



Innovation in Icelandic tourism.

A case study.

Verena Schnurbus



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Abstract

The purpose of this thesis is to find the key to success in supporting innovation in clusters and companies in tourism. The Icelandic tourism cluster and companies operating in tourism were chosen as subjects which could fulfil the requirements for a single case study with multiple units of analysis in order to draw conclusions of innovative activities and processes within clusters and companies. Innovative capabilities on a company level were assessed by open semi-structured interviews with tourism company representatives.

Literature confirms that innovation within companies is a necessary to stay ahead of competitors and to be able to offer new value to its customers. It is clear that innovation within clusters are strengthened through stronger collaboration and competition among its members, diffusion of information and (tacit) knowledge, but also through its local culture and specific infrastructure such as research institutes. Tourism clusters are characterised by their (natural) environment and the specific region of the cluster as production and consumption of tourism products takes place in the same area. However, tourism clusters are often vague, as many complementary companies have a stake in the cluster and locals or the local community are directly affected of the cluster and/or are part of it as well.

Literature study in this thesis reveals that innovative activities in tourism clusters are supported by seven key success factors: collaboration and cooperation, infrastructure, leadership, funding and resources, policies, local community, and strategies to innovate.

In this thesis the results show that tourism companies within the industry are not accountable for innovations alone, as the industry has wide-reaching dimensions into other industries. Innovative products in companies operating in Icelandic tourism are interactive, personalised for the customer and usually designated for a smaller customer market. Innovations were developed with collaboration of research institutes or organisations of other industries. Successful innovative companies in Iceland have a clear vision, are confident and target-driven in their endeavour. They see and exploit opportunities at the right time and can adapt to the market and fulfil customer needs timely. Through innovation new customers can be attracted or new markets developed

which will give destinations new opportunities to develop and to define themselves in a new way.

Further results show that supporting innovation on a company level will be limited on single companies whereas supporting the infrastructure on a cluster level will on the other hand smitten, and funding within the cluster and support will result in a greater number of start-up companies and innovative products. In generally it can be said that tourism cluster support is more important than supporting single companies in tourism.

Table of contents

List of figures.....	9
List of tables.....	10
1 Introduction.....	11
1.1 Structure of the thesis.....	15
2 Research methodology.....	17
2.1 Qualitative research.....	17
2.2 Literature study.....	17
2.3 Case Study.....	18
2.3.1 Research design.....	19
2.3.2 Semi-structured interviews.....	20
2.3.2.1 Data collection.....	20
2.3.2.2 Data analysis through coding.....	21
Part I: Frame of references.....	23
3 Literature review of competitiveness.....	24
3.1 Theory of competitiveness.....	24
3.2 Competitiveness of nations and its measurements.....	27
3.2.1 The microeconomic business environment: The Diamond Model of National Advantage.....	29
3.2.1.1 The role of the government in the Diamond Model.....	32
3.2.1.2 Critics of the Diamond Model approach.....	33
3.3 Regional Competitiveness.....	34
3.4 Competitiveness of companies.....	36
3.4.1 Porter's Five Forces.....	37
3.5 Summary of chapter 3.....	39
4 Literature review of cluster theories.....	40
4.1 Defining clusters.....	40
4.2 Development of cluster theories.....	41
4.2.1 The economic stream.....	43
4.2.2 The innovative and knowledge-based stream.....	43
4.3 Cluster members.....	46
4.3.1 The benefits of the company in a cluster.....	47
4.3.2 Networks and Clusters.....	48
4.3.3 The role of government in clusters.....	50
4.4 Development and life cycle of clusters.....	51
4.5 Clusters in tourism.....	54

4.5.1	Characteristics of tourism clusters and destination competitiveness .	54
4.5.2	Research of tourism clusters	56
4.5.3	Application of tourism clusters.....	57
4.6	Critics and limitation of the cluster approach	58
4.7	Summary of chapter 4	59
5	Literature review on innovation	61
5.1	Defining innovation	61
5.2	Types of innovation	62
5.3	Innovation theories	63
5.3.1	The Austrian School of Economics.....	63
5.3.2	Joseph Schumpeter	65
5.3.3	Peter Drucker	67
5.3.4	Innovation studies and entrepreneurship today.....	68
5.4	Innovation policies and the role of government.....	68
5.5	The innovation system	69
5.5.1	Innovation within clusters	70
5.5.2	Innovation in companies	71
5.5.2.1	Innovation strategies for companies.....	72
5.6	The Innovation process	73
5.6.1	Models of the innovation process	73
5.6.2	Creativity.....	76
5.6.2.1	Organisational creativity.....	77
5.7	Literature Review: Innovation in tourism - Research and trends	78
5.7.1	Characteristics of tourism innovation	80
5.7.2	Determinants and driving factors for tourism innovations.....	81
5.7.2.1	Innovative activities – and its barriers.....	83
5.8	Summary of chapter 5	84
6	Summary of Part I: Frame of references	85
6.1	Framework of references: Literature study	85
6.1.1	Key success factors	86
6.1.2	Key success factors for innovation in tourism clusters	87
6.1.3	Summary of KSF in tourism clusters	92
Part II:	Frame of research	95
7	The innovation system in Iceland	96
7.1	Innovation and entrepreneurship on small islands.....	96
7.2	The innovation system in Iceland and its institutions	96
7.2.1	Innovation measures and ranking	98

7.2.2	Supporting institutions investing in innovation	100
8	Icelandic Tourism.....	101
8.1	Economic performance and cluster composition of Iceland	101
8.2	In-depth analysis of Icelandic tourism.....	104
8.2.1	Icelandic Tourism Profile: History and development	104
8.2.2	Current figures and development of the Icelandic tourism industry.	106
8.2.3	Visitor satisfaction and industry competitiveness	114
9	Cluster analysis: The Icelandic Tourism Cluster	115
9.1	Cluster mapping.....	115
9.1.1	Core activities in the cluster	116
9.1.1.1	Transportation	116
9.1.1.2	Accommodation	118
9.1.1.3	Tourist related activities (attractions and recreation)	118
9.1.1.4	Booking service/Travel agents and tour operators	119
9.1.2	Related and supporting activities in the cluster	119
9.1.3	Service Providers	120
9.1.4	Public activities	120
9.1.4.1	Education	120
9.1.4.2	Research	121
9.1.4.3	Ministries	122
9.1.4.4	Investments	123
9.1.4.5	Municipalities	124
9.1.5	Intermediate activities: Associations and initiatives	124
9.1.6	Supporting Agencies	128
9.1.6.1	Marketing	128
9.1.7	Related Clusters	129
9.2	Analysis of the competitiveness of the Icelandic tourism cluster.....	129
9.2.1	Stage of cluster development.....	130
9.2.2	Icelandic Tourism Cluster Diamond Model - Analysis of national competitiveness.....	131
9.2.3	Five Forces analysis of the Icelandic tourism clusters.....	133
9.2.4	Key success factors for the Icelandic tourism industry	135
9.3	Summary of chapter 9	140
9.4	Discussion	141
10	Analysis of innovation in companies in Icelandic tourism	144
10.1	Methodology	144
10.1.1	Questionnaire.....	144

10.1.2	Sample and execution of interviews	146
10.1.2.1	Confidentiality.....	147
10.1.3	Characteristics of CEO's and company's interviewed	147
10.1.4	Data processing	148
10.2	Results	154
10.2.1	Mentality	154
10.2.1.1	Driving forces to innovate.....	154
10.2.1.2	Mission.....	158
10.2.1.3	Vision.....	159
10.2.2	Capabilities	161
10.2.2.1	Knowledge	161
10.2.2.2	Human resources	162
10.2.2.3	Management and leadership.....	163
10.2.2.4	Dynamic capabilities	165
10.2.3	Innovation process	166
10.2.3.1	Nature of innovation.....	166
10.2.3.2	Preparation	167
10.2.3.3	Success	169
10.3	Summary of chapter 10	170
11	Discussion	172
11.1	Suggestions for Iceland.....	173
11.2	Limitations and future research	174
12	Conclusion	176
	References	177
	Appendix.....	195

