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# CHALLENGES AND OPPORTUNITIES FOR THE INTERNATIONALISATION OF FINNISH SME'S TO CANADA

– Perspective of Finpro and similar  
internationalisation support organisations



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## CHALLENGES AND OPPORTUNITIES FOR THE INTERNATIONALISATION OF FINNISH SME'S TO CANADA

Internationalisation and moving to a new market is always a challenge, especially during the on-going challenging economic climate. However, Finland is a small market and in order to grow and become successful internationally small and medium sized companies must take the risk to seek the necessary growth abroad. Distant and unknown markets such as Canada tend to get less attention from the expanding company, so little that even the most visible business opportunities might get unexploited.

During my time as a Market Analyst Intern at the Finpro, Finland Trade Center office in Toronto, Canada in 2011 I learned about the challenges and opportunities of the Canadian market. This thesis, based on authors experience during the internship, public online sources as well as an interview of the Finpro country representative and my former boss, Mr Ari Elo will introduce the most potential industries as well as study and analyse those obstacles and unused opportunities of this market from the viewpoint of Finnish expertise and specialization.

The research reveals that there are major unused opportunities and demand for Finnish expertise in Cleantech and Arctic technologies. Main reason for not exploiting the opportunities are simply lack of knowledge and reluctance to move to a geographically distant market, especially when Finland's foreign trade representative services are allocated very few resources, relying on volunteers.

### KEYWORDS:

Internationalisation, Finnish SME's, Canada, Arctic, Cleantech

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## SUOMALAISTEN PK-YRITYSTEN HAASTEET JA MAHDOLLISUUDET KANADAN MARKKINOILLA

Kansainvälistyminen ja uusille markkinoille laajentuminen on aina haasteellista, erityisesti nykyisessä haastavassa taloustilanteessa. Siitä huolimatta Suomi on pieni markkina-alue, ja kasvaakseen PK-yritysten on otettava riskejä ja haettava kasvua ulkomailta. Maantieteellisesti kaukaiset, sekä vähemmän tunnetut markkinat, kuten Kanada voivat jäädä helposti huomioimatta laajentuvalta yritykseltä -jopa siinä määrin, että myös kaikkein ilmeisimmät mahdollisuudet jäävät käyttämättä.

Suurittaessani harjoitteluani Finpron toimistossa Torontossa Kanadassa 2011, tulivat minulle tutuksi Kanadan markkinaympäristön haasteet ja mahdollisuudet suomalaisten yritysten ja erikoisosaamisen näkökulmasta. Lopputyöni, joka perustuu kokemuksiini Market Analyst Intern -harjoittelijana kesä-marraskuussa 2011, julkisiin verkkolähteisiin, sekä Finpron Kanadan maaedustajan ja entisen esimieheni Ari Elon haastatteluun, esittelee kohdemarkkinan potentiaalisimmat alat, sekä tutkii ja analysoi haasteet, ja erityisesti käyttämättömät mahdollisuudet, suomalaisen erityisosaamisen näkökulmasta.

Tutkimus osoitti, että kohdemarkkinalla on runsaasti käyttämättömiä mahdollisuuksia ja tilausta suomalaiselle osaamiselle Cleantech-, sekä Arktisten teknologioiden markkinalla. Pääsyy mahdollisuuksien vähäiselle hyödyntämiselle on tietämättömyys, ja tästä johtuva haluttomuus laajentua maantieteellisesti kaukaiselle ja tuntemattomalle markkinalle. Myös kansainvälistymispalveluiden leikkaukset, niiden jääminen vapaaehtoistyön varaan, haittaavat suomalaisyritysten Kanadan laajentumista

### ASIASANAT:

Kansainvälistyminen, suomalaiset PK-yritykset, Kanada, Arktinen, Cleantech

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## LIST OF ABBREVIATIONS (OR) SYMBOLS

SME	Small and medium sized enterprise
Finpro	National trade, internationalization and investment development organization in Finland
Cleantech	Clean technologies, products, services and processes that reduce the environmental effects of the businesses
Smart Grid	Electrical grid that uses ICT to gather and act on information to improve the efficiency and reliability of the production and distribution of electricity
ICT	Information and communication technology
GHG	Greenhouse gases
ODT	Oven Dry Ton
\$	Canadian dollar

# 1 INTRODUCTION

The subject for my thesis will be the challenges and opportunities for the internationalization of Finnish small and medium sized companies to Canada from the perspective of Finpro and similar internationalisation support organisations. SME's are selected as the subject, because they usually don't have the resources or knowledge to internationalise on their own, hence being potential clients for internationalisation support services. This thesis is based on what I learned during my time in Canada as well as material available in public sources and an interview of the Finpro Country representative in Canada. I will briefly reflect the efforts of Finland's support organisation to other Nordic countries' methods and resources, as they often are the first point of comparison in any governmental and business activity. Also I want to address the decline in attention and investment by the government and businesses in "old" markets in the form of embassies, consulates and foreign offices.

Quite obviously I got the idea for this project from my internship period at Finpro, Finland Trade Center in Toronto from June to November 2011. During that period I got a good view of the responsibilities and operations of Finpro representative and got an introduction to the Canadian business environment. I also completed a comprehensive sector mapping report of the Canadian market from the perspective of Finnish expertise. I got to know some of the challenges in trying to encourage Finnish small and medium sized companies to expand their operations abroad, and especially in countries that are not particularly known in Finland as potential targets for new operations or representatives (vs. China, India, etc. developing "blue ocean" markets).

I have interviewed my former superior, Mr Ari Elo, Finpro country representative in Canada, about the practical aspect of supporting internationalising companies to succeed in Canada. He has assisted me in the process by giving an interview and provided me with fresh market view in order to give me a more diverse snapshot of the current situation.

My goal is to use what I have learned during my internship period about the subject and put that knowledge on a single paper, trying to discover some of the reasons behind the challenges in expanding to new markets that are not usually the most obvious ones, but have significant potential. I can continue my research on the Canadian sector mapping and list the most potential sectors and justify why Finnish expertise would be successful. I will also analyse the challenges in the market environment itself, adding a market information section, explaining the special features of Canadian market environment and pointing out some of the do's and don'ts. I will study the motives why Finnish companies might be reluctant to expand abroad, and especially to a market they are not familiar with and have not discovered its potential. I will compare and point out the differences of the countries with more successful foreign trade promotion efforts to Finland and see what could be learned from there.

There is ample literature available on internationalisation, (see chapter 1.2), but no sources can be found focusing on the specific subject of Finnish companies expanding to Canada. Therefore discussion papers researching internationalisation and companies from Finpro's perspective were used as a foundation to the research.

In this thesis I will provide a report on the current situation and list suggestions based on the information gathered about the market. My goal is to put together an information package about the challenges and opportunities of internationalization to this specific market and find out the barriers that are restricting Finnish companies to go abroad and propose solutions to overcome those obstacles.

## 1.1 Research questions

- What are the challenges and opportunities in Canada for Finnish small and medium sized companies?
- What are the special features of the Canadian business environment in general?



- What are the reasons for reluctance of Finnish companies to move into unfamiliar market with high potential?
- What are the reasons for failed and successful expansion projects of Finnish companies to Canada?
- What is the situation of Finpro's operations in Canada: current situation compared to past, differences in e.g. resource allocation, general introduction to Finpro Canada.
- How do Finnish foreign trade promotion efforts differ from other countries with similar expertise, competing in the same market?

## 1.2 Internationalisation

According to Clarke and Wilson (2009) internationalisation refers to transferring processes from domestic to international marketing during a specific time. What is common in all theories, internationalisation is always a result of a process where a company changes varying proportions of its focus and efforts towards international operations.

First of many internationalisation theories is the Uppsala model developed in the Uppsala University in Sweden in 1977, in which a company gradually gathers experience and intensifies its commitment to culturally or geographically close market environment. Foreign expansion is to be handled in four distinct steps starting with sporadic export, followed by export via representative, establishment of a sales subsidiary, and finally foreign manufacturing units (Hollensen, 2001, 6.) This model is suitable for a conservative and cautious risk-avoiding strategy, where aggressive entry investments are not available or not preferred by the expander.

Second popular internationalisation theory is the transaction cost analysis by John Commons (1931), where a company is defined with a substitution at the margin, where it will control its activities in means of an exchange on an open market. Company will internally perform activities that can be done by at lower costs through establishing an internal management and control system, relying on the market to handle activities where outsiders have the cost advantage.

The network model of internationalisation segregates companies into four groups: The late starter with a low internationalisation level on the market and the firm, The early starter with low firm and high market internationalisation levels, The lonely international with high market and firm internationalisation levels, and the international among others with high firm and low market internationalisation level (Hollensen, 2001, 6.)

“Born Global” firms are a modern phenomenon of a company that is originated globally, through global focus and allocation of resources to international projects from the very beginning. These types of companies are made possible by e. g. global niche markets, advances in technology, global networks and communication (Hollensen, 2001, 6.) Born Global model is especially fitting for SME’s since high degree of flexibility and operating in niche markets, for example can’t necessarily offer sufficient volumes and stability needed for a large company to generate lucrative business.

