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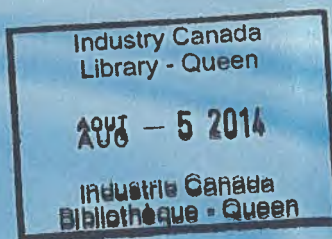
Canada

The Strategic Policy Sector



IC Insights

Summer 2014



IN THIS ISSUE:

- Connectivity in the North ([page 3](#))
- Business Mentorship in Canada: Highlights of Study ([page 8](#))
- Offshoring and Canadian Manufacturing Firms ([page 13](#))
- Management Practices, Innovation and Performance of Enterprises in Canada ([page 17](#))

Recent Developments of Interest to IC

OECD estimates confirm recovery of Gross Domestic Expenditures on R&D in 2012

- ❖ OECD released *Main Science and Technology Indicators 2014*, measuring levels of Gross domestic Expenditures on R&D (GERD), Business Enterprise Expenditure on R&D (BERD), Higher Education Expenditure on R&D (HERD), and Government Intramural Expenditure on R&D (GOVERD).
- ❖ In the OECD area, GERD rose by 2.7% in real terms from 2011 to 2012, mostly from an increase in business R&D spending (+3.5%).
- ❖ Canada's GERD, BERD and GOVERD as a percentage of GDP (1.7%, 0.9%, and 0.2% respectively) were all lower than the OECD averages, while HERD (at 0.7%) was greater.

Canada ranks 6th worldwide in The Heritage Foundation's 2014 Index of Economic Freedom

- ❖ The Index assesses 168 countries on the level of their "economic freedom" using ten freedoms, which are grouped in four categories: Rule of Law, Limited Government, Regulatory Efficiency, and Open Markets.
- ❖ Canada ranked 6th with a score of 80.2, below Hong Kong, Singapore, Australia, Switzerland, and New Zealand.
- ❖ The report marks Property Rights (2nd overall), Financial Freedom (4th), and Trade Freedoms (9th) as Canada's strengths.

The Economist adjusts the "Burgernomics" index

- ❖ The Big Mac Index, invented by *The Economist* in 1986 compares the prices of Big Macs around the world as a lighthearted method to measure currencies at their "fair value", and as a "tool to make exchange-rate theory more digestible".
- ❖ The Index provides a raw and adjusted index—the adjusted index uses the "line of best fit" between Big Mac prices and GDP per person to find a more current "fair value".
- ❖ In January 2014, Canada was overvalued by 8.4% in the Raw index, and 6.2% in the Adjusted index, meaning that people pay more for their Big Mac's in Canada than in the U.S. (see the Hot Chart, page 28).

Canada retains seventh place ranking in the 2014 IMD World Competitiveness Yearbook

- ❖ The U.S. retained the number one spot, followed by Switzerland, Singapore, Hong Kong, Sweden and Germany.
- ❖ The World Competitiveness Yearbook compares 60 nations on the basis of over 300 criteria, two-thirds of which are hard statistics, with the remaining from a business executives' opinion survey.

Connectivity Challenges in the North

Michael Hurst, Strategic Policy Sector

Highlights

- Connectivity is important in Canada's North: it is vital for economic growth, ensuring security and sovereignty, and keeping the communities and people living in the North connected with the rest of the world.
- The greatest challenge to connectivity in the North is the lack of a robust "backbone".
- There have been several public and private sector initiatives implemented over the last decade to further connectivity in the North and more are planned for the future.

Importance of Connectivity

Broadband connectivity is viewed by many stakeholders as one of the greatest enablers for economic diversification, growth and service delivery—especially in sectors like e-commerce, tele-health and distance education.

A 2009 World Bank study found that for every 10% increase in broadband penetration there is a positive economic impact (about 1%) to gross domestic product. Higher internet speeds were also reported to increase economic activity by another 0.3% (Quang & Rossotto, 2009). There have been several studies in developed and developing countries that have validated the positive contribution of broadband to job creation (ITU, 2012).

Why Does Connectivity Matter for the North?

There is little doubt of the critical importance connectivity plays in just about every aspect of today's world: it is present in nearly all inhabited places on the planet. But in Canada's remote North, with its huge expanse of very isolated land, water and community populations, how much does connectivity matter?

There are several reasons why connectivity matters. Having effective telecommunications and connectivity services available in the Arctic is important for the communities and inhabitants as it allows them to live, prosper and keep pace with the technological advances taking place and being used in other parts of the world. It is also important for security and sovereignty of the Canadian Arctic, which is crucial to the Government of Canada (outlined in the 2009 "Canada's Northern Strategy" document). This will become even more important if the North becomes more ice-free, thus increasing accessibility and navigability to the Northwest Passage, for commercial and pleasure traffic. Finally, there are vast and undiscovered natural resources in Canada's North that have already contributed significantly to Canada's overall economy. Connectivity seems nowadays as important an infrastructure as roads, and will be key to help businesses to prosper and grow as more discoveries are made and new mines opened.

The Challenge

Successful southern telecommunications financial models, which are based on large populations living in close proximity to one another, are not easily adapted to a Northern context, where community populations are small and separated. The primary challenge is a lack of a sufficient communications “backbone” – the infrastructure that connects northern communities together and subsequently to the south and the rest of the world. This infrastructure disparity includes: old and outdated infrastructure not capable of handling upgrades to equipment that manufacturers put out (i.e., moving from 2G to 4G/LTE mobile technology); bandwidth limitations where current infrastructure cannot handle bandwidth or volume of traffic to work properly (i.e., live video streaming); and lack of redundancy (i.e., need for an alternate route for communication when the primary backbone source goes down).

Connectivity across the North varies considerably depending on location. While almost all communities in the Yukon are connected via a combination of fibre and microwave, Nunavut’s 26 communities are connected by satellite only. In the Northwest Territories (NWT), there are 10 communities served solely by satellite while the rest are connected by a combination of fibre and microwave. While every community in Canada’s three territories has “broadband” access to a certain degree, there is a significant disparity in the level, affordability and adoption of connectivity between centres that are larger and more populated and smaller, isolated ones.

