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The Competitiveness of the Icelandic Medical Tourism Industry

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Preface

This thesis is a 30 ECTS credits final project for an MS degree in Corporate Finance at the University of Iceland. I would like to thank my supervisor Friðrik Eysteinsson, adjunct lecturer at the Faculty of Business Administration, University of Iceland, for his guidance, constructive evaluation of my work and for putting me back on track when my ambition was leading me astray. Elvira Mendez Pinedo I thank for leading me through the jungle of European law. I would also like to thank the individuals I interviewed for participating in this project, for giving me some of their valuable time and for taking such an interest in the project. Without them this research would not have been possible. My family and friends I thank for their encouragement and support. Last but not least, my husband and my precious daughters whom I owe a great deal of time I thank for their endless patience, energy and support during this time. To my family I dedicate this work.

It is my hope that this thesis will enhance the interest and understanding of the concept of competitiveness of nations, the value of cluster theory and its effect on the competitiveness of companies, industries, regions and nations, not to mention the Icelandic medical tourism industry which can become a valuable means of increasing international business in Iceland and of enhancing the economic performance of the country.

"You can analyse the past, but you need to design the future. That is the difference between suffering the future and enjoying it".

Edward de Bono (1933- )
Abstract

A nation’s competitiveness depends on the capacity of its industries to innovate and upgrade where pressure and challenge motivate companies to gain advantage against the world’s best competitors. Since the collapse in 2008, Iceland’s competitiveness has been affected. Iceland needs to lay the foundations for a new and more sustainable economic growth path. One way of doing this is to place added emphasis on export-driven growth by developing more knowledge-based industries.

The objective of this research is to analyse such an industry; the competitiveness of the Icelandic medical tourism industry in general and of hip and knee surgery in particular. The competitiveness of the Icelandic medical tourism industry cluster is also examined in relation to its cluster formation. Strengths and weaknesses are identified by applying Michael E. Porter’s diamond creating a foundation for improvement initiatives.

The research is qualitative, in the form of in-depth interviews with eight executives working in the medical side of the private medical tourism industry. The results indicate that the Icelandic medical tourism industry is in many ways internationally competitive. It has a great many strengths; however, there are certain challenges that need to be addressed, some of which are temporary and others which will take longer to resolve. Medical tourism in Iceland is a fairly new industry and as such the cluster lacks depth. The analysis, therefore, suggests that the competitiveness of the Icelandic medical tourism industry can only to a limited extent be based on its cluster formation.

The findings on hip and knee surgery in Iceland indicate that the surgeries are internationally competitive. The orthopaedic field has a great many factors supporting its competitiveness; however, certain external factors have a negative impact on future growth and development in the private market, resulting in the service not being ready to be offered to foreigners. At the present time, there are two major hindrances; finance and securing a constant patient flow in order to maintain a sound and effective operation. If the industry is able to overcome those hindrances, the rest is just work.
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1 Introduction

Iceland has gone through dramatic changes since the collapse in October 2008. The country experienced a recession of 6.8% in 2009 and 4% in 2010. In 2011, there was a 3.1% growth in GDP; however, this was partly due to imports of ships and aircraft with a marginal impact on GDP (Statistics Iceland, 2012). Iceland’s competitiveness has clearly been affected. Iceland fell six places on the Global Competitiveness Index in 2009 and further five places in 2010, mainly due to macroeconomic weaknesses (131st) and weakened financial markets (108th); however, Iceland moved up one position to 30th place on the Global Competitiveness Index 2011-2012 (World Economic Forum, 2011a).

Despite the difficulties, Iceland continues to benefit from a number of clear competitive strengths in moving towards a more sustainable economic situation. Iceland’s foundations stand firm as the infrastructure remains intact and is ranked among the highest in the world (IMD, 2011; World Economic Forum, 2011a). This includes healthcare, education and basic infrastructure. Iceland ranked number five in health and primary education and number nine in higher education and training according to the Global Competitiveness Index 2011-2012. The nation is young and healthy, the country is innovation-driven and coupled with an innovation business sector (19th) which is highly adept at adopting new technologies for productivity enhancement (3rd). Furthermore, business activity is supported by a highly flexible labour market (10th) and a well-developed infrastructure (14th) (World Economic Forum, 2011a).

In restoring the economy, the Icelandic government has set an objective for Iceland to become one of the ten most competitive nations in the world by 2020 (Prime Minister’s Office, 2011). In order to reach that objective, Iceland needs to lay the foundations for a new and more sustainable economic growth path. One way of doing this is to place increased emphasis on export-driven growth by developing more knowledge-based industries with a clear focus on creating greater value, higher wages and more diversified job opportunities. Medical tourism is one means towards this end.
It is built on Iceland’s strong foundations in education, healthcare, tourism and infrastructure.

Iceland is known for its efficient healthcare system, based on the Scandinavian model. Government expenditure on health services amounted to 8.3% of GDP in 2009 (Central Bank of Iceland, 2010). Life expectancy in Iceland is among the highest in the world: 83 years for women and 79 for men. Infant mortality is one of the lowest in the world with 2.5 per 1,000 live births in 2008 (Statistics Iceland, n.d.). According to Sólveig Jóhannsdóttir, Secretary General of the Icelandic Medical Association (oral reference, May 12th, 2011), there were around 1,070 doctors practising medicine in Iceland at the beginning of 2011 and approximately 500 Icelandic doctors working abroad (32%). To put things into perspective, in 2009, Iceland had 3.7 practising physicians per 1,000 population which is above the 3.1 average in OECD countries (OECD, 2011). Furthermore, Iceland had 15.3 nurses per 1,000 population, compared to the OECD average of 8.4. After the crisis, things have changed; healthcare workers in the public sector have been laid off as the government has had to cut costs in the healthcare industry, resulting in people moving abroad looking for work and new opportunities.

The tourism industry has grown significantly over the last few years and is becoming one of Iceland’s main engines of export growth. In 2009, tourism’s contribution to GDP was 5.9% and the industry generated 158 billion ISK in export revenues, amounting to 14.2% of the country’s total export revenues (Statistics Iceland, 2011; Icelandic Tourist Board, 2011). Iceland was number eleven on the Travel & Tourism Competitiveness Index 2011 (World Economic Forum, 2011b). However, the seasonality of the tourism industry in Iceland is a significant drawback which strongly affects its profitability.

Medical tourism “lies” at the intersection of healthcare and tourism and can therefore strengthen both industries. It provides, among other things, new job opportunities, increases product and service diversity, and improves profitability in both industries. As for the healthcare industry, medical tourism may also discourage experienced doctors from seeking work abroad and provide more opportunities for specialised doctors willing to return to Iceland. For the tourism industry, medical tourism is an ideal way to prolong the tourism season. Medical tourists travel all year
round, their main motivation being medical rather than touristic. For the economy as a whole, medical tourism among other things, increases GDP, improves services, generates foreign exchange and thus strengthens the Icelandic króna, creates a more favourable balance of trade, and boosts tourism as medical tourists tend to spend more than an average tourist.

Medical tourism has been practised in Iceland for fifteen years with good results. There is innovation in the industry, new business formation is taking place and a new generation seems to be emerging, focusing on providing more medical services to medical tourists. With increased medical tourism in the world, opportunities at hand and increased capacity to service medical tourists, the industry has the potential to contribute more to economic growth and become a valuable means to build a stronger economy, raise living standards and increase Iceland’s competitiveness.

The Icelandic medical tourism industry has not been studied to any significant extent. In 2009, research was conducted with the aim of determining whether or not Iceland would be able to compete in the market of medical tourism. The findings suggested that Iceland could become highly competitive in medical tourism with regard to prices and quality. A survey performed among surgeons and anaesthetists registered in the Icelandic Medical Association suggested that 70% of doctors would be interested in working in medical tourism, 79% maintain that there is ground for medical tourism in Iceland, and 84% believe that Icelandic healthcare is competitive in quality and 83% in price (Sigurjónsdóttir, 2009).

The researcher was not able to find any academic research conducted on the competitiveness of medical tourism in different countries or clusters. Two country competitiveness projects have been performed at the Harvard Business School using the framework by Michael E. Porter. In 2006, the Thailand Medical Tourism Cluster was presented (Harryono, Huang, Miyazawa, Sethaput, 2006) and in 2008 Medical Tourism in the Philippines was analysed (De Vera, Huang, Khan, Qin, Tan, 2008).

This research on the Icelandic medical tourism industry applies Porter’s methodology and framework presented in his book The Competitive Advantage of Nations. The objective is to analyse the competitiveness of the Icelandic medical tourism industry in general and of hip and knee surgery in particular. The competitiveness of the Icelandic
medical tourism industry cluster is also examined in relation to its cluster formation. Finally, strengths and weaknesses are identified as they create a foundation for improvement initiatives.

Research Questions and Structure of the Research

The research is qualitative in the form of in-depth (open-ended) interviews with valid parties in the medical tourism industry in Iceland, that is, eight experts working in companies that specialise in psoriasis treatments, fertility treatments, laser eye surgery, cosmetic and general surgery, and orthopaedic surgery. Four participants are doctors and four have university degrees in business or law, master’s degrees and an extensive experience in the healthcare industry. One is a representative of an interest group. All participants are executives working in the private medical tourism market. The research aims to address the following research questions:

R1: At an International Level, How Competitive is the Icelandic Medical Tourism Industry in General and How Competitive is Hip and Knee Surgery in Particular?

R2: To What Extent is the Competitiveness of the Icelandic Medical Tourism Industry Based on its Cluster Formation?

This thesis consists of seven chapters. After an introduction, the medical tourism industry is presented along with medical tourism services practised in Iceland. The growing market of hip and knee surgery is examined including Iceland’s circumstances and performance in the field. Chapter four is devoted to the theory of competitiveness of nations, Porter’s methodology and framework as well as criticism. Porter’s diamond model and cluster analysis are introduced but Porter’s approach to clusters is based on one of the four facets of the diamond, i.e. related and supporting industries. In chapter five, the research methodology is described followed by the research results and discussion where Porter’s methodology and framework is applied to the Icelandic medical tourism industry. In chapter seven, the theoretical and managerial contributions of the research are considered, its limitations presented along with suggestions for future research.
2 Medical Tourism

This chapter is divided into two parts. First, a general overview of the industry is presented, reflecting on factors such as main drivers, potential growth and worldwide legal environment. Second, there is a brief summary of medical treatments offered in Iceland and of new business formation in the Icelandic medical tourism industry, considering potential treatments and surgeries and the legal conditions the country has to offer.

2.1 The Industry

Traditionally, health policies and health delivery have been bounded by the nation state or between federal levels of government (Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011). However, significant economic, social, political, and technical changes have led to the increased movement of people, goods, capital and services in the world. These changes have created important concerns and challenges as well as opportunities in the field of medical tourism. The medical and political communities in developed countries have recognized medical tourism as a real phenomenon that involves profession, practitioners, and patients (Horowitz, Rosensweig, & Jones, 2007).

