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FIELD
RESEARCH

FACILITY MANAGEMENT EDUCATION ACROSS THE ATLANTIC

EXPLORING EXCHANGE OPPORTUNITIES BETWEEN CANADA AND THE
NETHERLANDS



NSCC | Magreet Kooij

Facility Management Education across the Atlantic

Nova Scotia Community College
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Introduction

Field research consists of interviews, visits and discussions with professionals who are related to the field of Facility Management. This report is part of the project *'giving recommendations on implementing an additional study year for students of NSCC, with a focus on Facility Management and international experience'*. The goal of this report is to understand the Canadian environment and situation in terms of Demographic, Economic, Social-Cultural, Technological, Ecological and Political aspects: the DESTEP model. The educational system in Canada will be explained, as well as the field of Facility Management defined by professionals in the field.

The first objective of this report is to understand the Canadian market, which is crucial in order to know what courses of Facility Management would best fit in that market. Analyzing the current situation of the Canadian market will make this clear. The second objective is to fully understand the Canadian educational system: how is this system structured, what organizations are involved in the process and what is in line with the International Facility Management program of the Hanze University of Applied Sciences?

The third objective of this report is to analyze and discuss opinions and views of Facility Management professionals in Canada. Through interviews with these professionals who are currently working in a FM or FM related field in Canada, a clear view on FM in Canada will be developed, according to their opinions and ideas.

The structure of this report is based on these objectives. Information used in this report is derived from field research: internet, literature, visits, interviews and (industry) meetings.

Chapter 1 Canada & Nova Scotia

This chapter describes the Canadian market in relation to the project. Emphasis will be placed on specific areas of the Canadian market that have relation to the project and Facility Management, because that is most interesting. It is important to understand how the Canadian market developed itself and is developing, in order for the additional study year to best fit the current market. Regulations will be described, as well as budgets, the population, the culture and cultural differences and the development of technology.

First, a small description of NSCC will be given, based on the previous report: *desk research*. The chapter continues with the DESTEP model, which outlines Demographic, Economic, Social-Cultural, Technological, Ecological and Political aspects. The chapter ends with international influences and trends in Canada.

1.1 NSCC

NSCC has 13 campuses throughout Nova Scotia, providing the majority of technical and apprenticeship training, educating over 25,000 students per year. NSCC highly values delivering education without boundaries and wishes to offer students the ability to acquire new knowledge when they need it and when it suits them best. While doing so, they focus on the economy of Nova Scotia and improving the overall quality of life. Another important aspect that NSCC values is accessibility: educational opportunities should be for everyone. Human Resource Management is another aspect NSCC wishes to maintain and that is why they strive for diversity. A diverse workforce allows employees to better understand and communicate with a diverse student population. Besides that, NSCC helps every employee to become a life-long learner.

NSCC has a high employment rate: 86% of the graduate students are employed one year after graduating. NSCC offers more personalized, smaller classes, which results in a more relaxed and friendly atmosphere, which would in turn fit perfectly with the International Facility Management (IFM) program of the Hanze University. Students are expected to develop a 'portfolio', which shows achievements to future employers, as well as it is a good way to observe the personal development of skills and abilities.

Sustainability is another highly valued aspect of NSCC. NSCC's Waterfront Campus, one of the 13 campuses of NSCC, earned the Leadership in Energy Environmental Design (LEED) silver certification in May 2010 and is committed to integrating sustainability concepts in all program curricula. (NSCC, 2011)

Internationalization is becoming more and more important for every organization, as well as for NSCC. It is highly important for this project as well. The primary focus of NSCC's internationalization process is on their students. Therefore, the faculty and staff are the key facilitators of internationalization. The key focus areas are:

- . Create awareness in staff and students to the opportunities for international activity and the methods for exploring such opportunities
- . Build internationalization into the NSCC curriculum and program delivery

. Provide opportunities for students to gain international experience through mobility programs and international projects (NSCC International, 2005)

1.2 External Analysis - DESTEP

Every organization is influenced by environmental factors and developments. The DESTEP model is used to analyze the external environment. It shows the external factors that NSCC has to cope with, as well as trends that might be of importance for future development. The model consists of Demographic, Economic, Social-cultural, Technological, Ecological and Political factors.

It is important to know and understand the different characteristics and features of Canada and their influences on implementing an additional study year with a focus on Facility Management. To put the facts about Canada in perspective of the project, it is decided to combine information about Canada, as well as Nova Scotia, to create a clear image of the current position of the Nova Scotia market within Canada.

“Canada, with its great distances and many natural resources, became a self-governing country in 1867, while retaining ties to the United Kingdom. Economically and technologically, the country has developed in parallel with the USA. Currently, Canada faces the political challenges of meeting public demands for quality improvements in health care, education, social services and economic competitiveness. Canada also aims to develop its diverse energy resources while maintaining its commitment to the environment.” (Indexmundi, 2011)

1.2.1 Demographic

Demographic factors include factors such as the growth, size, structure and composition of the population. These factors often determine how large a market will be. (Keuning, 2009)



Figure 1.1 Canada (SolarNavigator, 2011)



Figure 1.2 Nova Scotia (SolarNavigator, 2011)

The left image shows a map of Canada, with Nova Scotia in red. The right image shows Nova Scotia with its cities.

- *Population*

The population of Nova Scotia, estimated in 2011, is 946,397, which is around 3% of the Canadian population.

The name of the province is Latin for "New Scotland," and it is the most populous province in the

Atlantic Canada region. Halifax, the capital, is the major economic centre of the region. (Wikipedia, 2011)

The following list contains information on the overall population in Canada:

- Population	34,030,589	
- Age structure	0-14 years	15.7 %
	15-64 years	68.5 %
	65 years – older	15.9 %
- Population growth rate	0.794 %	
- Birth rate	10.28 births (per 1,000 population)	
- Death rate	7.98 deaths (per 1,000 population)	
- Life expectancy	81.38 years (at birth; total population)	
- Education expenditures	4.9 % of total GDP (Indexmundi, 2011)	

Age structure of a population affects nation’s socioeconomic issues. For example, countries with young populations need to invest more in schools, while countries with older populations need to invest more in the health sector. In Canada, the population is ‘average’, which means that the budget of education and health can be divided equally over this population. The population from 15-64 years is the largest, which means the job market needs to be in line with these numbers to avoid unemployment as much as possible.

▪ *Languages & Ethnic origin*

English is spoken by 92% of the Nova Scotians, whereas French is only spoken by around 4%. Dutch is on the 7th place with 0.27%.

Estimated in 2006, the following list shows the largest ethnic groups in Nova Scotia:

. Scottish	28.3%
. English	28.1%
. Irish	19.9%
. French	17.7%
. Aboriginal	10.2%
. German	10.0%
. Dutch	3.9%

A total of 45,195 immigrants are living in Nova Scotia, estimated in 2006. Most of them are from the United Kingdom (11,665), second place is the United States with 7,960. Germany (2,850) holds the third place, followed by the Netherlands, with 1,830 immigrants. (Indexmundi, 2011) The influence of these immigrants on the project can be positive. The Canadian population consists of multiple different cultures, which can be seen as international, which can help the additional study year to become a success, because globalization is an important trend currently.

1.2.2 Economic

Economic factors such as the size of a person’s disposable income exert a powerful influence on organizations which are directed at the consumer/user. (Keuning, 2009)

Canada is a ‘high-tech industrial society in the trillion-dollar class’, and resembles the USA in its market-oriented economic system, its production pattern and living standards. Since World War II, the growth of the manufacturing, mining, and service sectors has transformed Canada from a

rural economy into an industrial and urban one. The 1989 USA-Canada Free Trade Agreement and the 1994 North American Free Trade Agreement (which includes Mexico), caused an increase in trade and economic integration with the USA, which is Canada’s main trading partner; it covers about three-fourths of Canadian exports each year. Canada is also the USA’s largest foreign supplier of energy, including oil, gas and electric power. Given its natural resources and skilled labor force, the economic growth of Canada was solid from 1993 through 2007. However, the global economic crisis made the economy in Canada drop at the end of 2008. During 2010, Canada’s economy grew only 3%, due to decreased global demand and a highly valued Canadian dollar.

- *GDP & Income*

The Gross Domestic Product (GDP) can be seen as value of all final goods and services produced within a nation in a given year. The GDP at purchasing power parity (PPP) exchange rates is the sum value of all goods and services produced in the country.

The GDP (purchasing power parity) of **Canada** was \$ 1.33 billion in 2010. The GDP composition by sector in 2010 was:

Architecture	2.2 %
Industry	26.3%
Services	71.5%

The labor force in 2012 was 18.53 million.

The unemployment rate in 2009 was 8.3%; in 2010 this was 8%; which means a slight decrease.

The Canadian budget divided over revenues and expenditures:

Revenues	\$ 601 billion
Expenditures	\$ 689.8 billion (Indexmundi, 2011)

The Gross National Product (GNP) of **Nova Scotia** is approximately 33 billion Canadian dollars annually. The average income of a Nova Scotia family is \$ 47,100, which is close to the national average. In Halifax, however, the average family income is \$ 58,262, which surpasses the national average. One of the reasons for that is the affordable real estate market, which makes Nova Scotia a cost-effective place to live (Wikipedia, 2011). In March 2012, personal incomes increased by 0.4%, and disposable incomes also rose by 0.4%. (Government of Nova Scotia, 2012) The 2012-2013 provincial budget of Nova Scotia assumes that the province’s economic growth will accelerate over the coming years, with GDP growth of 1.7% in 2012 and 1.9% in 2013 (Government of Nova Scotia, 2012)

- *GNP & Education*

Canada spends around 6% of its Gross Domestic Product (GDP) on education.

One out of 10 Canadian citizens does not have a high school diploma, while one out of seven has obtained a university degree. (FAQ Canada, 2011)

- *Industry*

Nova Scotia was a resource-based economy, but has become more diverse, which was driven by the availability of natural resources, for example fish stocks off the coast. Nowadays, Nova Scotia has one of the fastest growing economies in Canada, due to a strong small-business sector. Nova Scotia has a number of incentive programs, including tax refunds and credits that encourages

small business growth. Since 1991, offshore oil and gas has become an increasingly important part of the economy.

The tourism industry includes more than 6,500 direct businesses, supporting around 40,000 jobs. 200,000 cruise ship passengers from around the world flow through the Port of Halifax each year. Nova Scotia also consists of a rapidly developing ICT sector which consists of over 500 companies, and employs around 15,000 people.

