghanistan\\_070829/20070829?hub=TopStories](http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20070829/c17_afghanistan_070829/20070829?hub=TopStories); Internet, accessed 19 March 2009.

The US, China and India are likely to be the largest economies by 2025. Given demographic realities and world-wide competition for workforce, it is important than older workers (beyond 65) who wish to do so, remain employed. Baby boomers in Canada, those born between 1945-1960, will be 60 to 75 years old by 2020. Moreover, it is likely that people will hold many jobs over their working lifetime. Successful employers will need to respond to employee needs and desires, aligning workers' preferences with their own and their institution's needs. Flexible career ladders need to accommodate workers' changing family and financial needs in the future. The reformulation of pay, benefits, pension plans and working conditions where a job can fit into workers' life stages will be necessary. The competition for workforce will be turbulent. The CF will have to adapt by offering meaningful and flexible incentives to attract the recruit.

The world is experiencing the most rapid period of technological transformation ever. Digital technology is rapidly democratizing the tools of creativity and allowing human imagination to flourish. Formal credentials and years of experience will no longer be considered the most prominent indicators of potential creativity. Digital Natives, born after 1980, will be well positioned in the workforce. Network technologies are easing the emergence of self-organized groups and accelerating the things that they can achieve without managerial oversight. Since the CF must remain interoperable with the high-tech US military, the Forces will have to procure new equipment and constantly adapt smartly. Conflict will continue to evolve as science and technology change modern warfare. Technologies will improve human performance as we move away from brute physical strength and stamina. Military tasks traditionally reserved for younger soldiers because of rigorous physical requirements are likely to diminish. In the case of

the CF, occupations that may be essential to the institution in ten years may not even exist or be imaginable today.

The internet is changing how children and college students research and learn. Collaboration and peer cooperation is becoming the norm. When it comes to mobilizing effort, communities generally outperform bureaucracy. As the CF competes for people, it will need to differentiate between the value of education relative to training when addressing formal credentials needed to perform effectively in the military. People possess talents that are often not ever recognized. There are no definite rules for judging how smart or how well educated individuals must be to perform effectively in the military. The CF trains the necessary skills and behaviour to perform the operational art. Demanding an undergraduate degree for officers needlessly eliminates capable people from the recruiting pool. The CF must reinstate the OCTP. Although a degree is not needed for military service, success in the future recruiting market will require innovative ways to combine military service with the pursuit of higher education. The CF should market itself as a proponent of higher education opportunities acquired in conjunction with military service after occupational training. Rather than the emphasis of recruiting people with university degrees, the CF should place extra effort on those who do not have a degree.

More incentives will be required to attract recruits. The stable and generous CF pension plan should be marketed to draw people from the different stages of workforce life. To position itself to suit the various age groups and personal situations, the CF must make its pension plan more flexible. In addition, more emphasis is being placed on cultural and language knowledge within international military operations. Immigrants may have particular language skills that could be valuable to CF operations of the future. Recruits should be shown that their valuable second language profile will give them potential promotion advantages later within the CF.

Moreover, marketing a personal "creativity budget" to the potential recruit may appeal to many, particularly the Digital Native. This type of attraction vehicle could go a long way to breaking down the perception of hierarchy in the CF while concurrently giving recruits the feeling that they will be part of the solution early within their military service.

The CF will have to re-focus its efforts. Advances in technology will make the physical component of military service relatively less important. People are likely to be healthier and live longer. Given Canada's demographic situation, likely out of necessity, the CF will have to draw from an older cohort of society. Based on people's likely view on the notion of retirement in the future, the CF should increase the mandatory retirement from the current age 60 to age 65 by the year 2025. Furthermore, the cities will be the location where the human creative capital will reside. The CF will have to be realistic and flexible understanding the different life priorities for individuals and general age groups and market accordingly. The Forces will need to establish a philosophy and structure emphasizing that there is no such thing as a regular or reserve force member. A revolving door policy should be promised to those candidates with thoughts of pursuing private sector jobs later. This approach could attract the potential recruit of all ages promising negotiated opportunities outside the CF at various stages along the way.

Finally, people, particularly as they get older, generally want to establish roots and stability for their families. Family factors may even be more of a priority for women and immigrants. The CF should offer geographical incentives to attract the future recruit. A geographical area of service should be guaranteed. More CF base infrastructure will be needed close to the big cities, particularly Toronto. This geographical certainty could be a considerable point of attraction for many recruits in the year 2025.