Definition

The term “medical tourism” is a somewhat catchy phrase combining the opposites of pain and pleasure (Cohen, 2010a). The term can be misleading, though, as the two elements do not carry the same weight; the tourist element tends to play a minor role, more of a bonus, whereas the medical element is the main reason for the travelling, and in the most severe medical cases, the tourist element hardly plays a role at all (Horowitz & Rosensweig, 2008). Carrera & Bridges (p. 447, 2006) define medical tourism in the following way: Medical tourism is “the organized travel outside one's natural healthcare jurisdiction for the enhancement or restoration of the individual's health through medical intervention”. There is an ongoing debate about the proper terminology resulting in no singular definition of medical tourism (Crooks, Kingsbury, Snyder, & Johnston, 2010). Nevertheless, “medical tourism” has received general acceptance and has come into general usage (Horowitz, Rosensweig, & Jones, 2007; Burkett, 2007; Heung, Kucukusta, & Song, 2010).
The medical procedures performed within the medical tourism industry do not only include elective surgeries such as cosmetic surgery, eye surgery, fertility, and dental treatments, but also complex and often essential surgeries such as heart surgery, hip and knee replacements and obesity treatments. Preventive medical services such as medical check-ups, health screening and rehabilitation can also be considered to fall within the scope of medical tourism (Heung, Kucukusta, & Song, 2010; Connell, 2006; Horowitz & Rosensweig, 2008; Burkett, 2007). However, wellness tourism does not fall within the category; instead it falls under health tourism alongside with medical tourism (Caballero-Danell & Mugomba, 2007).

**Brief History and the 21st Century Medical Tourism Style**

“Medical tourism” has existed for centuries. The Ancient Greeks are believed to have been the first to lay a foundation for a comprehensive medical tourism network. They erected the Asclepius Temples, in honour of their god of medicine, Asclepius, which became among the first health centres in the world (Health-Tourism, n.d.). People travelled long distances to the temples in search of a cure for their illnesses. The Romans were also known for their hot-water baths and springs; however, these were not only healthcare facilities but also became commercial and social networking centres for the rich and the elite. During the 19th century, it became a fashion in Europe for the growing middle-classes to travel to spa towns to “take the waters” for its health-enhancing qualities (Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011). During the 20th century, however, wealthy people from less developed parts of the world travelled to major medical centres in Europe and the US to gain access to better facilities and highly trained doctors, or even seek medical treatments that were not available in their own communities.

Today, the situation is very different; a shift has occurred in medical tourism where patients from highly developed countries travel to less developed countries, bypassing medical care offered in their own community, either because the medical service is not accessible or it is undesirable to patients (Horowitz, Rosensweig, & Jones, 2007). Furthermore, there are more regional movements of patients and there is the emergence of an “international market” for patients; in other words, the healthcare market is being globalised (Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011).
Prior to the last fifteen years, surgical procedures, hospital stays, and other healthcare options now offered at medical tourism destinations were either not competitively priced or not of competitive quality compared with care offered in the US or Western Europe. Nowadays, however, travelling across the world has become safe, fast, and inexpensive enough to support the resort hospitals that comprise the backbone of the medical tourism service industry (Burkett, 2007). Lunt, Smith, Exworthy, Green, Horsfall, & Mannion (2011) have summarized the key features of the new 21st century medical tourism style:

- The large numbers of people travelling for treatment;
- The shift towards patients from richer, more developed nations travelling to less developed countries to access health services, largely driven by the low-cost treatments and helped by cheap flights and internet sources of information;
- “New” enabling infrastructure – affordable, accessible travel and readily available information over the internet;
- Industry development: both the private business sector and national governments in both developed and developing nations have been instrumental in promoting medical tourism as a potentially lucrative source of foreign revenue.

Scope and Potential Growth

Medical tourism is a growing industry, increasingly gaining popularity in the world. In recent years, professionals have shown significant interest resulting in various publications covering the medical aspect (Crooks, Kingsbury, Snyder, & Johnston, 2010; Horowitz & Rosesweig, 2008; Burkett, 2007; Carrera & Bridges, 2006). However, there is lack of systematic data concerning the flow of medical tourists and revenues in healthcare trade between nations and continents (Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011), making it difficult to evaluate the development of medical tourism and its economic impact (Horowitz, Rosensweig, & Jones, 2007). According to Helble (2011), one of the main reasons is the absence of an internationally agreed upon definition and of a common methodology for data collection. Thus, statistics may vary greatly and are often unreliable or inflated (Youngman, 2009). York (2008) for example estimates that the number of Americans travelling overseas for treatment range from 50,000 to 500,000 whereas a Deloitte report states that an estimated 750,000
Americans travelled abroad for medical care in 2007 (Deloitte Center for Health Solutions, 2008). In terms of revenues, the medical tourism industry grossed about USD 60 billion worldwide in 2006 and McKinsey & Company estimates this total will rise to USD 100 billion by 2012 (Herrick, 2007; Heung, Kucukusta, & Song, 2010).

All sources agree that the scope of medical tourism has expanded in recent years and that the industry has significant growth potential (Health-Tourism, n.d.; Ehrbeck, Guevara, & Mango, 2008; Deloitte Center for Health Solutions, 2008; Horowitz, Rosensweig, & Jones, 2007; Caballero-Danell & Mugomba, 2007; Morgan, 2010). In 2009, Deloitte expected the number of Americans travelling abroad to reach 1.6m by 2012 (Deloitte Center for Health Solutions, 2008; Deloitte Center for Health Solutions, 2009). Not everybody may agree with those estimates; nevertheless, many countries are planning legally and practically for this market (Heung, Kucukusta, & Song, 2010; Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011). Thailand, India, Singapore and Malaysia are some of the most attractive medical tourist destinations, already making a significant impact on their economies. Singapore alone estimates that medical tourists will increase to a million patients by 2012 (Health-Tourism, n.d.) and together the countries are projected to generate more than USD 4.4b per year by 2012 (Heung, Kucukusta, & Song, 2010).

Medical tourism has also expanded geographically. In 2008, a Deloitte report listed 10 countries of the globe as medical tourism hubs: Thailand, Singapore, Malaysia, India, South Africa, United Arab Emirates, Brazil, Costa Rica, Mexico and Hungary (Deloitte Center for Health Solutions, 2008). In Cohen’s view, a few more should be added to the list: Argentina, Panama, Israel and Turkey (Cohen, 2010a). Many of the above countries have deliberately linked medical care to tourism and thus boosted the attractions of nearby beaches and other touristic venues.

The medical tourism industry is mostly driven by the private sector; however, governments have actively promoted medical tourism, among those are Greece, Hungary, Malta, South Africa, Jordan, India, Malaysia, the Philippines, Singapore and Thailand (Heung, Kucukusta, & Song, 2010; Cohen, 2010b; Mezősi, 2011, April 22nd). This is because international trade in medical services has huge economic potential for a country and the global economy (Bookman & Bookman, 2007). According to Ramirez
de Arellano (2007), investing in the medical industry is a way to increase gross domestic product (GDP), improve services, generate foreign exchange, create a more favourable balance of trade, and boost tourism.

The medical services offered in the above-mentioned countries often refer to value in cost, full service, state of the art medical treatment and facilities, little to no waiting period, exotic destinations, and international accreditation of the medical facilities with physicians predominantly educated at respectable universities in developed countries. Furthermore, to lift standards as well as reputation, these hospitals often seek affiliation with a well known US or UK teaching hospital (Piazolo & Zanca, 2011; Horowitz, Rosensweig, & Jones, 2007; Heung, Kucukusta, & Song, 2010; Cohen, 2010a).

Needless to say, many countries specialise in certain types of procedures. Central and South America are for example known for their cosmetic and plastic surgery and dental care, Slovenia for fertility treatments, Mauritius for its hair crafting clinic, Saudi Arabia for cosmetic surgery and dentistry, and India, Malaysia, Singapore and Thailand are popular places for cardiac surgery and orthopaedic surgery (Horowitz, Rosensweig, & Jones, 2007; Deloitte Center for Health Solutions, 2008; Connell, 2006). Some countries may have a long history of providing certain types of procedures such as Hungary which has developed a strong reputation in dentistry. Due to its successes, it has gained such an advantage that there is no need for the accreditation of its clinics (Csilla Mezösi, expert and advisor for health tourism, oral reference April 22nd, 2011).

**Drivers of Medical Tourism**

Most people prefer to receive healthcare close to home; however, for some reason it may be better or more convenient for a patient to receive healthcare abroad. In some cases, the nearest health facility may be across a border. In others, certain specialists or state of the art treatments are not available at home, or are subject to a long waiting list. Cost also plays an important role, resulting in many medical tourists seeking equivalent treatment in countries that are able to provide it cheaper. Furthermore, there are legal and ethical considerations, such as for stem cell or certain fertility treatments. And finally, the primary concern may be privacy and confidentiality in matters such as cosmetic surgery (Morgan, 2010).
Whatever the reason for patients to seek medical treatment across borders, cost savings are believed to be the main driver in the decision making, especially when patients from highly industrialized nations travel to less developed countries (Piazolo & Zanca, 2011; Horowitz, Rosensweig, & Jones, 2007; Horowitz & Rosensweig, 2008; Helble, 2011; Herrick, 2007; Marlowe & Sullivan, 2007; Treatment Abroad, 2012). Cost savings for a hip replacement for example can amount to 81% depending on whether the operation is performed in the US or in India, excluding costs of flights and hotel bills. Looking at a knee replacement performed in the US or UK, the cost savings are 79% in favour of the operation being performed in the UK, excluding costs of flights and hotel bills (Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011). With or without travel and accommodation costs, cost savings can be significant, usually based on lower fixed costs, employee wages as well as lower liability insurance premiums (Piazolo & Zanca, 2011; Herrick, 2007).

Patients’ willingness to travel increases with the rise of their financial savings; however, for less expensive medical treatments such as dental services or eye surgery, the services become regional. Mexican dental clinics, for example, serve US-Americans (cost savings around 20%) and Hungarian clinics offer their services to Germans, British and Austrians (Piazolo & Zanca, 2011; Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011).

Other important drivers of medical tourism are that people live longer and waiting lists have become larger. In order to improve their living standard, people are more willing to pay for medical treatment out of their own pocket (Heung, Kucukusta, & Song, 2010; Horowitz, Rosensweig, & Jones, 2007; Herrick, 2007; Hansen, 2008). With increasing medical costs, for example in the US and limited insurance coverage, people seek other means and become “consumers” actively involved in decisions about their care and associated costs (Deloitte Center for Health Solutions, 2011a).  

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1 Even though the 2010 US healthcare reform will cover 34 million uninsured Americans by 2019, out of the 46.3m (15.5%) uninsured in 2008, the Congressional Budget Office and the Joint Committee on Taxation expect costs to be the main driving force of outbound medical tourism in the US (Piazolo & Zanca, 2011)
Marketing, the Internet and Medical Tourism Agencies

Marketing is essential in medical tourism and the internet plays an important role. According to Connell (2006), the biggest hurdle that medical tourism has had to face, and continues to face, is the challenge of convincing distant potential medical tourists that medical care in relatively poor countries is comparable with the one available at home; in outcome, safety and even in dealing with pain thresholds. Therefore, foreign hospitals and healthcare institutions of leading nations in medical tourism, e.g. Thailand, India, Singapore, Hong Kong and Malaysia, spend a great deal of time and money investing in internet-based marketing and promotional campaigns directed at patients in the West (Burkett, 2007). The reason is quite understandable; a medical tourist is estimated to spend 3 times more than an average tourist (Gopal, 2008).