OLI-theory is one method that can be used by a company to plan and assess its internationalization efforts through three important factors: Ownership (Intangible, transferable at low cost), Location (existence of raw materials, low wages, special taxes or tariffs) and Internationalisation (production through a partnership arrangement such as licensing or a joint venture) (Palmberg and Pajarinen 2005, 3.). The modern marketplace and globalization has affected the OLI-theory creating numerous developments, where companies are forced to abandon “hierarchical capitalism” and move towards alliances to effectively operate in global markets. When internationalising, a company can choose from independent internationalisation, alliance, or remaining in home market (Palmberg and Pajarinen 2005, 3.)

### 1.2.1 Indirect versus direct export

According to Hollensen (1998) indirect exporting happens when a manufacturer uses a domestic organisation to export its products to a foreign market. This mode is well suitable for an internationally inexperienced SME that doesn’t have the resources or knowledge to engage in international market. While this

method fits well for a conservative internationalisation strategy and demands few resources, there is a risk that the manufacturer's product might not get the necessary attention from a seller with a wide range of products. Another, slightly more demanding indirect export method is piggybacking, when a domestic manufacturer uses a seller in the target market to distribute the products using the reputation and contacts of a well-established local organisation (Doole & Lowe 2004, 220).

Direct exporting happens when an exporter has gained knowledge and confidence of the new market and wants to start their own operations abroad. Then the company must be more centrally involved in the whole export process, investing its resources and attention to conduct more specific market research and proactively be in control of the whole export process. Most popular methods in direct export are distributors, agents, management contracts and franchising (Doole & Lowe 2004, 224-225.)

In chapter 6.3 Internationalisation, most common ways of Finnish companies' entry modes to Canadian market, in descending order of popularity are explained as:

- Search of distribution channels
- Joint venture to develop, manufacture, or both
- Establishment of oneself to the market

(Elo, 2012)

## 2 LITERATURE

### 2.1 Alliances

Within the thesis I will attempt to explore the specific alliance aspect of internationalization process because based empirical experience at the Finpro's Toronto office, Finnish SMEs are finding it especially challenging to work together combining their forces when expanding in the fear of losing market share to someone else in the alliance. Lack of co-operation has historically been a major obstacle for successful internationalisation. How could growing and internationalizing SMEs learn from the alliances of major corporations?

There are different strategic motives for choosing alliance formation: Risk Sharing, Cost reduction, Shortening Innovation/entry Times, Pooling Assets, Influence Market & Competition. ICT industry is a good example about the benefits of alliance membership (Palmberg and Pajarinen 2005, 8).

One can see a clear increase in explorative alliances, and decrease in exploitative alliances trend, a good example of explorative relation being the ICT industry which is obviously very R&D intensive, in line with the R&D intensity in Finnish firms. Nokia is of course the biggest alliance player, being involved in almost half of alliances by Finnish firms. Most alliances are about combining forces in: Explorative: R & D, and in Exploitative: Marketing and production. Approximately 50% of major alliances between Finnish and foreign firms have a North American counterpart (with strong effect of Nokia, though), which indicates that working in the US and Canadian markets is not at all a new phenomenon for Finns despite the geographical distance (Palmberg and Pajarinen 2005, 9-10.)

Palmberg and Pajarinen (2005) conducted an interview process of 15 major (anonymous) Finnish companies involved in alliances to draw a picture of the insights of participants involved in such activities. All companies agree that alliances have become a major part of R&D. Alliances are also necessary response to globalisation and rapid technological change. Strategic

alliances represent a new mode of internationalisation, which appears to complement rather than displace FDI. Horizontal alliances are very common in especially knowledge intensive ICT sector. Everybody, regardless of the industry or alliance type, uses alliances as a way to share risks, one way or another. It is apparent that foreign partners can grant easy access to new market, e.g. share brand name, use distribution and retail infrastructure, although failure of alliances between Finns and foreigners are often caused by cultural barriers since many alliances appear to have close personal ties involved. Major challenges in alliances are: finding and choosing the right partner with appropriate market position and right assets for the equal exchange of knowledge and resources, as well as trust between the two parties. Everybody wants to naturally keep their cards close to their chest in terms of sharing knowledge. Intellectual property rights are said to be the hardest part in alliance negotiations (Palmberg and Pajarinen 2005, 21, 28.)

Even when Palmberg and Pajarinen (2005) studied alliances between major companies, these theories all apply to smaller companies as well, just with fewer resources; Finnish companies, even when big players domestically(excl. Nokia) are not necessarily as big abroad and have to learn how to be a small player when moving to international markets.

## 2.2 Internationalisation support services

Hyytinen et al. (2011) discussed the effects that Finpro's services have for a firm's internationalisation and success, assigned by Finpro. Although direct affect is hard to measure, different econometric evaluation methods can be used to try and determine what kind of developments have happened.

Study on the effects of internationalisation support services is a significantly important source of direction and marketing data for Finpro to use when choosing the right firms for internationalisation efforts, as well as choosing the right kind of strategy for a partner that has decided to move to a new market. During my internship time I came across negative attitudes towards the organisation because of its alleged bureaucratic structure and practices, making

it hard for an SME to afford its services. Studying the effects of Finpro's services helps to further develop the segmentation of potential customers, and help justify the effectiveness of the services, as well as internationalisation consulting in general.

Hyytinen et al. (2011) discovered, that simply measuring a firm's internationalisation and success effects after co-operating with Finpro is extremely challenging. Several overlapping techniques have to be used in order to measure variants that are most probably closely related in the activities that a company exercises when moving towards new markets. Even when using the most accurate measurements available, there is never enough data that is accurate and detailed enough to be completely certain about the final conclusion. However, clear trends were noticed when a company started a partnership with Finpro and many findings point towards a positive outcome for the co-operation.

It is challenging to measure the absolute figure of the companies' internationalisation success firstly because different companies are led by different people, whose actions are not homogenous to other companies with similar figures in terms of size, turnover, profits, etc. so clinical measurements are not possible in this case. Even when developing in in the same direction and using same methods, company's strategy is always unique because different people do even the same things a bit differently. Absolute measuring would require the use of several similar groups of firms, and also using control groups and subjects, which of course is impossible when talking about working organisations. Keeping this in mind, measuring the available data can give illustrative results on how working with Finpro affects firm's success when internationalising (Hyytinen et al. 2011, 5-7.)

Partnership with Finpro is particularly useful when there are plans to start subsidiaries in new markets and expand the overall country breakdown of operations. There is also an indication, slightly varying depending on the measuring method but still clear, that working with Finpro was beneficial in terms of exporting operations. When Internationalisation is measured by the

growth of staff in foreign markets, there is no significant positive effect. One interpretation for these findings is that partnership with Finpro affects the ways a company internationalises, through more subsidiaries, and its geographical diversity through operating in multiple countries. Measuring a company's economic performance and Finpro's affects to it will not give a reliable data on either direction, so if there are changes, they are minimal. One aspect connected to economy however, is that working with Finpro increases the companies' number of hired staff in domestic locations. One last important factor is that the companies who get involved with Finpro are naturally more internationalisation oriented than similar counterparts who have no ambitions to move abroad. This of course brings the companies own skills, motivators and relative cost of services in the mix, so direct comparison to similar domestic companies is challenging (Hyytinen et al. 2011, 12).

Hyytinen et al. (2011) studied the effect of Finpro's services when the internationalising firms were already involved with three other public organisations: Finnvera, Tekes, and Ministry of Employment and the Economy. Findings were that when other support was taken into consideration, the effect of Finpro's efforts decreased. However, the positive effects are showing even after said corrections; Gaining support from several organisations can be seen as a positive thing since the different organisations and support services are supposed to overlap. Getting one support can steer the company towards the next step in its operations, therefore another support or service might be required from another public internationalisation support organisation (Hyytinen et al. 2011, 19, 21-24)

### 2.3 Internationalising companies

Hyytinen et al. (2010) studied what are the most common types of companies that use Finpro services and what effect the whole organisation has on Finland's innovation system. Connected to the same subject is also Hyytinen et al. (2010), studying the effects that Finpro's services have for a firm's internationalisation and success.

Obvious challenges arise when interpreting this sort of intangible data that is not as accurate as desired is recognized. Still, some interesting results and conclusions can be drawn from the studies, and further help defining the target groups and important partners of Finpro.

Between the years of 2004 and 2008 Finpro has had over 5000 firms as their partners. Approximately every fifth of firms with exporting activities and half of ones that do business abroad used Finpro's services in the abovementioned period. There are 350 multinational companies in Finland and of them two out of three are Finpro's customers (Hyytinen et al. 2010, 3, 9.)