List of figures

Figure 1: The Diamond Model of National Advantage	32
Figure 2: Government influences on clusters	50
Figure 3: Emergence of clusters	51
Figure 4: The Cluster Life Cycle	53
Figure 5: Creative destruction.....	66
Figure 6: The role of the state in innovation.....	69
Figure 7: Linear Model, technology push.....	74
Figure 8: Open Innovation.....	75
Figure 9. Framework of KSF supporting innovation in tourism clusters.....	93
Figure 10. Public Sector elements of the Icelandic Science and Innovation System.....	97
Figure 11. Gross domestic spending on R&D.....	99
Figure 12: Revenues of marine products, foreign travellers and aluminium and aluminium products.....	102
Figure 13. Global Competitive Index: Iceland	103
Figure 14. Development of ISK exchange rate 2007-2017.....	104
Figure 15. International tourist arrival in Iceland through Keflavik International Airport: 2006-2016.....	107
Figure 16. International tourist arrival 2016 through Keflavik International Airport.....	108
Figure 17. Overnight stays in Iceland after region 2012-2015.....	110
Figure 18. Occupancy rate for rooms in hotels in Iceland 2013-2016.	110
Figure 19. Number of beds in 2015 and 2016 after region.....	111
Figure 20. Regions in Iceland visited by tourists: Summer 2016; Winter 2015/16.	113
Figure 21. Factors that had an impact on decision making to visit Iceland.....	113
Figure 22. Cluster map for the Icelandic tourism cluster.....	116
Figure 23. Organisational Chart Ministry of Industries and Innovation.	123
Figure 24. Investment of tax authorities 2010-2015.	123

List of tables

Table 1. Occupancy rate 2011-2016 after regions	111
Table 2. Overview of interviewees.....	148
Table 3. Foundations of the Icelandic tourism cluster.....	195

1 Introduction

The tourism industry in Iceland has been booming for the last years with an average annual growth rate of 30% for 2015 and 40% for 2016. The year 2016 was the sixth year in a row with double digit growth (compared to 4,4% world and 7,3% Northern Europe). A further exponential growth is expected for the next years (Arion banki, 2016), although the fast growth can lead to obvious problems especially in weak infrastructure, declining social acceptance of residents in the number of arriving guests, and stress on nature.

To build a sustainable industry which can compete with international standards, a regulated growth with strategic planning for the future is inevitable. However, there has been an increase in published articles and rumours claiming that Iceland is over-crowded, fully booked or that the country became already a mass tourism destination. But comparing Iceland with other destinations this is surely not the case. It is just a fact that the growth has been too fast, as a consequence infrastructure is not ready, human resources not established, nor could locals adapt to the booming tourist numbers and social changes. Lacking are a clear general destination management and government policies which give a distinct direction for the future by stabilising the industry and by setting clear rules and long-term concepts. Capabilities within organisations have to be exploited better by a stronger alliance among industry members and unused resources have to be managed in a more efficient manner. Otherwise the outcome will result in a decreased competitiveness of Iceland in regard to competitors' destinations. Such steps have already been taken into this direction by increasing funding to build up major tourist sites and by the establishment of *The Tourism Task Force* (Stjórnstöð ferðamála) comprising of ministers and tourism industry representatives. Recently KPMG Iceland (2016) conducted a scenario and risk analysis by working out uncertainty factors that have an influence on the development of the Icelandic tourism industry. These factors are „Iceland in comparison to other nations competitiveness of the tourism industry“ and „sustainability in relations to the nature and the people“. (‐Ísland í samhengi þjóðanna með tilliti til samkeppnishæfni ferðapjónustunnar“ og „Þolmörk lands og þjóðar“.) The former factor will be relevant for the thesis.

Various different components influence competitiveness, such as the reputation and innovativeness of the country, the rate of exchange, and the economic and political situation

in the world. The researcher submits the proposal that for the competitiveness of the tourism industry in Iceland a strong innovation policy of the government and innovations within companies directly involved in the tourism sector are crucial. This however implies also that higher professionalism, cooperation and networking in the sector is inevitable.

Copious amounts of articles have been written about innovation in technology, but innovation research in tourism is still a young and underdeveloped phenomenon. However, this is essential in order to create innovation policies and to foster the competitiveness of a whole industry.

Innovation is often defined as a process of exploiting new ideas that lead to the development of a new product, service or process. Organisations and industries that do not innovate face decline and extinction (Drucker, 1985).

Innovation in tourism is necessary in order to build a competitive industry. It is also necessary for regional and strategical planning as well as being necessary for further sustainable growth. According to aforesaid, innovation is therefore necessary for the Icelandic tourism industry in order to generate (new) places, products and markets and in order to combine different resources (e.g. agriculture and tourism) so that tourists will stay longer in the country, visit thus other places and use a greater variety of activities and facilities. As a result, the number of tourists could be controlled more efficiently and increased value can be created in different areas or within other industries that furthermore leads to regional development.

Penrose stated already in 1959 that each company has some unused resources or services, but on the other hand a constant need for challenging innovation to obtain a competitive advantage (1959). The idea is introduction of new combinations of resources - which are innovations - within the company (and moreover among different companies and industries).

As the tourism industry affects a number of other industries it is interesting to see how completely different sectors start to connect and intertwine - even absorb each other. Schumpeter (1943) coined the term of „creative destruction“, where he states that “capitalism is a method of economic change, which never is stationary and where economic structures are constantly changed within” (Schumpeter, p. 82, 1976). This means that old industries are destroyed and new ones take over. This has been seen in Iceland where farmers have given up

farming because it is more lucrative for them to start in tourism. In this context it is also interesting to have a look at the origin of such “creations” and innovations. Florida (2014) claimed in his book *The rise of the Creative Class* that the real driving force in economy is the rise of human creativity, which has become the decisive source of competitive advantage in a so called *knowledge economy* (Drucker, 1985). Creativity is formed by knowledge and information whereas innovation is its product. This means that the main resource companies nowadays compete for are not tangible in nature, but the talent and creativity of employees. Florida calls the people with these abilities the *Creative Class* who are most influential in economic activity and leading when it comes to wealth and income.

In the past years the Icelandic tourism sector has created a great number of jobs, but however, these jobs are often low-paid service jobs with little or no request for specialization and often performed by foreign workers. With sophisticated innovation more knowledge-workers would be needed. Tourism in Iceland was for a long time borderline industry with little or no development, however myriads of opportunities seem to exist in the industry that are waiting to be captured and exploited. Similar to what Penrose (1959) stated, creativity is a risk-taking method by combining and synthesizing data and materials, which can feel uncomfortable as it often disrupts existing patterns of perceptions (see Schumpeter 1943).

But not only internal processes such as creativity play an important role in innovation, it is also the external environment formed by the geography and location where companies coexist and often form whole clusters (Porter, 1990; 2000; Porter and Stern, 2001). Companies interacting within a cluster have thus more access to sources which are necessary in order to implement innovations. However, the innovativeness and competitiveness of a cluster depends on the national diamond of the country with the government as a “catalyst and challenger” (Porter, 1990).

Identifying and analysing the clusters is relevant to shape future strategies which are needed in a more and more global and competitive market. Not only does competition play a big role, but also does cooperation which can be explained with a cluster approach.

Following the general implications on tourism clusters Iceland is taken as a case study to exemplify the characteristics of the cluster and especially its opportunities in value creation. From 2014, the tourism industry has been accounted for more foreign exchange income than

both the fisheries industry and the aluminium industry which are the traditional main industries of Iceland. There is a huge opportunity for Iceland to develop its tourism cluster because of its unique culture and natural beauty. Nonetheless, untapped opportunities are abundant.

This thesis provides a deep analysis of the tourism cluster in Iceland, as an interesting phenomenon that is still in a developing process and has experienced rapid growth in the last years. It is crucial though to understand how the cluster has developed, to what extent it is supported by the Icelandic infrastructure and finally, what are the future possibilities. One aim of the study is thus to scrutinise the competitiveness of the Icelandic tourism industry in respect to innovation as the driving force of the competitive advantage. Hence the topics will be those that affect the competitiveness and innovativeness of Iceland as a destination. Second purpose of the research is to assess the innovativeness of Icelandic companies in tourism concerning products and services offered, management of innovation processes, their intent to invest in innovation and the way they innovate.