The Anik F2 Satellite

An example highlighting the headache of the North lacking backbone infrastructure was when the Anik F2 satellite went off-line (due to technical anomalies) for a 16 hour period on October 6, 2011. Unlike the other two territories, Nunavut relies entirely on satellite technology to handle all of its communications both within its communities and with the rest of the world. At the time of shut-off, Nunavut was almost entirely served by this single satellite; there were very little, if any, redundant systems set up to take over communications. For that time frame, the territory was essentially shut down – internet, cellular and long distance telephone services were unavailable, banks were closed, ATMs did not work, stores could only operate on a cash basis, and all air traffic in the territory was grounded as the airports rely on satellite communications to communicate with each other and the south.
(From the Nunavut Broadband Development Corporation)

Past Connectivity Initiatives across Canada’s North

There have been a number of initiatives that have influenced the development of connectivity across the North. Some of the most significant are:

- **Industry Canada’s “Broadband for Rural & Northern Development Pilot Program (BRAND) (Table 1):**
 - BRAND was launched in September 2002 as a three-year, \$105 million initiative with a matching capital cost structure to address broadband gaps between served and unserved communities across Canada.

Table 1: Characteristics of BRAND

Territory	# of communities	# of first nation reserves	Total project costs
Yukon	6	0	\$470,090
NWT	29	1	\$10,232,318
Nunavut	24	0	\$8,712,622

Source: Formative Evaluation of the Broadband for Rural & Northern Development Pilot – Final Report

- **Infrastructure Canada's National Satellite Initiative (NSI) Programs (Phase 1&2) (Table 2):**
 - These programs were launched in 2004 (phase 1) and 2010 (phase 2) to help offset satellite bandwidth costs for those communities served solely via satellite and which received funding under the BRAND program:

Table 2: Characteristics of NSI programs

Territory	NSI (round 1)	NSI (round 2)
NWT	\$7,000,000	\$14,800,000
Nunavut	\$7,800,000	\$21,600,000

Source: Canada Strategic Infrastructure Fund Projects

- **Industry Canada's Broadband Canada: Connecting Rural Canadians (Table 3):**
 - This project was a component of Canada's Economic Action Plan to develop and implement a strategy to extend broadband coverage to underserved communities across Canada. It operated from June 2009 to March 31, 2012:

Table 3: Characteristics of Broadband CND

Territory	# of households affected
NWT	1220
Nunavut	9300

Source: Broadband Canada: Connecting Rural Canadians

Present Connectivity

Tables 4 and 5 describe the approximate state of connectivity presently available in the three territories. While Table 4 makes clear the large gap between coverage in the North and coverage in Canada, Table 5 provides consumer context on connectivity in the Yukon, NWT and Nunavut.

Table 4: Percentages of Coverage, 2012

Coverage – 2012 %		
Type of technologies	North (combined)	Canada
Wireless	70.4	99.4
HSPA+	51.9	99.1
LTE	36.7	72.0

Source: Government of Canada (2013) CRTC Communications Monitoring Report (2013)
<http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2013/cmr.htm>

Table 5: State of Connectivity in Yukon, NWT and Nunavut, 2012

Download speed range (Mbps)	Speeds available – 2012 (% of population with coverage)			Technology	Cost of monthly subscription (as of January 16 th , 2014 – for 100Mbps/month)
	1.5-4.9	5-9.9	10+		
Yukon	99%	90%	61%	Fibre, microwave & satellite	\$79.95 (90 GB cap, 16 Mbps/768 Kbps)
NWT	91%	85%	42%-50%	Some microwave & fibre plus 10 satellite-reliant communities	\$59.95 (20 GB)
Nunavut	99%	29%	0%	Satellite only	\$80.00 (10 GB, 1.5 Mbps)

Source: Government of Canada (2013) CRTC Communications Monitoring Report (2013)
<http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2013/cmr.htm>

Future Program Initiatives

In Industry Canada’s recently announced new digital strategy “Digital Canada 150,” there are five pillars under this plan, one of which is “connecting Canadians”. A sub-component of this pillar is the announcement of a new program which will provide \$305 million to extend and enhance high speed internet services to a target speed of 5 Mbps for up to 280,000 Canadian households in rural and remote areas over the next five years. Consultation sessions are currently being conducted by departmental staff with provinces, territories and vested stakeholders to seek their input into the development and implementation of this new initiative. In the fall of 2014, the first calls will go out for applications to be followed in spring 2015 with the announcements of first round projects. If necessary, a second call for applications will be issued in the winter of 2015.

In addition to Digital Canada 150, there are several private sector initiatives which are either underway or being planned which will also help to enhance and diversify connectivity in the North.

In conclusion, there are significant challenges in the considerable distance between Northern communities and the sparse populations. However, these future program initiatives aim to relieve some of the pressure on existing infrastructure, and ultimately be beneficial to developing stronger connectivity to the North, contributing to technological empowerment for Canadian citizens living in the territories.

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Business Mentorship in Canada: Highlights of Study*

Keltie Chapman & Amy Zhou, SPS

Highlights:

- As part of a report commissioned by Industry Canada's Strategic Policy Branch, managers of 10 Canadian business mentorship programs were interviewed to better understand the creation, operation and sustainability of different programs.
- Mentorship programs in Canada vary from smaller, informal programs serving regional areas to those focussed on global expansion.
- Over the years, public funding has contributed to specific initiatives, and the report made further recommendations to enhance mentorship programs.

Introduction

The creation and sustainability of new businesses in Canada are important for the growth of the Canadian economy. Over one million small businesses in Canada employ 48% of Canada's total workforce, account for 25% of total exports, and generate 30% of GDP (Startup Canada 2012). However, roughly half of startups falter and fail in their first five years (Watters & Chappell, 2014). To this end, business mentorship programs have been identified as an important element of helping businesses become successful and growing a healthy business ecosystem (BDC's Canadian Entrepreneurship Status 2012).

In 2013, the Strategic Policy Branch commissioned a study from Global Advantage Consulting Group and Snowy Cloud Inc. to examine mentorship programs and gain a better understanding of business and entrepreneur mentorship programs in Canada. The resulting report, *Understanding Business and Entrepreneur Mentorship in Canada and Abroad*, presents findings obtained through a series of case studies and a review of existing information.

Many people hear about business success, but they might not be aware of all the hard work, cooperation and assistance behind it. Many successful businesses, like Bufferbox, 9gag, Hootsuite, and Vungle, were able to grow with the help of mentorship programs similar to the ones analyzed for this study.