Modern technology makes it possible for potential medical tourists to investigate and arrange healthcare anywhere in the world from their home computer directly or with the advice and assistance of special medical tourism agencies (Horowitz, Rosensweig, & Jones, 2007; Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011; Herrick, 2007; Hansen, 2008). If a potential medical tourist wishes to use an intermediary, in addition to scheduling the medical treatment, the medical tourism agency arranges the travel and accommodation as well as any car rental, cruises, tours or other vacation services for the person and his/her companion, not to mention a telephone call with the doctor performing the operation (Connell, 2006). An American survey indicates that 73% of patients use the internet to search country destinations and hospitals, 83% travel with a companion and 95% engage in tourism activities such as sightseeing, shopping, eating dinner or lunch out of the hospital or hotel or enjoy the local culture (Medical Tourism Association, 2009).

Several surveys have been carried out concerning the willingness of people to travel for medical reasons, whether short or long distances, within regions or across borders. A survey conducted in 2007, in all 27 member states of the EU, on a randomly selected sample of over 27,200 individuals of at least 15 years of age, suggests that on average 53% of EU citizens are willing to travel abroad for medical treatment. Looking at age groups, the willingness to travel seems to decrease with higher age and higher frequency of medical treatments. Two-thirds of citizens aged 15-24 indicate that they
would be willing to travel abroad whereas the figure is 43% for those aged over 55 (European Commission/The Gallup Organization, 2007).

In 2011, Deloitte surveyed a nationally representative sample of 4,000 US adults, aged 18 and older, using a web-based questionnaire (Deloitte Center for Health Solutions, 2011b). The results indicate that 25% would consider travelling outside the US to have a necessary hospital procedure, whereas 75% would be highly unlikely to travel to a foreign country for care. The uninsured are more willing to travel to a foreign country for necessary hospital care than the insured: 31% vs. 24% say they would maybe or definitely do so. Unsurprisingly, willingness to travel is highest among the youngest consumers: 31% of Generation Y, 30% of Generation X, 21% of Boomers, and 17% of Seniors. For an elective hospital procedure, the results indicate that 22% would consider travelling outside the US whereas 78% would be highly unlikely to travel to a foreign country for care. The survey also suggests that perceptions of superior quality, greater availability of providers, lower cost, and more advanced facilities and technology are important criteria among those who would consider travelling outside the US for care.

Despite all surveys, one can never be sure what consumers actually do; their expressed preferences constitute a mere indication. A recent article in the Harvard Business Review emphasises that one should believe what one’s customers do, not what they say; in other words, ignore what potential customers say and pay careful attention to what they do (Pollard, 2011).

The Legal Environment

Travelling across borders increases patients’ risk and if for some reason an operation goes wrong, the patient is forced to seek his/her rights in the country where the operation was performed. Legislation can be different and even poor in some parts of the world which makes the situation all the more difficult for a patient that is already vulnerable. As a result, many insurance companies do not offer their services to the medical tourism industry because of potential lawsuits due to malpractice in foreign countries. However, as the medical tourism industry grows, it becomes even more
important for those insurance companies to find new ways to service potential medical tourists that seek their assistance (Deloitte Development LLP, 2009).

In order to keep pace with movements of patients across borders and the development of the medical tourism industry, the Council of the European Union (2011) approved the Application of Patients’ Rights in Cross-Border Healthcare (Directive 2011/24/EU) on February 28th, 2011, with the intent to clarify patients’ rights on cross-border healthcare within the Union. As a general rule, patients will be allowed to receive healthcare in another member state and be reimbursed up to the level of cost that would have been assumed by their member state of affiliation if this healthcare had been provided on its territory (For further information, see Directive 2011/24/EU.) The aim of the directive is to facilitate access to safe and high-quality cross-border healthcare and to promote cooperation on healthcare between member states. Member states have thirty months to transpose the directive’s provision into national legislation (Council of the European Union, 2011, February 28th).²

In the US, patients’ rights to medical tourism are very unclear. Liability is a major concern and directly affects legislation. Some states may have strict rules in place, as for example in Texas, where the law states that if one is an insurer, one basically cannot require consent to any medical tourism. California, however, appears to encourage medical tourism by temporarily authorising some insurance products. In the rest of the US, many states are relatively negative towards medical tourism. However, there are a number of medical tourism agencies in the US that are already servicing medical tourists and there is a growing concern whether they could be liable because they are the buffer between the provider and the client base in the US (Ratner, 2011).

On a global level, the regulations regarding trade in services are very basic contrary to the situation within the EU. Health and social services have attracted very limited attention in the service negotiations within the World Trade Organization (WTO) which began in 2000. Health services is one of the least committed sectors within the WTO, and health and social services is the only major sector where no negotiating proposal

² It should be noted that the same applies to Iceland. Iceland is a member of the EEA (European Economic Area) and is obliged to adopt all EU legislation related to the single market and is therefore able to participate in the EU’s internal market without a conventional EU membership.
and no collective request have been tabled. The little commitment that has been made has mostly been concerned with hospital services (WTO, n.d.).

**External Quality Assessment - Accreditation/Certification**

Quality and safety is essential for the success of hospitals, clinics and other institutions providing healthcare services in the medical tourism industry. To meet these concerns in the international community, many healthcare providers have retained the services of groups providing external quality assessment (EQA) and accreditation. Groups such as Quality Healthcare Advice Trent Accreditation in the UK (QHA Trent) and Joint Commission International (JCI) in the US have accredited or certified more than four hundred public and private healthcare organisations in thirty-nine countries (JCI, n.d.).

Despite the good work provided by the accreditation groups, there is lack of international monitoring; there is no universal group or organization, such as the United Nations, the World Health Organization, the World Tourism Organization or the World Trade Organization, that is engaged in the delivery of accreditation, the coordination of delivery of accreditation, or licensing or studying the existing schemes that deliver accreditation (Lunt, Smith, Exworthy, Green, Horsfall, & Mannion, 2011; Cohen, 2010a; Burkett, 2007; Lee & Spisto, 2007). With more international coordination and co-operation between nations, further development within the field would encourage and strengthen medical tourism (Caballero-Danell & Mugomba, 2007; Lee & Spisto, 2007).

**Criticism**

The main criticism of the medical tourism industry has mostly been concerned with ethical issues such as when the industry leaves local patients undertreated or not treated at all. Then, the destination country suffers as it does not receive the social and political benefit of a healthy citizenry. In other words, medical tourism not only limits the local population’s access to healthcare but politically the industry may harm the autonomy of the local state (Burkett, 2007).

On the opposite side, the presence of medical tourism in developing nations is believed to lessen the international brain drain of human health resources by providing surgeons and others with access to advanced, high technology working environments (de Arellano, 2007). However, one thing is certain; medical tourism is dynamic and the
trend will have an increasing impact on the healthcare landscape in industrialised and developing countries around the world (Horowitz, Rosensweig, & Jones, 2007).

2.2 Medical Tourism in Iceland

Medical tourism in Iceland does not have a long history. In 1997, Iceland signed an agreement with Greenland giving the country access to the Icelandic healthcare system. The cooperation has mostly been based on ambulance flights from the East coast of Greenland. Landspítali - The National University Hospital of Iceland has also provided Greenland with other medical treatments; however, Greenland has recently shown increased interest in cooperating with Landspítali, particularly in the fields of orthopaedic surgery and other specialised medical services. Iceland also cooperates with the Faroe Islands. For the past decades, this cooperation has been limited but agreements are in place giving the Faroe Islands access to Landspítalí’s comprehensive medical services, medicine treatments and general surgery (Ministry of Welfare, 2011).

Medical tourists that travel to Iceland on a private basis mostly seek services in laser eye surgery, cosmetic and general surgery, psoriasis treatment, and fertility treatments. Unfortunately, there is little “hard data” to be found as data is not systematically collected in the Icelandic medical tourism industry and most of the services provided take place in private clinics. However, the Minister of Welfare states that on average sixty medical tourists travelled to Iceland per month for eye surgery and ten for cosmetic surgery in 2008 and 2009. Furthermore, on average forty medical tourists travel every year to Iceland for psoriasis treatment at the Blue Lagoon Clinic (Guðbjartur Hannesson, oral reference, February 19th, 2011). To put things into perspective and give a certain idea of the weight of medical tourism in private clinics in Iceland, participants of this research state that medical tourism is 10% of their overall operation and in some cases way below that percentage. This “rhymes” with indications of a report published by the Ministry of Welfare (2011).

Laser eye surgery has been offered to medical tourists in Iceland since 2000. It is practised in two private clinics and has gradually increased year by year. According to Þórður Sverrisson (oral reference, March 16th, 2011), foreign demand for laser eye surgery peaked around mid 2009. Most of the medical tourists travel from the Faroe Islands; however, Iceland has also received people from countries such as Norway,
Denmark, the US, Germany, the UK, Japan, China, Lithuania, Greenland, and Sweden. The clinics have not done much marketing abroad in the past; they have good contacts in the Faroe Islands and one of them has started working with a travelling agency.

According to a cosmetic and general surgeon participating in this research, cosmetic and general surgery is probably the field that has increased the most in medical tourism in Iceland in recent years. Among the medical tourists travelling to Iceland are people from Europe including Icelanders that have a permanent foreign residency. The most common cosmetic surgery is breast augmentation.

Psoriasis treatment is offered at the Blue Lagoon Clinic. The clinic, opened in 2005, cooperates with a Danish medical tourism agency and receives around forty medical tourists every year. Danes and Faroese are the most common medical tourists; however, people also come from Japan, the US, Russia, Germany, Canada, Norway, Holland, the UK, Finland and other countries. The facilities include 15 double rooms which are usually full all year round due to the clinic’s popularity among general guests. According to Dagný Pétursdóttir, the slowest month is February with a 90% occupancy rate for February 2012 (oral reference, November 1st, 2011). However, with new ideas in sight and the possibility of opening a 100-150 room hotel at the Blue Lagoon, strategies for the clinic might change in the future. The clinic is also working on getting new research published in peer-reviewed journals where its standard psoriasis treatment of four weeks is shortened to a two week treatment. If successful, the clinic will undergo structural changes to increase the productivity of the operation. The Blue Lagoon is the best known brand name in the field of health tourism in Iceland, receiving 450,000 guests in 2011.

ART Medica is the only clinic in Iceland that offers fertility treatments. According to Þórhur Óskarsson (oral reference, October 17th, 2011), there are mainly two reasons for foreign medical tourists coming to Iceland; good success rates and a favourable legal environment. Genetic origin also has an influence as the Nordic look attracts medical tourists. The clinic opened in 2004 and receives an average of twenty medical tourists per year. The medical tourists are mainly from the Faroe Islands, Norway and Denmark, but also from Sweden, the US, UK, and other countries. The clinic has not done any marketing abroad. The only marketing material found is on its website.
There is innovation and new business formation taking place in medical tourism in Iceland. Companies have experienced difficulties but there seems to be a new generation emerging. The entrepreneurs that started ten or fifteen years ago started small, expanding their business by adding foreign patients to their customer base. Today, however, companies are being established with a focus on foreign patients with the intent to import patients on a large scale. Among those are companies specialising in hip and knee replacements, obesity treatments and dental treatment.