Nova Scotia is also a recognized exporter; the province is the world largest exporter of Christmas trees, lobster and wild berries. Besides that, the export value of fish is around \$ 1 billion, and these fish products are received by around 90 countries around the world. (Indexmundi, 2011)

To summarize, the main industries of Canada are

- Agriculture, forestry, fishing and hunting
- Mining and oil and gas extraction
- Utilities
- Construction
- Manufacturing (food, textiles, clothing, paper, metal, machinery, etc.)

- *Minimum wage & cost of labor*

Nova Scotia's minimum wage is \$ 9.65 per hour. Full time hourly minimum wage workers in Nova Scotia earn a total of approximately \$ 20,072.00 per year (based on an 8 hour day and a 260-day work year) (Minimum Wage, 2012). Employment has continued its volatile trend and rose 1.1% on average in the first three months of 2012. Exports, however are down by 14.6% in the first two months of 2012, due to declines in newsprint and natural gas production. (Government of Nova Scotia, 2012)

- *Exchange rate*

One Canadian dollar is similar to € 0.74. The Canadian dollar is also quite similar to the United States dollar, although the Canadian dollar is currently worth more (X-Rates, 2012). Trends in national income, the state of the economy, interest rate fluctuations, costs of labor, exchange rates and so on, are all important points of attention for organizations. Together, these factors determine the competitive position and the investment climate.

1.2.3 Social-Cultural

Social-cultural aspects are family, culture, hierarchy and customs. Below the most important social aspects in regard to the project are described. It outlines the different regions (provinces) of Canada with its own customs, religions, communication and what doing business in Canada looks like. Besides that, the Canadian and Dutch culture will be compared.

The Canadian culture is diverse. The immigration policy was historically open and welcoming, which resulted in much immigrants in the 1890s. People are also encouraged to retain their cultural identities, traditions, languages and customs.

Canadians are generally tolerant, polity and community-oriented people. Although they are individualistic in their basic cultural behavior, they place much emphasis on the individual's responsibility to the community. (Kwintessential, 2011)

- *Regions*

Canadians have a strong allegiance to their region, which results in some differences between these regions. For example, the people in the Atlantic Provinces (Nova Scotia, New Brunswick, Prince Edward Island and Newfoundland) are somewhat reserved and sometimes seen as ‘old-fashioned’. The people from Ontario are seen as business and conservative people. The French region, Quebec, has a distinct cultural identity, where the people are extremely independent. (Kwintessential, 2011)

- *Religion*

According to an estimation in 2001, around 37% of the Nova Scotians are Roman Catholic, and 16% belong to the United Church of Canada. 12% said to have no religion. (Indexmundi, 2011)

- *Communication*

There are basic communication styles that are fairly standard across the country, despite of the differences in regions. Business people, for example, are generally polite, easy-going and informal.

In general, the communication in Canada can be defined as ‘moderately indirect.’ which means that Canadians prefer to use tact, diplomacy and common sense. A very direct communication style might be seen as threatening. Canadians prefer not to discuss their personal lives while doing business, and they expect people to speak in a straightforward manner, backed up by examples. (Kwintessential, 2011)

- *Business*

When having a business meeting in Canada, one can expect the meeting to be well-organized and within the time schedule. Meetings are generally informal, even if the subject is serious. In Quebec there may be more time spent on relationship-building than in other parts of Canada. Meetings are used to review proposals, make plans, brain-storm and communicate decisions. Attendees will represent different levels and experiences and they are all expected to share their opinions and ideas.

Besides that, it is important to show facts and figures. Canadians will, generally speaking, not be convinced by emotions, passion or feelings. (Kwintessential, 2011)

Figure 1.3 provides an overview of the Canadian vs. the Dutch culture, based on the following four dimensions by G. Hofstede (2012):

- **Power Distance Index (PDI)** – *the PDI scores relates to the degree of equality or inequality between people in a country’s society. A high score indicates that inequalities of power and wealth exist, where as in low scoring countries there is more social equality.*
- **Individualism (IDV)** – *this score focuses on the degree to which a culture values and reinforces the importance of the individual as opposed to the group. A high scoring country will view individuality and individual rights as critical. Low scoring countries will value the group: family, tribe, etc.*
- **Masculinity (MAS)** – *masculinity focuses on the degree to which a culture reinforces the traditional role of males vs. females. A high scoring country will have a more direct degree of gender differentiation whereas in low scoring countries there is less differentiation and discrimination between genders.*
- **Uncertainty Avoidance (VAI)** – *this dimension looks at the level of tolerance for uncertainty and ambiguity within a culture. Cultures with high uncertainty avoidance will have a low tolerance for uncertainty, which is seen as a more rule-oriented society that*

institutes laws, rules and regulations. A low scoring country is less concerned about ambiguity and is less rule-oriented, more ready to accept change, consider new ideas and take more and greater risks.

The conclusions that can be drawn from the figure below and the description of the four dimensions above are:

- ✓ The power distance index is relatively the same as in Canada and in the Netherlands. This means that, for example, hierarchy could be rather low in both countries. In relation to the project, this is very positive. The Facility Management courses students of NSCC will take will focus on team-building and leadership, which makes it easier if there is a low hierarchical level in both countries.
- ✓ Individualism is the same in both countries, as well. Both countries are ‘western’, which generally means that people want and/or like to strive for money, power and success. This will lead to an individualized culture and in both countries this is rather high.
- ✓ The masculinity dimension is more conservative in Canada than it is in the Netherlands. The Netherlands can be seen as a rather liberal country with liberal ideas and opinions. Canada is apparently more conservative in regard to, for example, men providing for the family and women staying at home and taking care of the child. This could also lead to more discrimination on the work floor, which of course does not *have* to happen, but it is possible.
- ✓ The last dimension shows that the Netherlands is slightly more rule-oriented than Canada, which means Canada is more flexible and change-adapting. The Canadian culture is apparently more risk-taking, which could be very positive in relation to the project: students might be flexible, open for something new, ready for change, and willing to take a risk to follow one more additional study year and going abroad therefore.

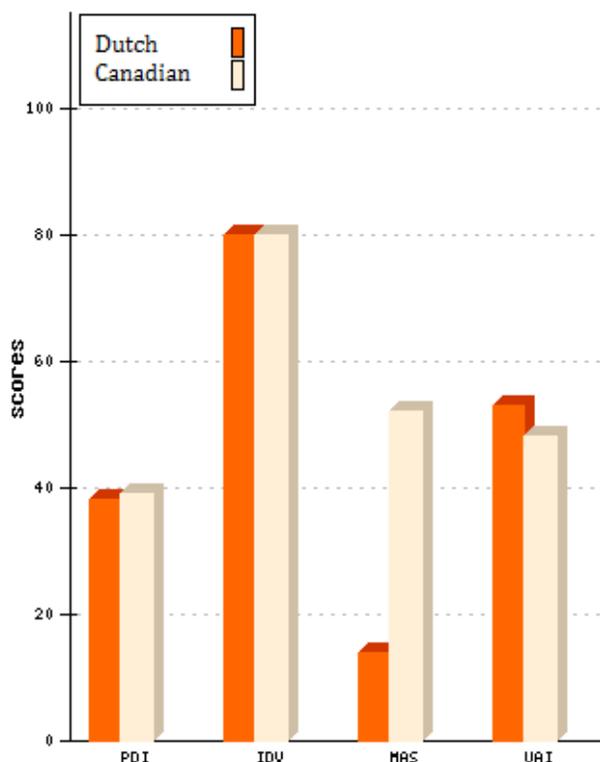


Figure 1.3 Dutch vs. Canadian culture (Kwintessential, 2011) (Hofstede, 2012)

1.2.4 Technological

Technological developments are factors that change rapidly. For example, these have allowed tele-working and similar innovative work arrangements, where employees can operate at a physical distance from each other, while still remaining in direct contact through information systems. (Keuning, 2009) Technological aspects focus on technical factors such as telecommunications and information systems like the internet.

Thanks to globalization and the rapid growth of technology, FM largely consists of technology these days and is therefore important to mention.

Due to the fact that technology, social media and the like are becoming more and more important in students’ daily life, online classes are developing fast. Using webcams is a trend that is sometimes used, too, to remain the ‘classroom atmosphere’. Distance learning is becoming more popular too. The additional study semester at the Hanze University should discuss technical aspects such as business supportive systems such as Facility Management Information Systems (FMIS). Perhaps there should be an emphasis on costs and international technical developments in order for future professionals to be aware of this and not to fall short.

1.2.5 Ecological

Ecological aspects are the climate, landscape, the weather and managing this. The aspects to be described here are those that have a relation to sustainability, which is a main topic in today’s society.

Table 1.1 Ecological aspects of Canada (Indexmundi, 2011)

Ecological aspect	Canada
Total area – sq km	9.984.670
Total land area – sq km	9.093.507
Total water area – sq km	891.163
Land boundaries – km	8.895
Coastline – km	202.080
Current environmental issues	Air pollution, metal smelting, water (ocean) pollution

“Sustainability is about living and working in ways that meet and integrate existing environmental, economic and social needs without compromising the well-being of future generations. The transition to sustainable development benefits today’s society and builds a more secure future for our children.” (Sustainability Report, 2004)

Care of the environment has become increasingly important in recent years, as a result (and will result in) tightening of regulations for companies. Environmental policies are becoming more internationally oriented, too. There needs to be a focus on international environmental agreements, and it can be expected that these will become compulsory in the future. (Keuning, 2009) Figure 1.1 already shows the current environmental issues of Canada. These issues that

Canada is facing are mainly due to human behavior, and it is not only a problem for the country itself, but globally.

The federal government of Canada is making, through the *Federal Sustainable Development Strategy*, sustainable development planning, reporting and measurement a central part of its policies, programs and operations. At the same time, sustainable development is also becoming an essential part of a company's business strategy. Companies are discovering that improving environmental and social performance and enable them to reduce production and operating costs, manage risks, attract business partnership and investors, improve stakeholder relations, attract employees and expand new market opportunities.