The Icelandic tourism cluster and single companies operating in tourism are taken as a case study in order to draw conclusions of innovative activities and processes within clusters and companies. The main question which is derived from aforesaid is therefore:

What is the key to success in supporting innovation in companies and clusters in tourism?

In order to answer the question further questions are asked supportively:

- What are key success factors for innovation in clusters?
- How can the Icelandic tourism cluster support innovation?
- How do companies in the Icelandic tourism industry innovate? What characterizes innovative companies in Icelandic tourism and what types of innovations are generally common?

The thesis shall not only address participants in the tourism industry in Iceland, but it is also seen as an interdisciplinary research where competitiveness of microeconomics, innovation studies and tourism studies meet as there is certainly a need for research in these areas in Iceland (Edward H. Huijbens and Gunnar Þ. Jóhannesson, 2013; The Icelandic Tourist Board, 2013).

The tourism industry in Iceland is still a developing industry and innovation studies in tourism are limited. General researches have been conducted in other countries where innovations have been categorised, determinants and driving forces defined and innovation policies analysed (Hjalager, 2010).

1.1 Structure of the thesis

The structure of the thesis consists of three segments: research methodology, literature review, and research part.

The first part starts in chapter 2 where research methods are described. Qualitative research methods were chosen for data collection and the main method was a case study approach as the innovative capabilities in the Icelandic tourism cluster were examined. In this context the method of semi-structured interviews is explained as they were used to collect information of companies operating in tourism in Iceland.

The next part extends over chapter 3, 4, 5 and 6. It consists of a literature review of the theory of competitiveness and the process and the importance of clustering. It furthermore deals with the theory of innovation, i.e. defining innovative action, comparing different approaches and models of innovation, and deducing processes and prerequisites of innovation. Additionally, key success factors for innovation in clusters are detected and defined.

The last part is in chapters 7, 8, 9 and 10 and commences with a short overview of the Icelandic innovation system and Icelandic tourism. Thereafter the research component of the thesis is split in two parts. In the first part (chapter 9) the Icelandic tourism cluster is analysed as a case study using different methods to study its competitiveness and innovation capabilities. The cluster initiative process is studied in relation to cluster activities in regard to innovation. The tourism cluster is mapped by identifying business units and target groups, its core capabilities, and the environment of the cluster. Next, the innovative capacity and innovative ecosystem of the cluster are discussed considering in particular value creation in the tourism industry.

The last research section concerns the innovativeness of selected companies, operating in tourism. To understand innovative capabilities within the industry the innovation process, and general innovation aspects were investigated.

In chapter 11 results are discussed in relation to the literature and the research question is answered. Further limitations of the research and further research are suggested.

2 Research methodology

The goal of the research was to find out what characterises successful support for innovations in tourism clusters and companies. Iceland was taken as a case to exemplify the capabilities to innovate and also prerequisites to support innovative activity. Following, different research methods are discussed which were used for data collection and analysis. In general the specific research questions reveal three fundamental qualitative research designs: literature study, case study method, and open semi-structured interviews.

2.1 Qualitative research

The characteristics of qualitative research methods is the participant's point of view at given time and place. It is collected with a method where his or hers point of view should be undisturbed. Data which is collected is rich and rather unstructured in the beginning and it is about the researcher to sort the data, structure and interpret it (Merriam and Tisdell, 2016). The aim is a contextual understanding of micro environments. A difference to quantitative research is that results can often not be generalised (Gephart, 2004). However, qualitative research gives an insight to a problem or trend and helps to develop ideas and hypotheses. Often quantitative research follows in order to quantify the findings from a larger sample population (Bryman and Bell, 2011).

A qualitative method was chosen to answer the research question as the topic explored is not very common and not many studies have been conducted in this field.

2.2 Literature study

A literature study is used to find key success factors for innovation in tourism. According to Merriam and Tisdell (2016) a literature review is "a narrative essay that integrates, synthesizes, and critiques the important thinking and research on a particular topic" (p. 95). In this thesis however relevant literature was not only reviewed but analysed on the basis of a particular research question. First, previous literature on the topic was collected. Data for the literature analysis was derived from empirical material of previous researches or theories on the topic. Articles were the main source for data collection which were then analysed in order to develop a framework that answered the research question. In order to obtain

relevant information, bibliographies, references and abstracts were screened for relevant aspects of the topic.

The main criteria in this research was the relevance of the content of the literature according to the particular research topic. Thus literature was collected and reviewed until all relevant literature was covered and a saturation point was reached (Merriam and Tisdell, 2016). Literature was then coded according to the research question. Analysing through coding is further explained in chapter 2.3.2.2. Also for coding relevance rather than representativeness was determining the process of data collection (Flick, 2014). When no new codes emerged, it was deemed that enough data had been collected in order to construct a framework. Collecting more data after this point was seen as redundant and too much time consuming. With the concepts and categories which emerged after coding a first framework was generated which again lead to a continuous process of data collection in relation to the framework and a revise of the framework.

2.3 Case Study

The case study is a multi-strategy research, or a triangulation method, where a single case is intensively analysed. A case study can be defined as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2014, p. 16).

Case studies are found in many different disciplines such as psychology, political and social science, business or economics. A case can be a single region, a single organisation, a person or an event. These cases are taken as an example to explain certain events or occurrences but it cannot be used to generalise. However, if many similar cases are analysed it is possible to achieve a certain degree of theoretical generalisability on the basis of these cases.

According to Yin (20014) case studies are the preferred method when: “a) “how” and “why” questions are being posed, b) the investigator has little control over events, and c) the focus is on a contemporary phenomenon within a real-life context” (Yin, p. 2, 2014). To get an answer to the research question of this thesis, the case study serves as a research method in order to get an extensive and in-depth description of the phenomenon focusing on contemporary events.

The analysis in case studies is usually based on different qualitative and quantitative data such as interviews, surveys, observations, (newspaper) articles, economic data and the like. Furthermore case study research always includes some longitudinal elements which can be sought through analysing of archival information and by retrospective interviewing (Bryman and Bell, 2011).

Case study follows a process which consists of different steps:

- Recognition and determination of the status of the phenomenon to be investigated.
- Development of research question and research approach/method.
- Defining of research material, research design and process.
- Collection of quantitative and qualitative data.
- Analysing of data according to the research context in order to diagnose and identify causal factors.
- Outlining the conclusion and discussion in a report (Yin, 2014; Kothari, 2004).

Benefits of the case study are i. a. formulating of relevant hypotheses, understanding of context and relationships and the use of different methods. Limitations of this approach are that information gathered in case studies is often not comparable and holds the danger of false generalisation, it is time consuming and can only be used in a limited sphere (Kothari, 2004).

2.3.1 Research design

In this research the case of the tourism industry - the tourism cluster and companies operating in tourism in Iceland - as a single industry is discussed. The case study is thus a single-case design with multiple units of analysis. The reason in choosing the case study as a research method is to gain a deeper understanding of the phenomenon as it is complex and multi-dimensional with many different variables and data that are needed to capture the case. A second reason for choosing the case study method is to achieve a higher validity and credibility of results in order to overcome intrinsic biases which can occur if only one research method is used. As a consequence the quantitative and the qualitative research were conducted accordingly in the case study.

For this thesis data collection was mainly based on three different levels:

- Most of the quantitative data was collected from *Statistics Iceland, The Icelandic Tourist Board, Eurostat, Isavia* and other relevant Icelandic institutions that collect data regarding tourism and cluster development in Iceland.
- Qualitative data was obtained from different organisations connected to the industry through open semi-structured interviews with employees from private companies or interest groups or governmental organisations.
- Qualitative data was further gained through literature reviews of public documents or internal reports of companies, organisations in public administration, or interest groups. Additionally, newspaper articles, interviews and reviews were collected and reviewed from the Icelandic Newspapers *Morgunblaðið* and *Fréttablaðið*. Further from the web pages *visir.is*, *mbl.is*, *kjarninn.is* and *ruv.is*

2.3.2 Semi-structured interviews

Semi-structured interviews were conducted among companies and other organisations throughout the research process.