There are two companies in Iceland that have shown interest in specialising in hip and knee replacements for foreigners; PrimaCare and Iceland Health. PrimaCare, founded in 2008, is currently seeking financing for an 80-120 room hospital, a 250-300 room hotel and after-care facilities, to be built in Mosfellsbær. The total cost of the project is expected to be USD 150m. The hospital’s capacity is 3,000-5,000 operations per year and the target customer group are medical tourists from the US. The operation is expected to create 600-1,000 new jobs and generate an annual income of USD 120m (Gunnar Ármansson, oral reference October 25th, 2011; Prima Care Medical Resort Iceland, n.d.; Ministry of Welfare, 2011).

Iceland Health, a health service company, has been planning for some time to set up a hospital called Lava Clinic, specialising in hip and knee replacement and obesity surgery for medical tourists. The hospital, located at Ásbrú in Reykjanesbær, is expected to contain three operating rooms, thirty-five beds in an in-patient ward and a rehabilitation centre. The hospital is expected to create 200-300 new jobs and reach 2,100 customers in year five of the operation, yielding an income of EUR 21m. In the beginning, customers are expected to come from Scandinavia and Europe and later on from the US after international accreditation has been received (Iceland Health, 2009; Ministry of Welfare, 2011). Recently, Iceland Health decided to postpone further development of the project for an indefinite period (anonymous source at Iceland Health, oral reference March 14th, 2012).

Nordic Smile opened its dental clinic in Iceland in February 2011, offering innovative implant treatment at one-third of the prices for comparable treatment in the UK and US (Nordic Smile, n.d.). Since its opening, the clinic received two hundred customers,
including a customer from Hong Kong. However, the clinic closed its doors in July 2011 due to financial restructuring (Jónsson, 2011).

In January 2010, Ísland of Health, the Association for Health Tourism in Iceland, was established to act as a platform for discussion, to strengthen relationships and to communicate knowledge between different parties within health tourism in Iceland – wellness and medical tourism. Furthermore, the association is to organise the joint promotion and marketing of health tourism and to develop new innovative products in a constant search for higher quality standards (Samtök um heilsuferðabjónustu á Íslandi, 2010; Ísland of Health, n.d.). In 2011, the association defined four key areas to focus on in the near future; research and knowledge, innovation and product development, quality issues, and sales and marketing. For the long term, the association has made its objective for health tourists to reach 100,000 by 2021 (Ísland of Health, 2011). According to Dagný Pétursdóttir (oral reference, November 1st, 2011), a group of executives working in the medical side of medical tourism has been getting together within the association to work on those four key areas.

The legal environment in Iceland is quite clear on matters of public health and patient safety. It does not matter whether a clinic provides services to domestic or foreign customers; all healthcare institutions in Iceland must comply with the provisions of the Health Service Act No. 40/2007 which ensures active monitoring of health services and their professional standards of quality. The law is in accordance with the definition of the World Health Organisation (WHO). All physicians are subject to monitoring by the Directorate of Health in accordance with the provisions of Act No. 41/2007 on the Medical Director of Health. The Patients’ Rights Act No. 74/1997 ensures specific rights for patients in accordance with general human rights and human dignity and thus strengthens their legal status vis-a-vis the health service. Finally, the Act on Patient Insurance No. 111/2000 provides patients, who suffer physical or mental damage in Iceland in connection with a medical examination or treatment, with the entitlement to seek compensation.
3  Hip and Knee Surgery

The chapter examines the increasing demand for hip and knee surgery in the world, reflects on the conditions in Iceland and presents studies conducted on the results of hip and knee replacements performed at state hospitals in Iceland.

3.1 General Description of an Increasing Market

Osteoarthritis\(^3\) is one of ten most disabling diseases in developed countries according to WHO (n.d.; OECD, 2009a). Worldwide estimates show that 9.6% of men and 18.0% of women aged 60 years and older have symptomatic osteoarthritis. Age is the strongest predictor of the development and progression of osteoarthritis; however, other risk factors include gender, obesity, physical inactivity, smoking, excess alcohol, and injuries (European Commission, 2008). Joint replacement surgery (hip and knee replacement) is considered the most effective way of treating severe osteoarthritis, reducing pain and disability and even restoring some patients to near normal function. The procedures are mainly performed on people older than 60 but can also be carried out on younger people.

The number of people suffering from osteoarthritis has grown in recent decades and a further increase is expected in the coming years, mainly for two reasons: population ageing and growing obesity. In order to better understand the market for hip and knee surgery, it is important to take a closer look at the evolution of an ageing population, life expectancy, increasing obesity rates among adults in OECD countries, and trends in hip and knee replacement surgery in the past decades.

The world population is ageing; in 2007, 14.7% of the population in the OECD countries were 65 and older, whereas in 1960 this proportion was 9.0%. Life

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\(^3\) Osteoarthritis is a degenerative joint disease, which mainly affects the articular cartilage. It is associated with ageing and will most likely affect the joints that have been continually stressed throughout the years including the knees, hips, fingers, and lower spine region (WHO, n.d.)
expectancy in 2007, at age 65 in the OECD countries, stood on average at over 20 years for women and nearly 17 years for men. This means that women and men across the OECD countries live 5 and 4 years longer than in 1970. Life expectancy is expected to increase in the coming decades (OECD, 2009a).

The growth of overweight and obesity rates among adults in the world has become a major public health concern. According to WHO (2003), almost all countries are experiencing an obesity epidemic in some way. An OECD report states that half or more of the adult population is defined as being overweight or obese in 13 OECD countries: United States, Mexico, United Kingdom, Australia, Iceland, Luxembourg, Hungary, Czech Republic, Greece, Portugal, Canada, Ireland, and Spain (OECD, 2009a). The obesity rates among adults in the OECD countries are on average 15.4% (see Figure 9 in Appendix 1).

Over the past 20 years, the rate of obesity among adults has increased dramatically. In the UK the rate has more than tripled and in the US more than doubled, increasing the obesity rates among adults to 24% and 34%. Obesity rates have also doubled in Australia, Iceland, New Zealand, Finland, Spain, Denmark, and Netherlands (Figure 1).

![Figure 1 Increasing obesity rates among adults in OECD countries (OECD, 2009b)](image-url)

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Australia, Czech Republic (2005), Japan, Luxembourg, New Zealand, Slovak Republic (2007), United Kingdom and United States figures are based on health examination surveys, rather than health interview surveys.
In the past 10 years, obesity rates have increased 1.8 times in Norway, and similarly in the past 18 years in France and Sweden. Obesity is not only a growing problem among adults. Studies show that one in seven children aged 11-15 years is overweight or obese across most OECD countries (OECD, 2009a). Viner and Cole (2005) state that there is a 50%-60% chance of those obese in childhood also becoming obese at age 30. A recent study states that becoming overweight earlier in adult life increases the risks of knee and hip osteoarthritis (Holliday, McWilliams, Maciewicz, Muir, Zhang, & Doherty, 2011).

Hip and knee replacement surgery increased considerably in most European countries between 1998 and 2008. On average, hip replacement surgery increased by one third during the period whereas knee replacement surgery more than doubled. In Canada there was a 34% increase in hip replacement surgery since 1998, a 40% increase in the UK since 2000, and there was a 47% increase in the US between 1998 and 2006. Knee replacement surgery, on the other hand, increased by 108% in Canada, 112% in the UK, and 75% in the US for the same periods (Figures 2 and 3).

Comparing hip and knee replacement surgery per 100,000 population, Germany is on top of the list in both cases. In hip replacement surgery, the UK, the US and the Nordic
countries are above the European average. In knee replacement surgery, the US is No. four and the UK is No. eight on the list, followed by Canada. All the Nordic countries are above the European average in knee replacement surgery except Denmark (Figures 4 and 5).

There are few studies on osteoarthritis explaining the country variations in the rate of hip and knee replacement surgery (OECD, 2010a). The reasons can be due to differences in the rate of osteoarthritis, capacity to deliver or pay for the procedures as they can be quite expensive, not to mention the fact that people, especially in Europe with the new legislation, may seek surgery across borders. One thing is clear though; the rate of osteoarthritis is expected to continue to rise in the future (OECD, 2010b; Dixon, Shaw, Ebrahim, & Dieppe, 2004) resulting in more demand for hip and knee surgery.

### 3.2 Hip and Knee Surgery in Iceland

Hip and knee replacement surgery takes place in three state run hospitals in Iceland; in Landspítali - The National University Hospital of Iceland, in Akureyri University Hospital, and in Akranes Hospital. According to Sólveig Jóhannsdóttir, Secretary General of the
Icelandic Medical Association (oral reference, May 12th, 2011), there were around 60 experts in orthopaedics registered in Iceland at the beginning of 2011; 38 experts were working in Iceland and approximately 22 abroad (37%). The average age of the orthopaedic doctors working in Iceland is 53.4 years. Jóhannsdóttir does not, however, have information about new recruitment in the field.

In 2010, 1,002 hip and knee replacement surgeries were performed at Icelandic state hospitals; 635 hip replacement surgeries and 367 knee replacement surgeries (Directorate of Health, n.d.). Although the number of hip and knee replacement surgeries performed in Iceland is small compared to international standards, more procedures are performed per 100,000 population in Iceland than on average in the EU countries (Figures 4 and 5). The rate of less invasive hip and knee surgery is higher but these operations take place in private clinics and treatment centres, the largest called Orkuhúsið.

Two studies have been conducted on the results of hip and knee replacements performed at state hospitals in Iceland. In a 2-20 year study of 654 total hip replacements, performed at Akureyri University Hospital from 1982 to 2000, results proved to be comparable with those presented in other Scandinavian hip registers. Complication rates in general (e.g. incidence of nerve injury, dislocation and pulmonary embolism) were in agreement with those reported for other comparable patient groups, while infection rates were lower (Franklin, Róbertsson, Gestsson, Lohmander, & Ingvarsson, 2003). 5

When looking at the performance of knee replacement surgery in Iceland, the results are also quite satisfactory. A study of results of knee arthroplasties (replacements), performed at Akureyri University Hospital over a 20 year period, proved to be fully comparable to other internationally known results (Hvannberg, Róbertsson, Gestsson, & Ingvarsson, 2005). The study placed a special emphasis on revision rates, infections and

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5 What made the research unique, which is probably its major strength, is that no patient was lost to follow-up or excluded from the analysis. It should be noted that in survival analysis and complication reports, it is commonly assumed that patients lost to follow-up would have had the same outcome as those not lost to follow-up. However, studies have shown that those lost to follow-up have poorer results than the rest, underlining the importance of a low rate of loss to follow-up (Murray, Britton, & Bulstrode, 1997).
other complications, and included 560 primary operations performed during 1983-2003, out of which 515 were total knee arthroplasties and 45 unicompartmental.

Only few studies have been conducted on the results of hip and knee replacements in Iceland; however, the results stand firm. Further research is in progress; however, it has not proceeded far enough for the results to be published (Þorvaldur Ingvarsson, former CEO of Akureyri University Hospital, oral reference, March 26th, 2012).
4 Competitiveness of Nations

There have mainly been three theories put forth focusing on the concept of competitiveness of nations. In 1776, Adam Smith (1979) introduced his theory of *absolute advantage*, a theory developed in the context of international trade in which a nation exports products or services if it is the world’s low-cost producer. David Ricardo (1925) improved the theory with *comparative advantage*; a theory founded on the principles of efficient use and application of a country’s natural resources. Ricardo states that a nation may import products, even though it can produce them more efficiently than another nation, because it is able to allocate its resources to industries where it is more productive and export products that give a higher return. Thus, the nation gains a comparative advantage and is able to grow and prosper.