Summary of Project

The researchers conducted case studies of 10 business mentorship programs in Canada. These case studies represent a cross-section of mentoring programs out of the hundreds that exist in Canada, from smaller, informal programs, to more focussed, specialized programs.

Mentorship programs have one main objective: to achieve results quickly – whether this be positive results, such as growth or expansion, or potentially minimizing the costs from venture deterioration by identifying likely failure with greater speed.

* This is a summary of *Understanding Business and Entrepreneur Mentorship in Canada and Abroad* (2013), Global Advantage Consulting Group and Snowy Cloud Inc.

To compare how mentorship programs fulfill their objectives, the study analysed program features such as: the nature of mentor-client relationships; the geographic and funding scope of these programs; activities integral to the maintenance of the programs; and the role of the public and private sector in financial support.

Mentoring and Peer-to-Peer Organizations Interviewed

While all mentorship programs have the same main objective, the nature of client-mentor relationships (or even peer-to-peer relationships) upon which the programs are built can vary due to different client demographics, areas of focus, and available clients and mentors. As such, the survey was able to sort mentorship programs into four distinct categories (Figure 1), all defined by their mentor-client relationships:

Traditional mentoring (one-to-one): The traditional mentorship is simply a relationship between one mentor and one mentee—a young entrepreneur is matched with a business professional and the professional shares his or her advice, experience and contacts when needed.

Executive (Entrepreneur) in Residence (EiR) Programs (one to many): EiR mentors are generally individual technology/business professionals who provide strategic guidance in the areas of product and market validation, new venture creation, management team development, and business connections to a group of start-up entrepreneurs.

Mentorship linked to Accelerator programs (many to one): Accelerator programs with grouped specialized mentors are structured to provide concentrated support and programming, perfect for high growth startups with a high potential for receiving venture capital funding. Some Accelerator programs (such as Invest Ottawa, and Communitech in Kitchener-Waterloo) now offer a combination of traditional mentorship and EiR.

Peer-to-Peer Networks (Many-to-Many): Peer-to-peer networks are traditionally offered by industry associations and selective-member organization (for example, having a peer-group of CEOs, CFOs or Marketing Heads). Unlike mentorship structures built on traditional top-down mentorship, these networks focus on horizontal learning and teaching which have evolved out of mutually shared industry and organizational experiences—all members are peers.

The 10 interviewed Canadian Mentorship Programs

Table 1 lists 10 organizations analysed and studied *Understanding Business and Entrepreneur Mentorship in Canada and Abroad*, while figure 2 geographically locates each program.

Figure 1: Mentoring relationships between clients and mentors

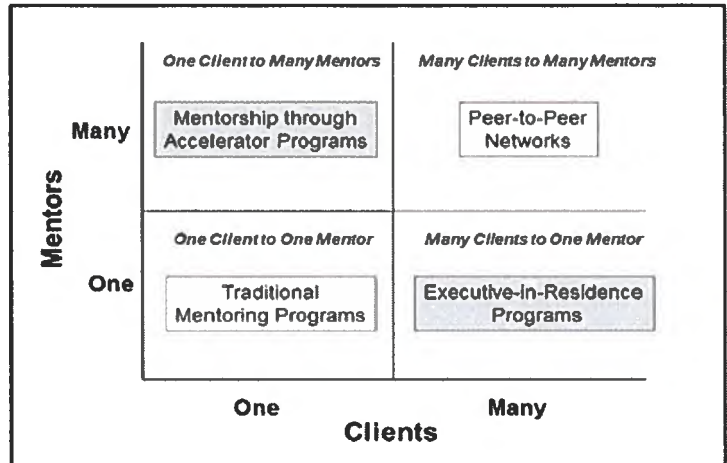


Table 1: Canadian mentorship case studies

Organization	Program Type	Geographic Scope	Public or Private Sector Funded	Success Stories
Invest Ottawa	Mentorship Executive in Residence	Ottawa Region Ottawa Region	Public Public	Rumidifer
Communitech	Peer-to-Peer Entrepreneur in Residence	Waterloo Region Waterloo Region	Private Public	blueRover
	HYPERDRIVE Program	National	Public and Private	
B.C. Technology Industry Association	Peer-to-Peer CEO in Residence	Vancouver, British Columbia	Public and Private Public	Snugvest
FounderFuel	Acceleration Program	National	Private w/BDC support	Oneclass
Quebec Global 100 (QG100)	QC100 Gateway	Quebec	Private	Peer-to-peer
Tech South East	Peer-to-Peer	South East New Brunswick	Private	Peer-to-peer
BDC	Strategic Investments and Initiatives (Accelerator Program Financial and Mentorship Support)	National	Public	Filterboxx
Canadian Manufacturers and Exporters (CME)	Innovation Insights (Best Practices Workshops for Exporters)	National	Public and Private	Peer-to-peer
Canadian Youth Business Foundation (CYBF)	Start-Up Program	National	Public and Private	TalentEgg
Wavefront	Wavefront Accelerator	British Columbia	Public and Private	HootSuite

Characteristics and Practices of Successful Mentorship Programs

While initiating mentorship programs has become popular, not many will survive past their first few years. They must maintain a certain degree of quality in their activities to survive and thrive. Out of the ten programs analysed by the study, the authors identified five common program practices necessary for a successful mentorship program and how different programs and networks deal with them:

1. Screening clients and mentors

As operation of mentorship and EiR programs can be extremely costly, it is important for programs to have established criteria for screening client applicants—which most do. Specific criteria, in addition to the screening processes, are contingent on the individual program's organizational mandate, structure and board. Overall, however, the selection of good clients is subjective and requires a significant level of intuition and experience to ensure the right ones are being chosen. Screening mentors is comparatively easier; general requirements are simply experience, motivation to help, and time.

2. Matching mentors and clients

As mentorship programs are organized for the purpose of building connections between mentors and clients, matching is taken very seriously. Just like screening potential clients and mentors, there is no fixed way to match: processes for pairing mentor and client are dependent on factors like geographical locations, industries, and the intended nature of the mentor-client relationship. Even the responsibility on whom matching falls is different for each program as some (generally one-to-one programs) allow clients and mentors to choose for themselves, while EiR programs employ a "portfolio" process where clients choose a "board" of mentors after meeting with up to 80 potential mentors (seen in FounderFuel's program).