Environment Canada is a governmental organization caring about the environment. The organization is collaborating with the private sector, academics, non-governmental organizations, and other government departments to promote the provision of information on:

- ✓ Corporate sustainability performance to consumers, investors and policy makers
- ✓ Strengthen the link between corporate sustainability and financial performance
- ✓ Help Canadian companies access the tools and information they need for environmental leadership (Environment Canada, 2012)

The Environment and Sustainable Development Indicators (ESDI) Initiative has produced a set of six indicators to track whether Canada's current economic activities threaten the way of life for further generations. These indicators are:

1. Air quality in terms of ground-level ozone
2. Freshwater quality in terms of meeting government criteria
3. Greenhouse gas emissions
4. Forest cover to track the extent of the forests
5. Extent of wetlands in Canada
6. Human capital measured by education

The goal of these sustainability indicators is to show the trends among human, environment and economic factors on which Canada's economy depends for current and future performance. (Sustainability Report, 2004)

The additional FM study semester for NSCC students should take sustainable issues into consideration, as this is a major trend and financially beneficial to an organization. Because NSCC covers a large part of sustainability already, this will be a great expansion to it, in relation to the management side of sustainability instead of the technological side.

It is important to note here that NSCC received a LEED silver certification and is nominated for a LEED gold certification for two of its buildings. The Waterfront campus is a very spacious, open building, with many windows and a great sustainable outlook. The atmosphere is great, which is probably because of this outlook of the building. Faculty and students are proud of their school, because it is sustainable, practical, beautiful, very open and spacious and all these aspects help to create a good atmosphere; another (invisible) aspect that sustainability can and should do.

1.2.6 Political

Political aspects are important because these represent the rules, regulations as well as the general structure of Canada. First, information on the Canadian political system is provided. Besides that, the Ministry of Education of Nova Scotia will be explained, as well as what the government in Nova Scotia looks like, as this will be the main factor in relation to the project.

The political aspects of Canada:

- ✓ **Name:** Canada
- ✓ **Capital:** Ottawa
- ✓ **Independence:** July 1st 1867
- ✓ **Administrative dimensions:** 10 provinces; 3 territories
- ✓ **Government type:** parliamentary democracy; federation; constitutional monarchy
- ✓ **Legal system:** common law
- ✓ **Constitution:** unwritten and written acts; customs; judicial decisions and traditions
- ✓ **Prime minister:** Stephen Harper
- ✓ **Political parties:** Bloc Quebecois; Conservative Party of Canada; Green Party; Liberal Party; New Democratic Party

Nova Scotia is ordered by a parliamentary government:

- . The New Democratic Party (NDP) is the leading party of Nova Scotia
- . The premier of Nova Scotia is Darell Dexter
- . The sovereign of Canada is Queen Elizabeth II, and the Queen's representative of Nova Scotia is Mayann E. Francis, who carries out most of the royal duties in Nova Scotia. (Wikipedia, 2011)

The **Department of Education in Nova Scotia** spans the education system from school entry through all post-secondary education, including:

- Community college
- Private career colleges
- Universities
- Public libraries

Its mission is: *"to provide excellence in education and training for personal fulfillment and for a productive, prosperous society."* (Department of Education, 2012)

1.3 International influences & trends

It is important to mention that global trends and developments have a direct influence on the Canadian's development, due to internationalization as discussed in the previous report: *desk research*. Canada is not part of the European Union like the Netherlands. However, the country is highly influenced by trends and developments in both the European Union and the United States, due to export and import trades. Of course it is also influenced by the global market, however, this is not as important for the project, as the main focus is on the Canada and the EU; particularly the Netherlands.

The total value of Nova Scotia's international export is \$5.5 billion. The top 5 international exports of Nova Scotia are:

1. Non-metallic minerals, mineral fuels

2. Fish and fish products
3. Plastic and rubber products, excluding tires
4. Paper and paperboard
5. Transportation equipment

Besides that, Nova Scotia is the world's largest exporter of lobster, Christmas trees, gypsum, carrots, wild blueberries, strawberry plants and fur. (MacIntyre & Walls, 2005) It can be concluded that Canada is indeed a great exporter of products to the rest of the world, as well as it is dependent on other countries.

The trends that were discussed in the previous report: *desk research*, were focused on internationalization/globalization, sustainability and the global economic crisis. Besides that, the responsibilities of a facility manager are difficult to define, which asks for more skills and knowledge of him/her, as well as flexibility. FM education should pay more attention to internationalization of their curriculum, which makes it possible for graduates to operate in international contexts.

According to research by Statistics Canada, young adults have a higher level of education attainment than older people. In 2006, 29% of young adults (25-35) had a university degree; while 18% of adults aged 55-64 had a university degree. Also, a much higher percentage of women than men aged 25 to 34 have a university degree: 33% of women versus 25% of men. However, in the older age groups, the situation was reversed: among older adults (aged 55-64), 16% of women had a university degree versus 21% of men. These numbers are still increasing, which is according to the trends stated in the previous report. This is not necessarily important for the project itself, however, it shows that education is more within reach for more people, as well as the differences between genders is shifting. (Statistics Canada, 2010)

Technology is constantly changing and improving itself and is used in any kind of organization. It is therefore important to take into consideration. In contrast, the shift from being a 'technical' manager towards being a business leader is another trend for facility managers. This has a great influence on any FM study program, because it suggests that focus should be placed on technical issues as well as business issues at the same time.

Another trend is the broadening diversity of the culture: age, cultures, language differences, gender and education. In regard to the project, this is an important trend as to which students to approach and what their interests might be. This also leads to the importance of the **people** aspect of Facility Management, which is once again interesting for the project.

Possible influences on the Canadian market are:

- A higher focus on sustainability
- Recession: different financial circumstances
- Globalization: more international contacts
- Technology

It is important to constantly be aware of these trends and developments, especially when implementing an extra study year as future (FM) professionals will be working in the ever-changing environment.

1.4 Conclusion

This chapter described and explained the current situation of Canada with the use of the DESTEP method. The DESTEP method allows one to highlight different aspects of the Canadian market in order to create a thorough understanding of its current functioning and how the additional study year could support the market.

It can be stated that Canada is a strong economy, due to the fact it has a close trading relationship with the USA, as well as globally. Canada is an exporter of many goods, as well as services. However, the economic situation reacted on the recession as any other economy and is constantly responding to (global) trends and situations.

When combining the information of the DESTEP in relation to the internationalization, technological, sustainable and the new way of working (leadership) trends, this creates opportunities for implementing an additional study year for NSCC's students with a focus on Facility Management. Facility Management takes these trends into consideration, which is apparently highly valued in the current Canadian market. Finding a job can still be rather difficult, which means increasing skills and knowledge would be a great investment.

Looking at the many possibilities Facility Management could offer to organizations, an additional study year for students with a focus on FM would be in line with the current global trends, as well as giving students the opportunity to increase their chance of a good job position. It would be a great addition and investment in terms of education, as well as for the Canadian market because FM covers the aspects that are seen as important (sustainability, globalization, efficiency, higher productivity, cost savings).

Chapter 2 Higher Education in Nova Scotia & Canada

The educational system of Canada is different than the system of the Netherlands and Europe. It is important to analyze the Canadian, as well as the Nova Scotia system carefully, so it is understood completely when writing recommendations for NSCC. This chapter first outlines the educational sector of Canada and what it means. That is followed by a thorough explanation of the Canadian education system and the education in the province of Nova Scotia. The different levels, the different degrees and legal bodies will be described, to come to better recommendations for NSCC and to create an equal flow of student's exchange.

2.1 Education in Canada

In **Canada**, the education system of each province is regulated by the provincial governments via the Department of Education. This department controls smaller bodies based on school districts called 'Board of Education', which oversee the separate schools. Education in Canada consists of three levels:

- Primary education (ages 5 – 12)
- Secondary education (12 – 16/18)
- Post-secondary education

Education is compulsory up to the age of 16 or 18, depending on the province. In Nova Scotia, the age is 16. Canadian students have about 190 school days annually, and the year generally starts in September and ends in June. (FAQ Canada, 2011)

Post-secondary institutions in **Canada** include:

- **Colleges:** granting diplomas & certificates, sometimes advanced diploma's and Bachelor's degrees
- **Vocational schools:** offers training in careers that require practical exercise; more hands-on training. Granting diplomas & certificates.
- **Universities:** institution of higher education and research, which grants academic degrees in a variety of subjects. Universities both provides undergraduate and postgraduate education
- **Grad schools:** are usually part of the universities and award advanced academic degrees (Master's degree and PHD's for example)

The Canadian education system consists of both public and private schools. All public schools are funded by the government. Most students go to public schools; around 8% is attending private institutions. A large number of private schools are religiously oriented. There are few private universities in Canada; most of the universities are publicly funded. (FAQ Canada, 2011)

Figure 2.1 shows the population by level of educational attainment and age group in 2006. It can be seen that a significant higher percentage of 'older' adults do not have a high school diploma in

comparison to younger adults. College diplomas and university degrees are more often obtained by younger adults. However, trades certificates were more often obtained by adults instead of younger adults, which is interesting for this project. There are fewer students following trade certificate programs, which means that when making the programs in relation to this report more attractive, it might attract more new students as well.

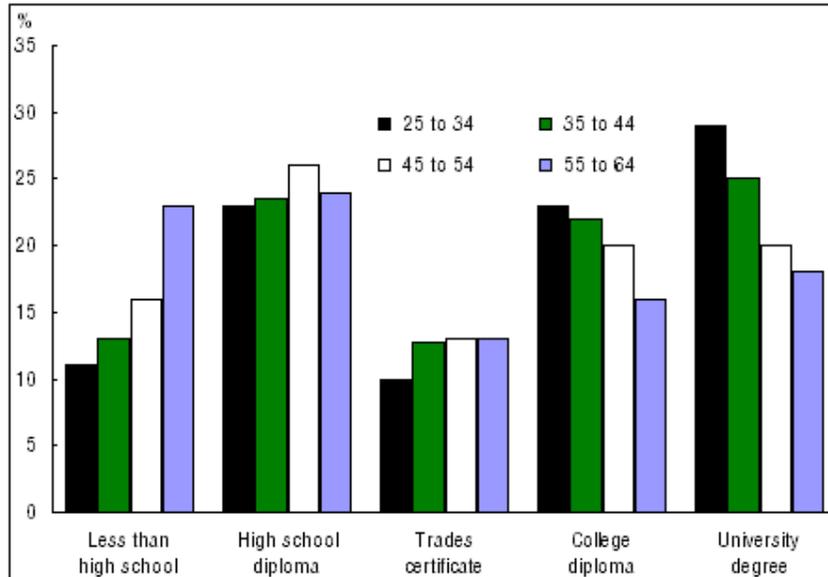


Figure 2.1 Population by level of education and age (Statistics Canada, 2010)

(Community) Colleges

In order to offer degrees, a college needs to have been given degree-granting authority from its provincial department of education. Colleges can become members of the Association of Universities and Colleges of Canada (AUCC), or a professional association like the Association of Canadian Community Colleges (ACCC). Members are required to adhere to certain quality standards. (Schools in Canada, 2012)

College programs are eligible for accreditation by professional accrediting agencies. Professional accreditation means a specific department or program has been evaluated as meeting the standards of the accrediting agency of a profession. Some examples are:

- Canadian Council for Accreditation of Pharmacy Programs (CCAPP)
- Canadian Forestry Accreditation Board (CFAB)
- **Canadian Technology Accreditation Board (CTAB)** (Schools in Canada, 2012)

CTAB is part of the Canadian Council of Technicians and Technologists (CCTT), and establishes standards of excellence for working professionals in the field.