In 1990, Michael E. Porter published his book *The Competitive Advantage of Nations* where he presented his theory of *competitive advantage*; a theory which is the result of a study of ten nations and their industries with widely differing characteristics and institutions, (Porter, 1998a). Porter’s theory is somewhat critical of the theory of comparative advantage but also represents a natural evolution in an increasingly knowledge-intensive, global economy where inputs, such as “cheap” labour, natural resources and financial capital, become less and less valuable. As the world has become more sophisticated and global, people move, capital flows internationally to credit-worthy nations, economies of scale are more widespread, and access to state of the art technology has become more important than endowment or low local wage rates.

A nation’s competitiveness depends on the capacity of its industries to innovate and upgrade where pressure and challenge motivate companies to gain advantage against the world’s best competitors (Porter, 1998a). The nature of the business environment in which companies or industries emerge is a major factor and companies benefit from having strong domestic rivals, aggressive home-based suppliers and demanding local customers.

Porter maintains that:

*Competitive advantage is created and sustained through a highly localized process. Differences in national economic structures, values, cultures, institutions, and histories contribute profoundly to competitive success. The*
role of the home nation seems to be as strong as or stronger than ever. While globalization of competition might appear to make the nation less important, instead it seems to make it more so. With fewer impediments to trade to shelter uncompetitive domestic firms and industries, the home nation takes on growing significance because it is the source of the skills and technology that underpin competitive advantage (Porter, p. 19, 1998a).

Examples of a nation’s success in using its culture and economic structure, not to mention its sources of skills and technology are e.g. Japan and Iceland. In the case of Japan, the nation has been able to transform its disadvantages, like high land costs, into advantages by inventing just-in-time production (Porter, 1998a; 2008). As for Iceland, with its fishing tradition, the nation has developed high-tech machinery for fish processing in order to preserve the quality of the fish before it reaches the final consumer. Both cases are examples of Porter’s basic types of competitive advantage, namely, lower cost and differentiation which ultimately result in higher productivity.

Robert B. Reich and Hämäläinen are among many who agree with Porter on the importance of a nation and its source of knowledge and skills. Reich (1990, p. 58), argues that “as every advanced economy becomes global, a nation’s most important asset becomes the skills and cumulative learning of its work force”. Reich even goes as far as stating that every factor of production other than work force skills can be duplicated anywhere around the world. Moreover, a work force that is knowledgeable and skilled at doing complex things attracts foreign investment (Reich, 1990). Silicon Valley and its high-tech industry is, for example, home to many of the world’s largest technology corporations and accounts for one third of all of the venture capital investment in the US (Wonglimpiyarat, 2006, PricewaterhouseCoopers, 2010).

Hämäläinen (2003) states that national competitiveness matters to economic growth and he underlines the competitiveness and growth benefits of rapid structural adjustment in the ever-changing techno-economic environment. Furthermore, Hämäläinen calls attention to the interdependencies of many aspects of modern economies and societies, such as the dynamics of business and technology and cultural and institutional change.
4.1 Competitiveness and Productivity, Innovation and Prosperity

“Why do some social groups, economic institutions, and nations advance and prosper?” (Porter, p. xi, 1998a). According to the classical approach, labour costs, interest rates, exchange rates, and economies of scale are the most important determinants of the competitiveness of nations (Porter, 2008). This does not explain, however, why nations prosper despite high labour costs, high interest rates and foreign exchange fluctuations. In order to understand why nations succeed and are able to continually upgrade themselves, Porter does not focus on the economy as a whole but on nations’ specific industries and industry segments; the way they evolve in their struggle for competitive advantage against foreign competitors, how industries support each other, and the way they are able to amplify their home based advantages (Porter, 1998a; 2008).

Porter (p. 6, 1998a) maintains that “the only meaningful concept of competitiveness at the national level is national productivity” but he also argues that “companies, not nations, are on the frontline of international competition” (Porter, p. 5, 1990) and a rising standard of living depends on their capacity to achieve a high level of productivity and to increase it over time. The “home base”, however, can have a strong impact on companies’ international success as it shapes their capacity to innovate rapidly in technology and methods and to do so in the proper directions.

Important factors in sustained national productivity growth are the types of jobs offered to the citizens, the ability to innovate, and how important sources of national advantage can be actively sought and exploited to benefit the most from the national environment (Porter, 1998a; 2008; Mintzberg, 1989; & Bartlett & Ghoshal, 1998). A nation’s companies, therefore, struggle to raise product quality, add desirable features, improve product technology, or boost production efficiency. Germany, for example, has enjoyed rising productivity for decades as its companies have been able to produce increasingly differentiated products and introduce rising levels of automation to enhance the output per worker (Porter, 1998a; 2008).

According to Krugman (1994a), productivity is not everything, but in the long run it is almost everything. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker. Productivity and its growth is therefore a very important indicator of a country’s long term economic health.
and its competitiveness in the world. Needless to say, this can be applied to any industry as companies are the backbone of a country’s economy. More value added in production suggests that more profit is available to be distributed. With higher profits, companies are able to invest in new technology, invent and upgrade products, look for new markets, hire more people, increase wages, and improve working conditions. In a competitive market, higher income will at the same time help attract new companies and encourage innovation and upgrading which in the long run results in more efficiency. In the end, it is a matter of maintaining the cycle in order to raise overall economic efficiency and boost growth and living standards. That way, nations may be able to prosper (Krugman, 1994a; Porter 1998a; 2008).

Porter maintains that in a modern global economy prosperity is a nation’s choice as competitiveness is no longer limited to nations with favourable inheritances. There is evidence to suggest that rather than supporting competitiveness, “inherited” prosperity often becomes a forceful barrier against upgrading true competitiveness for nations, such as Russia and the Arab oil producers that depend on the exploitation of natural resources (Ketels, 2006). Prosperity depends on creating a business environment along with supporting institutions that enable nations to productively use and upgrade their inputs. Therefore, nations upgrade the competencies of their citizens, they invest in soft and hard infrastructure, and they organize their policies, laws and institutions on the bases of productivity (Porter, 1998a).

Nations, regions, states and cities have used Porter’s theory and methodology as a means to increase their productivity, competitiveness and general prosperity. Catalonia, an autonomous region in north-eastern Spain, started adopting Porter’s methods around the time when Porter published his book *Competitive Advantage of Nations* (Ketels, 2010; Subirá, 2010). In 2007, Catalonia had considerably improved its competitiveness, resulting in a 10% higher GDP per capita than the average for Spain, 17% higher than the EU-27 average, and a rise in external trade ratio (exp. + imp. / GDP) of 42.6% in 1991 to 61.9% in 2007 (Government of Catalonia, 2008; Karlsson & Steinþórsson, 2009). The Basque country, another “early adopter,” experienced growth in GDP per capita way above the EU-27 average, and export growth well above the EU-27 average as well, only surpassed by emerging countries like India and China
Other “early adopters” like Denmark, Finland and the Netherlands have also done well. They have used their advantages as well as disadvantages to their favour, placing themselves among the top ten most competitive nations in the world (Ketels, 2010; Subirá, 2010; Porter, 1998a; 2008; World Economic Forum, 2011a).

4.2 Competitiveness Assessments

There are a number of studies that present assessments of competitiveness of nations and their economies. These vary due to differences in definitions. The World Economic Forum (2010), for example, defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. The International Institute for Management Development (IMD, p. 485, 2011) defines competitiveness as “a field of economic knowledge, which analyzes the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people”. However, OECD defines competitiveness (in international trade) as a measure of a country’s advantage or disadvantage in selling its products in international markets (OECD, n.d.).

Most competitiveness assessments are published annually. OECD publishes labour productivity in OECD countries and compares labour productivity growth in GDP per hour worked, presented at current prices in national currency (OECD, 2010d). However, the most renowned assessments are published in the Global Competitiveness Report by the World Economic Forum (WEF) and the World Competitiveness Yearbook by IMD (Ketels, 2006). The reports measure and compare national economic competitiveness based on a combination of hard data, coming from international databases, and the results of annual executive opinion surveys from a small sample of managers of companies in each country.

Porter’s Business Competitiveness Index (BCI) is published in the Global Competitiveness Report; it tracks the overall competitiveness of more than 100 national economies, representing most of world GDP (Ketels, 2006). The BCI data is consistent with key hypotheses derived from its twelve pillars of economic competitiveness⁶.

⁶ For further information on framework, key hypotheses and calculations, see World Economic Forum (2011), Ketels (2006).
There is a strong correlation between microeconomic competitiveness and GDP per capita and more than 80% of the variation in GDP per capita of the sample of countries can be explained by the variation in the BCI score (Ketels, 2006).

4.3 Porter’s Diamond

In his studies of nations and industries, Porter has developed a comprehensive framework to compare competitive advantage: the diamond model. Porter argues that the model is designed at a national level as a means of creating national advantage but in an international context; however, “[…] the same framework can and has been readily applied at the regional, state, and city level” (Porter, p. xxi, 1998a). Porter’s diamond model (Figure 6) identifies four broad attributes that “individually and as a system constitute the diamond of national advantage, the playing field that each nation establishes and operates for its industries” (Porter, p. 182, 2008).

![Figure 6 Porter’s Diamond – The Complete System (Porter, 1998a; 2008)](image)

The diamond is a mutually reinforcing system and the effect of one determinant depends on the state of the others. Competitive advantage based on only one or two
Determinants is possible in a natural resource dependent industry or an industry involving little technology or skills (Porter, 1998a); however, in a sophisticated, global, knowledge-intensive industry each and every determinant of the diamond is important in order to gain and sustain competitive advantage. Furthermore, the interplay of the determinants and the way they reinforce each other is extremely difficult for foreign rivals to nullify or replicate (Porter, 1998a).

There are “striking differences in the patterns of competitiveness in every country; no nation can or will be competitive in every or even most industries. Ultimately, nations succeed in particular industries because their home environment is the most forward-looking, dynamic, and challenging” (Porter, p. 171, 2008). The pressure from strong domestic rivals, aggressive home-based suppliers, and demanding local customers stimulate companies to constantly improve their productivity in order to gain competitive advantage. Thus, the attitude of each nation, region, state or city towards business competitiveness affects the structure of the diamond.

### 4.3.1 Factor Conditions

Nations succeed in industries where they are extremely good at factor creation; to achieve competitive advantage, however, a nation needs factors such as skilled human resources or a scientific base. In fact, the stock of factors is far less important than the rate and efficiency with which a nation is able to create, upgrade, and deploy its factors in particular industries (Porter, 1998a; 2008; Ketels, 2006).

The factor conditions of a nation can be grouped into five broad categories (Porter, 1998a). First, there are **human resources** such as the quantity, skills and cost of personnel, taking into account standard working hours and ethics. Second, there are **physical resources**, sometimes called a nation’s endowment; what is important, however, is their abundance, quality and especially their accessibility, in conjunction with a nation’s location and geographic size. If a nation is a supplier, its proximity is vital in terms of transportation costs and the ease of cultural and business interchange. Third, there are **knowledge resources**, i.e. the nation’s stock of scientific, technical, and market knowledge bearing on goods and services. Fourth, there are **capital resources**, meaning the amount and cost of capital available to finance industry. And the fifth category is **infrastructure** in any form, whether in transport, communications, mail and
parcel delivery or monetary transfer; all are important, not only their existence but also their type, quality and user cost as they affect competition. Health care, housing stock, education, and cultural and academic institutions are equally important as they affect the quality of life and the attractiveness of a nation as a place to live and work.