In qualitative research three main forms of interviewing are distinguished: structured, unstructured and semi-structured interviewing. All forms can contain different sub-categories such as in-depth interview or life history interview (Bryman and Bell, 2011). For this thesis the method of semi-structured interviews was chosen as interview form.

In an open semi-structured interview the researcher has a list of questions or glossary in form of informal questions on topics that he wants to cover. The asked questions are open-ended questions where respondents are encouraged to answer freely leaving more space also for the researcher to react to their answers. It might occur that questions which are not on the list are asked in order to pick up on things mentioned by the respondent. All questions are used flexibly without predetermined wording and order, but specific data is required from all respondents (Merriam and Tisdell, 2016). The interview guide contains specific questions that are asked every interviewee, and some more open-ended questions that could be used as followed up questions or probes.

2.3.2.1 Data collection

In the beginning a questionnaire was prepared with general and specific questions. Questions were categorised into different topics or areas to develop a structured interview guide. Questions were open, but with scope to ask follow-up or probing questions while conducting the interview.

The first interview was used to test the questionnaire as there is usually a need to change or delete questions or change the order of questions.

The companies or interviewees were chosen because of their valuated reputation (based on newspaper articles, customer satisfaction, researchers own experience), and relevance for the research.

As the interviewees group was homogenous not more than ten interviews were needed to get to the point of data saturation within the scope of the research project.

During the interview the confidentiality of any information provided was reassured as well as that the interviewee's identity would not be revealed in any way. Notes were taken while executing the interview as well as afterwards about the time, place, feelings, setting (environment) and general situation of interview.

Interviews were transcribed in a timely manner after the interviews were taken. The interviews were finally coded.

2.3.2.2 Data analysis through coding

Coding technique was used for the literature study and for analysing the interviews. This means that codes, categories and concepts were developed and relations between them established.

Coding is a process with different steps. The starting point is open coding (or initial coding). Here expressions are classified in order to attach captions or concepts to them and later developed into codes if they are appropriate and particularly relevant for the research question. The codes are then categorised in groups and theses again linked to more abstract codes.

The process then follows other forms of coding. These are more structured such as axial, theoretical and focused coding. In axial coding links and relations between the different codes are elaborated that means categories are related to their subcategories. Codes or concepts are compared in order to find out central phenomenon, consequences or conditions for each other. The next step is selective coding where data is scanned for more evidence to confirm existing core categories. The focus is laid on core categories, core concepts or core variables around which other categories can be integrated. The categories consist usually of one or several words. In the end a framework is drawn up and checked again against the data (Flick,

2014). The themes or categories and their relationship to each other are discussed in the results.

Names of the themes or categories come either from the researcher himself, from the respondents, or from outside the study, which is mostly literature based on the topic (Merriam and Tisdell, 2016).

According to Merriam and Tisdell (2016) the categories constructed in data analysis should be responsive, in order to answer the research question; exhaustive, so that relevant data falls under this category; mutually exclusive, which means that particular data fits only in one category and is not overlapping with others. Further, the categories should be sensitizing, which means that outsiders can easily read the categories and gain sense of their nature. Last, categories have to be conceptually congruent, which means that they should be at the same level of abstraction (Merriam and Tisdell, 2016).

Part I: Frame of references

The first part of the thesis covers a literature review which is needed to frame the basis of the research question and its broader context and to describe the tools needed for the research part.

According to the research question there is a need to explain why it is important to support innovation not only in companies, but also in clusters. Thus cluster theories, the importance of clusters for companies operating in the cluster, and the importance of clusters for the regional and/or national competitiveness is worked out.

Even though most innovations take place in organisations, their influencing factors are wide spread, in areas such as the macroeconomic stability, in the direct microenvironment, and in the capabilities of companies. Thus analysing factors of competitiveness helps on understanding the nature of innovativeness. Discussing competitiveness is therefore essential as it is not innovativeness what companies, industries or nations try to seek, but a strong lasting competitive position in the market.

Another item on the agenda is to ask why innovation is important in general and where it comes from, apart from the competitive point of view.

The literature review has to take into account two different levels of analysis: the cluster level and the company level.

3 Literature review of competitiveness

Comparing economic results of nations, regions, specific industries or companies can be done with different methods and on several levels. One level which is important for this thesis, is competitiveness. In order to understand the term better, several approaches and definitions are compared, regarding competitiveness of nations, regions, clusters and of companies.

3.1 Theory of competitiveness

Numerous definitions of the concept of competitiveness exist and its meaning and relevance have changed through time. The field of its usage makes it hard to define the term in general and that is why definitions do not appear in economic dictionaries or in textbooks on micro- or macroeconomics (Cellini and Soci, 2002). A main reason why nations and industries fail to compete and progress is a broad misunderstanding of what is meant by the term competitiveness and how it can be realized. However, defining the term competitiveness depends on the level of analysis, as it can be on a national, industry, company or product level (Buckley, Pass and Prescott, 1988).

As the thesis is about innovativeness of a single industry and its corresponding companies within one country the emphasis is laid on the meso and micro level.

Defining competitiveness is the result of a long history of thoughts starting with the *classical model* of Adam Smith (1776) who identified four input factors - land, capital, natural resources and labour. These factors are still important today, but they have been overshadowed by the globalisation of competition and new technologies. The Marxist economists highlighted the impact of the socio-political environment on economic development (Marx, 1867). Schumpeter (1943) mentioned relatively early the role of the entrepreneur as a factor of competitiveness and the disequilibrium in economy which is driving innovation and thus competitiveness. Drucker (1969) saw the importance of management as a key input for competitiveness. All these aspects are cumulating in the *Competitiveness Diamond Model* of Porter (1990) which is trying to combine all factors. The model is discussed in chapter 3.2.1.

Comparing various definitions of competitiveness from (international) institutions and researchers makes clear the different meanings of the term.

The OECD (1992) defines competitiveness on a national level as

the degree to which a nation can, under free trade and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real income of its people over the long-term (p. 237).

Others see competitiveness rather in a monetary sense equating competitiveness with profitable industries where high returns and a rising GDP are main goals for a nation (e.g. Scott and Lodge, 1985; Aiginger, Bärenthaler-Sieber, and Vogel 2013).

The WEF (2013) defines competitiveness as „the set of institutions, policies, and factors that determine the level of productivity of a country“ (p. 4). These “factors” can be investment in physical capital and infrastructure, in education and training, technological progress, macroeconomic stability, good governance, firm sophistication, and market efficiency. The most important factor is productivity, which determines the rates of return and thus the growth potential.

Also Porter argues that “the only meaningful concept of competitiveness at the national level is *productivity*” and calls competitiveness “an amorphous notion” (Porter, p. 6, 1990). He lays the focus on non-monetary measurements and holds that the category of competitiveness should be at the industry level. Porter defines productivity as

the value of the output produced by a unit of labor or capital. Productivity depends on both the quality and features of products [...] and the efficiency with which they are produced (Porter, p. 209, 1998).

For that reason he claims that “productivity and innovation, not low wages, low taxes, or a devalued currency, are the definition of competitiveness” (Porter, p. 6, 1990).

In the past a high level of productivity could be achieved due to extensive vertical integration and comparative advantages in factors of production (labour and capital). In present times innovation, strong industrial linkages and the search for strategic differences are more important (Porter, 1998a). It is not only the task of businesses or governments to realise this, but also of labour unions and non-governmental organisations (NGO’s).