Companies that are already internationalized are therefore more likely to use Finpro's services. These companies are also usually larger and older than the average company in Finland. Here again rises the dilemma of trying to define whether a company got a boost to its internationalisation solely from Finpro, or if an internationalized company wants to use Finpro's services to back up its success. Both theories of course don't exclude each other Hyytinen et al. (2010, 16-18.)

Although Finpro's clients are older and larger than average, their profitability, solvency, increase of staff in Finland (contradictory to optimistic conclusions by Hyytinen et al. (2011)) and productivity are generally lower than in average Finnish company. This can be largely because of investments and aggressive growth, which without a doubt has an effect on the numbers. Internationalising companies are also more likely very knowledge intensive and allocate many of their resources to R & D. Naturally these firms which are already internationalized or about to internationalize, have more positive attitudes towards risk taking.

Last aspect is a negative conjecture about the right allocation of internationalisation services; Companies that receive support from Finpro are in general larger than average in Finland. This contradicts with the aim of the system, to support young and small size companies to move abroad. Reason for this could be that the complexity of applying and receiving support requires



knowledge and effort from the company –knowledge and resources that a young and small sized firm quite logically might not have (Hyytinen et al. 2010, 19.)

## 3 METHODOLOGY

### 3.1 Qualitative

Qualitative research aims to study the object as broadly as possible. Here is included the theory that actuality is diverse (Hirsjärvi et al. 2007, 157.) Research methods in this thesis were largely qualitative, consisting of primary sources. Accurate numerical calculations are not possible when talking about challenges and opportunities, and what field has the most welcoming attitudes towards Finnish manufacturers and their technologies, for example. The object was to build a broad and diverse general image of the market and find out the factors (rather than figures) and trends that make the market expansion favourable or to be avoided. When studying industry trends, policies and cultural factors, it's impossible to form and analyse any type of numerical data, so observer's impressions are reported and further analysed.

### 3.2 Quantitative

Quantitative data was used when presenting most potential industries' growth figures, trade between Finland and Canada, provincial and federal taxes and subsidies, and similar relevant market data. This data was then used to support the qualitative theories and methods on the situation of the market.

### 3.3 Exploratory research

According to Saunders et al. (2009) there are three principal ways of doing exploratory research: search of the literature, interviewing experts on the subject, and conducting focus group interviews. The two main methods used in the research were literature search and interview. Although the focus group and their experiences are familiar through author's previous empirical knowledge, actual focus group interviews, other than Finpro's country representative, were not conducted.

### 3.4 Data

Data used in the research was mostly primary, including reports, emails, conference proceedings, and government publications. Secondary sources were used when searching updated information from various projects, published as press releases and newspaper articles. Reliability is judged on reports from industries' and target markets' own reports and data, so the sources have to be studied objectively, filtering out subjective reporting as effectively as possible.

### 3.5 Interview

The interview with Mr Elo gave the guidelines for the research and confirmed some of the author's earlier knowledge about the most relevant industries to study. In addition to confirming the previous knowledge, the interview provided up to date information about the market and its trends, without forgetting insider information about the present and future of the trade promotion activities. From Mr Elo's interview, author was able to determine the most common ways of market entry for Finnish companies, as well as their strengths and weaknesses which determine the level of success in the future. The interview, together with the author's experiences also helped to form a picture of the decline in the diplomatic and trade representative investments by Finland.

### 3.6 Author's empirical knowledge

The goal of this thesis was to distinguish the challenges and opportunities of the Canadian market. The process started in the June of 2011 during the internship at the Finpro office in Toronto. The empirical knowledge accrued during the six months at the office from industry reports, seminars, projects and surveys was a strong basis for the rest of the research.

When there was only one year gap between the internship time and the thesis research, most of the author's experience was still very relevant concerning the potential industries. There has of course been progress in the internationalisation of certain Finnish companies' relevant industries since 2011,

but many of the plans and projects are so large, combined with the somewhat slow buying and decision making processes in Canada, it was fairly easy to continue where the process was left at the end of November 2011.

In addition to author's empirical knowledge during the internship, several industry associations' reports were used to gather data, for example the Canadian Bioenergy Association, Canadian District Energy Association, Finnish Energy Industries and Statistics Canada to find the most updated information available. Although the most updated reports were always the priority, sometimes there was no recent and reliable information available due to fairly long intervals between especially government-conducted data collection and analysis. Since the research was of somewhat straightforward and practical nature, market data, author's working experience and the interview played a major part in the thesis.

Author's empirical experiences working on the subject gives a good grasp on the attitudes and viewpoints of internationalising Finnish SMEs. Various internationalisation theories, ETLA's discussion papers, industry reports and articles combined with the interview of Finpro's Canada country representative help to form an informative viewpoint on the same issue. Therefore a clear picture can be formed of the current challenges and opportunities of Finnish SMEs' internationalisation in Canada and North America.

## 4 CANADA



Figure 1. Canada (National Resources Canada 2013)

### 4.1 Introduction

Canada is a land of superlatives; it is the world's second largest country by total area (9,984,670 km<sup>2</sup>), nearly the size of the entire continent of Europe (10,180,000 km<sup>2</sup>). There are ten provinces and three territories (Figure 1) very different from each other in terms of geography, culture and language. It has the longest coastline, measuring 202,080 kilometres and longest land border in the world at 8,891 kilometres. However, with the population of only 35 million Canada has one of the lowest population densities of independent countries in

the world at 3.41/km<sup>2</sup> which is many times less than Finland (15,3/km<sup>2</sup>) (Tilastokeskus, 2013) -considered by many as an extremely sparsely populated country. However, most of the population in Canada is concentrated in the southern parts (Figure 2), north of the country quite similarly to Finland (Figure 3) having a somewhat hostile climate.

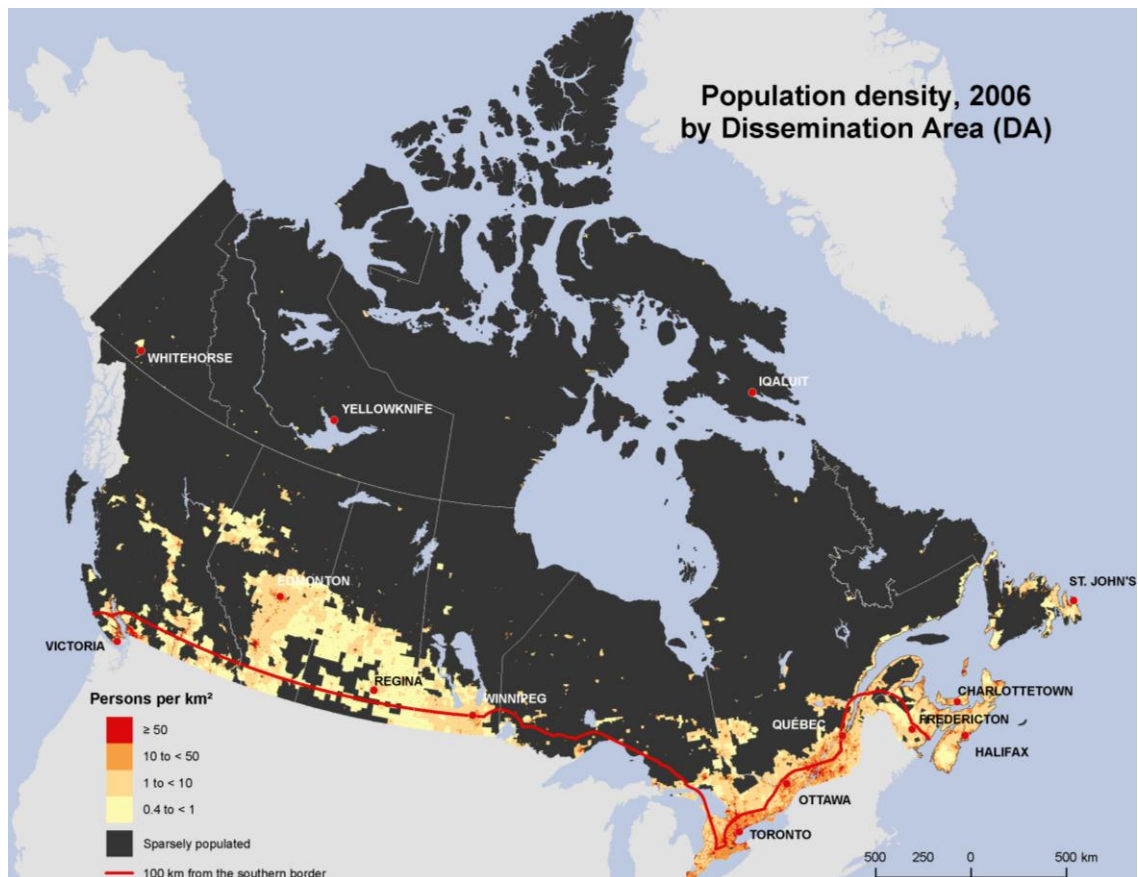


Figure 2. Canada population density. (Statistics Canada 2013)