No nation can create and upgrade all its types and varieties of factors. Which factors are created and upgraded and how effectively depends on the other determinants of the diamond, such as home demand conditions, company goals, nature of domestic competition, and the presence of related and supporting industries (Porter, 1998a).

4.3.2 Demand Conditions
Understanding the needs and demands of the market is a complicated matter, especially since the world has become global. In developing a product or a service that meets the demands of the market, companies require access to buyers, open communication between them, and top technical and managerial personnel that understands the way the market works and behaves. According to Porter, there are three broad attributes of home demand that are significant; home demand composition, demand size and pattern of growth, and internationalisation of domestic demand (Porter 1998a).

Nations gain competitive advantage in industries where “the home demand gives their companies a clearer or earlier picture of emerging buyer needs, and where demanding buyers pressure companies to innovate faster, and achieve more sophisticated competitive advantages than their foreign rivals” (Porter, p. 190, 2008). In this respect, the size of the home demand proves far less significant than its character. Pressures from buyers to improve, update, or innovate products or services faster are most strongly felt in the home market. Pride and ego also come into play, not to mention proximity and cultural similarity that make for clearer communications in responding to tough challenges.

The presence of more than one or two independent buyers in a nation creates a better environment for innovation as each buyer has his/her own ideas about product needs and ideally under competitive pressure, expands the pool of market information and motivates progress. Furthermore, a number of independent buyers stimulate entry and investment in the industry as the risk and power of a dominant buyer is reduced.
The rate of home demand growth is equally important as rapid growth motivates a nation’s companies to adopt new technologies faster and to build efficient production facilities, especially during periods of technological change.

A nation’s companies can gain competitive advantage in industries where domestic demand influences foreign consumption patterns. A good example is the effect of any world class national industry: foreign competitors have a tendency to emulate equipment and other inputs that the industry employs (Porter, 1998a).

4.3.3 Related and Supporting Industries

A very important determinant of national competitive advantage in an industry is the presence of suppliers and related industries that are internationally competitive (Porter, 1998a; 2008). Access or availability of machinery or other inputs is important to a nation’s companies; what drives competitive advantage, however, is the process of innovation and upgrading, preferably with home-based related and supporting industries due to proximity. As suppliers and end-users are located close to each other they can take advantage of short lines of communication and of the quick and constant information flow. Parties are able to exchange ideas and accelerate the pace of innovation and upgrading. The suppliers create advantages by delivering the most cost-effective inputs in an efficient way. In return, they gain early insights into trends.

Related and supporting industries is the side of the diamond where the very idea of “enlarging the cake” should be kept at heart; an idea which has often been implemented through a close working relationship between companies and their supporting industries or when companies and related industries coordinate or share activities in the value chain. As a matter of fact, the presence in a nation of competitive industries that are related or supportive has often led to new competitive industries (Porter, 1998a; Feser, Renski, & Goldstein, 2008; Sölvell, Lindqvist, & Ketels, 2003).

A nation’s companies benefit most when the suppliers themselves are global competitors (Porter, 1998a; 2008). That way, they are not totally dependent on the domestic market but are able to upgrade their own advantages and provide the needed technology flow to their home-based customers.
4.3.4 Firm Strategy, Structure and Rivalry

The last of the four broad determinants of national competitive advantage in an industry relates to the conditions in which companies are created, organized and managed as well as to the nature of domestic rivalry (Porter 1998a; 2008). Culture and national character may have a strong impact on the way companies are run. Obviously, each company has its own business culture; however, if one takes a “helicopter view” of a nation, there are some noticeable tendencies, which are in fact grown out of the educational system, social and religious history, and many other intangible but unique national conditions. In Italy, for example, many successful international companies are relatively small or medium-sized private companies, run like extended families; in Germany, on the other hand, companies tend to be bigger, hierarchical in organisation and management practices, and run by individuals with technical backgrounds (Porter 1998a).

Another important aspect of gaining competitive advantage is goals and the strategy to accomplish them. Again, national character may play an important part but company goals also reflect the characteristics of national capital markets and compensation practices for managers. It is clear to all how differently the Americans and the Chinese think and behave; American businessmen may focus on the end of next quarter while the Chinese tend to think one hundred years ahead. The example is an extreme one and may not always apply to day-to-day business; nevertheless, it gives an idea of how tolerant, patient and committed nations can be. Porter’s studies reveal that the national industries in which employees and shareholders have had the most sustained commitment to the company and industry have often been those with competitive advantage, provided other determinants have been favourable (Porter, 1998a).

According to Porter, domestic rivalry is possibly the most important factor of the diamond due to the powerful stimulus effect it has on others (Porter, 1998a; 2008). “The more localized the rivalry, the more intense. And the more intense, the better” (Porter, p. 197, 2008) as local rivals push each other to lower costs, improve quality and service, and create new products and processes. In the end, the goal is to gain and sustain competitive advantage; it is a matter of how one goes about it. A good example of intense domestic rivalry is Japan in the field of machine tools, semiconductors, audio
equipment, and cameras where the number of companies is usually double figures in the industries in which Japan possesses global dominance (Porter, 2008).

4.3.5 Additional Variables
There are two additional variables that can influence the “national” system in important ways and both of them are more or less outside the control of companies: Chance and government. Chance may be events such as pure inventions, breakthroughs in basic technologies, wars, external political developments, and major shifts in foreign market demand (Porter, 1998a). Obviously, such events have changed industry structure for better or worse and thus the competitive advantage of many industries.

Similarly, government has the ability to improve or detract from the national advantage. Government can affect factor conditions through policies towards education, capital markets, R&D, tariffs, subsidies and so forth. Government can influence demand by setting, for example, strict product, safety and environmental standards or regulations, or simply by being a major buyer of many products in a nation. Government can also shape the environment of related and supporting industries in various ways, such as controlling advertising media, regulating supporting services or through its regional policy. And finally, government can have an impact on firm strategy, structure and rivalry, for instance through regulation of competition and capital markets, tax policy and antitrust laws (Porter, 1998a; 2008).

Each government action, recommended or executed, may have a tremendous influence on the national system. As much as it is government’s role to provide its nation with favourable conditions in order to move to higher levels of competitive performance, government must be equally aware of not acting as an “entity unto itself”. In the pursuit of national competitiveness and prosperity, the market needs to “make it” on its own. This may take time; however, to limit competition, for example, or ease safety and environmental standards will hold back or slow down great innovations and productivity improvements, and thus retard competitiveness (Porter, 1998a; 2008).

4.3.6 Criticism
Over the years, Porter has received praise and admiration for his work, among those for presenting the world with a robust theory, the diamond model, for understanding the
determinants of competitiveness, and for brilliant insights across levels of analysis in his studies of the competitive advantage of nations and industries. According to Ketels, one reason for Porter’s success is his use of verbal descriptions and logical reasoning instead of mathematical models that are often used in the economic profession, all of which makes his work more accessible to practitioners (Ketels, 2006). The simplicity of the diamond makes it attractive while at the same time it takes into account complex relations with related and supporting parties. It is “fully grounded in economic principals [as the framework] is based on the notion that fierce rivalry on open markets is at the core of a competitive economy” (Ketels, p. 134, 2006).

However, Porter’s work is not without criticism. Not everybody agrees with the notion of competing, and particularly of nations competing. Krugman (1994b) even goes as far as stating that competitiveness is a dangerous obsession and that it does not exist for a nation, since only companies compete on international markets and the success of a nation is ultimately the result of the competitiveness of its companies. In other words, nations do not compete as they do not go out of business. Others argue that the importance Porter puts on fierce competition reveals his American origin which is bounded by a masculinity society; a society that acknowledges and favours great achievements, performance and growth (Hofstede, 2001). In their studies of European management, Bosch and Prooijen similarly maintain that culture has a great impact on how people, companies and nations behave. They state that the so-called national diamond in fact rests on national culture (Bosch & Prooijen, 1992). However, Bosch and Prooijen argue that the impact of national culture on the competitive advantage of nations is given too little attention in the diamond model and that “European management can benefit from Porter’s contribution and augment it by paying attention to Europe’s diversity in national cultures” (Bosch & Prooijen, p. 176, 1992).

According to Grant, *The Competitive Advantage of Nations* provides a single analytical framework that spans three levels of aggregation: the firm, the industry and the nation. Furthermore, it “bridges the gap between strategic management and international economics while contributing substantially to both” (Grant, p. 535, 1991). However, Grant is also critical of Porter’s work. He maintains that the breadth and relevance of Porter’s analysis have been achieved at the expense of precision and
determinacy as concepts are often ill defined, theoretical relationships poorly specified, and empirical data chosen selectively and interpreted subjectively (Grant, 1991).

Porter’s work suggests that to become internationally competitive, it is necessary to have a strong national diamond or a strong “home base” (Porter, 1998a). In that respect, strong domestic demand, sophisticated suppliers and domestic rivalry are of great importance. However, some scholars maintain that many small economies which have opened up to international trade do not have strong national diamonds as they have at least one weak side that requires reliance on a “foreign” diamond. The national diamond of Canada, for example, does not have strong domestic demand conditions. Instead, Canada’s competitive advantage stems more from cross-border cooperation and coordination than a single home base (Rugman & D’Cruz, 1993).

Yetton, Craig, Davis, and Hilmer argue that Porter’s philosophy is best suited to explain the competitiveness of large industrialised nations like the US and Japan (Yetton, Craig, Davis, & Hilmer, 1992). They maintain that the theory has limited application for relatively small or medium-sized economies dependent upon resource-based exports, such as Canada, New Zealand and Australia.

Rugman and D’Cruz are even more critical as they state that “Porter’s home-base diamond model of international competitiveness is seriously flawed when applied to a small, open, trading economy like Canada’s. Porter’s framework needs to be adapted to explain Canada’s successful resource-based multinationals, foreign subsidiaries and access to the triad market of the United States through the Free Trade Agreement” (Rugman & D’Cruz, p. 17, 1993). Consequently, it would be necessary to consider the nations together as one framework; a double diamond model, suggesting that managers build upon both domestic and foreign diamonds to become globally competitive in terms of survival, profitability, and growth (Moon, Rugman, & Verbeke, 1998).

In a study of the competitiveness of small economies such as Korea and Singapore, Moon, Rugman, & Verbeke (1998) also found Porter’s single diamond model to be incomplete, mainly because it does not incorporate multinational activities. The domestic markets of Korea and Singapore are relatively small, so global economies of scale cannot be achieved; instead, Korea and Singapore target international markets rather than domestic ones. Therefore, Moon, Rugman & Verbeke applied a new
approach, the *generalized double diamond model* presented by Moon in 1995, which offers some important extensions to Porter’s original model.

In a study of three industries in Ireland, dairy products, music and software, Clancy, O’Malley, O’Connell, & Van Egeraat (2001) found that Porter’s emphasis on the special importance of customers, competitors and suppliers being located within national boundaries did not play a central role in the success of those industries. Their findings suggest that the domestic market played a minor role in gaining a competitive advantage as markets overseas had more influence on the Irish market. The Irish market was too small to be the main or even an important market for the industries. Thus, domestic demand had little influence on the domestic suppliers and the market could not support the number of companies necessary for domestic rivalry. Instead, the companies in Ireland benefited from competing with companies in other countries and being part of some form of a wider grouping of connected or related companies and industries.