The question is not how to raise competitiveness, but how to raise the level of innovation and productivity of a nation (or industry) in order to improve the standard of living for all citizens. According to Porter (1990) competitiveness arises from the interaction of

endowments, the macroeconomic, political, legal and social context and microeconomic competitiveness. Endowments are natural resources, the geographic location and the historical legacy which arose through history and cannot be changed. The macroeconomic context consists of diverse institutions and policies determining the ability to act for single citizens, companies or the government in general. However, rules or policies can only set the framework, but wealth is created through industries and their companies on the microeconomic level. The level of microeconomic competitiveness is subdivided into the quality of the business environment, the state of cluster development and the sophistication of company operations. The sophistication of company operations includes the capabilities, operating practices and the management choices within companies themselves. The state of cluster development means the linkage between related companies, supporting industries, service providers and linked institutions in an industry (Porter, 1990). This is further described in chapter 4. Furthermore, location (influenced by the quality of the business environment) and not (natural) resources, government policies or the difference in management practices are crucial in creating a competitive nation or industry (Porter, 1990). This seems to be a paradox in a more and more globalized world, but location has an even stronger influence on productivity and economic growth because it facilitates the interactions among companies and (research) institutions. This again facilitates knowledge transfer and innovative activities. The effect of location is discussed in Porter's Diamond Model (chapter 3.2.1).

Kitson, Martin, and Tyler (2004) use the notion of comparative advantage instead of competitiveness which is the concept that "countries, through specialization, can benefit from trade even if they do not have an absolute advantage, so that trade can be a positive sum game" (p. 992). Comparative advantage does not mean to produce at lower costs or producing in better quality, but it means producing goods or services at lower opportunity costs than other companies or economies. It contrasts the term of absolute advantage where the volume and quality of goods play a crucial role.

Summarizing, one can say that numerous different definitions and approaches exist to explain the concept of competitiveness. Sometimes it is used synonymously with the term of competitive advantage or productivity, whereas other authors see it as an economy-wide characteristic. All these definitions are never true or false in an absolute sense, but its appropriateness depends on the usage especially when it comes to policy making (Ketels,

2006). The term might however get clearer when looking at how competitiveness can be measured and assessed.

3.2 Competitiveness of nations and its measurements

As stated earlier a nation's competitiveness depends on the capacity of its industry to innovate and to upgrade (Porter, p. 155, 1998). Tracking competitiveness and its process over time can help policy makers, industries and companies to establish long-term goals and visions. Thus, evaluating a nation's competitiveness and developing policies to foster it have become widely institutionalised in many countries (Kitson et al., 2004). Evaluation goes even beyond national borders as e.g. the *European Commission* established a *European Council of Competitiveness* and publishes regular Competitiveness Reports on the performance of the economy of the European Union (European Commission, 2016). Various private organisations and consultancies which are concerned with measuring and lobbying factors of competitiveness have emerged as the *World Economic Forum* (Geneva), the *Competitiveness Institute* (Barcelona), the *Council on Competitiveness* (Washington, DC) and the *Institute for Strategy and Competitiveness* (Harvard, MA) (Kitson et al., 2004).

Measuring competitiveness is often done by collecting data of gross domestic product (GDP) per capita. Another approach of measuring competitiveness on the macro level is the real exchange rate (RER) used as a price ratio. It has often been used by authors within the *International Monetary Fund* (IMF) (Marsh and Tokarick, 1994; Lipschitz and McDonald, 1991) or the *OECD* (Durand and Giorno, 1987). The RER is based on consumer price indices and compares the nominal exchange rate with the purchasing power parity rate and can thus measure competitiveness in the form of under-valuation or over-valuation of the exchange rate or of single products on a micro level.

However, the uni-dimensional indicators used with measuring GDP or RER do not take social factors such as health or education, or inequality and environment into account. Competitiveness is multifaceted and for this reason multi-dimensional indices with various factors are used to compare the development of competitiveness of nations. The index is used as an indicator ranking countries according to selected criteria and measures of national competitive progress. It can furthermore help governments in economic analysis and policy making. Different indices for measuring the trade performance of a country exist, but the most

important and mostly used are the *Global Competitiveness Index* by the *World Economic Forum* (WEF) listing 140 economies (2015-2016), the *World Competitiveness Yearbook* by the *Institute for Management Development* (IMD) and the *ease of doing business index* (*Doing Business Report*) by the *World Bank Group*. However, the use of indices and rankings can vary very much per country. The WEF uses for example 12 pillars to define countries competitiveness and rates those on a scale of 1-7¹. The pillars are organized in three sub-indices in line with three main stages of development: basic requirements, efficiency enhancers, and innovation and sophistication factors. Data is collected by business leader surveys and from statistical data from the *International Monetary Fund*, the *United Nations Educational, Scientific and Cultural Organization* and the *World Health Organization*.

However, determining competitiveness at the national level is according to Porter (1990) the wrong step. Instead it should be looked at the productivity and the rate of productivity growth by looking at specific industries and their segments. No nation can be successful or competitive in every industry. Following the studies of Porter (1998a) prevailing thinking, labour costs, interest and exchange rates, economies of scale and further segmented markets, differentiated products and technology differences are the most powerful determinants of competitiveness.

In 2008 Porter et al. (2008) introduced the new *Global Competitiveness Index* (GCI) based on the *Growth Competitiveness Index* (McArthur and Sachs, 2001) and the *Business Competitiveness Index* (BCI) by Porter (Porter, 2004). The GCI focuses on the aspects of the productivity level that a national economy can preserve. Data is a combination of the unique and proprietary annual survey of many business executives from around the world and public sources. The new GCI holds several levels or measurements: It is divided into microeconomic competitiveness and macroeconomic competitiveness which are again divided into six different levels. The New GCI was officially launched with the 2009 *Global Competitiveness Report* and was used in the thesis.

¹ Institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication and innovation.

3.2.1 The microeconomic business environment: The Diamond Model of National Advantage

After discussing the term competitiveness the driving factors of competitiveness at a given location are explained further. As mentioned earlier competitiveness arises from the interaction of endowments, the macroeconomic context such as social, political or legal factors and the microeconomic context. To capture the microeconomic dimensions of competitiveness Porter (1990) introduced the *Diamond Model of National Advantage* as an analytical tool. The model answers the question why a nation achieves international success in a particular industry and provides the basis for improved national policies on competitiveness. Porter himself adopted the model through numerous research on competition within nations and regions. He carried out field studies in ten prosperous nations (e.g. Japan, Switzerland, Germany, UK, US) and published the results in his book *The competitive advantage of Nations* in 1990. The following theoretical explanations are based on this book.

The Diamond Model consists of four different attributes which are interacting together: Factor conditions; firm strategy, structure and rivalry; demand conditions; related and supporting industries. These four areas create the environment in which companies act, prosper and compete. Following, the four parts of the Diamond Model are explained.

Factor conditions: Factor conditions is the access to high quality business inputs. In the sense of Adam Smith factors of production include labour, land, natural resources, capital availability and infrastructure (physical, administrative and information, scientific and technological). These are mostly factors which are inherited by a nation and not created by itself. Porter (1998a) calls these factors basic factors which are often inherited or their creation requires little social investment (e.g. natural resources, climate, location, unskilled workers, and debt capital).

Nowadays, advanced factors (e.g. research, skilled workers, modern digital data communication infrastructure) are the most important factors in creating a competitive advantage in order to produce e.g. higher differentiated products and services.

Demand conditions: Demand conditions is the composition and the character of the home demand for products or services in a particular industry that shape how companies perceive,

interpret and respond to buyer needs. Three broad attributes of home demand are particularly important in the Diamond Model:

the composition of the home demand, the size and pattern of the growth of home demand and the mechanisms by which a nation's domestic preferences are transmitted to foreign markets (Porter, p. 86, 1990).

Although open trade in a globalized world seems to be more important than a nation's own consumers, the home market is still essential. The home demand gives companies an idea of their products and services offered e.g. about trends and needs of consumers and buyers. If these are very demanding and sophisticated they can put pressure on companies to react quicker and more effectively to their needs meeting their standards. Buyers are usually demanding when home product needs are tight or challenging because of local circumstances. A high proximity between companies and buyers enables better and quicker communication. Companies can even anticipate global trends through exporting its products and with them values and tastes as home demand provides often an indicator for upcoming trends or changing buyer needs.