3. Managing a Mentoring Relationship

Both mentorship and peer-to-peer programs require some form of management and structure (such as creating a meeting schedule) to ensure dedication to a relationship's objectives. In fact, these objectives are often integral to managing both a healthy client-mentor relationship and startup growth—they serve as measurable milestones for success on a schedule that was mutually agreed upon. Accelerator programs, because of their "accelerated", time-sensitive pace, will follow a similar structure using stricter milestones. The structures of peer-to-peer programs are generally less formal and foster a "between friends" environment, though there is still a need for internal management to ensure that the network is providing relevant resources to changing needs and requirements.

4. Mentoring Program Sustainability

As the costs for opportunities and resources are often high, mentorship programs must find sources of funding to sustain mentorship programs. Contributions are drawn from federal, provincial, municipal and private sector sponsors. Each program and network examined had a different financial structure.

5. Mentoring Program Performance Assessment

As programs receive funding and strive to remain relevant to up-and-coming startups, it is important to assess the quality and performance of a mentorship program. Most programs have performance measures tending toward informal (sending out annual participant surveys, for example, or collecting feedback at the end of client-mentor relationship). The results from these surveys were used to assess the performance of the mentors, the effectiveness of the program, and the client's use of the program. However, the study's authors called these performance assessments adequate only for short-term outcomes; they recommended setting long-term multi-year follow-up studies to properly assess program quality.

Figure 2: Map of locations of participating Mentorship programs



Going Forward: Recommendations for IC to Enhance Mentorship Programs

The case studies also look at program manager's ideas and recommendations for Industry Canada to enhance programs and services for mentorship. Although the answers were diverse, several common themes emerged:

- ❖ A need for **standardization**, with the recommendation of establishing a single program that recruits, trains, manages and retains mentors and EiRs.
- ❖ Calls for **mentorship skills development** with the recommendation to consider the creation of a mentorship training program that can be provided to existing and potential mentors.
- ❖ More support for **accelerator support programs**, with suggestions ranging from ensuring the renewal of NSERC Centres of Excellence, supporting accelerator programs particularly in the provisioning of initial equity seed funding and convertible debt from private sector funders and from BDC, and improving access to a mature and robust venture capital industry in Canada.

To support these programs, the Government of Canada contributed \$40 million to the Canada Accelerator and Incubator program and \$150,000 to increase mentorship among women entrepreneurs in the 2014 budget, and \$18 million to the Canadian Youth Business Network (now known as Futurpreneur) in 2013.

Industry support for mentorship programs is growing, in recognition of these programs' tangible and intangible benefits. With the number of new Canadian businesses trending upwards (World Bank, 2013), it is important to ensure they have the proper support needed to thrive and succeed. These 10 case studies have proven to be homegrown successes, and lessons can be learned for how to nurture such success in the future.

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Offshoring and Canadian Manufacturing Firms*

Michael-John Almon, Economic Research and Policy Analysis

Highlights

- Countries outside of the US are becoming increasingly important to the offshoring activities of Canadian manufacturers.
- Makers of transportation equipment and computers and electronics are most reliant on offshoring for their intermediate inputs.
- Evidence suggests that firms who offshore more intensely from non-US locations tend to specialize and may be focusing on higher value added activities.

Background

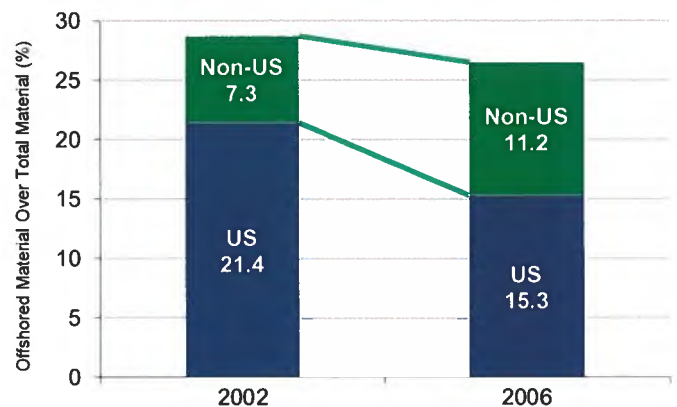
Manufacturing businesses are increasingly engaged in global value chains (GVCs). International trade is no longer just the transfer of finished goods from one country to another, but now includes offshoring inputs, where raw materials and intermediate goods feed into domestic production.

How involved are Canadian manufacturing firms in this process? A 2012 study by Lydia Couture, Jianmin Tang and Beiling Yan examined the subject of offshoring in Canadian manufacturing. Using firm-level data, they measured the extent to which Canadian manufacturing industries rely on foreign inputs and assessed the characteristics most connected with offshoring as business strategy.

Offshoring in Canadian Manufacturing

According to Couture, Tang and Yan's research intermediate inputs from non-Canadian firms represented a little more than a quarter of all total material costs for Canadian manufacturing firms in 2006. The intensity of offshoring was down slightly from four years earlier (29% in 2002 to 27% in 2006), but there was a noticeable change in the source of these goods despite the short time frame (Figure 1). Non-US sources went from representing 25% of offshoring intensity to 42% over this four-year period.

Figure 1: Offshoring intensity by destination, 2002 and 2006



Source: Couture, Tang and Yan (2012) using linked data from the Annual Survey of Manufacturers and Importer Registry.

* This is a summary of Couture, Tang and Yan (2012).

Outsourcing versus offshoring

While often used interchangeably in popular media, outsourcing and offshoring are actually terms for concepts that do not always overlap.

Outsourcing refers to a firm conducting some of its business activities outside of a firm (as opposed to in-house), regardless of the location of the external firm.

Offshoring refers to the location of business activities outside of a country, regardless of who conducts the activity, and includes intra-firm offshoring and inter-firm offshoring (also called foreign outsourcing).

The other side of the coin

Job loss is often seen as a downside to offshoring. However, studies (for example, Morissette and Johnson (2007), Baldwin and Gu (2008)) find little evidence of a correlation between offshoring and employment/layoff. However, other research (Yan (2006)) found that foreign outsourcing is linked to increased demand for skilled labour, which may increase the wage gap between low and high-skilled workers. This suggests that a downside to offshoring may be increased income inequality.