In summary, Porter has received vast criticism for his contributions to the concept of competitiveness and for his diamond model. The criticism has been positive as well as negative; however, no matter how bad the criticism, his model has not been entirely dismissed but merely modified or enhanced to suit the specific purposes of a certain industry or a nation.

### 4.4 Clusters

The idea of clusters is not new; clusters are part of the economic reality. In *Principles of Economics*, published in 1890, Marshall (1997) observed that companies can benefit from being located close to others engaged in related activities. Marshall identified three reasons for the benefits of “industrial districts”: There was the potential of attracting more specialized suppliers, there was a deeper labour market with more specialized skills, and there were knowledge spillover effects that went through different channels which are only possible locally. Since the days of Marshall, the idea of industrial districts in one form or another has evolved and continues to spread. Today, clusters are recognised as an important tool to promote industrial development, innovation, competitiveness, and growth (Andersson, Serger, Sörvik, & Hansson, 2004).
The most influential approach to clusters and cluster analysis is the one of Porter (European Commission, 2002; Martin & Sunley, 2003). His approach is based on one of the four facets of the diamond, i.e. related and supporting industries; however, Porter maintains that clusters are best seen as “a manifestation of the interactions among all four facets” (Porter, p. 229, 2008).

Porter defines clusters as “a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities” (Porter, p. 215, 2008). Clusters, therefore, do not only include businesses that compete and cooperate but also various institutions such as academic and training programs, trade and interest associations, and standards organizations. Broader public assets in the surrounding community also come into play; assets such as schools, universities, research centres, clean water, laws and regulations, quality standards, and market transparency (Porter, 1998a; 2008; Porter & Kramer, 2011). Never more appropriate are the famous words of Martin Luther King Junior (1965) while delivering a commencement address for Oberlin College; he stated: “All life is interrelated. We are all caught in an inescapable network of mutuality, tied into a single garment of destiny. Whatever affects one directly, affects all indirectly”.

Clusters create synergies in various ways as cluster advantages may rest on external economies or spillovers across companies and various industries or even on sub-units within companies, e.g. R&D and production. It is because of those advantages that companies decide to join a cluster, or as Porter puts it: “A cluster allows each member to benefit as if it had greater scale or as if it had joined with others formally – without requiring it to sacrifice its flexibility” (Porter, p. 80, 1998b).

The geographic scope of clusters may vary as it can range from a single city or state to a country or even a network of neighbouring countries (Porter, 1998a; 1998b; 2008). The garment industry cluster in New York, for example, is known to be located in just a few streets on Manhattan (Rantisi, 2002), whereas the auto supplier industry in the US is concentrated in five states (Klier, 1999).

Clusters may also vary in breadth and state of development. Some consist mainly of small and medium-sized companies, such as the Italian footwear cluster, whereas others include both small and large companies as the Hollywood cluster. Some clusters
rely on close cooperation with research universities, while others do not have any connection (Porter, 2008). Silicon Valley has benefited greatly from an effective use of university resources, venture capital and a large pool of scientists, engineers and skilled technicians, providing a good example of how important the clustering of collaborative institutions is for the economic development of an area (Wonglimpiyarat, 2006).

Clusters exist in both advanced and developing countries, even though clusters in advanced economies tend to be more developed. More developed clusters tend to have deeper and more specialized supplier bases, a wider range of related industries, and more extensive supporting institutions (Porter, 2008). Picard (2008) agrees with Porter but he also points out that clusters can be spontaneous, driven by large companies and entrepreneurs, or planned by some authority, usually a development agency or industry board. Companies cluster in all kinds of regions; in heavily populated areas, small cities or rural places or even around specific interests such as technology, natural resources, labour market knowledge or skills, a certain market or even a product (Rosenfeld, 1997). World renowned clusters are for example IT and internet in Silicon Valley, film in Hollywood, financial services on Wall Street, car production in Germany, and mobile communication in Sweden (Sölvell, 2009).

4.4.1 Clusters and Economic Performance
Clusters play an important part in the economic performance of successful and growing economies. Specific cluster effects can be difficult to measure and have been studied by many researchers. According to Porter (2008), clusters mainly affect competition in three ways: first, by increasing the productivity of companies or industries; second, by increasing their capacity for innovation and thus for productivity growth; and third, by stimulating new business formation that supports innovation and expands the cluster.

A case study of publicly traded companies in the US pharmaceutical industry suggests that companies located within major clusters achieve higher levels of productivity as they exhibit stronger financial performance than their counterparts located elsewhere (Boasson & MacPherson, 2001). The presence of local, specialized suppliers and service providers reduces reaction time and the need to keep a higher working capital. Furthermore, cluster membership is found to play a positive role in product innovation as measured by the number of registered patents.
Similarly, a study by Moreno, Pasi, and Usai (2004) indicates that companies within clusters reach a higher level of innovation but also that innovation tends to cluster more in sectors in which the neighbouring regions are also technologically specialized. A strong pressure to innovate and lower costs by turning ideas into new products and services is created by the cluster environment. Needless to say, good results motivate companies to invest further in innovation. Again, innovative activity is measured by patenting activity but also by production activity in contiguous areas.

Recent studies suggest that clusters provide economic benefits, not only for companies in general but also for newly started entrepreneurial companies in particular, resulting in higher company growth (Audretsch & Dohse, 2007) and higher survival rates (Wennberg & Lindqvist, 2010), all of which confirms the effectiveness of cluster policy. Clusters provide a beneficial environment for entrepreneurs to form new companies. New companies tend to be more dependent on external assets and capabilities than already existing ones; therefore, clusters are associated with higher levels of new business entry (Feser, Renski, & Goldstein, 2008). Furthermore, new entrants seem to be particularly drawn to areas with many small suppliers (Glaeser & Kerr, 2009).

In a case study of a US petrochemical company conducted in 2006, Patti (2006) illustrates the stimulating effect and the numerous advantages companies may experience in a cluster environment. His findings describe how competition motivates a member of a cluster to improve its efficiencies to control costs and look for ways to enhance its differentiation capabilities; furthermore, how cooperation leads to improved quality, improved new product and process development. The study states five main benefits: Better access to employees and suppliers, better access to specialized information, increased availability of complementary products and services, better access to public institutions, and better motivation and measurement.

However, there are other cluster advantages that are not as easily quantifiable, such as the increased power and influence of clusters on legislation, regulation and local infrastructure development; not to mention the impact clusters may have on local educational institutions, trade organisations and other associations. Although the above studies may not prove direct causality, they are indicative of the close relationship between clusters and economic outcomes.
4.4.2 Criticism

Porter’s cluster theory has received praise as well as criticism over the years. Martin and Sunley (2003) maintain that Porter’s theory has become the standard concept in the field of local industrial agglomeration and specialisation, and that policy makers all over the world have seized upon Porter’s cluster model as a tool for promoting national, regional, and local competitiveness, innovation and growth. However, Martin and Sunley suggest that clusters may have become a world-wide fad; a sort of academic and policy fashion item. They maintain that the concept is problematic as it lacks clear industrial and geographical boundaries; therefore, “the cluster concept should carry a public policy health warning” (Martin & Sunley, p. 5, 2003).

Rosenfeld, Bergman and Feser agree in part with Martin and Sunley. Bergman and Feser (1999, p. 246) argue that “the cluster concept is so broad and its connections to economic performance so multifaceted that it is often difficult to infer specific policy meaning from the typically broad and generalised cluster studies”. Rosenfeld (1997), however, points out the difficulties in cluster comparison between countries due to different cluster criteria. Aziz & Norhashim (2008) point out a flaw in the framework; they maintain that there is lack of recognition of the differing stages of development of clusters and the impact on the strategy required to guide them toward greater success.

Numerous parties all over the world continue to follow Porter’s theory and there are endless success stories. In an OECD-DATAR (2001) world congress on local clusters in 2001, the Secretary-General of the OECD, Donald J. Johnston, stated that being located in a cluster increases the profitability of companies on average by between two and four percent. Recent studies (Delgado, Porter, & Stern, 2011) show that industries participating in a strong cluster register higher employment growth as well as higher growth of wages, number of establishments, and patenting. The same study also reveals that industry and cluster level growth increases with the strength of related clusters in the region and with the strength of similar clusters in adjacent regions. Finally, evidence was found that new industries emerge where there is a strong cluster environment.

Regardless of the above studies, what do cluster participants say? The results of a survey executed in 2003 (Sölvell, Lindqvist, & Ketels, 2003) suggest that many cluster
initiatives are successful and contribute to the development of the cluster they are set to serve. In 85% of the cases cluster initiatives improved competitiveness in the cluster, 89% helped cluster growth, 81% met its goals, and 77% of the respondents believed that cluster initiatives had lived up to expectations. Only 4% of the cluster initiatives seemed to have been disappointing and had not led to much change.

Despite all criticism, everybody can agree that persuading the participants of a cluster to work together for a common goal is certainly not an easy task. There is a famous quote by Henry Ford, a great entrepreneur of his time and pioneer of the assembly line production method, which describes the process quite well: “Coming together is a beginning. Keeping together is progress. Working together is success” (Ford, n.d).

\footnote{509 cluster initiatives across the world were sent an invitation to participate in the on-line survey. The response rate was 47% and geographically the respondents were concentrated in Europe, North America, New Zealand, Australia, and Japan.}
5 Methodology

Little information is available about the Icelandic medical tourism industry. In order to evaluate its general competitiveness and that of hip and knee surgery in particular, it is important to acquire a vivid picture and a deep understanding of the way the market works. This research is qualitative in the form of in-depth (open-ended) interviews with valid parties working in the medical side of the medical tourism industry in Iceland. The reason for choosing this methodology is to gain access to information about how business is conducted “behind the scene”. That way, the researcher learns about events, activities and experiences that cannot be directly observed and how the participants feel and act in their environment expressed in their own words (Taylor & Bogdan, 1998).

5.1 Participants

The participants were selected by means of purposeful sampling, based upon their experience in the medical tourism industry in Iceland, but also with the aim of representing different types of medical services offered to medical tourists in order to provide a broad perspective and a clear picture of the market. Their combined knowledge and experience proved to be a valuable input for the research.

Eight participants were interviewed, most of them with extensive experience of medical tourism in Iceland and others working in newly established companies that are in the preparation phase. The participants work in companies specialising in psoriasis treatments, fertility treatments, laser eye surgery, cosmetic and general surgery, and orthopaedic surgery. Four participants are doctors specialising in ophthalmology, fertility, anaesthesia, and cosmetic surgery. Their average work experience in the healthcare industry is 26 years. Four participants have university degrees in business or law, master’s degrees and comprehensive experience in the healthcare industry. One is a representative of an interest group. All participants are executives working in the private medical tourism market, seven are males and one is a female. Two participants have worked in the tourism industry at some time in their life.


5.2 Instruments

The research is based on in-depth interviews with eight experts working in the Icelandic medical tourism industry. An interview guide was used as a standard reference to obtain comparable qualitative information as to the competitiveness of the industry in general and that of hip and knee surgery in particular. The interview guide was developed by the researcher and approved by the supervisor (see Appendix 2). It consists of twenty-four open-ended, descriptive questions that gave the participants the freedom to express their views in their own words and to describe conditions, working relationships and the way business is conducted in the industry.