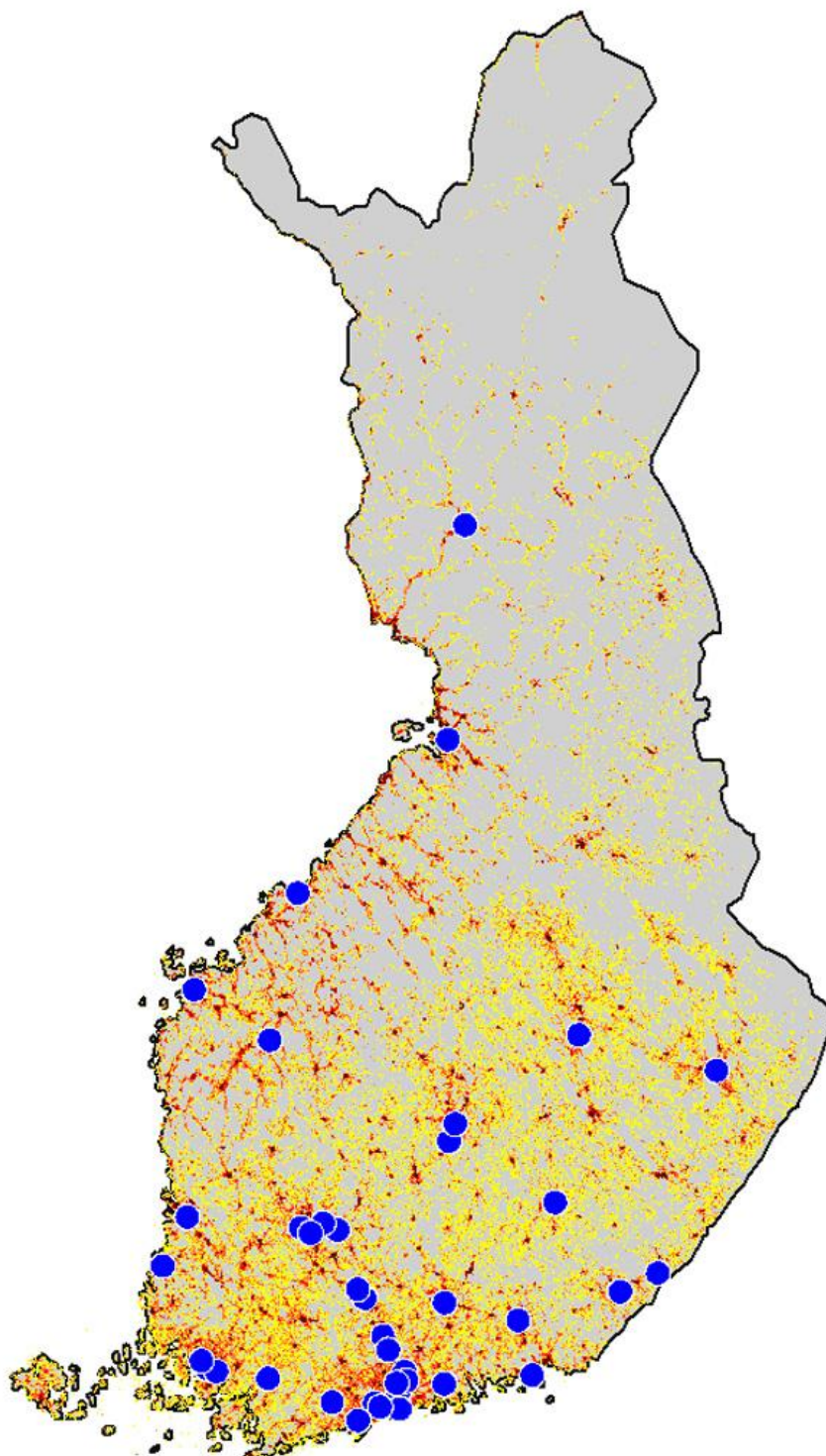


Figure 3. Finland population density. (Suomen Kuntaliitto 2013)

Similarities with Finland and Canada don't end there: Both are bilingual parliamentary democracies with similar climate and geography, both emerging

as information societies, Inuit and Sami indigenous population in the northern regions having established regular exchange with each other. One should not of course forget the great passion for ice hockey shared by the two countries, making it easy for sports follower to name at least a few famous personalities from the other country.

One big difference between Canada and Finland however is the amount of natural resources and how effectively they are used: Most of Finland's industry is about refining and processing mostly imported raw materials very effectively, as Canada possesses vast amounts of unused resources, for example its oil reserves, mostly consisting of Alberta bitumen sands were estimated at 175 billion barrels in 2011, third largest in the world after Venezuela and Saudi Arabia. (US Energy Information Administration, 2013).

#### 4.2 Market description

Companies looking to expand to North America should remember that Canada can be used as a gateway to the United States with considerably lower initial costs than moving directly to the US. Canadian market, being much smaller, can be penetrated with fewer resources. Also, North America being a free trade zone, same partners acquired in Canada, are very likely to have operations or at the least contacts south of the border, making additional expansion projects considerably easier. Canadian operators also have a good reputation in the US, so partner search and expansion through them will be easier than individually. Greater Toronto area is a potential place to start expansions, metropolitan area being one of the largest in North America, close to several other metropolitan areas in the US, as well as hosting operations and contacts of all major industries in America (Elo 2012.) Most notable barriers in bringing new technology to Canada by foreign companies are rigid legislation, preference of the market to buy exclusively Canadian, and negative, although gradually changing attitude towards green values.

In the following chapters the currently most potential industries are introduced,



ones that have a great potential and demand in Canada as well as strong supply expertise in Finland. Although some industries and their demands might overlap, they are treated as separate cases

### 4.3 Arctic technologies

As Canada and Finland share similar climate conditions, it is only natural to explore the situation of arctic technologies and projects. Many times the technological solutions needed in the arctic climate conditions are not abundantly available globally, as only few technologically advanced countries and manufacturers are familiar with the challenging conditions. Finland is in a situation, where the society and export oriented industries have already adapted to the winter's challenges and many of those adaptations could be transferred across the Atlantic. Canada is starting to heavily invest in its northern regions in both federal and provincial level, so Finland's foreign trade promotion efforts should definitely be aimed at the direction of these programmes.

Being handed the chairmanship of the arctic council in May 2013, Canada is getting more in the centre of community of arctic nations. According to Canada's Minister for the Arctic Council Leona Aglukkaq, the chairman nation will focus on responsible resource development, safe shipping and sustainable circumpolar communities, subjects that are very well recognised by a chairman country from 2000 to 2002 sitting at the same council, Finland (Arctic Council, 2013.)

#### 4.3.1 Plan Nord

The province of Quebec launched an economic development programme called Plan Nord, which will receive public and private investments worth \$80billion over 25 years to develop the natural resource utilisation, infrastructure, tourism and conservation in northern parts of the province in an area covering nearly 1,2million square kilometres. The projects are estimated to create over 20 000 jobs and it has been publicly admitted that all the workforce and expertise will

not be found inside Canada's borders (CBC News, 2013.)

#### 4.3.2 National Shipbuilding Procurement Strategy (NSPS)

Canada has the longest coastline in the world and monitoring this vast area is not possible to manage effectively and credibly with the current ageing fleet. The Canadian Navy and Coast Guard can patrol the coastal waters of Atlantic and the Pacific, but do not have the capability to effectively patrol the Arctic Ocean (The Arctic Institute, 2013.)

Military superpowers USA and Russia are also laying claims over the arctic areas in Canada's backyard and receding ice over the North Pole is gradually making it easier to navigate through the Northwest Passage (Figure 4), so traffic is definitely expected to grow in the northern waters.



Figure 4. Northwest Passage. (Arctic Portal Library 2013)

Preparing to be present at the newly discovered north the Department of Public Works and Government Services launched Canada's National Shipbuilding Procurement Strategy (NSPS) in 2010. In the program the federal government will invest \$33 billion into building 28 warships and non-combatant vessels over 20-30 years' timeframe, including arctic offshore patrol ships, science vessels and polar ice breakers (Public Works and Government Services Canada, 2013.)

Canadian coast guard has also raised concerns about its insufficient icebreaker capacity connected to the demand for better ice breaking support services by its clients (Canadian Coast Guard, 2013).

#### 4.4 Cleantech

In 2010 Canada inscribed in the Copenhagen Accord its 2020 target of 17% greenhouse gas emission reductions from 2005. A target has also been set in providing 90% of Canada's electricity by non-emitting sources, including renewables and nuclear power. Since 2006 the government has deployed a range of instruments to combat climate change; investing in renewable energy, incentives to develop green technologies, and regulations to reduce emissions. The Government's Clean Energy Fund is committed to this target through the expansion of Decentralized Energy generation in Canada. 117% growth has been projected between 2010 and 2012 in the clean technology sector (CanBio, 2010, 4-6.)