CTAB is an overall accreditation body, charged with developing, coordinating and managing the national accreditation program for applied science and engineering technology programs. National accreditation is an evaluation service of these programs offered at education agencies in Canada. It is a voluntary process whereby a program is examined and assessed for the purpose of identifying whether it meets the profession’s approved standards and criteria. A program’s accreditation status will normally be reviewed regularly, for example once a year.

CTAB provides accreditation to programs. Within CCTT, individuals can obtain certification by provincial associations. For Nova Scotia, this is TechNova. (CCTT, 2012)

The International Standard Classification of Education (ISCED) is used to ‘describe different education levels and fields to allow international comparisons to be made’ (European Commission, 2011) and describes nine fields of education and seven levels of education:

Fields of education:

1. General programs
2. Education
3. Humanities and arts
4. Social sciences, business and law
5. Sciences
6. Engineering, manufacturing and construction
7. Agriculture
8. Health and welfare
9. Services (European Commission, 2011)

Relating these fields of education to the field of FM and the implementation of an additional study year with a focus on FM, it can be concluded that FM should be categorized in the group of Social Sciences, Business and Law. However, this concerns Soft Services and this is what FM would look like in the Netherlands – and Europe. Since FM also concerns Hard Services, the group Engineering, Manufacturing and Construction should be mentioned here when focusing on Canada. A decision that could be made here is to put FM under Services, since that is a very broad field, as is Facility Management.

Table 2.1 shows the level and name of education with the related age group and a short description. This is to give a short overview of education as it is in most countries internationally, and it might help to understand the Canadian education system better.

Table 2.1 International Standard Classification of Education (European Commission, 2011)

Level	Name of Education	Age group	Description
0	Pre-primary education	Minimum of 3 years old	Initial stage
1	Primary education	Starts between 5-7 years old	Compulsory, duration: from 4-6 years
2	Lower secondary education	Continuation of level 1 Average age: 12 years	Continuation of level 1
3	Upper secondary education	Continuation of level 2 Average age: 15/16 years until 18 years	Qualifications: end of compulsory education (level 1 & 2). More subject oriented, duration: from 2-5 years
4	Post-secondary/non-tertiary education	Average age: 16/18 years until 20 years	Broaden the knowledge of level 3, prepare pupils for direct labor market entry
5	Tertiary education (first stage)	Average age: 18 years until 22 years	Successful completion of level 3 or 4
6	Tertiary education	-	For advanced qualification

(second stage)

2.2 Education in Nova Scotia

Nova Scotia is home to eleven public and one private university and Nova Scotia Community College. As mentioned before, each province of Canada has a Department of Education. The higher education system in Nova Scotia includes the governing Department of Education, which also includes the Higher Education Branch. This Branch oversees:

- Eleven undergraduate and graduate degree granting universities
- NSCC; offering post-secondary programs leading to a Certificate or Diploma
- Private Career Colleges offering training

In addition, the Branch is responsible for student financial assistance, post-secondary disability services and the provincial library.

General undergraduate degrees at most **universities** in Nova Scotia require four years of full-time study. Honors degrees, which involves a higher level of academic performance, generally requires four years of full-time study. NSCC offers certificates, diplomas and advanced diploma programs in career-oriented fields. (Canadian Information Centre for International Credentials – CICIC (2011).

The structure of degrees, certificates and diplomas in Nova Scotia can be summarized as following:

- Universities granting degrees (Bachelor's, Master's and PhD)
- Colleges granting certificates (1 year); diplomas (2 years) or advanced diplomas (3 years)

The AAU

The Association of Atlantic Universities (AAU) is a voluntary association of the 17 universities in the Atlantic province, which offer programs leading to a degree. One of the roles of the association is to create awareness and understanding of the important contribution of universities to the social and economic development of the Atlantic province. (Wikipedia, 2011)

International students

The Nova Scotia universities attract students from around the world, which accounts for around 11% of the total students enrolled in Nova Scotia undergraduate programs, while the national average of international students is 7%. Universities set their own tuition fees for international students. (Wikipedia, 2011)

Transfer of credits

The Atlantic Provinces Community College Consortium (APCCC) strives to improve college-level education. The APCCC developed a 'Guide to Block Transfer Agreements'. These blocks refer to one semester, a year, diploma or certificate transferred from a college to a university. The Guide includes around 250 potential credit transfer arrangements, which means that students can transfer their credits to other universities or colleges around the province. Students can choose from several courses, which also include distance learning. (Wikipedia, 2011)

2.3 Credit system

Colleges and universities throughout Canada usually use the Grade Point Average (GPA), with either percentage grades or letter grades which can be translated into a students' GPA. In Nova Scotia, this would look like this:

Table 2.2 Grading system of Nova Scotia

Letter	Percentage
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	65-69
C	60-64
C-	55-59
D	50-54
E/F	0-49

Besides that, at NSCC, credits are used:

Table 2.3 NSCC and its credit system

Credits	Hours
0.5	30
1	60
1.5	90
2	120 and so on...

In Table 2.2, it is shown that 1 credit equals 60 hours. These hours do not include homework and self-study hours, but merely include contact hours in the classroom; the time scheduled for classes in the academic year calendar. So, homework hours are not included in the credits.

Besides that, credits are different for every program. The two programs important for this project, *Architectural Engineering Technician and Construction Management Technology*, will be outlined below. This will create a clear overview and understanding of both programs and their credits and hours.

Table 2.4 Architecture program credits & hours

Architecture Program		Credits (Total)	Hours (total)
1 st year	Semester 1	4.75	285
	Semester 2	6.50	390

	Semester 3	2.75	165	
2nd year	Semester 1	6.50	390	
	Semester 2	6.50	390	
	Semester 3 (co-op)	4	420	= 2.040 hrs

Table 2.5 Construction program credits & hours

Construction Program		Credits (Total)	Hours (total)	
1st year	Semester 1	5.75	345	
	Semester 2	6.25	375	
	Semester 3	1.25	75	
	Optional Semester 3 (co-op)	4	420	
2nd year	Semester 1	6.50	390	
	Semester 2	6.50	390	
	Semester 3 (co-op)	2	175	
Milestones (required safety-classes)	Year 1 Semester 1	-	4	
	Unspecified	-	43	= 2.217 hrs

The Milestones stated in Table 2.4 consist of required safety-classes that students must take. These will be scheduled during the 2 years and are not related to the semesters; they are just required for students because safety is a large part of their program. Please see chapter 2.4 for more requirements information.

It can be seen that the credit system of NSCC is very different than that of the Hanze University of Applied Sciences, Groningen. Besides that, the credit grading also differs from each program. This is important information when coming to recommendations for NSCC. These two tables need to be taken into consideration in the next report: *final thesis*, to come to an equal flow of credit systems for the exchange between the Netherlands and Canada.

2.4 Requirements

Generally speaking, universities in Nova Scotia require high school completion from a university preparatory program. Most universities have minimum grade point average requirements, and some have specific course requirements.

NSCC requires high school completion, or equivalencies, for admission to its programs. Students who have not completed high school may enroll in the Nova Scotia School for Adult Learning, which provides delivery of adult education programs from basic literacy to high school completion. (CICIC, 2011)

The School of Trades & Technology has specific requirements for health and safety practices and procedures for all shops and labs. Students practice a 5S+S quality system throughout the entire program and wear specified personal protective equipment when training in designated shops

or labs. Safety apparel, such as hard hats, safety glasses and boots, are mandatory at industrial or construction training workplaces.

2.5 Construction Management Technology

“Learn the principles and practices used to manage construction projects – contract administration, estimating costs and coordinating worksites.”

The Construction Management Technology (CMT) program would fit with self-motivated and organized people who would like working as an administrator or supervisor in the construction industry. Over the two years of the study program, students will gain an understanding of the basic principles and practices used to manage construction projects. Students will also gain experience working in an actual construction setting.

This program is currently being considered for national accreditation at the technician level through the Canadian Council of Technicians and Technologists (CCTT), and students may be eligible for membership with TechNova.

Graduates of this program are employed with or as:

- Construction contractors
- Sub-contractors
- Material suppliers
- Junior estimators
- Assistant construction superintendents
- Project coordinators
- Technical sales representatives

The length of this program is two years and starts in September. The credential is a *diploma*. A co-operative Education (co-op) is option and provides an opportunity for paid employment between the first and second year of the program. (NSCC, 2011)

2.6 Architectural Engineering Technician

“Bridge architecture and engineering – learning all aspects of building design, construction, inspection, and sustainable practices.”

The Architectural Engineering Technician program requires responsible and reliable people with problem-solving skills and natural curiosity for all aspects of building planning. The program focuses on the three major areas of the construction industry:

- Building design
- Construction
- Inspection

Students will be involved in all design aspects of commercial and residential buildings, including architectural, structural, plumbing and electrical aspects. Students learn to prepare architectural

and engineering designs and drawings, as well as cost estimates, material specifications and technical reports. Computer skills are also taught, such as computer-aided drafting (CAD), word-processing and spreadsheets.

The program is accredited by CCTT, which means credentials will be recognized across Canada and in 10 member countries around the world. Graduates may also be eligible for membership with TechNova.

Graduates in this program find employment in a variety of fields:

- CAD drafters
- Estimators
- Engineering assistants
- Technicians with architectural firms
- Steel fabricators
- Construction material sales
- Project coordinators
- Manufacturing

This program covers two years and starts in September. The credential is a *diploma*. This program is also eligible for an option co-op credit course. Students are also required to develop a portfolio and to maintain a work record book or journal.