The interview guide was designed and structured to answer the research questions by following Porter’s diamond in order to strategically assess the market environment and analyse the overall competitiveness of Icelandic medical tourism industry and of hip and knee surgery in Iceland. Thus, the researcher was able to analyse the strengths and weaknesses of each determinant of the diamond model and the positive and negative influence of government on the industry as well as developing a map of the Icelandic medical tourism cluster.

5.3 Execution

The interviews took place in the period of October - December 2011. An introduction and request for participation in the research was sent by e-mail. Participants were promised confidentiality, emphasising that their comments would not be traced to them or their companies, in the hope of motivating them to take part in the research and to encourage them to speak freely. In all cases, participants showed interest and were willing to take part in the research. All interviews were conducted at the participants’ workplaces except one that took place at a participant’s home. Six interviews were conducted in English and two in Icelandic. The researcher took great care in translating the phrases used in the diamond analysis in order to avoid any misunderstanding and to be able to grasp the correct meaning, opinion or attitude expressed.

The interviews had an average length of 110 minutes, ranging from about 80 minutes to 140 minutes. Before each interview, the researcher discussed the purpose and subject of the research and obtained permission to record the interview. The
researcher also went over the participants’ right to decline to answer any question; however, no participant invoked that right and all answered freely. The interview guide was used as a base for the interviews and the researcher was also able to follow up by asking for more details to seek a deeper understanding of the subject at hand. At the end of each interview, the researcher and participants reviewed a cluster map reflecting the various parties and different stakeholders that support and are related to the industry.

All interviews were recorded and transcribed right after they had been conducted after which the recordings were destroyed. The researcher’s comments and notes were documented following each interview. Further processing and analysis started after all interviews had been conducted. The researcher went over the transcripts repeatedly and coded each factor in accordance with the determinants of Porter’s diamond along with the additional variable, namely, government. Due to the different nature of medical services provided to medical tourists in Iceland, it was decided, in agreement with the supervisor, not to categorise the participants’ opinions and attitudes (comments and descriptions) in order to honour the confidentiality agreement and to avoid any traceability.

In analysing the material and assessing the weight of the participants’ comments at least half of the participants needed to be in agreement for a strength or weakness to be included (coded) in the diamond analysis. Therefore, if an opinion or attitude was only mentioned by three participants, it was not included in the analysis. If the opinions or attitudes expressed turned out to be equally positive and negative (4/4) the factors were coded both as a strength and a weakness (+/-). The strengths (+) and weaknesses (-) were subsequently summarised in the diamond model in order to evaluate the overall competitiveness of the industry. Finally, the participants assisted the researcher in evaluating the reliability of the medical tourism cluster map developed from one of the determinants of the diamond model – related and supporting industries.
6 Results and Discussion

The following comprises the evaluation of the competitiveness of the Icelandic medical tourism industry in general and of hip and knee surgery in particular. The main emphasis is on medical tourism, although the research also takes into account special strengths and weaknesses related to hip and knee surgery. The analysis is divided into two parts. First, the Icelandic medical tourism diamond is presented, emphasising the strengths and weaknesses of the industry. Second, the cluster environment is analysed and the Icelandic medical tourism cluster is drawn, pointing out the various parties and different stakeholders that provide support and are related to the cluster. Conclusions are drawn from the analysis by evaluating the competitiveness of the medical tourism industry and of hip and knee surgery.

6.1 The Icelandic Medical Tourism Diamond

The analysis of the Icelandic medical tourism diamond identifies the strengths and weaknesses of each determinant of the diamond. The chapter is divided into seven subchapters, covering the analysis of the four main determinants together with an analysis of the strengths and weaknesses related to government’s role in the industry, a summary, and finally, participants’ reflections on the future of medical tourism in Iceland.

For practical reasons, the analysis emphasises medical tourism in Iceland in general; however, if and when there is a special concern or difference in the analysis of hip and knee surgery, it is clearly pointed out in the text. The first five subchapters are divided into two parts; strengths and weaknesses.

A summary of the diamond is presented in Figure 7. The following are the opinions of experts working in the medical side of medical tourism in Iceland. It should be borne in mind that participants describe and evaluate the situation at the time of the interviews.
6.1.1 Factor Conditions
6.1.2 Demand Conditions
6.1.3 Related and Supporting Industries
6.1.4 Firm Strategy, Structure, and Rivalry
6.1.5 Government
6.1.6 Summary

6.1.7 The Future of Medical Tourism in Iceland
6.2 The Icelandic Medical Tourism Cluster

6.2.1 Cluster Map
6.2.2 Cluster Environment
6.2.3 Summary
7 Conclusion

Iceland’s competitiveness was hit hard in the financial crisis starting in 2008. Nevertheless, Iceland’s foundations stand firm as the infrastructure still remains intact and is ranked among the highest in the world (IMD, 2011; World Economic Forum, 2011a). This includes healthcare, education and basic infrastructure such as access to water, education, roads and electricity. In order to get back on track, the Icelandic government has set an objective for Iceland to become one of the ten most competitive nations in the world by 2020 (Prime Minister’s Office, 2011). The objective is a worthy one but to reach it Iceland needs to lay the foundations for a new and more sustainable economic growth path. One solution is to place increased emphasis on export-driven growth by developing more knowledge-based industries with a clear focus on creating greater value, higher wages and more diversified job opportunities.

Medical tourism is an international industry based on knowledge. It is built on Iceland’s strong foundations in education, healthcare, tourism and infrastructure. Knowing the potential of increased efficiency and innovation in medical tourism, not to mention the industry’s great spillover effects, the medical tourism industry is a valuable means to build a stronger economy, raise living standards and to increase Iceland’s overall competitiveness. For the medical tourism industry to make its contribution the cluster needs to increase its competitiveness which can be accomplished through increased collaboration and the concentrated efforts of different stakeholders.

7.1 Contribution and Limitations

This research identifies the strengths and weaknesses which influence the competitiveness of the Icelandic medical tourism industry in general and of hip and knee surgery in particular. The research has theoretical and managerial implications. There is a dearth of research on the competitiveness of medical tourism, internationally and in Iceland, which makes this research a valuable contribution to the knowledge of medical tourism in general and of the competitiveness of nations and industries.

As to the managerial implication, the research presents weaknesses in the competitiveness of the Icelandic medical tourism industry. In order to move the industry forward, those weaknesses need to be addressed. The next step is for the
leaders of the medical tourism industry and the government to prioritise and find ways to strengthen medical tourism and make it even more competitive. Thus, the industry will be better fitted to face the challenges and opportunities that lie ahead.

Participants in this research only represent the medical side of the medical tourism industry in Iceland. Therefore, the results of this research cannot be generalised to the medical tourism industry.

7.2 Future Research

Medical tourism has been practised in Iceland for fifteen years. So far, there are no reliable statistics. Medical tourism needs to be studied in more detail; statistics are needed with regard to various dimensions, including the size of the market, the number of employees working in the industry, the income it generates, the jobs it creates, and the foreign currency it brings to the country. Being able to determine how much medical tourism contributes to the economy helps both industry parties and the government to make sound decisions that will strengthen the industry.

Another project, similar to the one presented in this thesis, might constitute an interesting research topic; that is, a study on the competitiveness of the medical tourism industry in Iceland but this time with experts from the tourism side evaluating the strengths and weaknesses of the industry. Thus, results could be compared and used to make the industry more competitive.
References


OECD (2010d). *Labour Productivity Growth - Data: GDP, Annual Hours Worked, Total Employment, Total Hours Worked, GDP per Hour Worked*. Retrieved November 8th, 2011, from http://www.oecd.org/topicstatsportal/0,3398,en_2825_30453906_1_1_1_1_1,00.html#30453948


Figure 7 Obesity rates among adults, 2007 or latest year available (OECD, 2009b)
Figure 8  The Icelandic Medical Tourism Cluster (researcher’s analysis – names in English)
Appendix 2 – Interview Guide

The Competitiveness of the Icelandic Medical Tourism Industry

How able is the Icelandic workforce in the field of medical tourism? Does the workforce have the knowledge, the skills, and the experience to be competitive at an international level? What are their strengths compared to other nations in medical tourism? Does the Icelandic workforce lack certain knowledge, skills, or experience? And for hip and knee procedures (H&K)?

Are there enough workers to service the medical tourism industry in Iceland – trained doctors (surgery and anaesthesia), nurses, physical therapists, or even people in the tourism industry ...? How is the situation in H&K procedures?

In terms of technology, products and methods/treatments used in the medical field, is Iceland up-to-date? What are the strengths and weaknesses compared to its competitors? What about the facilities? And in H&K procedures?

Do you see the location of Iceland as an advantage or a disadvantage for medical tourism? Explain. And for H&K procedures?

Is the infrastructure in Iceland competitive (roads, tourist resorts, airport, transportation and public places in general, health services ...)? Does it strengthen or weaken Iceland’s competitiveness in medical tourism in general? Explain. And for patients with H&K problems?

How is the access to financing for a company in medical tourism in Iceland compared to the competitors? Does it increase/decrease competitiveness? And for H&K procedures?

Is there FDI? Are foreigners willing to invest in medical tourism in Iceland? In H&K procedures?

Is the political environment supportive towards medical tourism? How do the authorities strengthen/weaken the competitiveness? Is it different for H&K procedures?

What about the legal and business environment/framework, is it supportive towards medical tourism? And towards H&K procedures, is it more or less supportive? Does the environment/framework increase the competitiveness of the industry in Iceland?

Would you say that the home demand is sophisticated/advanced?

Are Icelandic patients more demanding than foreign patients?

How much competition is there between companies in the medical tourism industry within Iceland? Is it any different for H&K procedures? How is the competition within medical tourism between nations or tourist resorts?
Does Iceland have access or availability to domestic, sophisticated suppliers that are internationally competitive (i.e. suppliers of medical and surgical tools and equipment, support products, medicine, emergency hospital, blood bank, etc.)?

How is the cooperation in Iceland between companies/competitors within the industry/cluster? How is the cooperation with related and supporting industries – cluster map. And in H&K?

Do trade unions, trade associations or other interest groups in Iceland e.g. work together to improve the competitiveness of the industry? In what way?

Do people have access to further education, academic research? Are there grants for R&D?

What are the most important related and supporting industries for the medical tourism industry in Iceland – cluster map? And for H&K? Are they internationally competitive?

Is there a party/organisation/association in Iceland that drives the industry forward in development? Do parties in the industry have a common goal? Is someone promoting the cluster? Effective?

Are there „external“ parties, public or private, that collect industry/cluster information?

How can companies work together with competitors, related and supporting industries, interest associations, research institutes, universities, etc. to improve medical tourism in Iceland and make it more competitive? Would you be willing to do so and in what sense? Synergy? Marketing, R&D ...? Is there cooperation with parties abroad? If so, which ones and in what way? Does it make the industry in Iceland stronger, more competitive?

How do you see the future for medical tourism? What are the main opportunities in medical tourism in Iceland? And for H&K procedures?

What are the main challenges, or even threats, for medical tourism to prosper in Iceland in the future? And for H&K procedures?

In your point of view, what are Iceland’s three main advantages and disadvantages in medical tourism compared to the competitors? How is the industry different in Iceland? Is it a strength or a weakness? And if the questions are applied to H&K procedures?

Whom do you consider to be Iceland’s main rivals/competitors in medical tourism? And in H&K?