## Bibliography

- Baldwin, Wayne, Master Warrant Officer. CF Ranger briefing to JCSP 35 during FSE to Iqaluit, February 2009. Slides 1-39.
- Barclay, Paul. "Defence recruitment crisis." *Background Briefing*. Transcripts from a broadcast on Radio National dated 26 March 2006. Available at <http://www.abc.net.au/rn/talks/bbing/stories/s1597752.htm>; Internet, Accessed 18 December 2008.
- Benner, Chris. *Work in the New Economy. "Flexible Labor Markets in Silicon Valley"*. Blackwell Publishing, 2002.
- Bigelow, F.G., Colonel. "Military HR Strategy 2020 - Ignoring the People Challenges of the Future." Toronto: Canadian Forces College, NSSP 9, April 2007.
- Boot, Max and Michael O'Hanlon. "A Military Path to Citizenship." *Washington Post.com* 19 October 2006. <http://www.washingtonpost.com/wp-dyn/content/article/2006/10/18/>; Internet, Accessed 18 December 2008.
- Brodsky, Noel. *A Short Drive Through the 21st Century: "The Future of Energy, Trade and Demographics."* Lulu.com, 2006.
- Calami, Peter. "On second thought: Why being wrong can be a good thing." *Toronto Star*, 28 December, 2008.
- Carlson, David Lynn. "Build a Brand to Woo Talent: Young employees want more than a paycheque." *National Post*, 24 December, 2008.
- Canada. Citizenship and Immigration Canada. *Annual Report to Parliament on Immigration 2008*. Available from [http://www.cic.gc.ca/english/pdf/pub/immigration2008\\_e.pdf](http://www.cic.gc.ca/english/pdf/pub/immigration2008_e.pdf); Internet; accessed 29 December 2008.
- Canada. Department of National Defence. *Shaping The Future of the Canadian Forces: Strategy 2020*, Ottawa: Department of National Defence, June 1999; Available from <http://www.cds.forces.gc.ca/str/index-eng.asp>; Internet; accessed 2 January 2009.
- Canada. Department of National Defence. *The Future Security Environment 2007-2030 Part One*. 8 November 2007 - Draft. Chief of Force Development.
- Canada. Department of National Defence. *Canada First Defence Strategy*. June 2008.
- Canada. Department of National Defence. *Duty with Honour, The Profession of Arms in Canada*, 2003.



- Canada. Department of National Defence. Canadian Forces Operations Manual. B-GJ-005-300/FP-000, Ch2 2005-08-15.
- Canada. Department of National Defence. Annual Report, Canadian Forces Pension Plan, 2006-2007.
- Canada. Human Resources and Skills Development. Education and Early Labour outcomes in Canada - December 2007. Available from [http://www.hrsdc.gc.ca/eng/publications\\_resources/learning\\_policy/sp\\_793\\_12\\_07e/page06.shtml](http://www.hrsdc.gc.ca/eng/publications_resources/learning_policy/sp_793_12_07e/page06.shtml) Internet; accessed 19 March 2009.
- Canada. House of Commons Committees - PACP (39-1). Government Response to the Eleventh Report of the Standing Committee on Public Accounts: Chapter 2 of the May 2006 Report of the Auditor General of Canada on National Defence - Military Recruiting and Retention. Available from <http://www2.parl.gc.ca/HousePublications/Publication.aspx?> Internet; accessed 7 January 2009.
- Canada. Message: Implementation Plan - Air Navigator Name Change, DPGR 001/09, 071853Z January 2009.
- Canada. Report of the Standing Senate Committee on Banking, Trade and Commerce. "The Demographic Time Bomb: Mitigating the Effects of Demographic Change in Canada." June 2006. Available from [www.senate-senat.ca/bancom.asp](http://www.senate-senat.ca/bancom.asp); Internet; accessed 29 December 2008.
- Canada. Statistics Canada. "Population and Dwelling Counts, 2006 Census." *Portrait of the Canadian Population in 2006, Census year 2006*. Available from <http://www12.statcan.ca/english/census06/analysis/index.cfm>; Internet; accessed 2 January 2009.
- Canada. Statistics Canada. "Projected population by age group according to three projection scenarios for 2011, 2016, 2021, 2026, and 2031." Available from <http://www40.statcan.gc.ca/cbin/fl/cstprintflag.cgi>; Internet; accessed 18 December 2008.
- Canada. Statistics Canada. "Projected population by age group and sex according to medium growth scenario for 2011, 2016, 2021, 2026, and 2031." Available from <http://www40.statcan.gc.ca/cbin/fl/cstprintflag.cgi>; Internet; accessed 18 December 2008.
- Canada. Statistics Canada. Article, 2007 Social Survey Report. "The Retirement Plans and Expectations of Older Workers" 9 September 2008, available at <http://www.statcan.gc.ca/pub/11-008-x/2008002/article/10666-eng.pdf>; Internet; accessed 19 March 2009.
- Canada. Auditor General of Canada. *2006 Report of the Auditor General of Canada to the House of Commons - Chapter 2 - National Defence - Military Recruiting and Retention*. Ottawa: Office of the Auditor General of Canada, 2006.