2.7 Conclusion

Now that the Canadian educational system, and particularly the Nova Scotia one, has been discussed in relation to the project, it is clear that there are large differences when comparing the Nova Scotia education system to the one in the Netherlands. There are differences in names, grading, semesters and year schedules, for example. Even the grading is different between programs of NSCC. Therefore, it was important to outline the information to come to a complete understanding of both educational systems, so that better recommendations can be given in the last report: *final Thesis*.

Chapter 3 Facility Management in Canada

It is not only interesting to know information concerning Canada as a country and the educational system, information on why and if this additional education is needed is of importance for the project. Therefore, information on Facility Management degree programs in the United States and Canada will be outlined, to once again show that the differences between Northern America and Europe are significant.

After that, the industry in relation to Architecture & Construction in Canada and Nova Scotia will be described. This will be done by conducting a survey and the results will be discussed. Of course, it is of great importance to know what students would like, and therefore a student survey for both *Architectural Engineering Technician & Construction Management Technology* programs is conducted in the classroom.

Also, Facility Management professionals in Canada and the United States were approached to conduct a third survey, where their opinion and view on Facility Management in Northern America was asked.

3.1 FM Degree Programs

The **IFMA Foundation** conducted an online survey about FM degrees programs in the United States and Canada. The following graphs summarize this research, collected from the 21 participating institutions: 20 from the United States and 1 from Canada.

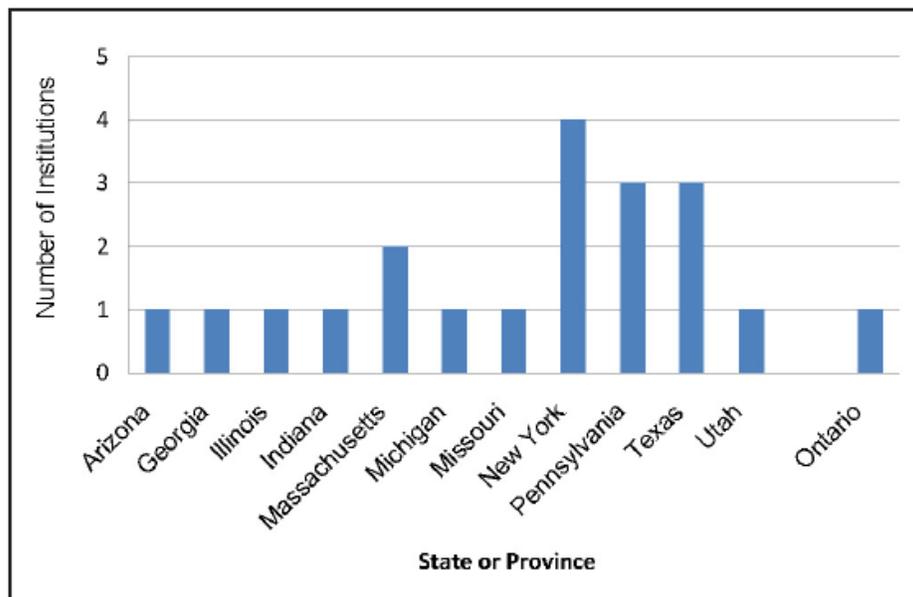


Figure 3.1: Number of institutions offering FM degree programs by state or province (IFMA Foundation, 2009)

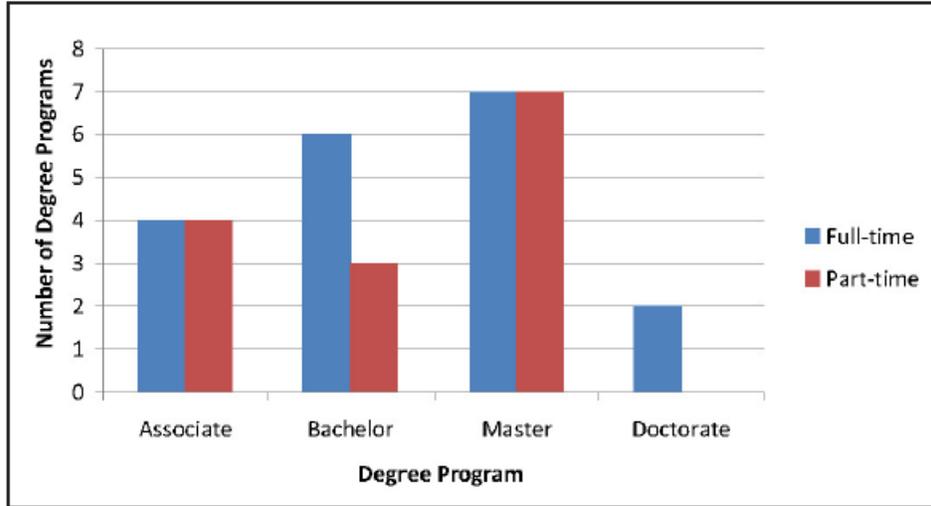


Figure 3.2: Number of degree programs in the USA and Canada by Degree (IFMA Foundation, 2009)

Figure 3.2 summarizes the number of FM degree programs by degree type. Within the United States and Canada, associate, bachelor and master degrees can be earned as a part-time or full-time student. Doctoral degrees can be earned as a full-time student. It can be concluded that full-time bachelor and master degree programs are the most common.

Figure 3.3 shows the average number of graduates per year by state or province. It can be seen that the FM bachelor degree programs have the largest number of graduates per year.

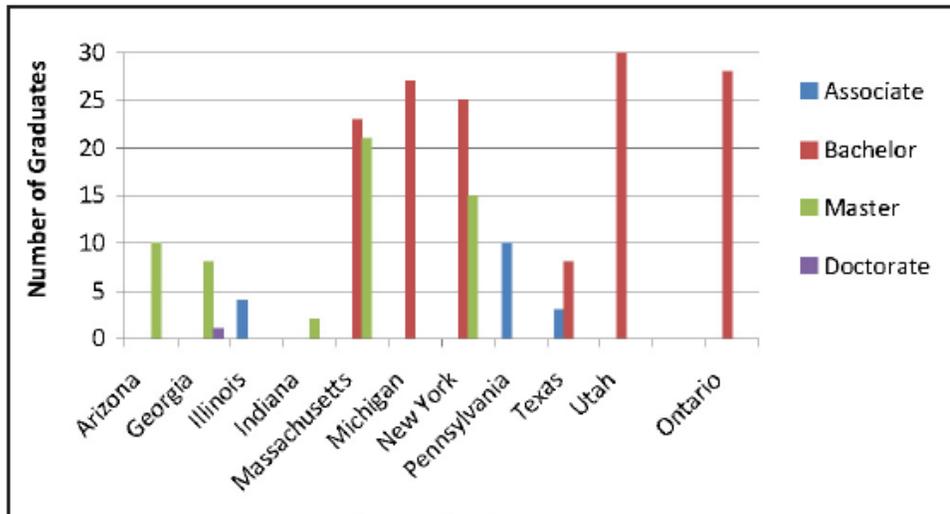


Figure 3.3: Average number of Graduates per year (IFMA Foundation, 2009)

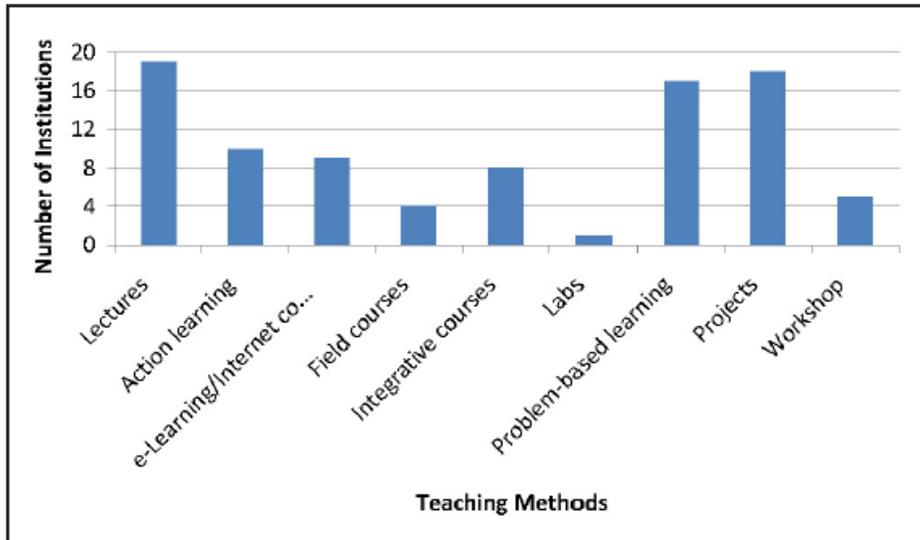


Figure 3.4: Teaching methods used (IFMA Foundation, 2009)

Figure 3.4 provides a summary of teaching methods used within FM degree programs. Lectures, problem-based learning and projects are the most commonly used teaching methods. Figure 3.5 summaries the type of examination methods used in FM degree programs. As shown, papers and reports are the most commonly used methods, with presentations and written examinations being the second most commonly used method.

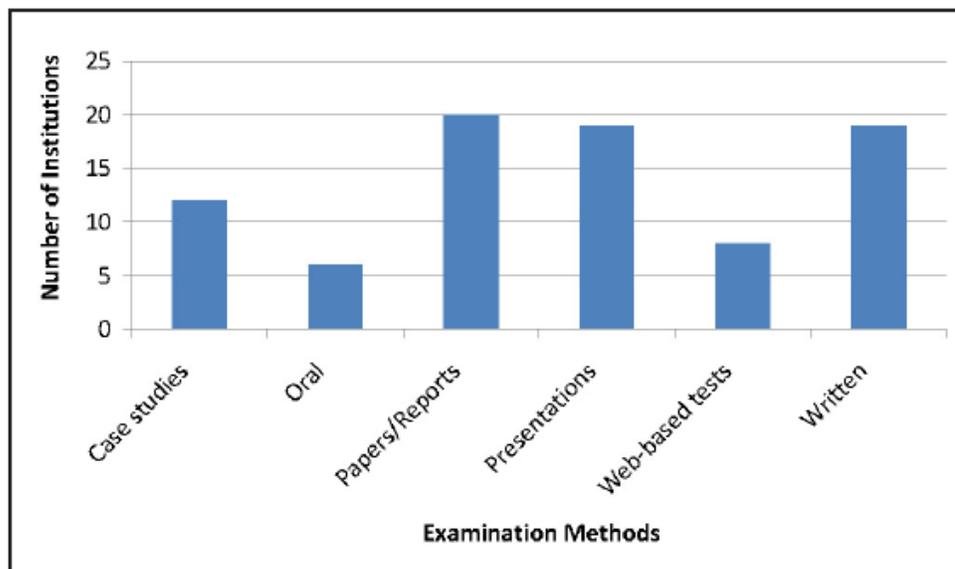


Figure 3.5: Examination methods used (IFMA Foundation, 2009)

It can be concluded that, when comparing United States and Canada FM degree programs to European degree programs, the two largest differences are:

- ❖ Institutions in the United States and Canada offer Associate Degrees, European institutions do not
- ❖ None of the United States or Canada survey respondents required student participation in a study abroad program. In Europe, study abroad programs are part of some FM degree programs and is getting more popular

When looking at the teaching and examination methods, it can be concluded that these are quite similar to the teaching methods offered at the Hanze University of Applied Sciences, as seen in the previous report: *desk research*.