Clean technology is an emerging national industry in Canada with each economic region contributing a significant number of companies. British Columbia and Ontario are the clear leaders in the field, although (southern) Ontario has the advantage of its size and proximity to major American markets (Analytica Advisors, 2010, 72.)

#### 4.4.1 Bioenergy

With its large landmass and although recently experiencing deep cyclical decline, a sizeable forest industry, Canada has access to large and diversified biomass resources that can be used for energy production. Currently, bioenergy is the second most important form of renewable energy in Canada. At the moment bioenergy represents about 5% of Canada's total primary energy. The most important type of biomass in Canada is industrial wood waste, especially waste from the pulp and paper industry, which is used to produce electricity and steam. The pulp and paper industry is by far the largest industrial user of bioenergy, which accounts for more than half of the energy used in this industry (National Resources Canada, 2013.)

At the time of the latest study in the end of 2006, Canada had 62 bioenergy power plants, and most of this capacity was built around the use of wood biomass and spent pulping liquor, as well as landfill gas. 7 million megawatt-hours of electricity were generated using wood and spent pulping liquor. Most of the biomass-fired capacity was found in provinces with significant forestry activities: British Columbia, Ontario, Quebec, Alberta and New Brunswick (OECD, 2010, 92.)

Biofuels are a growing field of bioenergy in Canada. The domestic production capacity of biofuels in Canada is approximately 600 million litres of ethanol and 100 million litres of biodiesel. The federal and provincial governments have announced measures that are aiming to increase the production and use of biofuels in the coming years (OECD, 2010, 92.)

Historically the main source for bioenergy has been mill residue from forest products operations and the primary use was generation of heat and power by pulp and paper mills, sawmills, and independent power plants. Since 1989 two plants have started pyrolysis oil production from sawmill residues and post-industrial wood. Corn and wheat have increasingly been used to make ethanol, and a small amount of biodiesel, and agricultural wastes are used to heat

greenhouses. Several different streams of biomass are used for energy production, from lignocellulose fibre to ethanol to wood waste for syngas (CanBio, 2010, 13.)

#### 4.4.2 Remote communities

“Energy security is perhaps the most critical issue facing rural, remote, and in particular aboriginal communities in Canada,” explained J.P. Gladu, President and CEO of the Canadian Council for Aboriginal Business, at workshop in Ottawa, ON, on 24.10.2012 discussing the challenges remote and rural Canadian communities face when it comes to meeting their energy needs (Canadian Biomass Magazine, 2013.)

Isolated First Nations -Canada’s aboriginal peoples’ communities in rural areas of northern Canada heavily depend on fossil fuels such as diesel and propane to produce electricity and heat in the arctic climate. While this method is also environmentally unsustainable, it comes with a great financial cost to the residents as well as the federal government, having to fly in fuel as an emergency measure when supplies are close to depletion in the winter, the communities being completely isolated. These remote communities, often suffering from high unemployment rate and the negative side effects caused by it, could significantly benefit from more economical heat and power source that would employ the workforce supplying locally produced fuel (Noam Sugarman, 2013.)

#### 4.4.3 Recycling & waste

According to Statistics Canada, 33.2 million tonnes of municipal solid waste was generated in Canada in 2004 which was a 13% increase over 2000. Of 33.2 million tonnes generated, 7.9 million tonnes (24%) were recycled or composted, 24.5 million tonnes were landfilled, and 763,000 tonnes were thermally treated. There are 7 main treating installations (5 with energy recovery, 2 without); 1 in PEI, 3 in Quebec, 1 in Ontario, 1 in Alberta, and 1 in BC. On Aug 31 2010

Enerkem started construction on its Municipal Solid Waste (MSW) to ethanol facility that will use 100 000 tonnes MSW to produce 35 million litres ethanol annually. This sized facility is economic for any city over 100 000 population, of which there are 35 in Canada (CanBio, 2010, 20.)

Although measuring significantly reduced amounts after several agreements from 2006, Ontario and Toronto are still shipping their municipal waste to the neighbouring US state of Michigan, tempted by the much cheaper landfill charges over the border (Waste and Recycling News, 2012.)

As a city that has recently experienced significant growth almost doubling its population since the 1980s (2,998,947 in 1981 to 5,583,064 in 2011) Toronto has not managed to keep its infrastructure up to date when it comes to waste management and recycling (Statistics Canada, 2006; 2011.)

Waste incineration has for long caused fears and suspicion in Canada. Nowadays, however even Greenpeace has admitted that new, cleaner technologies are environmentally sound (Toronto Star, 2010)

Since 2004 two waste-to-energy facilities are being built in Durham, Ontario and another in Edmonton, Alberta (Elo 2012). When more facilities start operations, public opinion will gradually turn into more positive direction, currently being quite negative towards the new, relatively unknown technology regardless to numerous successful operations around Canada.

#### 4.4.4 Clean energy schemes on provincial level

In the following chapter are listed the most important provincial schemes to promote the use of clean energy. Provinces have set varying carbon taxes and trading schemes as well as ambitious CO<sub>2</sub> reduction targets.

## **British Columbia**

In February 2008, the province of British Columbia announced North America's first carbon tax on all fossil fuels. BC also set a target of 33% emission reductions from 2007 to 2020.

## **Quebec**

Quebec instituted a carbon tax on energy companies of 0.8¢/l gasoline and 0.9¢/l diesel. In 2009 Quebec committed to a 20% reduction in greenhouse gases from 1990 to 2020. Quebec adopted the same standard as California for GHG emissions from transportation vehicles, set targets for emissions by aluminium companies, implemented a number of energy efficiency programs and has implemented incentives to convert heavy and light oil use in building heat to biomass. Quebec joined BC, Ontario, Manitoba and 7 US States in the Western Climate Initiative that will implement a cap-and-trade system to reduce GHGs. The province launched a program in 2008 for wood bioenergy, allowing 17 regional economic development Boards, CREs (Conseil régionale de l'environnement) to examine bioenergy proposals and recommend 5-year wood allocation contracts. Several regions are moving quickly to garner forest biomass for small community heating systems. In 2008, Quebec allocated \$150 million over three years to convert heavy oil heating systems to woody biomass. In 2009 the province announced a program aimed at 4500 institutional buildings to convert from light oil to biomass (CanBio, 2010, 6,9.)

## **Alberta**

Alberta implemented a carbon emission trading system in 2007 that required companies with large greenhouse gas emissions to reduce emissions by 12% from July 1 to Dec 31 of 2007. Firms could achieve targets by trading verified emission reductions, buying offsets, or investing in a technology fund (CanBio,

2010, 10.)

## **Ontario**

Provincially Ontario is clearly the most potential cleantech market, already possessing an established industry as well as government commitment and a fifth most populous city and major business hub in North America, Toronto and the surrounding metropolitan area.

Laden with ageing nuclear plants, and with almost all the hydro capacity already in use, the province is looking to other renewables to increase its capacity. Ontario set greenhouse gas reduction targets of 6% below 1990 levels by 2014, 15% below by 2020. Much of these reductions will be achieved by phasing out coal for electricity generation, mandated by 2014. The province set two renewable targets in 2004: 5% of generating capacity from renewable sources by 2007 (1350 MW), 10% by 2010 (2700 MW). In an effort to move forward meaningfully with renewable power, the Ontario Power Authority announced the Standard Offer Program in 2007, paying 11¢/KWh for renewable power over 20 years for projects under 10 MW (CanBio, 2010, 10.)

Implementation of its 2010 Green Energy Act marks certain progress towards provincial and federal objectives. It encourages the development of renewable generation by establishing long-term power purchase agreements with wind, solar, biomass and other clean energy providers.

Canadian coal production and consumption is declining mostly due to Ontario phasing out coal fired power generation units. The province has pledged to phase out coal-fired electricity generation by 2014 (WADE Canada, 2010.)

According to Canadian Electricity association, coal powered plants are currently used to generate 19% of electricity in Canada (Canadian Electricity Association, 2013.)



## **New Brunswick**

23% of New Brunswick's energy comes from renewable energy sources such as conventional hydro and wood. The government aims to increase renewable power by 10% by 2016. In 2008 the provincial government announced a Biomass Policy whereby harvest residues would be made available for bioenergy projects, and in early 2009 it requested submissions for up to 1 million ODT annually of this fibre. 16 projects were submitted and eight projects from four companies were accepted (CanBio, 2010, 11.)

## **Nova Scotia**

Traditionally Nova Scotia's prime energy supply came from imported coal (80%). However, with rising costs and mine closures coal is no longer a reliable, low-cost source of electricity nor is it a dependable provider of jobs for residents, also becoming environmentally unacceptable compared to renewables.