The increased frequency of Canadian firms engaging in offshoring activities with countries other than the US coincides with the appreciation of the Canadian dollar. This intensified the competitive pressures on Canadian manufacturing firms and may have led them to seek greater cost advantages by sourcing from emerging markets like China, where manufacturing imports more than doubled that period.

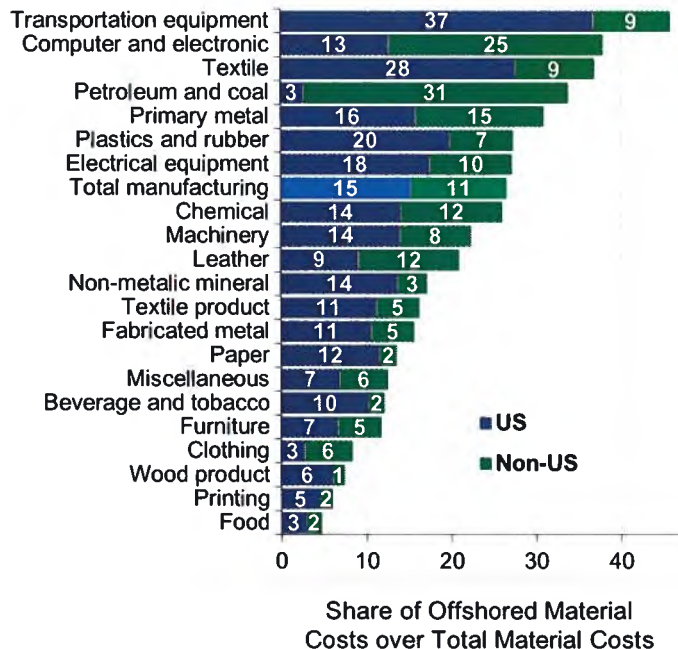
At the industry level, offshoring intensity varies across the manufacturing sector (Figure 2).

Transportation manufacturing led the sector as offshored materials approached half of total material costs. Much of the manufacturing activity within this industry stems from motor vehicle and parts makers, which are industries deeply entwined with foreign parent companies and partners, particularly in the US. Computer and electronics manufacturers had the second highest offshoring intensity, largely due to an expansion in non-US offshoring, mirroring industry trends leaning toward increased overseas manufacturing of component parts. Food manufacturing occupied the other end of the spectrum, with an offshoring intensity of less than 5%, followed by printing and wood products.

Characteristics of Offshoring Firms

The degree of offshoring intensity varies as much between firms within industries as it does between industries at the sector level. Couture, Tang and Yan find that certain firm characteristics are more correlated with greater offshoring intensity than others (Figure 3). On average, foreign-controlled

Figure 2: Offshoring intensity by industry (2006)



Source: Couture, Tang and Yan (2012) using linked data from the Annual Survey of Manufacturers and Importer Registry.

firms used a greater share of offshored materials than domestic-controlled firms (40% vs 22% for a difference of 18%). A similar pattern emerges for exporters versus non-exporters, more productive versus less productive firms, older versus younger firms, firms with above average skill levels versus below average skills, and larger versus smaller firms.

In nearly all industries, firms with above-average productivity levels and those foreign-owned (figure 5) engaged in more intensive offshoring than firms with below-productive levels or domestic-owned. For instance, firms with above-productivity levels in transportation industries had 47.8% of their material cost from abroad, while those with below-average productivity levels had only 19.8% of this material cost for abroad.

These descriptive results have been mostly confirmed by econometric regression, where among firms that engaged in offshoring, foreign ownership, export intensity, productivity levels and skill were positively linked with higher intensity of offshoring. No such relationships were found for firm size and age.

Engaging in Global Value Chains through Offshoring

Offshoring can move firms up the global value chain by allowing them to engage in specialized production. To that end, the expectation is to observe a relationship between greater offshoring intensity and product concentration.

The results provide some evidence of this relationship, though the offshoring destination matters. Firms with offshoring to non-U.S. destinations were found to have a more narrow product offering. By contrast, no significant relationship was found for US offshoring.

Figure 3: Difference in offshoring intensity in the manufacturing sector by firm characteristics (2006)

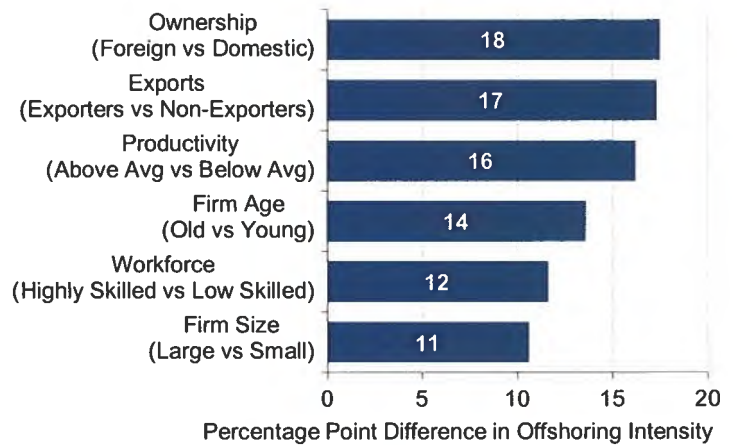


Figure 4: Offshoring intensity by productivity level (2006)