- Canada. Health Canada. *Canada's Aging Population*. Ottawa: Minister of Public Works and Government Services Canada, 2002, available at [http://www.phac-aspc.gc.ca/seniors-aines/pubs/fed\\_paper/pdfs/fedpaper\\_e.pdf](http://www.phac-aspc.gc.ca/seniors-aines/pubs/fed_paper/pdfs/fedpaper_e.pdf); Internet; accessed 2 January 2009.
- Canadian Forces Personnel Appraisal System (CFPAS) Handbook
- Canton, James. 2006. *The Extreme Future: Top Trends That Will Reshape the World for the Next 5, 10, and 20 Years*. Dutton. Penguin Books Ltd. London.
- Carlson, Richard and Bruce Goldman. *Fast Forward. "Where Technology, Demographics, and History Will Take America and the World in the Next Thirty Years."* Harper Collins Publishers, New York, NY, 1994.
- Chapnick, Adam. "Not Necessarily Conscription... Bringing the Forces up to Strength: A Question of Motivating Youth to Serve." *Canadian Military Journal* 7. no. 2 (Winter 2006-2007).
- Cornish, Edward. *Futuring: The Exploration of the Future*. Bethesda, Maryland, Published by World Future Society, 2004.
- Cotten K.R., Colonel. "Old Age Security?" National Security Implications of an Aging Canadian Population. Toronto: Canadian Forces College NSSP IX Paper, 21 May 2007.
- CTV News. Edmonton. "Alberta military bases to get \$40 million federal boost" 15 March 09 [http://edmonton.ctv.ca/servlet/an/local/CTVNews/20090315/EDM\\_militaryfunding\\_090315/20090315/?hub=EdmontonHome](http://edmonton.ctv.ca/servlet/an/local/CTVNews/20090315/EDM_militaryfunding_090315/20090315/?hub=EdmontonHome); Internet, accessed 19 March 2009.
- CTV News. "Canada's C-17 transport plane lands in Afghanistan", 30 August 2007, [http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20070829/c17\\_afghanistan\\_070829/20070829?hub=Top Stories](http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20070829/c17_afghanistan_070829/20070829?hub=Top%20Stories); Internet, accessed 19 March 2009.
- Cullen J.W., Lieutenant-Colonel. "The Perfect Storm: The Canadian Forces' Fight To Retain Its People; How Can It Win In This Competitive Talent Environment". Toronto: Canadian Forces Joint Command and Staff Programme Course 34 Masters in Defence Studies Paper, 2008.
- Dion, Major J.C.A.E. 2005. "*e-Soldiers; Canadian Military Human Resources Facing the 21<sup>st</sup> Century Challenges*" Director General Strategic Planning, Force Planning and Program Coordinator 3-4. NDHQ. 1 October 2005. <http://www.cda-cdai.ca/pdf/eSoldiers.pdf>; Internet, accessed 2 January 2009.
- Edwards, John. *The Geeks of War. "The Secretive Labs and Brilliant Minds behind Tomorrow's Warfare Technologies*, AMACOM books, New York, NY, 2005.