Renewable Energy Standards came into effect in 2007 to produce 18.5% of the provinces electricity from renewable sources by 2013. NS aims to generate 25% renewable electricity by 2015 and 40% by 2020. Although the Department of Natural Resources found that 750 000 ODT of new forest biomass could be sustainably harvested to generate electricity, the plan caps forest biomass used for power at 150,000 ODT (150 GWh), to ensure sustainability pending the release of the Natural Resource Strategy. Also, while New Brunswick has allocated harvest residues for energy, Nova Scotia does not allow any use of residues, only stem wood, despite studies that show using harvest residues in the province is sustainable. Environmental activists have argued for reduced wood supply, which industry argues will cripple a profitable industry with all its socioeconomic benefits. Other renewable energy initiatives have been introduced such as Community-based projects eligible for a Feed-In Tariff (COMFIT), limited to non-for profit and First Nations, and Community Economic

Development Investment Funds (CanBio, 2010, 11, 25.)

#### 4.5 Smart grid

Canada's power grid is ageing and replacing old elements (currently at a rate of approximately \$10B per year) with new Smart Grid technology meets many of Canada's energy and environment policy objectives. Smart Grid enables the capture of more of Canada's vast renewable resource potential (Smart Grid Canada, 2011.)

The problem with wind and solar power is the variable base load. Managing the variation in load adds extra complexity to the grid, according Blair Peberdy, director of communications at energy distribution company Toronto Hydro.

#### **Smart Grid situation in provinces:**

##### **Ontario**

To date, Ontario is the frontrunner in adoption of Smart Grid technology. Ontario mandated that every home should have a smart meter by 2010, and according to IDC energy insights, more than 95% of the 4.7 million eligible endpoints in Ontario had smart meters by the end of last year. It also passed the Green Energy Act in 2009 that allocated more money to investments in smart grid technology (Smart Grid Canada, 2011.)

##### **British Columbia**

BC Hydro has announced a smart grid metering program that will see a roll out the two-way devices to 1.8 million homes across the province.

## **Quebec**

The main power company in Quebec, government-owned Hydro-Quebec, landed \$5 million in funding from Federal Clean Energy Fund in 2010 to develop a smart grid project zone in the south shore area, near Montreal

## **Alberta**

75% of Alberta's energy currently comes from coal. The province has undertaken a public enquiry on smart grid technology. Some automated metering projects have rolled out, enabling meters to be read via power lines.

## **Saskatchewan**

Saskatchewan still relies heavily on ageing coal-based plants, but which is currently considering a nuclear option. Investigating smart grid technology is currently listed as an objective of the medium-term plan adopted by SaskPower, its electricity company. The medium-term plan runs from 2016 to 2022.

## **Nova Scotia, New Brunswick and Prince Edward Island**

New Brunswick Power, Nova Scotia Power and Maritime Electric Co are all working on a project called PowerShift Atlantic, piloting technology that shifts energy supply to specific appliances in homes and commercial buildings in order to optimize wind generation with minimal or no disruption to participating electric utility customers. The project, which will cost \$22 million in all, received more than \$15 million in funding from the Federal Clean Energy Initiative.

## **New Brunswick**

As of July 2010, the federal government has committed to a four-year

investment of \$32 million towards a New Brunswick Power Smart Grid research project. Almost half of the funding is drawn from the Clean Energy Fund, with partners including Nova Scotia Power and the University of New Brunswick. Main research topic is the problem of managing renewable power supplies if and when supply runs short. This project enables Smart Grid technology to swap potential with progress (Smart Grid Canada, 2011.)

#### 4.6 District energy

According to Claverton Energy Research Group, a large scale combined heat and power plant fuelled by biomass is the most environmentally friendly heating system (Claverton Energy Group, 2013).

District heating has not yet been widely adopted in Canada; when 49% of all buildings and 90% apartment buildings are connected to district heating systems in Finland, only 1.3% of all floor space in Canada is in serviced by district heat (Finnish Energy Industries, 2013; CDEA, 2011, 8). There are 118 operating District Energy systems in Canada. The majority of which being larger institutions such as universities and hospitals -not interconnected like in Finland, and very few servicing residential buildings (CDEA, 2011, 8).

Canadian District Energy Association (CDEA) is promoting the use of district energy and especially Danish operators have efficiently marketed their expertise and are known by members as model examples in many of CDEA's events.

Challenge for exporting district energy solutions has been the high initial investments and long payback times, poorly matching short term return expectations very common in North America.

## 5 CHALLENGES AND OPPORTUNITIES

### 5.1 Challenges and restrictions

Federal and provincial jurisdictions in Canada are hard to distinguish, especially for an outsider; the federal government holds responsibility for negotiation of international treaties such as Canada's commitments to the United Nations Framework Convention on Climate Change (UNFCCC) whereas the provinces hold responsibility for regulation relating to air pollution, with some exceptions handled by the federal government. Provincial initiatives to implement greenhouse gas reduction policy frameworks including regulation such as the Alberta carbon tax and intensity reduction targets for oil and gas industries are an example of provincial engagement in this policy (Analytica Advisors, 2010, 72.)

One of the major shortfalls of Canadian energy policy is the fixation with power rather than heat. This focus has led to a significant increase in power capacity building, largely wind turbines, but the result has been a realization that wind power capacity translates to production only 30% of the time, additional gas co-generation required to meet peak power needs (CanBio, 2010, 13.)

A major barrier to bioenergy has been antiquated legacy legislation by the Ministry of the Environment; conflicting air quality permits, heavy permitting process, and poor definitions that lump woody biomass together with municipal waste. New legislation in the Green Energy Act is aimed at streamlining approvals for renewable energy projects (CanBio, 2010, 10).

For mostly political reasons, fixation to employment and domestic requirements in for example Ontario's feed-in-tariff is restricting foreign companies' expansion projects. However, while especially the cleantech industry grows, restrictions are being lifted.

## 5.2 Demand and opportunities

### 5.2.1 Arctic technologies

In many ways, most solutions offered by Finnish companies are arctic technologies, developed and tested in the harshest of climates. However, certain specific solutions for arctic conditions are among the most concrete future trends in Canada (Elo 2012). Federal and provincial programmes are underway to develop Canada's arctic regions, investing large amounts in technologies developed for the arctic regions. When Canada becomes the chairman nation of the Arctic Council in 2013, it will be in the spotlight to undergo new projects in its underdeveloped northern regions.

Federal support for decentralised energy production, \$33 billion national shipbuilding project including polar vessels and Quebec's \$80 billion Plan Nord are among the most visible actions taken to develop the arctic regions and improve Canada's capabilities to effectively show its flag.

### 5.2.2 Cleantech

A great chance in combining Finnish expertise in refining raw materials and Canadian extensive resources would be to start using those resources in a more effective, greener way –something that every country in European Union are aware and Finnish companies possessing the means to implement.

There is extensive domestic clean technology expertise in Finland, historically possessing an inbuilt appreciation and economical dependency on forests and clean water, for example. There is a national, government backed project to develop the country's environmental business called Cleantech Finland. Also there is no major oil or gas reserves, so the industries have had to develop independent, alternative ways for energy generation and energy efficiency. Innovation is highly supported by R&D, being especially targeted at clean combustion technologies, and environmental monitoring and utilizing ICT in

cleantech (Cleantech Group, 2010.) While attitudes are gradually changing, Canada is only starting to accept and adopt cleantech solutions, hence possessing considerable potential to reduce its sizeable greenhouse gas emissions. Clean technologies are definitely the most potential industry and expertise to export from Finland to Canada.

### 5.2.3 District (Bio) energy

Over the past decade attitudes towards district heating have improved and new systems have been installed in major cities such as Toronto, Montreal, Vancouver and Calgary.

Finnish manufactures that are now offering proven and very reliable systems with low operating costs can use that in their advantage. There is a recent joint project by Finpro, Cleantech Finland and 13-company cluster, Kaukolämpöhanke II, identifying Canada as a potential market for the cluster that offers turn-key solutions for district energy projects (Finpro, 2013.)

Especially supply chains of forest based biomass energy production are admitted to be practically non-existent in the Canada. This creates a high demand for an operator with experience of managing cost effective, reliable and sustainable supply chains. Numerous co-operatives and expert networks in eastern Finland are a sign that this kind of expertise exists; with company clusters offering turn-key solutions for small-scale forest based combined heat and power systems (Wenet, 2013)

Forest based biomass production is clearly a rising future trend in Canadian cleantech industry. This industry has also gained wide political and public approval, so it is a very concrete opportunity for Finnish manufacturers. (Elo 2012) Expertise and manufactures to build small scale district heat plants that utilise the biomass from the forest (wood chip. pellets, peat) have existed in Finland for some time now, for example in Karttula and Leppävirta operated by power company Savon Voima (Wenet, 2013.) These solutions would be ideal

for the remote First Nations communities that often have an abundance of biomass surrounding the community

### 5.3 Lifted restrictions for foreign investments

In its 2010 Budget the federal government addressed an issue that has been restricting foreign direct investment in Canadian firms, by removing the Section 116 clause that required foreign private equity investors in Canadian technology companies to file Canadian tax returns when they sold investments. This will make it easier for foreign companies in Canada to participate in the growth of the cleantech industry and will contribute to increasing level of foreign involvement in the VC industry in Canada (Analytica Advisors, 2010, 126.)