The size of the home demand can be a strength and a weakness in terms of competitive advantage. A large market is good in terms of economics of scale, but it can also lead to the point that companies export less. Another factor that can pull demand conditions is the transmission of national buyer needs to foreign buyers which occurs e.g. through exports of cultural goods, travel or emigration.

Related and supporting industries: The presence or absence and composition of related and supporting industries which are nationally and internationally competitive can influence industries in several ways. Usually supporting industries are geographically close to each other so that distances to suppliers are short. This creates advantages in downstream industries by an efficient, fast and early access to the most cost-effective inputs. It also facilitates communication, technical interchange and it ensures a quick and constant flow of information, ideas and improvements.

Industries can have a competitive advantage as a result of sharing activities of their value chain with related industries, e.g. marketing, distribution, service, and technology development. Also, advantages occur in producing complementary goods.

Context for firm strategy, structure, and rivalry: This context is the way in which companies are created, managed and organised and how they deal with domestic rivalry.

The company structure and strategy depends strongly on national circumstances and the context of production. Influencing factors can be found in education, religious contexts, social history, norms and standards. Managerial systems also varies in between industries. The context also implicates government laws, rules and incentives that encourage investment and innovativeness. This can be created through e.g. salaries, incentives for investments, intellectual property protection or corporate governance standards.

A “healthy” domestic competition is important in order to create pressure on local companies to outperform others, to innovate and to open for foreign competition. This leads to improved quality of products and services offered and the creation of new products, services, markets and (managerial) processes. Rivalry among national companies pushes them also to sell their goods abroad. Government interventions into the competitive process is less when domestic competition is strong. But it does not only need to be rivalry, sometimes cooperation between competing domestic companies leads them to success through e.g. trade associations.

There are two more determinants which have an influence on the Diamond: external changes and the government. Changing events can influence the Diamond from the “outside”, e.g. inventions, innovations in technology, wars, (natural) catastrophes, or changes in the foreign demand market. These events can be very disruptive by shifting the competitive advantage on a complete new level. Also the government can both improve and disrupt a competitive advantage. The government can influence the Diamond through policies, regulations or purchases. The chapter 3.2.1.1 evaluates the role of government in a greater detail.

The Diamond Model is shown figure 1. As can be seen all factors are well connected, which means that each factor depends on the state of the others. If one factor in the Diamond Model is weak, it will influence the competitiveness of companies, industries and the nation. On the other hand advantages in one determinant of the model can be likewise beneficial for other determinants. The Diamond Model shows once more that various factors matter for competitiveness.

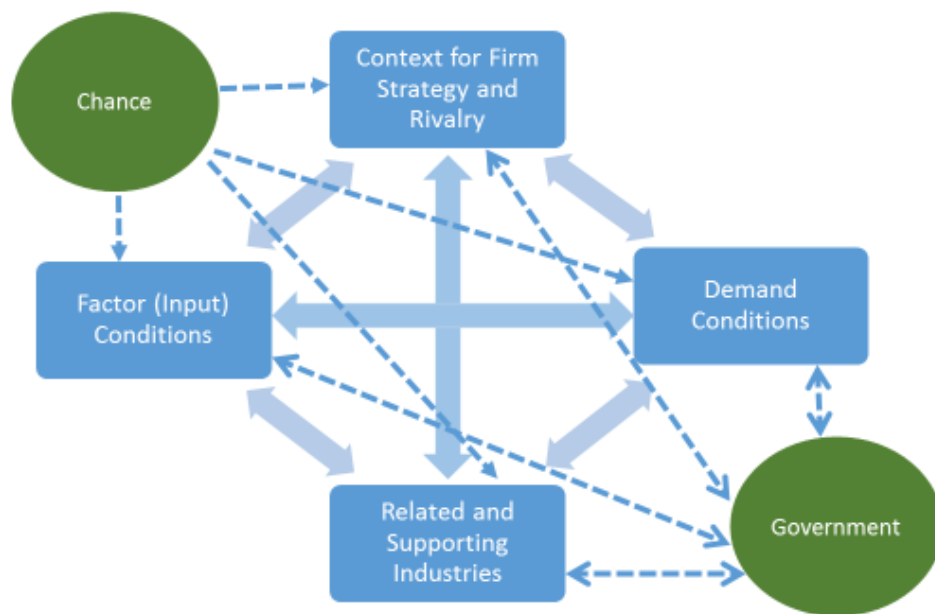


Figure 1: The Diamond Model of National Advantage (Porter, 1990)

The Diamond Model can be influenced by national and regional aspects or circumstances on a cluster level and does thus not stand for single industries alone. Often nations have several industries they are competing in. These are often linked together through infrastructure, common resources, technology or consumers. Analysing e.g. industries with the Diamond Model can help to find weak factors on a microeconomic level. The Diamond Model is helpful when using it as a tool to prioritise critical factors in order to understand the intended positioning of industries.

3.2.1.1 The role of the government in the Diamond Model

Although globalisation and internationalisation have increased rapidly in the last decades, nations and their governments still have a crucial function regarding international success of companies especially concerning the creation and assimilation of knowledge. National values, culture, economic structures, institutions and history contribute to competitive success (Porter, 1998). The government's role is to create the enabling conditions to encourage private sector development.

In the Diamond Model the government is seen as a “catalyst and challenger” (Porter, 1998a) in the way that it can create an environment in which companies can gain a

competitive advantage. The government alone however has not the potential to establish a competitive advantage, it can only reinforce them. Porter (1998a) criticises that policies reveal often short-term benefits such as “subsidies, protection and arranged mergers” (p. 185) and retard thus innovation. They should rather pursue open market access in every nation. Basic principles for governments are encouraging change, promoting domestic rivalry and stimulating innovation. This can be done by promoting the educational system and the national infrastructure or by setting standards and rules, e.g. in environmental issues or product safety. Promoting research, especially cooperative research is a crucial role of the government, first in order to achieve economies of scale, second in order to attain industry spill overs and thirdly in order to use investments in a most effective way (which single companies could maybe not afford on their own). The government can be a major buyer of produced goods such as telecommunication or defence goods and it can influence firm strategy, structure and rivalry through e.g. capital market regulations.

3.2.1.2 Critics of the Diamond Model approach

No model is absolutely complete, but leaves instead critics and space for improvements. Also the Diamond Model of Porter was criticised by several authors, and in some cases it was changed or advanced. Davies and Ellis (2000) gave a general overview of critics following the publication of Porters book *The competitive advantage of nations*. Their review is addressing especially research methods, conceptual issues, and the robustness of empirical propositions. Within conceptual issues elusions or confusions are most common, e.g. between the terms competitiveness and productivity and comparative advantage and competitive advantage.

Concerning methodology, Porter postulates no hypotheses to test his data, but draws conclusions in a rather unspecified manner often without any causality. Furthermore, some nations exist without a sound Diamond Model but are nevertheless internationally competitive.

Krugmann (1994) regards competitiveness as a “dangerous obsession” pointing out that economists try to simplify the concept of competitiveness by arguing in the way that nations compete with each other just like companies do. Narula (1993) argues that the model is very static and based only on analyses of a few industrial countries whereas developing countries

are neglected. Furthermore, the role of technology is disregarded as well as the importance of international business.

Rugman (1992) claims that Porter gives good recommendations concerning the analysis of the Canadian economy, which are however incompatible with his analysis. In his mind Porter has an “old-fashioned, naïve and politically mischievous viewpoint [...]” (p. 59) and his analysis is misleading as he does not take into account the home country’s largest trading partner. Albeit Rugman suggests the double diamond approach which is explaining the economic situation between trading partners in greater detail. Rugman was not the only one claiming a double or multi-diamond model. Also Dunning (1992) emphasises the lack of explaining in which way cross-border markets are organized and uses thus multinational activities as another exogenous variable in the model. The extension of the model is especially important for smaller countries in order to relate foreign direct investment and the role of government to the competitiveness of companies, industries and nations. Also Daly (1994) suggests a double diamond as wage and exchange rates matter for competitive nations, whereas in Porter’s model these variables are missing.

3.3 Regional Competitiveness

Earlier the competitiveness of nations was specified on a macroeconomic level, especially in regard with Porter’s Diamond Model. This chapter deals with regional competitiveness concerning clusters and/or single industries and how they can contribute to industry growth with their complex network of micro relationships.