- Eitelberg, Mark and Stephen Mehay. *Marching Toward the 21st Century. "Military Manpower and Recruiting."* Contributions in Military Studies, Number 154. Greenwood Press, Westport, CT, 1994.
- Florida, Richard, *Who's Your City? "How the Creative Economy is Making Where to Live the Most Important Decision of Your Life."* Random House Canada, 2008.
- Foot, David K. and Daniel Stoffman. *Boom Bust and Echo 2000 - Profiting from the Demographic Shift in the New Millennium.* 2<sup>nd</sup> ed. Toronto: Macfarlane Walter and Ross, 1998.
- Futurelab. 2007. *Opening Education: 2020 and beyond: Future scenarios for education in the age of new technologies.* <http://www.futurelab.org.uk/resources/publications/articles>; Internet, accessed 2 January 2009.
- Gee, Ellen M. "Misconceptions and Misapprehensions about Population Aging." *International Journal of Epidemiology* 31, no. 4 (August 2002), 750-753; available at <http://ije.oxfordjournals.org/cgi/content/full/31/4/750>; Internet; accessed 2 January 2009.
- Gladwell, Malcolm. *Outliers: The Story of Success.* Little Brown and Company, New York, 2008.
- Gold, Philip. *The Coming Draft. "The Crisis in Our Military and Why Selective Service is Wrong for America."* Ballantine Books, Random House Publishing, New York, 2006.
- Gordon, Edward. *The 2010 Meltdown. "Solving the Impending Jobs Crisis."* Praeger Publishers, Westport, CT, 2005.
- Granatstein, J.L. Report to the Prime Minister, "For Efficient and Effective Military Forces", A Paper Prepared for the Minister of National Defence, Canadian Institute of International Affairs, 25 March, 1997.
- Griffiths, Rudyard. *Canada in 2020. Twenty Leading Voices Imagine Canada's Future.* The Dominion Institute. Key Porter Books, Toronto, Ontario. 2008.
- Guillemette, Yvan and William B. P. Robson. *No Elixir of Youth - Immigration Cannot Keep Canada Young.* Toronto: C.D. Howe Institute, 2006, available at [http://www.cdhowe.org/pdf/backgrounder\\_96.pdf](http://www.cdhowe.org/pdf/backgrounder_96.pdf); Internet, accessed 2 January 2009.
- Hamel, Gary and Bill Breen. *The Future of Management.* Boston: Harvard Business School Press, 2007.
- Hawthorne, Leslyanne. "Labour Market Outcomes for Migrant Professionals: Canada and Australia Compared - Executive Summary." University of Melbourne, Australia, December 2006.

- Herman, Roger, Thomas Olivo, and Joyce Gioia. *Impending Crisis. "Too Many Jobs Too Few People."* Oakhill Press, Winchester, VA, 2003.
- Jung, H.W., Captain (N). "Can the Canadian Forces Reflect Canadian Society?" Toronto: Canadian Forces College NSSC 8.
- Karoly, Lynn. *The 21st Century at Work: "Forces Shaping the Future Workforce and Workplace in the United States."* RAND Corporation, 2004.
- Karoly, Lynn, A. 2007. *Forces Shaping the Future U.S. Workforce and Workplace: Implications for 21st Century Work.* RAND Testimony. CT-237, Testimony presented before the House Education and Labor Committee on February 7, 2007.  
<http://www.rand.org/pubs/testimonies/CT273/>; Internet, accessed 18 December 2008.
- Keller R.F., Major. "Is There A Link Between Canadian Forces Recruiting, Diversity and Immigration?" Toronto: Canadian Forces Joint Command and Staff Programme Course 33 Masters in Defence Studies Paper, 23 April 2007.
- Mandales, Mark. *The Future of War. "Organizations as Weapons."* Potomac Books, Inc., Washington, D.C., 2005.
- Martel, Lysane, Major. Instructor, Air Weapons Controller Basic Course, 1991 - 1994, CFB North Bay, Ontario. Discussion with the author (Major RM Black) regarding observed correlation of practical/academic performance and student formal education credentials, 11 March, 2009.
- McCurdy L.D., Lieutenant-Colonel. "Recruiting: Policy Change vs. Extinction." Toronto: Canadian Forces Joint Command and Staff Programme Course 34 New Horizons Paper, 2008.
- Messenger, John. *Working Time and Workers' Preferences in Industrialized Countries - Finding the Balance.* International Labour Office, Geneva, Switzerland, 2004.
- Mitchel, Olivia et al. *Benefits for the Workplace of the Future.* Pension Research Council, The Wharton School of the University of Pennsylvania, University of Pennsylvania Press, Philadelphia, 2003.
- Namiesniowski, Conrad, Lieutenant-Colonel. "Addressing The Canadian Air Force Recruitment and Training Issues Within The Constraints of a "Degreed" Officer Corps." Toronto: Canadian Forces Staff College 31 New Horizons Paper, 29 April 2005.
- National Post Article. "The Pension Problem", 14 March 2009, FP5.
- Organization for Economic Cooperation and Development. "June 2006 Policy Brief - Economic Survey of Canada, 2006." *OECD Observer* (June 2006): 1-11; Available at