### 5.4 Support programs in Cleantech, CO2 reduction

Since 2006 the Canadian government has deployed a range of instruments to reduce CO2 emissions; investing in renewable energy, incentives to develop green technologies, and regulations to reduce emissions. The Government's Clean Energy Fund is committed to this target through the expansion of Decentralized Energy generation in Canada, supporting bioenergy in remote communities. 117% growth has been projected between 2010 and 2012 in the clean technology sector (CanBio, 2010, 4- 6.)

Other federal government instruments include: sustainable Development Technology Canada (SDTC), the Clean Energy Fund, the Green Infrastructure Fund, and continued investment in carbon capture and storage technology. In the 2010 Budget, the government also extended favourable tax policy in clean energy generation. Action taken by provincial governments to address climate change by changing behaviour and encouraging technology adoption has materialized into numerous programs from a broad feed-in tariff program in Ontario, to carbon taxes as well as new emissions standards for cars in British Columbia and Québec (Analytica Advisors, 2010, 10.)



Canada's smart grid movement has received some funding from the federal government's Clean Energy Initiative, which devoted \$1 billion to clean technology development. Most of the funding for smart grid development has been provided at a provincial level, however (Bradbury, 2011).

## 6 FINNS IN NORTH AMERICA

### 6.1 History

Finnish presence in North America is admittedly not a new phenomenon. Our first immigrants moved to the Delaware River colony New Sweden as early as 1638 (Picture 5), and were among the most adaptive, being able to have peaceful relations with the Indians, bringing with them the slash-and-burn agriculture method, which suited very well the pioneering agriculture in the vast forest areas similar to their homeland. Finnish-born admiral and nobleman Klaus Fleming, the leader of New Sweden Trade Company organised and oversaw the first expedition. Of the 13 ships departed from Sweden between 1637 and 1656 (11 arriving at their destination), approximately vast portion of 80 per cent of passengers were Finnish, although most of them forcibly moved from their homes to populate the new colony. Nowadays one can still see the Finnish influence in the area in places such as Finns Point in Delaware and New Jersey (Vuorinen, 2012, 3, 6.)



Figure 5. Arriving of Finns to North America. (US Postage Stamps 2013)

Finns started moving to Canada both from the US and directly from Europe

around early 1880s, however very little is known about the early stages of the immigration because official emigration statistics from Finland are only available from 1924. Passenger lists from Swedish ships sailing to Canada show that the first Finns crossed the Atlantic specifically destined to Canada in 1880. There is some evidence showing that some time before this the Canadian Pacific Railroad company was trying to recruit workforce from Finland and other Nordic countries most likely due to similar weather conditions and terrain in Canada (Kero)

The oldest standing log cabin in North America (Gibbstown, New Jersey), built by Finns shows the notable influence of our settlers in the starting years of the new world and its infrastructure, bringing with them knowledge of practical and demonstrably durable architecture (The Richard Stockton College, New Jersey, 2013). According to researchers Terry G. Jordan and Matti E. Kaups in their book: *The American Backwoods Frontier*, Finns were the ones to introduce the log houses in the new continent. Being very useful in pioneer conditions, the method was later adopted by other colonials as well as even the native Indians. With this knowledge, it is easy to deduce the good reputation of Finnish workmanship still enjoys all around in North America.

As a curiosity, regardless to the actual user opinions of Nokia cell phones, there are numerous jokes internet memes (Picture 6.) about the sheer indestructibility of these devices.

Surely even Finnish phones have their limits but these phenomenon don't tend start from nothing (author himself still using a Nokia phone purchased more than 6 years ago, surviving several machine washes and drops to asphalt).



Figure 6. Nokia cell phones. (Know your meme 2013)

According to Statistics Canada and US census bureau, today there are over 130 000 Canadians and 677 000 Americans claiming Finnish ancestry. Many notable North Americans have Finnish roots in all areas of society such as actors Pamela Anderson, Matt Damon and Jessica Lange, musician Mark Hoppus, ice hockey Stanley Cup winner and two-time Olympic gold medallist Chris Pronger, and astronaut Timothy Kopra, just to mention a few.

## 6.2 Today

Today there are several major concentrations of populations with Finnish ancestry in Canada, most of them located in province of Ontario. Toronto has the largest number of Finns, 14 750 but Thunder Bay has biggest Finnish proportion in relation to its population, 12 825 (Embassy of Finland, Ottawa, 2013)

There are many active organisations such as Finnish newspapers, churches, shops, a bank in Toronto and a cultural centre Labour Temple in Thunder Bay. However, the Finnish population is ageing and has always been somewhat divided due to mainly historical and political reasons.

Although Finnish Canadian population is ageing and many are not actively doing business anymore, their networks are still being used in some extent by

internationalising Finnish companies as well as the foreign trade promotion office. Chambers of commerce and honorary consul networks are being utilised to gather valuable local information to be used in market research and sector mapping. (Elo 2012)

### 6.3 Internationalisation

There are three typical scenarios when a Finnish company expands to Canada:

- Most common way is a search for distribution channels or partners who could sell the product in a market, without the manufacturer having to leave Finland.
- Second most popular expansion method is search for a partner or joint venture to develop the product, manufacture it, or do both.
- Third method, which is clearly the rarest nowadays, is for the company to establish themselves in the new market.

Biggest challenge to attract companies to Canada nowadays is definitely lack of knowledge. There is very limited knowledge among the potential industries in Finland about Canadian market and its opportunities. Very often Canada is put in the same category with United States and not treated as a separate case at all. Also physical distance between markets is seen as a major obstacle, requiring additional resources and data collection efforts (Elo 2012.)

#### 6.3.1 Strengths

First and most important factor to emphasize in the strengths of Finnish expertise is the high quality product: Finnish products are well made and that has been long acknowledged in the market. A reputation of making a good quality product well suitable in Canadian conditions is a marketing resource that should be fully utilised in a confident way.

Historically Finnish companies have not been able to form alliances and clusters in order to present and market comprehensive turn-key solutions. However, much work has been done to change this issue (Elo 2012) and positive signs are showing a future of Finnish companies working together to bring solutions to Canadian market, good example being the on-going district heat project by Cleantech Finland and Finpro.

Point that should not be neglected either is that operating in a market and culture so similar to Finland such as Canada will greatly reduce the problems caused by cultural differences in alliances and joint ventures between companies (Palmberg, 2005). Great numbers of Finnish Canadians are in one hand a sign of easily approachable culture and common history –very useful in networking, as well as in best case being able to communicate in one’s mother tongue.

### 6.3.2 Weaknesses

Finnish companies make excellent products, but are too modest to use superlatives to get those excellent products marketed and sold. Alexander Stubb, Minister for European Affairs and Foreign Trade of Finland has also stated that Finnish companies’ strength is in making a very high quality core product, but very often lacking marketing skills to acquire customers for those products (MTV3, 2013.)

Researches show that generally, not just in Canada, the most common obstacles for the internationalisation of Finnish companies are:

- Unfamiliarity to customers and market
- Lack of knowledge about marketing, competition, distribution and culture
- Lack of resources in e.g. language skills, international experience, marketing knowledge, funding
- Issues concerning an outside party such as distance to market, trade

barriers and protectionism, legal obstacles, counteractions of local competitors (Äijö 2008, 49.)

In a Canadian market, the most common mistakes by Finnish companies looking to expand are as follows:

**Lack of groundwork:** There is no knowledge on how the market works or the differences of provincial or federal level laws and regulations. Often the newcomers arrive very lightly prepared for the expansion and lose their opportunity to make a good first impression. As first impressions are very important in a competitive market, it is very hard to change that image. Canadian market is generally all about problem solving; the newcomer's product should be able to present a solution for a known problem.

**Market research:** In Canada target group research is very important already in early stages of product development. In the research stage or even later, Finns are often surprised that emails or call-backs are many times left unanswered unless the product or service offers something new or generally stands out from the crowd. In a competitive market where there will often be an affordable Chinese product available, the offering has to clearly be better than the rest to attract any attention. Also, again, after making a bad first impression it is more difficult to get answers to any contacts.

**Expectations:** When expanding to a new market, one should manage their expectations and not expect high profits in the immediate beginning of operations. Investing time and money in a highly potential market should be a given, but it is often forgotten by Finnish companies looking to move into Canada.

**Contracts:** When in North America, contracts have to be drafted extremely carefully. When the business relationship is going well, even a bad contract does not matter, but if things take a turn to the worse, a badly made or

insufficient familiarisation to the terms can mean an end to the internationalisation. Local legal offices should definitely be used, some even offer complementary preliminary consulting sessions for new clients. Also local accounting offices should be consulted before engaging in projects (Elo 2012.)