3.2 The Industry

The Human Resources and Skills Development Canada (HRSDC) developed and maintains so-called *Canadian Occupational Projection Systems (COPS)* for around 140 occupations and its subdivisions. A variety of models are used by broad skill level and by education to produce 10-year labor market projections at national level, which focuses on the trends in labor supply and labor demand. (HRSDC, 2012) It is decided to use these projections for the following fields. These were the fields found to be as closest to the project as possible, and will therewith give a quite clear view of the current market demand and supply. This sub-chapter focuses on Canada.

- Managers in **Construction** and Transportation
- Technical occupations in **Architecture**, Drafting, Surveying and Mapping
- **Facility** Operation and Maintenance Managers
- Administrative Services Managers (Financial, **Human Resources** and Purchasing Managers)

- **Managers in Construction and Transportation**

Over the 2006-2008 period, this occupation experienced employment growth above average. The unemployment rate dropped, reaching 1% in 2008. Key labor market indicators suggested that the number of job seekers was not sufficient to fill the job openings.

Over the 2011-2020 period, job openings are expected to be **95,381**, whereas the job seekers available to fill these job openings will be **102,568**. However, projections indicate that the number of job seekers will be sufficient to fill job openings. The majority of job openings will arise from retirements, because the retirement rate will be above average. The number of job openings resulting from economic growth will be much lower. *Non-residential investments* will be the driving force behind job creation in the construction industry rather than building new housing units.

A large number of new managers in construction will come from related occupations, because labor market experience is often required to obtain a management position. However, there will be less demand for labor. Graduate students coming directly from their program will essentially be those who have completed a program in construction and have decided to start their own business as builders and/or renovators in the housing sector. (HRSDC, 2012)

- **Technical occupations in Architecture, Drafting, Surveying and Mapping**

This occupation experienced strong employment growth over the 2006-2008 period, but its unemployment rate rose slightly. During this period, the number of job seekers was sufficient to fill the job openings in this occupation.

Over the 2011-2020 period, job openings are expected to be **20,148** and it is expected that **25,962** job seekers will be available to fill these job openings. Here again, the majority of job openings will arise from retirements and job openings arising from economic growth will be fewer in number. The recent recession slowed down construction activity. In terms of labor supply, the majority of job seekers will come from the school system. (HRSDC, 2012)

- **Facility Operation and Maintenance Managers**

Over the period of 2011-2020, job openings are expected to be **15,733** and **22,576** job seekers will be available to fill these job openings. The retirement rate in this occupation is higher because workers are older than those in other occupations. This also means that the majority of job openings will arise from retirements. Besides that, given that many years of experience are required to obtain a management position, most workers who have experience in a related occupation are the ones who obtain management positions. (HRSDC, 2012)

- **Administrative Services Managers (Financial, Human Resource and Purchasing managers)**

For this occupation, over the period of 2011-2020, job openings are expected to total **53,182**. It is expected that **61,939** job seekers will be available to fill these job openings. Job openings will arise from retirements, as well as economic growth. Economic recovery and the stabilization of public finances in the longer term will enable the creation of new positions for senior managers in administrative services. Job seekers will come from both the school system and other occupations. In the latter case, workers who have experience in finance, public administration or trade, as well as *management skills*, will be good candidates to become these type of managers.

The majority of job seekers will have completed graduate studies in business, or will be experienced workers who returned to school to improve their skills (mainly management trainings). (HRSDC, 2012)

For all four occupations, it is obvious that there are significantly more job seekers than job openings for the coming 8 years. It can be concluded that students will **need** additional (management) skills to have more possibilities and opportunities in the market. For all occupations, management skills are seen as important; experienced workers even returned to school to follow management trainings to develop these skills. Therefore, it is a great and apparently necessary opportunity for students to already follow these courses and obtain these skills as part of their program. There is competition in the job market, which means that students need to obtain additional skills to make them **stand out from the rest**.

3.3 Industry Survey

A survey was conducted among the 'Industry Program Advisory Committee' from both the Architecture and the Construction programs of NSCC. The survey can be found in **Appendix 3**. The survey consisted of *open questions*, because it was clear that opinions and explanations in the answers was of great importance.

The main goal of the survey was to understand the Architecture & Construction market of Nova Scotia better, as well as to gain opinions, views and ideas from professionals in this field.

The surveys were sent out by email to reach a larger amount of people and giving them the opportunity to fill out the survey whenever they have time to do so. The survey needed explanation, which was provided on the first page. Sending a survey digitally gave people the time to read through it carefully and to think about their answers. The survey was sent to **20** people of the Construction Committee and **18** people of the Architecture Committee. A division will be made among these programs to give a clearer overview of the results.

The respondent rates of both committees are rather low. This did not work out as planned, however, it was tried to increase the respondent rate by sending out another email with the survey attached.

Construction

So far, only **3** people responded to the survey and the results will be discussed shortly. The **current** construction industry in Nova Scotia can be described as steady; it has had ups and downs but is quite busy at the moment. There is a tight rope with availability of talent to fill the industry needs, which means there is a need for students with the right skills. The **future prospects** of students is very good, there is a market for the students, mostly because of retirement. One of the respondents expected a boom, due to the retirements that will happen, which will cause more job openings to fill.

Leadership and mentoring are important aspects to strengthen every business, as well as management needs to be on every students agenda. There are current gaps in the industry, where students do not have these skills but merely the technical ones. It can be concluded these **people** skills are needed to fill the gaps. Besides that, these skills may set students apart from others and shows initiative on the students' part. Any additional skills are beneficial and useful in the workplace, but communication, teambuilding and mentoring are most important. However, students should be made aware of the reward that they will gain once they have developed these extra skills; students should see this extra year as an investment, because it provides added value to their own education, as well as their future employer(s). Besides that, they will gain more life experience which will make them stand out of the rest.

Architecture

For this survey, **3** people responded and the results will be discussed below. The **current** architecture industry in Nova Scotia is busy with many prospects. However, there will be a lack of qualified personnel in the future. There is an ongoing growth while aging and understaffing are a fact, which means professionals should embrace and prepare the next generation better. It can be concluded that there will be many opportunities for students now and in the near future.

To the question if additional **people** skills are needed, one of the respondents explained that most employers will allow additional training for leadership and Human Resources if required. These additional skills should be in balance with experience, true understanding of the work itself and willingness to continue learning. However, there is always need for these additional skills to help manage and control the growing work forces.

Again, one of the respondents mentioned it might be better to offer this opportunity when people are two or three years into their career, so after more work experience. Besides that, these skills will not have any effect on hiring, according to one respondent. Hiring comes down to the person, and even though these skills might be an asset, it is only important when they are **required** for the job.

As a comment at the end of the survey, one of the respondents mentioned that it is a great idea, but that it might be a good idea to offer Project Management, too, which might fit better with the industry and work that is done. For example, construction supervisors need to supervise the process of developing buildings. This is a project, which needs much planning, supervision, knowledge and organization. Therefore, Project Management might be a very important part of the additional study year.

3.4 Students Survey

The student survey was conducted to gain students' opinions, views and comments on the project, to arrive at better recommendations for NSCC. Senior (second year) students of both programs *Architectural Engineering Technician & Construction Management Technology* were asked to fill out surveys during classroom hours.

During the student's surveys, both multiple choice and open questions were asked. The survey was first explained, as well as outlined on the first page of the survey. The questions were set up as being easy to understand, to avoid confusion and misunderstanding.

The survey was handed out during two classes and a total of **27** students filled it out. The results are divided over Construction and Architecture, to make it clearer and more understandable, since the two programs are different. It took about 10-15 minutes for the students to fill out the survey. The following two list describes the results.

Construction

The construction class survey was conducted on April 10th, at 12:30. A total of **15** students were asked to fill out the survey. **13** of these students is male; **2** of them are female.

- The ages of the respondents ranged from 19 – 39 years old. The average of the respondents of this survey is **24.6**.
- **14 out of 15** students already had future plans: this ranged from project manager, starting up their own company, being a superintendent or obtaining a business degree. In relation to the project, these professions could all use additional **people** skills.
- Two very interesting answers to the question to **define** Facility Management are:
 1. *"Maintaining the everyday usefulness of the building."*
 2. *"A Facility Manager will take over the building after I have finished constructing it."*
- **14 out of 15** respondents thought that additional **people** skills are essential. People are the block that holds the company together and these additional skills will lead to better guidance and employee satisfaction. These skills are not only important in the work field, but also in personal life. Besides that, it relates to the construction industry much.
- Again, **14 out of 15** respondents thought that it will increase job prospects, but also *holds* the job and make a person more successful in it. With these skills, a person will stand out of the rest and will be open for different job positions. These skills are also considered good for the interview process itself.
- In relation to the benefit of having an **international experience** the answers were:

1. It will increase finding a job	7
2. It is just a fun experience	6
3. It will be too expensive	2
4. It is not useful at all	0

One respondent mentioned he/she has been to Ireland and the Netherlands for summer

school, which made him/her enthusiastic about the project and the additional year. This is interesting in regard to the project, because having a 3 week exchange might bring the 'taste' of studying abroad and will make students more enthusiastic and interested.