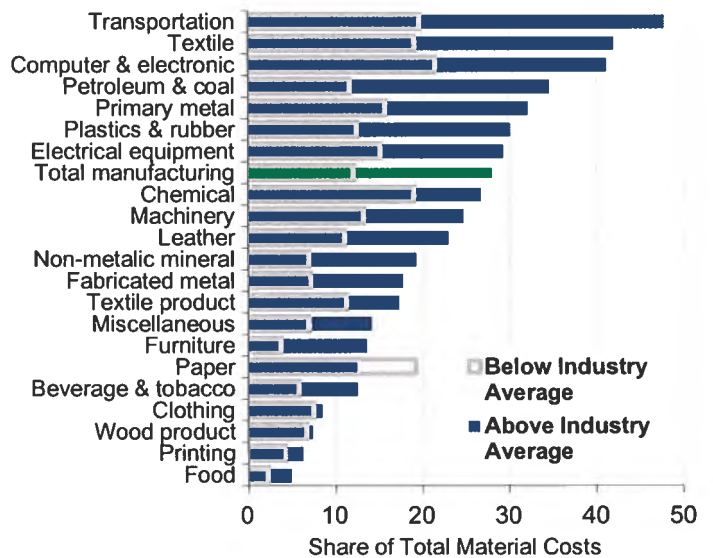
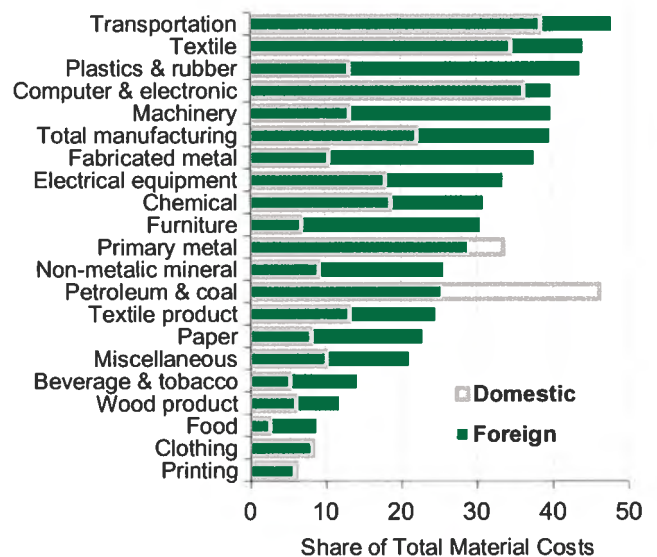


Figure 5: Offshoring intensity by ownership (2006)



Conclusions

Couture, Tang, and Yan provide a better picture of offshoring as a business strategy employed by outward-orienting firms (foreign-owned and exporters) that are highly productive and employ a skilled labour force. Participation in GVCs seems to be an important feature of more competitive Canadian firms and may be an important channel to improve Canada's economic outcomes. This research further suggests that businesses that have leveraged opportunities outside of North America are capturing productivity and product specialization advantages.

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Management Practices, Innovation and Performance of Enterprises in Canada*

Highlights

- Industry Canada research finds that enterprises facing high competition tend to have more structured management practices compared to other enterprises facing less competitive pressures.
- Size, location of head office and, to a certain extent, workers education, are also positively related to management practices.
- For the manufacturing sector, there is also a positive link between management practices and the economic performance of enterprises.

Background

Management practices (MP) may be an important factor explaining the persistent productivity differentials observed across, and within, industries and countries (Bartelsman and Doms, 2000; Syverson, 2004a,b,2011). For example, supporting the view that MP matter for productivity, Bloom *et al.* (2012) showed that better MP of US enterprises accounts, on average, for 30 percent of the total factor productivity differential between the US and other countries such as France, the UK, Sweden and Germany. When compared with other countries, Canadian firms trail only the US in their management practice score, and outperform firms from the UK and France (ICAP 2009). Bloom (2010), using these results, showed that the marketplace framework in Canada is favourable to the implementation of good MP due to the high levels of competition and low market regulation.

Brouillette and Ershov, in a forthcoming IC research paper, draw a more complete profile of Canadian firms associated with higher management practice scores, as well as assess whether Canadian enterprises with higher scores are associated with higher innovation and better economic performance.

To achieve this goal, the authors used data from SIBS 2009 to construct an MP^{index} similar to one developed by Bloom and van Reenen (2007). MP^{index} is created using the human resource management questions from SIBS (questions 52-56, 58-62 and 64 in the [questionnaire](#)). MP^{index} takes a value between 0 and 1; a higher value means that MP are more structured for the enterprise.

* This is a summary of Brouillette and Ershov (forthcoming, 2014).

A profile of firms with higher MP scores was drawn to test different characteristics, such as size, and different business context, such as measures of competition.

Enterprise Size is an Important Determinant of MP

The most important determinant of MP is found to be enterprise size, with the largest enterprises having more structured MP. The average of MP^{index} is 0.40 for small enterprises, 0.54 for medium, 0.56 for large, and 0.66 for the extra-large ones.

Figure 1 shows the distributions of MP^{index} —which are the equivalent of smooth histograms—by enterprise size. As size increases, the distribution shifts to the right, which means that a larger proportion of enterprises in this group have more structured MP.

Competition and Education Also Matter for MP

Another important determinant of MP^{index} is the presence of a multinational enterprise (MNE) in the enterprise's main market. As highlighted by Bloom *et al.* (2012), competition may affect MP through at least two mechanisms. First, a reallocation of resources toward better managed enterprises may occur. Second, competition may reveal information about competitors' MP, causing managers to revise "over-optimistic" perceptions of their own performance and to increase managerial efforts.

A regression analysis suggests that more competition is associated with better MP. Enterprises facing a MNE in their main market had, on average, a value of MP^{index} 9.4 percentage points (pp) higher than enterprises that do not. Other dimensions of competition, however, such as the number of competing goods and the entry of new enterprises, were not found to be correlated with MP.

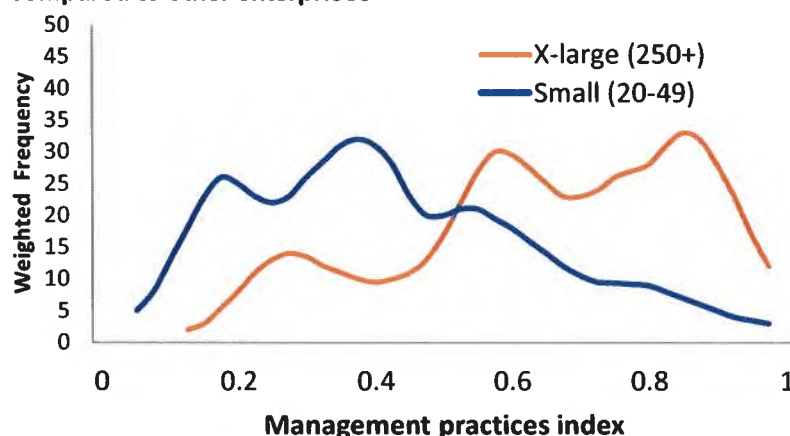
Enterprises with headquarters located in the US (i.e., a Canadian affiliate of US MNE) were also observed to have a higher value of MP^{index} (+8.5 pp) compared to enterprises with a head office located in Canada. This result is consistent with the fact that US enterprises are on average better managed compared to enterprises in Canada (ICAP (2009)). This would also suggest that good MP of US enterprises are transferred to their Canadian subsidiaries.