#### 6.4 Internationalisation support in Canada

Finpro Canada is a part of Finpro Americas region, with offices in south, central and North America headquartered in Stamford, Connecticut. Finpro's Canadian operation model was changed to partner representative model as of July 2010, when Ari Elo was appointed as the country representative for Finpro, Finland Trade Center in Canada. At the same time Finpro office was reopened in conjunction with the Finnish honorary consulate in Toronto. In 2013 the lease of the consulate premises will end and the office will be moved to other premises. Because there is no more hired staff nor appointed premises, Finpro will not be having its office in conjunction with the consulate anymore as it was according to current fixed time lease, but is going to move to new premises, acquired by the partner consultant country representative.(Elo 2012)

Other Nordic countries that have their combined consulates and trade councils all in the same address, one city block from Consulate of Finland, are working with same methods but significantly larger resources and high levels of cooperation, rarely involving Finland's representatives. Joint efforts with other Nordic countries in the past have not produced satisfactory results for Finns largely due to lack of cooperation and communication in the past. Sweden and Denmark are enjoying growing trade with Canada and have simplified processes and started easy-to-apply programs for their internationalising companies (Elo 2012).

##### 6.4.1 Closing of Finnish diplomatic and trade offices

Last year Finland's trade with Canada reached a record number (Elo 2012). Still, the trend of closing diplomatic and trade representative offices (Picture 7.)



has also reached Canada.

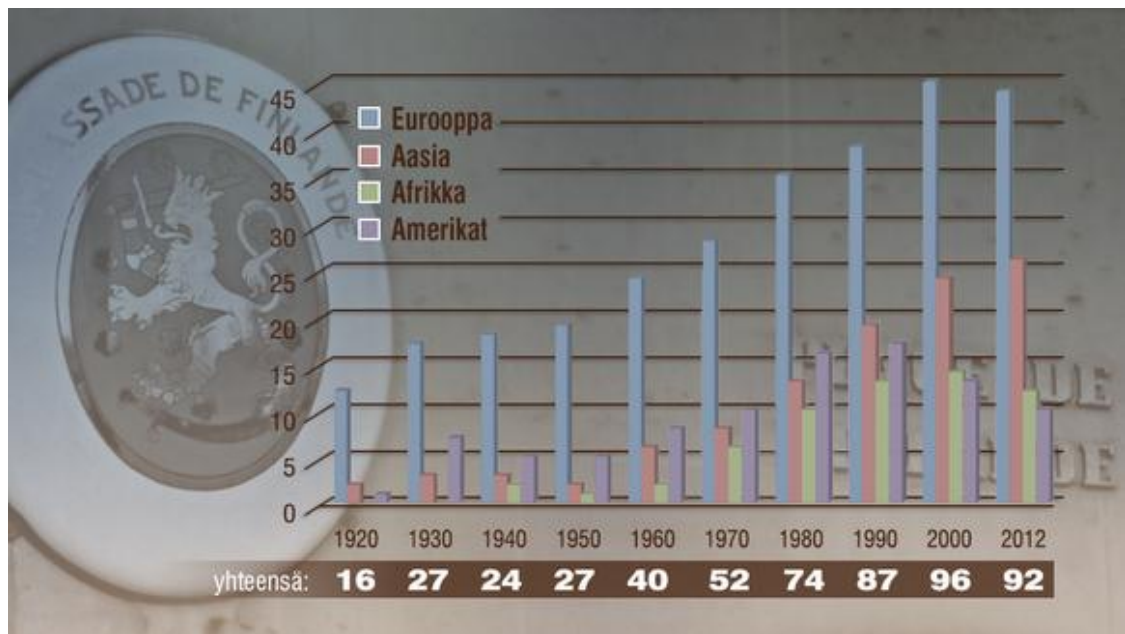


Table 1. Closing of Finland's diplomatic offices.

There have been challenges because of declining resources to promote the trade between Finland and Canada. For a country as heavily depended on foreign trade as Finland, foreign trade promotion is very important to success. One can see a clear cultural reference as well as the most common mistake made by Finnish companies in international market: they solely rely on the superiority of the product without much attention on the promotion, image building and sales.

Promoting trade in another country is much more than just offering internationalisation services to expanding Finnish companies. Much of the information is available online and even business meetings can be managed with a video conference service. Foreign trade promotion is also about building relationships to important entities locally, and being visible in the target market, aiming to sustain the positive image Finland and Finnish quality has in Canada.

Many times the Finpro office is also physically located in the same premises

than the diplomatic office, and very often, as it is in case of Finpro Toronto, reductions in the consulate, such as ending of the lease causes Finpro not to have an official office anymore. A market with a trade of over €900million last year is certainly not the biggest partner for Finland, but it should justify an official office with hired staff. According to Finnish customs, in 2012 Finnish exports to Canada were only topped by USA and Brazil in the Americas. Chile was trailing by 52% and Mexico by 60%, both having permanent Finpro offices with hired staff.

As localising, creating jobs and making one's products or services Canadian is a sure way of reaching acceptance in the market, also the trade promotion office of that country should definitely be strongly present at the scene, showing commitment to Canadian market and thus creating positive images.

When consulates and embassies get closed or their operations drastically reduced, it sends a message to a potential customer that Finland has no interest in making itself heard or seen on an official level. This will cause uncertainty and affects the marketing and promotion, because in this market, image is everything. It is very logical for a potential customer to select an offer from a country that is visible in the market, signalling commitment.

In a country where there is a strong historical presence of Finns, obvious cultural and geographical similarities, several active Finnish organisations as well as visible demand for the available expertise and unused opportunities, it is hard to reasonably justify the declining presence of our state's representatives. Long-time goals are needed instead of short sighted search for savings. Culturally similar market environment, significant potential, large geographical area, long distance from Finland discouraging expansion and Finland's good reputation calls for a better investment in internationalisation promotion efforts at the location.

## 7 CONCLUSIONS

The objective of this thesis was to find out the opportunities and challenges of an entire market, geographically nearly the size of the European continent. Naturally, a single thesis is not enough to describe a whole market with its opportunities and challenges, so the most relevant and potential industries, not just based on numbers, but future trends and predictions as well, were picked out and presented. Many of the obstacles for more trade between the two countries are caused by attitudes and lack of knowledge most of all, of course admitting the rooted problems in the Canadian market environment and consumer attitudes.

To answer the first research question, challenges and threats in the Canadian market environment for Finnish companies include the distinguishing federal and provincial jurisdictions, Canadian energy policy, antiquated environmental legislation, and fixation to employment and domestic requirements in development projects due to political reasons.

Clean technology and energy efficiency solutions are a clear opportunity, being at a great demand in the Canadian market, following recently set ambitious greenhouse gas reduction targets in both federal and provincial level. Cleantech market is growing at a rapid phase and considerable investments are being made into new technologies reducing CO<sub>2</sub> emissions. Finland and Finnish companies, being forerunners in Cleantech, even having a government backed Cleantech project to promote the expertise available should definitely be present and exploiting the growing market.

In addition to similar cultural and moral values, Finland and Canada share similar climates, both belonging in the Arctic Council and Canada becoming the chairman nation in 2013. Canada is aggressively developing its arctic regions and there is a multibillion dollar demand for technologies and solutions designed for the climate from infrastructure and energy projects to polar

icebreaker construction. Finland is one of the few developed nations in the world that is able to produce practical solutions for the demanding conditions in question.

The second and fourth research questions are about the most important special features of the Canadian business environment and reasons for success or failure of Finnish companies. The market environment is well suited for a problem solver; every product and service has to meet a need or solve an existing problem to succeed. Also the market is highly competitive; unless market research and target groups are thoroughly examined, newcomer's positive first impression is lost and all work from there on is done on bad foundations. There will always be someone ready to fill the gap with cheaper products. Special attention has to be paid when making contracts; surprisingly often problems arise from the simple and grave mistake of not reading the contract. When the relations and business are going well, a bad contract doesn't cause problems, but just like in the USA, a legal dispute with a local opponent, very familiar with the law will very likely kill the expansion and seriously hurt the parent company as well.

Third question is about the reluctance of Finnish companies to move into an unfamiliar market. Very simply, Canada is quite unknown by Finnish businesses and Finns in general and is often categorized and handled as part of the US market. Although Finnish companies do much business in North America, the physical distance between Finland and Canada and the resources and market data collection efforts required by it, are seen as impossible obstacles.

Fifth and sixth questions are about the situation of Finpro compared to the past, as well as compared to Nordic countries with similar expertise to offer to the target market. Answer here is short and simple; official efforts and resource allocation to promote Finland's trade with Canada have been steadily declining and the whole office would not be in Canada without the current partner representative. Meanwhile other Nordic countries competing largely on same

markets have considerably larger resources and simplified programs for their companies to internationalise and get support while doing so.

Finland's trade with Canada is growing, and reached a record year in 2011. Efforts should be made in order to avoid the common mistake made by expanding Finnish companies; lack of marketing and relying on the quality of the product. In a Canadian market, one has to make oneself seen and heard to succeed. Growing markets with significant uncapped potential should not be missed. Therefore prompt measures must take place to utilise the offered potential in Canada and suitable expertise in Finland.

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