- <http://www.oecd.org/dataoecd/13/39/36996670.pdf>; Internet; accessed 29 December 2008.
- Palfrey, John and Urs Gasser. *Born Digital*. "Understanding the First Generation of Digital Natives." Basic Books, 2008.
- Paulhus, BMJ. *Promoting Leaders Versus Managers: "Why the Merit System Needs to Be Refocused."* Toronto: Canadian Forces Staff College 33 New Horizons Paper.
- Payne, Jennifer. *Women's Health Surveillance Report - Chapter 10 - the Impact of a Reduced Fertility Rate on Women's Health*. Ottawa: Canadian Institute for Health Information, 2003, Available at [http://www.phac-aspc.gc.ca/publicat/whsr-rssf/Chap10\\_e.pdf](http://www.phac-aspc.gc.ca/publicat/whsr-rssf/Chap10_e.pdf); Internet; accessed 18 December 2008.
- Pritchett, Lant. *Let their People Come. "Braking the Gridlock on International Labor Mobility."* Washington , DC, Center for Global Development, Brookings Institution Press, 2006.
- Sackett, Paul and Anne Mavor. *Attitudes, Aptitudes, and Aspirations of American Youth. "Implications for Military Recruitment."* National Research Council, The National Academies Press, Washington, D.C., 2003.
- Schulz, James and Robert Binstock. *Aging Nation. "The Economics and Politics of Growing Older in America."* Praeger Publishers, Westport, CT, 2006.
- Seel, Richard. 2000. "Culture and Complexity: New Insights on Organisational Change". *Organisations & People* Vol. 7 No 2; May 2000 pp 2-9. This article also appears in *Organizational Culture: An Introduction*, edited by Nasreen Taher, Hyderabad: ICFAI University Press, 2005, pp 82-92. <http://www.new-paradigm.co.uk/culture-complex.htm> Internet, accessed 29 December 2008.
- Semianiw, Major-General W. "Dimensions and Demographic Challenges of Canadian Human Resources and their effects on the Canadian Forces." *Presentation to the Joint Command and Staff Programme 35*, Toronto: Canadian Forces College, 8 December 2008. Slides 1-112.
- Surowiecki, James. *Wisdom of Crowds*. Anchor Books, 2005.
- Taleb, Nassim Nicholas. *The Black Swan. "The Impact of the Highly Improbable"*. Random House New York, 2007.
- Toronto Star Article. "Hopes fade for Freedom 55 ". Business Section, 30 January 2009, B-4.
- Toronto Star Article. "Freedom 55 crashes into reality check". 15 March 2009, A1.
- US Government. *Global Trends 2025: A Transformed World*. National Intelligence Council, November 2008.
- US Military.com. <http://www.usmilitary.com/9017/new-training-supports-lifetime-learners-in-marine-corps/> Internet, accessed 23 March 2009.

- Verdon, John; Forrester, Bruce; Tanner, Leesa. 2007. *Understanding the Impact of Network Technologies on the Design of Work – Social and Peer Production*. Technical Memorandum. DMPFD TM 2007-04. April 2007.
- Verdon, John; Forrester, Bruce; Wang Zhingang. The Last Mile of the Market: How Networks, Participation and Responsible Autonomy Support Mission Command and Transform Personnel Management. Draft Technical Memorandum. Directorate of Military Personnel Force Development. 2008.
- Wakelam, Colonel R.T. "So What's in a Degree," *Canadian Military Journal*. Vol. 4, no 2, 24 September 2003.
- Wyckof, Andrew and Martin Schaaper. "The Changing Dynamics of the Global Markets for the Highly Skilled" from *Advancing Knowledge and the Knowledge Economy*, eds. Brian Kahin and Dominique Foray, Cambridge, Mass: MIT Press, 2006, 193-216.
- Yuzdepski, Michael. An unexceptional problem in an exceptional institution: worker satisfaction in the Canadian Forces during the 1970s, 2000 Paper.
- Zittrain, Jonathan. *The Future of the Internet And How to Stop it*. Yale University Press, 2008.