- To the question if people are interested in obtaining an **Advanced Diploma** and eventually a Bachelor's degree:

- 1. Yes 3
- 2. Maybe 6
- 3. No 6

Some students were eager to increase knowledge and to experience a different culture and discipline. However, other students needed more information about the project to answer this question properly. One respondent answered there is no need for such a degree in the industry, and another respondent mentioned that it depends on the Bachelor's degree requirements.

- Students will have to pay one year **tuition** to NSCC; travel costs and expenses are not included. The results of this question are as following:

- 1. This is an investment in my education 4
- 2. Money is not a problem 0
- 3. It is expensive but worth it 1
- 4. It is too expensive 10

It can be concluded that the respondents think this additional year is too expensive to them. One student mentioned he/she did not understand the connection between the Construction program and Facility Management, which should be made more clear. They also mentioned student loans, funding, and NSCC paying for travel costs.

- The overall opinion of the respondents is that it will be a great opportunity and that it is an interesting idea. However, it will not be possible for everyone, and one respondent even mentioned it will not be possible for the average student. Besides that, the program should be made as cheap as possible, since that is clearly the obstacle.

Architecture

The architecture class survey took place on April 2nd, at 10:30. A total of **12** students were present and they all filled out the survey. **6** of these students were male, **6** of them female.

- The ages of the respondents ranged from 19 – 38 years old. This shows proof of what was said earlier in the *Graduation Plan*; that the age differences between students differ significantly. The average age of the respondents of this survey is **24.8**.
- **8 out of 12** students already have future plans, which include obtaining a degree, obtaining a (project) management position or in the Architecture Engineering field. The remaining **4** respondents did not have any future plans yet. One of the more mature respondents is self-employed and went back to college to obtain additional education and skills.

- **7 out of 12** respondents knew and tried to explain what Facility Management means; the answers are very different but all come to the same conclusion: **supporting the organization**, which is exactly what FM is. Some answers among others: FM runs everything behind the scenes; it helps organizations work better, the maintenance of safety and health in a building, providing the environment with effective resources and managing projects and employees. One of the respondents stated that it can be seen as equivalent to Public Relations, which is an interesting point of view.

- To the question if students are interested in additional skills related to **people**, 9 out of 12 would like to obtain these skills. They stated that these skills are essential for team-building, respect, communication, a good work atmosphere and that it will strengthen the business. More skills are always better, but perhaps only for management positions. **10 out of 12** respondents thought that these skills will give them more job opportunities in the future.

- In relation to the benefit of having an international experience the answers were:

1. It will increase finding a job	4
2. It is just a fun experience	6
3. It will be too expensive	2
4. It is not useful at all	0

- To the question if people are interested in obtaining an Advanced Diploma and eventually a Bachelor's degree:

1. Yes	8
2. Maybe	2
3. No	2

The respondents thought it will be a great experience, it provides more opportunities for obtaining a degree and that it will provide extra essential skills, knowledge and education. The advancement opportunities in the Architecture program are limited, so this would be a great opportunities. The respondents that answered **no**, explained that they either already have 2 degrees, or that they are not interested in FM as a subject.

- Students will have to pay one year tuition to NSCC; travel costs and the like are not included. The results of this question are as following:

1. This is an investment in my education	6
2. Money is not a problem	0
3. It is expensive but worth it	3
4. It is too expensive	3

The comments to this question stated that the tuition should include the travel costs and that going to the Netherlands would be more of a life experience.

- The overall opinion of the respondents is that this project is a great idea and offers a great opportunity. They commented that the value of obtaining a degree, as well as how it would increase job prospects should be highlighted more. Also, the additional year may be too specialized and may only attract students that are interested in FM particularly.

Conclusion

When comparing the two programs together, the following conclusions can be made:

Table 3.1 Construction and Architecture Program Comparison

Construction Program	Architecture Program
<ul style="list-style-type: none"> ▪ Average age is 24.6 ▪ Would like to receive a Degree in the future, or find a job in project management ▪ Facility Management is mostly seen in relation to building aspects ▪ People skills are essential and important and will lead to more opportunities ▪ Only 3 out of 15 people are interested in obtaining an Advanced Diploma, and 10 out of 15 thought this additional year is too expensive 	<ul style="list-style-type: none"> ▪ Average age is 24.8 ▪ Degrees are important and project management is an important job prospect in this program ▪ Facility Management is mostly seen in relation to building aspects, but also supporting aspects ▪ These students also thought people skills will increase job opportunities and are therefore important ▪ 8 out of 12 students are interested in obtaining an Advanced Diploma and 6 out of 12 see this additional year as an important investment

The differences are quite significant, when comparing the two programs with each other. The male/female rate of both programs needs to be taken into consideration when writing recommendations for NSCC. The ages are in both programs almost similar, and the majority of the students would like to receive a Degree and have job prospects in relation to project management or other supervisor related jobs. Therefore, people skills are necessary because it will make them stand out from the rest and will increase job opportunities. However, the Construction program students were not very interested in obtaining an Advance Diploma, nor investing in an additional study year, mainly because it will be too expensive. It can be concluded that these students want to enter the job market as soon as possible, because they believe they have the right skills for it already. The Architecture students were much more interested in obtaining an Advanced Diploma and half of the students thought this additional year is a great investment in their education and in themselves.

Taking this conclusion into consideration, it might be unnecessary to focus on the Construction Program when writing recommendations for NSCC. However, there may be some students that might be interested in the program, besides the results from this group of students. It can be concluded that it is decided to still focus on both programs, as there always might be one or more students interested in following this additional study year, granted with an Advanced Diploma.

3.5 FM Professionals Survey

Facility Management professionals in Northern America were requested to fill out a survey. The goal of this survey was to gain their opinions, views and ideas to arrive at better recommendations for NSCC when taking the Facility Management industry into consideration. As seen before, Facility Management in Northern America is significantly different than in Europe and the Netherlands. Therefore, it is interesting to discuss these differences according to professionals' opinions and views.

In this survey, a few multiple choice questions were asked, but the majority of the questions was open, to give the interviewees the opportunity to explain their answer and describe their opinion.

A group of professionals was asked to participate in the survey:

1. People from IFMA Canada, who are obviously related to the field of Facility Management and probably have a clear view on it.
2. Facility Management organizations in Canada: ETDE Facility Management for example. Besides that, also CCTT, TechNova and ACCC were asked to participate in the survey.
3. FM professors or related professors at universities or colleges in the USA. These degree programs were all accredited by IFMA and therefore interesting to ask for their opinion on this project.

A total of **25** surveys were sent to these FM or FM related professionals. Until now, April 10th, only **4** responses have been received and these are all professors from Universities or Colleges offering FM related programs in the USA. No Canadian FM Professionals have responded yet.

Results

All the respondents are professors of FM (related) courses. They all **defined** Facility Management rather similar: integrating FM aspects to create a productive environment; to ensure the functionality of the built environment; to coordinate the ongoing operations to meet everyone's needs and to create an efficient and effective work environment.

According to the FM professionals, the following **subjects** should be offered in a FM program:

- Knowledge of buildings, finances, technology and systems
- Knowledge of construction, materials, sustainable and green design
- Besides these technical aspects, the ability to interact with personnel, management, accounting, business law, communication skills, ethics, problem solving, real estate and leadership are also very important.

The respondents were very positive about the **job prospects** for Facility Managers. There is always a need for well trained Facility Managers and because of many retirements and no specialization among current FM employees; graduates will be more marketable with their skills. Even in recession buildings need to be maintained and modified, so Facility Managers are always needed. After the recession, the need will be even higher. However, these respondents are all from the USA so it does not give a clear overview of the market in Canada.

The respondents related Facility Management mostly to **construction management** and **engineering (of operations)**, which is very interesting in relation to this project. Besides that, there is lack of Human Resources skills in Facility Management currently, as well as leadership and management skills among FM personnel. Mentoring and internships are important for FM students to gain real word experience and should be, among the **people** courses, part of all FM curricula. Any FM experience abroad will be beneficial for students, because it will make them think outside their box and outside their comfort zone.

More education is certainly a good idea, but the costs and funding might be an obstacle. The overall opinion of the respondents is that it is a good idea for students, but that it might also be an interesting opportunity for people already working in the FM profession. Another comment was that it might be more beneficial after students worked a while in the field and will have this additional FM study semester. Overall, it will broaden the students' knowledge of international standards and it should even be marketed at schools in the USA as a study abroad opportunity according to one respondent.

3.6 Conclusion

It was noticed that Facility Management is not very known and well developed in Canada. Facility Management departments are mostly related to maintenance, real estate, the building or technical operations. All definitions of Facility Management, from all the respondents, focused merely on the building as well, thus the hard-side, of FM. However, every respondent thinks the soft sides of FM are (almost) equally important to have, are beneficial for the student in finding a job, and are essential skills employers are looking for. These skills should be offered in FM, FM related and other programs, because it can be concluded these skills are essential in the particular fields researched.

Buildings in Canada will be more and more sustainable over time and will strive for LEED and/or BOMA certifications more often. So, buildings are designed and built according to those models; a person is needed who has knowledge of this kind of buildings and how to manage it. This will be the Facility Manager; which will create many Facility Management jobs in the future in Canada.

However, it is important to make people aware of the importance of Facility Management, especially the soft side of it. It was noticed that students are not very sure of what FM exactly is, which should be clear before they are even able to decide if they want to participate in the exchange program. Facility Management needs to be more recognized in Nova Scotia. The first step in this is to create an additional study year for students, to gain more knowledge about Facility Management, which will also increase their job opportunities.

Chapter 4 Conestoga College

As part of the project, Conestoga College in Kitchener, Ontario, will be benchmarked by another Hanze University student: Hanna Niebuur. She will conduct a six week research project that will give inside into Conestoga’s *Architecture, Project & Facility Management* program. This might be useful as input for the project of NSCC.