Among the other potential determinants of MP, worker education is likely to be important—more complex MP require more advanced cognitive skills. While a statistically significant correlation was found

Technical notes

- All the results from the SIBS presented in this note are weighted, and are therefore representative of all enterprises in Canada in NAICS 11 to 56 with at least 20 employees and \$250,000 in revenues.
- The relationships in this note are not causal, but reflect correlations. In other words, the analysis cannot distinguish between the following two competing hypotheses: are growing enterprises becoming better managed or are good MP required for growth?

Figure 1: Large enterprises have more structured MP compared to other enterprises



Note: Sizes of enterprises are based on individual labour units
Source: Author's calculation based on Statistics Canada's SIBS 2009

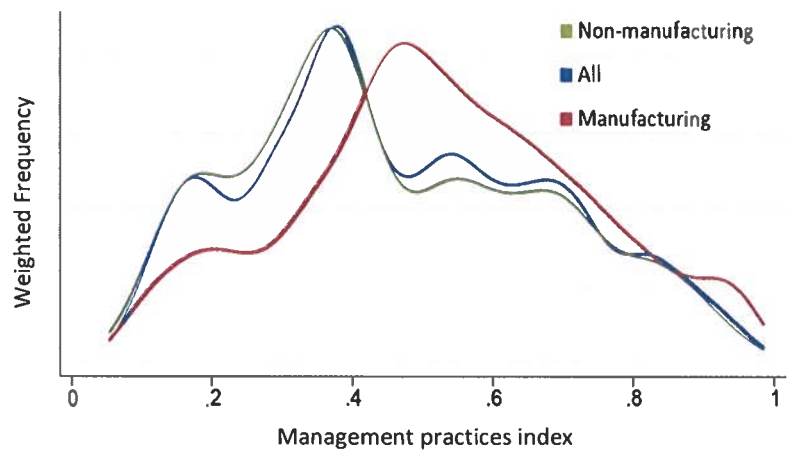
between MP^{index} and the percentage of workers with a university degree, the magnitude of this relationship is smaller than for the other determinant discussed previously (size, competition, etc.)

Enterprises in the Manufacturing Sector Have the Most Structured MP

Although most of the results mentioned thus far hold for all sectors, there is evidence that MP quality differs across sectors in Canada. The 2009 ICAP report, for example, showed that manufacturing enterprises are better managed than enterprises in the retail sector.

SIBS data support the ICAP conclusion (Figure 2). The distribution of MP^{index} for manufacturing enterprises is to the right of the one for non-manufacturing enterprises (excluding public sectors). However, the SIBS coverage for the non-manufacturing sector is not as comprehensive as for the manufacturing sector, which may introduce excess variability. Moreover, some SIBS MP questions are less suited for non-manufacturing enterprises, which may partly fail to capture the scope of MP in this sector. Consequently, regression analysis for innovation and performance will be presented for both sectors separately.

Figure 2: Manufacturing enterprises have more structured MP compared to non-manufacturing enterprises



Note: Manufacturing includes NAICS 31 to 33, non-manufacturing includes NAICS 11 to 23 and 41 to 56.

Source: Author's calculation based on Statistics Canada's SIBS 2009

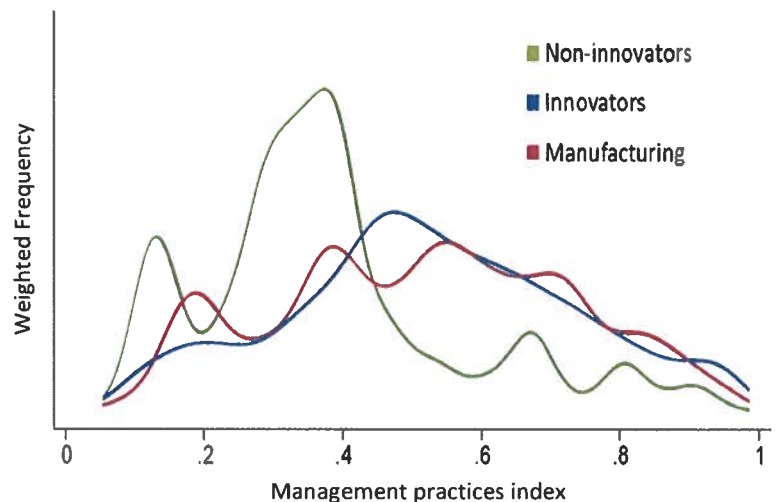
Positive Link between MP and Innovation

Figure 3 clearly shows the presence of a positive relationship between innovation and MP^{index} . On average the value of MP^{index} equals 0.51 for innovators and 0.38 for non-innovator, a 35.4 percent difference.

To formally test this relationship, multivariate regression analyses were performed with different definitions of innovation identified with SIBS—product, process, organizational and marketing innovation or combinations of two or more of these types—for manufacturing and non-manufacturing sectors.

For the manufacturing sector, no matter how innovation is measured, there is a positive correlation between introducing innovation and MP^{index} (Figure 3). For the

Figure 3: Innovators have more structured MP compared to non-innovators



Note: Innovators is defined as having introduced any of the following types of innovation: product, process, organizational or marketing innovation.

Source: Author's calculation based on Statistics Canada's SIBS 2009

non-manufacturing sector, a positive correlation is found for most but not all innovation indicators. These results are, to our knowledge, the first ones that clearly link MP and innovation, although Bloom *et al.* (2013) estimated a positive correlation between R&D expenditures and MP for US enterprises.

Positive Link between MP and Economic Performance for Manufacturing Enterprises

Figure 4 shows that MP are positively correlated with sales (sales per employee) and profit (profits per employee) intensities. Overall, a 10 percent increase in the value of MP^{index} is associated with an increase of sales and profit intensities of almost \$1,200 and \$200, respectively. The correlation is even stronger for manufacturing enterprises, with the increase of the sales and profit intensities being estimated at \$2,600 and \$1,200.