Kitson et al. (2004) define regional (and urban) competitiveness as

the success with which regions and cities compete with one another in order to get shares of national or international export markets or in order to attract capital or workers (p. 992).

The most influencing factor of competitiveness on a regional or cluster level are multiple geographic levels such as cities, regions and neighbouring countries. For Porter the geographic location is a key determinant of company productivity (Ketels, 2006). Dividing competitiveness

in smaller units, regions² are most appropriate for analysing competitiveness, because they are significant units for policy-making (Aranguren, Franco, Ketels, Murciego, and Wilson 2010) and because they are in direct competition with each other in order to attract direct foreign investment (Camagni, 2002). The difference however between national and regional competitiveness is that regions do not have policies concerning monetary, tax, investment or fiscal aspects. The difference to companies is that regions do not make single decisions on how to compete:

Regions and cities compete by creating a *business environment that fosters the productivity improvement* and contribute to the success of the region's firms: specialised institutes of education, effective special infrastructure, information services facilitating innovation, enterprise-friendly administration, developing research and development institutes that meet the profile of clusters. Networks consisting of the various local groups (chambers, institutes, universities and so on) participate in creating the business environment (Lengyel, p. 17, 2009).

However, the emphasis on location as a factor for competitiveness was not always supported and is certainly still seen controversial among some scholars: Regional development and the concept of competitiveness changed dramatically in the last decades following new principles in production. The methods of production changed from serving a mass market to a flexible and innovative structure, leading to the development of many SMEs. These new principles in production developed best in regional economies where the specialisation of companies led to a clustering of whole industries.

But still today not all agree with the concept of regional competitiveness and the importance of regional clusters. In 1997 Cairncross declared the "death of distance" hypothesis where he states that geographic location and proximity of companies is irrelevant as costs for transportation and communication decrease more and more on the international market and aside from that also policy barriers in international trade (Cairncross, 1997). Globalisation also destroys shelters which were once provided by physical space for the local market, by local specificities and local organisational models and loyalty of local companies (Camagni, 2002). Information is available for everyone and assembly plants can be moved to

² The term region may refer to a geographical area within a country that shares common socio-economic and cultural elements (Borozan and Strossmayer, p. 51, 2008).

regions with the lowest cost. But even though high speed transportation and web-based communication speeds up globalisation by connecting people, places and products in extreme fast ways the proximate environment of companies and their location still matters for regional development policies and when competing on the market (Camagni, 2002). According to Camagni (2002) the role of territorial competitiveness lies in the process of knowledge accumulation and collective learning which does not take place in single companies, but in whole industries or regions in the local labour market. Ketels (2006) claims that the “intimate interaction with nearby companies, research institutions, and the unique access to other aspects of the business environment at their respective locations” (p. 118) are crucial when it comes to competition.

Malecki (2002) states that the national economy is dependent of regions and cities that form successful “regional motors”. Competition among regions is about attracting investment and talented and creative labour force by creating and maintaining a local culture in order to improve the living standard for its inhabitants. Creating, using and sharing knowledge within regions is the main aspect of competitiveness. This is done through networks of companies and organisations in a region where everybody can benefit (Malecki, 2000).

3.4 Competitiveness of companies

The competitiveness of companies is of great importance as already Porter (1998a) stated that “it is the firms, not nations, which compete in international markets”.

Company-level competitiveness is about advantages that enables companies to outperform its competitors. These advantages are producing at lower costs and higher quality products compared to competitors.

Competitiveness of companies is can be seen from different perspectives. Porter (1990) sees it from a geographical point of view referring to the specific location of a company. Beck (1990) argues that competitiveness is interpreted as the ability of companies to cope with structural change. Lall (2001b) states that it is the ability of a company to do better than competitors in market share, sales or profitability. In general, company competitiveness is equal to a company’s long-run profit performance and its ability to compensate its employees and provide superior returns to its stakeholders. Measurements of company competitiveness should incorporate quantitative measures such as costs, prices, profitability and qualitative

indicators such as quality, market share or customer satisfaction (Buckley et al. 1988). Financial performance measurements are e.g. return on sales, return on assets or return on equity.

Two different approaches of competitiveness can be distinguished: the resource-based approach and the market-based approach. The resource-based approach emphasises factors internal to the company such as strategy, structure, competencies, knowledge, and innovative capabilities (Penrose, 1959; Prahalad and Hamel, 1990; Grant, 1991; Barney 2001). The market-based approach or the “positioning school” (Mintzberg, Ahlstrand, and, Lampel, 1998) focuses primarily on the creation of defensible positions in the market by analysing the dynamics of competitive advantage. The competitive advantage can be defined as “delivering superior value to customers and in doing so earning an above average return for the company and its stakeholders” (McGee, Thomas and, Wilson, p. 60, 2010). Attributes of the competitive advantage can be access to natural resources, highly skilled labour, geographic location, high entry barriers, access to new technologies, limited information, experience advantage and more.

A main contributor to describe competitiveness on a company’s level was Porter (1979; 1980). His framework of *Five Forces* is discussed further in chapter 3.4.1 as it is important for evaluating the level of competition in an industry and the strategic business development of a company.

3.4.1 Porter’s Five Forces

Porter’s model of *Five Forces* (1979) analyses the level of competition within an industry and describes the “attractiveness” of an industry and thus its overall profitability. The unit of analysis is the microenvironment where factors that affect the competitiveness of companies such as suppliers, customer markets and the like are analysed. The five forces include three forces from “horizontal” competition: the threat of new entrants, threat of substitute products or services, and the threat of established rivals. The two “vertical” forces are the bargaining power of customers and of suppliers.

By analysing threats and opportunities of an industry, its underlying structure and economic characteristics, the model helps companies with the formulation of a business strategy and positioning in its industry.

The threat of new entrants: New entrants are either companies that recently entered the market or are possibly entering in the future. An industry with high profitability attracts new entrants until the profit rate will tend towards zero as perfect competition arises. Factors that can have an effect on how much new entrants can be a threat to existing companies are e.g. government policy, the existence of barriers to entry, sunk costs, product differentiation, access to distribution channels, economics of scale. Companies that already exist on the market can have a competitive advantage against new entrants if they have e.g. well established brands, a good image, and expertise and experience in their business. Furthermore existing companies might react with cutting prices or by increasing its productive capacity to make it hard for new entrants to be successful.

Threat of substitutes: Pressure can be put on a company when a competitor introduces a substitute. A substitute can upgrade the quality of the product or differentiate it, but the industry will suffer in earnings and growth.

The bargaining power of suppliers: Every company is dependent from at least one supplier. This can be suppliers of labour, of service, components or raw material. If there are just a few suppliers serving many companies and no possibilities for companies of switching to alternatives exist suppliers can charge high price, lower the quality and direct the rules. Suppliers are also powerful when they offer products or services that are unique and switching costs are high for purchasing companies.

The bargaining power of buyers: Buyers have an influence on the industry and single companies by making demands regarding quality or by depressing prices. If there are alternatives on the market buyers can put companies under pressure in order to lower prices. This depends on switching costs, the number of buyers and companies on the market. But it also depends on the information available to the buyer or buyer price sensitivity. Buyers are powerful if they are concentrated or purchase in large volumes, if the products they purchase are standard or undifferentiated.

Threat of rivals: The fifth force is the threat of rivals or the “jockeying for position” which is situated in the centre of the *Five Forces Model* followed by price competition, advertising or product introductions. Rivalry is strong when more companies are competing in the market and when they are equal in size and power. Competition is intense when the industry growth

is slow, products are little differentiated, when entry barriers are low, fixed costs exist and exit barriers are high.

If the five forces are weak little competition exists and a monopoly dominates the market. If they are strong competition can be immense and the company has to identify its strengths and weaknesses in order to develop a plan to position the company best among the competitive forces which are influencing its direct environment.

3.5 Summary of chapter 3

According to the literature review of competitiveness it is clear that different definitions of the term exist and that various factors influence competitiveness of nations, regions, or companies.