Table 4.1 Differences and similarities between Conestoga College and NSCC (Niebuur, 2012)

<i>Differences</i>	<i>Similarities</i>
<ul style="list-style-type: none"> ▪ Conestoga offers a four-year curriculum, NSCC only 1, 2 and 3 years’ curricula ▪ At Conestoga, several professors are present during the classes, at NSCC not ▪ Conestoga students have a co-op every academic year; NSCC’s students only have one every academic year ▪ NSCC offers alternative education methods, like distance learning and online classes, Conestoga does not ▪ The trimesters of Conestoga include one or more projects and group-work, NSCC does not include this in its curricula ▪ Conestoga sets strict demands for new students, NSCC does not ▪ Conestoga offers its students a Foundation Module, which prepares them for the study program ▪ At Conestoga, each class has its own studio, which is a large classroom where each student has its own place. Classes take place in these studios, as well as group work and individual work 	<ul style="list-style-type: none"> ▪ Students are of all ages ▪ Students are prepared for the workplace and know what employers expect from them ▪ Small classes ▪ Focus on practical skills, experience and preparation for employment ▪ Focus on respect; excellence and the community ▪ Open door policy: very informal atmosphere and communication between staff and staff and students ▪ Professors are following courses and workshops regularly ▪ Both colleges offer co-op work-terms ▪ Both colleges mainly focus on the technical processes and the building ▪ Both technical and practical education, instead of much theory ▪ Portfolio-based learning is important in both colleges

It can be concluded that there are significant differences between the two colleges, however, there are quite a few similarities as well. Both colleges focus on the technical processes and buildings, offer small classes and attract students from all ages. There are several ideas from Conestoga that NSCC might take into consideration; Studio learning, for example. Each class has its own classroom, where each student had its own place. Classes take place here, as well as individual and group work. Students have their own private space but are also able to stay in contact with their project group members and professors. This might be a good idea for NSCC to take into consideration, because it will increase the atmosphere of the classes, as well as the quality of education.

Chapter 5 Conclusion

Field Research gave a full insight on the Nova Scotia market, as far as necessary for the implementation of an additional year with a focus on FM. It also outlined the educational system of Canada and Nova Scotia, which is crucial to understand when setting up an exchange. The opinion of students, Nova Scotia industry professionals and Facility Management professionals across Canada and the USA were asked to give their opinion in a survey.

Nova Scotia still has a fairly strong position in the Canadian and international market due to its export products. Besides that, facility managers are always needed, even in times of crises and increasing skills and knowledge will eventually help the economy as well.

Knowing the Canadian education system and the significant differences in Nova Scotia in terms of education, helps to compare it to the Dutch education system. This will lead to better recommendations for an exchange program, because aspects such as credits, study years, organization, content and year schedule are important while doing so.

Respondents to the surveys conducted shared the opinion that the soft sides of Facility Management are increasing in importance and that the industry will benefit of it as well. However, FM needs to be more recognized; it should be understood better. Students see costs as a large disadvantage, which means they should be made aware of the investment it will be for their professional and personal life.

The following report: *The Final Thesis*, will combine and compare the first and second report in order to come up with the best recommendations for NSCC on how to implement an additional study year for its students.

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Appendices

Appendix 1 – Architecture & Construction Industry Survey

The following questions are related to Facility Management. Facility Management can be defined as:

“The management activity which supports businesses, many other types of organizations and particularly the users of the built environment, through the provision of facilities and associated support services.”

I am a graduate student in Facility Management and am currently conducting a research project for the Nova Scotia Community College. Their wish is to implement an additional study year for their *Architectural Engineering Technician & Construction Management Technology* programs, where the students will:

- Attend one semester of Facility Management courses at my university: the Hanze University of Applied Sciences in the Netherlands. The semester will start in either September or February, and will last 5 months.
- Participate in a work-term
- Conduct a research project

After this additional year, students will obtain their Advanced Diploma. I am focusing on the first aspect only: attending a study semester of Facility Management in the Netherlands.

I am doing research on the differences in educational systems, grading & credit systems, the differences of Facility Management in both countries, and the market/industry demand for these additional Facility Management skills. These skills will include leadership, mentoring, team-building and human resource management with a strong focus on **people**.

I developed this survey to gain opinions, views and ideas from your side, to arrive at better recommendations for NSCC when taking the market and industry needs into consideration.

Please let me know if you have any questions, I will be happy to answer them.

Questions
<p>1. What is your job title / position? Please include the company name and date of employment</p> <ul style="list-style-type: none"> ○ Job Title: ○ Company name:
<p>2. What does Facility Management mean to you (you could refer to the abovementioned definition)?</p>
<p>3. How would you describe the current Construction & Architecture industry in Nova Scotia and/or Canada?</p>
<p>4. According to you, what are the future job prospects for graduate students of the Construction & Architecture programs of NSCC?</p>
<p>5. How would there be any need for additional skills like leadership, mentoring, tea-building and Human Resource Management in the market of Nova Scotia? Please explain your answer.</p>

<p>6. How would the additional study semester in the Netherlands improve job prospects for students of NSCC?</p>
<p>7. What obstacles do you think students will present in terms of following this additional study year?</p>
<p>8. What is your general opinion of implementing this study year and the additional skills students will obtain?</p>
<p>9. Do you have any other ideas, comments or views in relation to this project?</p>

Thank you for your time!

Appendix 2 – Architecture & Construction Student Survey

The following questions are related to Facility Management. Facility Management can be defined as:

“The management activity which supports businesses, many other types of organizations and particularly the users of the built environment, through the provision of facilities and associated support services.”

I am a graduate student in Facility Management and currently doing a research project for NSCC. This project is about implementing an additional year for the *Architectural Engineering Technician & Construction Management Technology* programs, where you will:

- Attend one semester of Facility Management courses at the Hanze University of Applied Sciences in the Netherlands. The semester will start in either September or February, and will last 5 months.
- Participate in a work-term in Canada
- Conduct a research project

After this additional year, you will obtain an Advanced Diploma and you will even have the opportunity to continue your studies to obtain your Bachelor’s Degree.

The courses that will be followed in the Netherlands will be Facility Management related: leadership, mentoring, team-building and human resource management; all courses with a strong focus on **people**. I am doing research on the market/industry demand for these additional skills. I developed this survey to gain your opinion, views and comments on the project, to arrive at better recommendations for NSCC, and to set up a program according to NSCC’s and its students wishes.

Please fill out this survey as honest as you can, because it will help me in my research. Let me know if you have any questions, I will be happy to answer them.

If you want to contact me, feel free to send me an e-mail: Magreet.Kooij@nscC.ca

Questions
<p>1. What is your study program? Please also include your age.</p> <ul style="list-style-type: none"> ○ Study program: ○ Age:
<p>2. Do you already know what you want to do after your graduation? Please explain your future plans in short, if you have any.</p>
<p>3. Can you explain what Facility Management means to you?</p>
<p>4. Would you be willing to develop these additional skills (team-building, mentoring, leadership, human resource management: skills related to people)? If yes, please explain why you think this is important for you.</p>
<p>5. With these additional people skills, do you think you will have more chance and opportunities when finding a job?</p>
<p>6. What is your opinion on having international experiences, in this case, studying in the Netherlands for one semester? Please choose 1 answer below.</p>

<ul style="list-style-type: none"> <input type="radio"/> It will increase finding a job <input type="radio"/> It will just be a fun experience <input type="radio"/> It will be too expensive <input type="radio"/> It will not be useful at all
<p>7. As mentioned before, after this additional year, you would obtain your Advanced Diploma. You will even have the possibility to continue your studies to obtain your Bachelor's Degree. Would you be interested in this? Please choose 1 answer below and give a short explanation of your answer</p> <ul style="list-style-type: none"> <input type="radio"/> Yes, because <input type="radio"/> Maybe, because <input type="radio"/> No, because
<p>8. For this additional study year, you will have to pay 1 year tuition to NSCC. Travel costs and the like will be your own responsibility. Please indicate how you see these costs by choosing 1 answer below:</p> <ul style="list-style-type: none"> <input type="radio"/> I see this as an investment in myself and my education <input type="radio"/> Money is not a problem <input type="radio"/> It is expensive but worth it <input type="radio"/> It is too expensive and the biggest obstacle for doing this additional year <p><i>If you have any comments or ideas on this question, please write them here:</i></p>
<p>9. Do you have any ideas, opinions, comments or views that you would like to share in regard to this project?</p>

Thank you for your time!

Appendix 3 – Facility Management Professionals Survey

The following questions are related to Facility Management. I am a graduate student in Facility Management and am currently conducting a research project for the Nova Scotia Community College. Their wish is to implement an additional study year for their *Architectural Engineering Technician & Construction Management Technology* programs, where the students will:

- Attend one semester of Facility Management courses at my university: the Hanze University of Applied Sciences in the Netherlands. The semester will start in either September or February, and will last 5 months.
- Participate in a work-term
- Conduct a research project

After this additional year, students will obtain their Advanced Diploma. I am focusing on the first aspect only: attending a study semester of Facility Management in the Netherlands.

I am doing research on the differences in educational systems, grading & credit systems, the differences of Facility Management in both countries, and the market/industry demand for these additional Facility Management skills. These skills will include leadership, mentoring, team-building and human resource management with a strong focus on **people**.

I developed this survey to gain opinions, views and ideas from Facility Management professionals in Canada and the USA and to arrive at better recommendations for NSCC when taking the market and industry needs into consideration.

Questions
<p>10. What is your job title / position? Please include the company name and date of employment</p> <ul style="list-style-type: none"> ○ Job Title: ○ Company name: ○ Date of employment:
<p>11. The definition of Facility Management is very broad definition; how would you describe Facility Management?</p>
<p>12. How would you describe a Facility Management program? Please indicate what the</p>

<p><i>most important aspects are that qualify students to become successful Facility Managers.</i></p>
<p><i>13. According to you, what are the future job prospects for Facility Management (in Canada and/or internationally)?</i></p>
<p><i>14. With what field in the Canadian market does Facility Management have the strongest relationship?</i></p> <ul style="list-style-type: none"> <input type="radio"/> Architecture <input type="radio"/> Construction Management <input type="radio"/> Services; catering, cleaning, security etcetera <input type="radio"/> Real Estate <input type="radio"/> Engineering <input type="radio"/> Human Resource Management <input type="radio"/> Marketing <input type="radio"/> Workplace Management <input type="radio"/> Event Management <input type="radio"/> Other: ... <input type="radio"/> I don't know
<p><i>15. As a professional, and in relation to this project, do you think there is any market demand for the following skills: leadership, mentoring, team-building and HRM?</i></p>
<p><i>16. Would the additional study semester in the Netherlands improve job prospects for students in Canada and even internationally? Please explain your answer.</i></p>
<p><i>17. What obstacles do you think Canada or the Canadian market will present in terms</i></p>

<p><i>of implementing this additional study year?</i></p>
<p>18. What is your general opinion of implementing this study year and the additional skills students will obtain?</p>
<p>19. Do you have any other ideas, comments or views in relation to this project?</p>

Thank you for your time!