In contrast, the relationships are negative and not statistically significant for non-manufacturing enterprises. This may be related to the sampling and conceptual issues in measuring MP in the non-manufacturing sectors noted above.

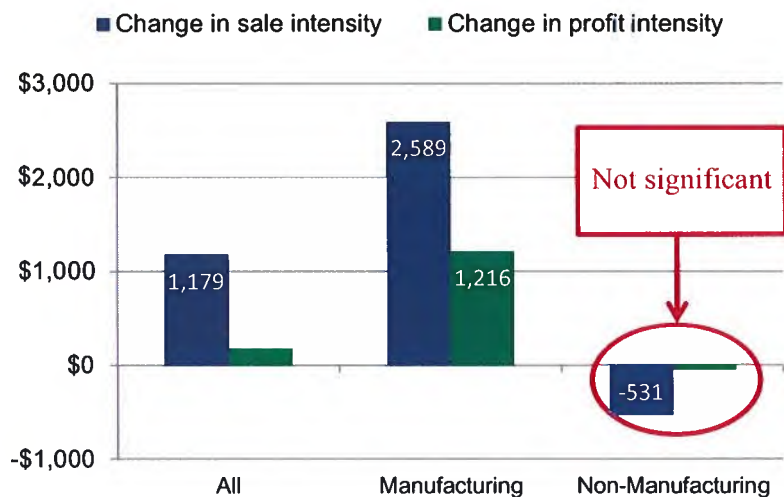
Conclusion

This analysis confirms the presence of a positive link between firms' economic performance, business innovation and well-structured management practices. It also provides evidence of the role played by competition. From a policy perspective, this analysis highlights the importance of intangible capital—a set of factors that go beyond R&D and include data; intellectual property, and organizational know-how that increase firm efficiency—for firms' performance.

References

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Figure 4: MP are positively correlated with sale and profit intensities for manufacturing – Change associated with a 10% increase of MP^{index}



Source: Author's calculation based on Statistics Canada's SIBS 2009

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IC Insights Data Table

Monthly Indicators							
	Reference period	Month-over-month growth (at monthly rates)			Q-o-q growth	Year-over-year growth	
		Latest month	Prev. month	2 Months before	2014 Q1	2013	2012
Mfg sales (current \$)	Mar '14	0.4	1.5	0.3	1.1	0.3	3.4
Mfg sales (constant \$)	Mar '14	0.5	0.9	-0.6	-1.0	-0.8	2.9
Retail trade (current \$)	Mar '14	-0.1	0.7	0.9	0.5	3.2	2.5
Retail trade (chained \$)	Mar '14	-0.2	0.2	1.0	0.0	2.9	1.8
Real GDP (%)	Mar '14	0.1	0.2	0.4	0.3	2.0	1.8
-Services (%)	Mar '14	0.1	0.0	0.4	0.3	2.1	1.8
-Manufacturing (%)	Mar '14	0.3	1.5	0.0	0.2	-1.1	1.4
Exports (bop) (current \$)	Apr '14	-1.8	0.9	5.7	5.4	3.6	1.3
Imports (bop) (current \$)	Apr '14	1.4	1.0	2.9	2.5	2.6	4.1
All-items CPI	Apr '14	0.2	0.3	0.3	0.7	1.0	1.5
Core CPI	Apr '14	0.2	0.2	0.2	0.5	1.2	1.7
LFS employment (Δ in 000s)	May '14	25.8	-28.9	42.9	65.3	99.0	307.9
Unemployment rate (%)	May '14	7.0	6.9	6.9	7.0	7.1	7.3
US employment (Δ in 000s) (CPS)	May '14	145.0	-73.0	476.0	1,156.0	1,374.0	2,376.0
US unemployment rate (%)	Apr '14	6.3	6.3	6.7	6.7	7.4	8.1
Financial Indicators							
	Reference period	Monthly average				Annual average	
		Current value	Latest full month	Prev. month	2 Months before	2013	2012
Bank rate (%) ¹	Jun 5 '14	1.25	1.25	1.25	1.25	1.25	1.25
Exchange rate ²	Jun 5 '14	109.4	108.9	109.9	111.1	103.0	99.9
Quarterly Economic Indicators							
	Reference period	Quarter-over-quarter growth (at annual rates)			Year-over-year growth		
		Latest quarter	Prev. quarter	2 Quarters before	2013	2012	
Real GDP	2014Q1	1.2	2.7	3.0	2.0	1.7	
Final consumption expenditure	2014Q1	0.8	1.8	2.0	1.9	1.6	
Gross fixed capital formation	2014Q1	-3.8	-2.4	1.0	0.0	4.3	
-Machinery & equipment	2014Q1	-5.8	1.7	-3.4	-0.2	5.2	
Exports	2014Q1	-2.4	3.9	0.7	2.2	1.5	
Imports	2014Q1	-7.2	1.5	-0.7	1.1	3.1	
Final domestic demand	2014Q1	-0.2	1.2	1.5	1.4	2.3	
Labour productivity	2014Q1	-0.2	4.1	2.1	1.0	0.0	
Unit labour cost	2014Q1	1.9	1.9	0.0	1.4	3.0	
Industrial capacity utilization (%)	2013Q4	82.0	81.2	80.9	81.3	81.5	
Real US GDP	2014Q1	-1.0	2.6	4.1	1.9	2.8	

Abbreviation Guide

GDP	<i>Gross Domestic Product</i>
BOP	<i>Balance of Payments</i>
CPI	<i>Consumer Price Index</i>
LFS	<i>Labour Force Survey</i>
CPS	<i>Current Population Survey</i>
000s	<i>Thousands</i>
Q-o-q	<i>Quarter-over-quarter</i>
IMF	<i>International Monetary Fund</i>
OECD	<i>Organisation for Economic Co-operation and Development</i>
WTO	<i>World Trade Organisation</i>
Sources for the IC Insights Dashboard	
Statistics Canada	www.statcan.gc.ca
Bank of Canada	www.bankofcanada.ca
US Bureau of Economic Analysis	www.bea.gov
US Bureau of Labour Statistics	www.bls.gov

IC Insights Hot Chart

Adjusted Big Mac Index

Under(-)/over(+) valuation against the U.S. dollar, %