Factors which determine competitiveness today are not simply resources which are inherited, but it is based on a specific location, technological progress, and on strategy and management practices. These factors are again influenced by innovative activities which help companies to differentiate and to specialise.

The term competitiveness was further discussed on a national, regional and company level. Measurements were presented such as the Global Competitiveness Index, which was also used for assessing the competitiveness of Iceland and its tourism industry.

The analytical tool *Diamond Model of National Advantage* indicates what gives advantage and why certain industries or nations are successful on an international basis. The model helps in finding strength or weaknesses in the microeconomic level of an industry. Critics of the model were brought forward which concern the vague terminology, weaknesses in methodology and a lack of analysing factors such as foreign trade or foreign investments that are of great importance for the competitiveness of nations.

According to the literature it is clear that location is a determining factor for the competitiveness of regions and companies. In this context, the *Five Forces* analysis is necessary as an analytical tool to assess the competitiveness of an industry. This tool helps i.a. companies to decide whether to leave or enter an industry or what to change in their overall business strategy.

4 Literature review of cluster theories

The previous chapter made clear that location is a determining factor for competitiveness. In this context clustering of companies plays an important role in regional and company competitiveness.

Thus this chapter does not only discuss the emergence and development of clusters, but their importance for companies to make use of their position in the cluster and their opportunities to innovate.

4.1 Defining clusters

From the 1990s interest increased on cluster theories and consequently many different definitions occurred (Cruz and Teixeira, 2010). These definitions have in common three key pillars (Ketels and Memedovic, 2008): *geographical proximity* among the cluster's members generating scale and scope economics through specialisation and division of labour; *social networks*, which are connections within the cluster, knowledge transfer and collective learning; and *culture* (institutions, values, beliefs) and *business climate* (trust, cooperation) that are important for the evolution of the cluster (Cruz and Teixeira, 2010). One of the most common definitions is of Porter (1998a) where he describes clusters as

geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also cooperate (p. 198).

Moreover, he describes that the value of a cluster “as a whole is greater than the sum of its parts” (Porter, p. 213, 1998a) due to a strong local connectivity which again is leading to spill-over effects. Clusters do not have to be bound by regional or national borders, but they can also occur on an international basis.

The links between companies and other organisations belonging to a cluster are either vertical or horizontal. Vertical links are buying and selling chains and horizontal links are complementary products, the use of similar resources or technologies. The main characteristics of a cluster are cooperation between single companies and institutions, which are mostly vertical in nature involving companies in related industries. But also vigour competition within the cluster plays an important role. Usually clusters affect competition in

different ways: by increasing productivity, by pushing innovations - which again shape the basis for future regional development, and by stimulating the creation of new businesses.

Definitions of the term cluster are not equal throughout literature (Rocha, 2004; Kuah 2002), but in this thesis the definition of Porter is used as a basis as his studies are generally one of the most important when discussing cluster theories in business studies. However, other scholars contributed to the topic and – what is even more important – laid the foundation for a theory of competitiveness and its importance for internationally competitive nations and companies within clusters. Following, the development of cluster theories and different approaches to the topic will be discussed. Although the concept was not yet described some centuries ago, they nonetheless existed: Some examples of historical clusters are silk in China, the German Hanse, or watches in Switzerland (Rocha, 2004).

4.2 Development of cluster theories

Interest in cluster theories emerged already in the beginning of the twentieth century with an increase in urbanisation, but achieved a boom in the last decades with Porter (1990; 1998a; 1998b; 2000) and Krugman (1991; 1993; 1998) as main contributors. This implicates also other theories or approaches that developed from agglomeration economies such as evolutionary approaches to clusters, institutional approaches or knowledge-based theories (Cruz and Teixeira, 2010). Variations exist in definitions, methodology and unit of analysis. Mostly, research is conducted through case-based studies, but different methods can be used with multiple kinds of measurements and analysis (Rocha, 2004).

More than a decade ago already *Marshall* (1890) used the concept of “industrial district” that he described as the localisation of industry “following the fortunes of groups of skilled workers who are gathered within the narrow boundaries of a manufacturing town” (p. 156). These districts generate external economics of scale because of size or growth of output in industry. Most important for the development of industrial districts are a fast access to technological innovations, the formation and existence of a pool of a specialised workforce and the development of specialised service providers and suppliers.

For many decades the theory of industrial districts or clusters was hardly developed further, with the exception of the French economist Perroux (1955) who introduced the term “*pôle de croissance*” (“*growth-pole*”) explaining the theory of polarised development. A growth pole is

an industry with above average growth generating growth through strong input-output linkages and by dominating the market because of its large size, its market power and its role as a lead innovator (Feser, 1998). Growth is not equal within regions. Not every industry can exist in any region, but is rather centred around a specific pole or cluster. In this pole one can find core industries purchasing goods and services from suppliers and supplying goods and services to its customers. This can lead to an expansion of the core industry because of high employment and a strong output. It might create other core industries or a secondary growth pole contributing to a greater regional diversity. This concept enables the construction of scenarios of growth for certain regions or industries (Krafft, 2006).

In the 1970s and 80s changes in business environment increased due to vertical disintegration, inter-industrial networks and the IT revolution. As a consequence mass production shifted to flexible production, and independent company-based to regional network-based systems (Rocha, 2004). Following, several schools of thoughts emerged, e.g. the Californian School or the Italian School. The Californian School was concerned with transaction costs and proposed that companies try to minimize transaction costs and thus cluster geographically materialising flexible production complexes. This might still be relevant today when market transactions are dominant, but not when transactions are based on social networks and knowledge industries (Rocha, 2004). The Italian school based its research on industries in central and northern Italy which are well known for their fine segmentation (Krafft, 2006). Subsequently the unit of analysis shifted from companies and industries to industrial districts with a focus on historical and territorial specific socio-cultural factors (Rocha, 2004).

The 1990s were characterised by a rapid globalisation process and immense radical technological changes triggering regional specialisation and concentration of innovations. Since that time competition takes place on a high level of innovativeness and on the rate of learning rather than on mass production and low cost. Consequently, new theories of regional economic growth and development emerged. The exponential increase in published articles on cluster theories is an evidence for the new interest and development of business clusters (Cruz and Teixeira, 2010). The increasing interest from political institutions is furthermore an evidence that cluster theories are incorporated into practice (European Commission, 2008).

Cluster theories can in general be divided into two sub-groups: the *economic stream* which is highlighting economic externalities, and the *socio-economic and innovation stream* which is especially taking account of social, cultural or institutional factors (Rocha, 2004).

4.2.1 The economic stream

Porter and Krugman can be assigned to the economic stream. In the 1990s the dynamic approach of *New Growth Theories* or *New Economic Geography* was developed by e.g. Krugman (1991, 1993) trying to describe geographical distribution of economic activity using complex, non-linear models to analyse structural changes in industries in urban regions (Krafft, 2006). Krugman claims that manufacturing companies locate in regions with larger demand in order to realise scale economics through minimising transport costs. The reason for localisation of industries are specialised labour, information spill-overs and local subsidiary industries. According to Krugman the incentive for companies to allocate to certain regions is thus an increasing return, otherwise they would have several branches located at different target markets. Differences in factor endowments, increased rents and congestion costs (Šarić, 2012) cause that people do not “all live in one big city” (Krugman, p.8, 1998). In his *New Growth Theory* Krugman however neglects technology spill-over between companies and the importance of socio-cultural factors in clusters.

Porter’s research is mostly based on how location can affect a company’s productivity and thus regional or national competitiveness. The choice of location is strongly influenced by the quality of the business environment which is created by the four factors in the National Diamond Model (chapter 3.2.1). The interaction between the factors of the diamond influence competitiveness by an increase in productivity, by fostering of innovation and by stimulating new business formation that supports innovation and expands the cluster (Porter, 1998a).

4.2.2 The innovative and knowledge-based stream

Social dimensions such as social networks or knowledge transfer are neglected in the economic stream. The tendency to describe and analyse clusters from a socio-economic perspective has increased since Porter and Krugman published their concepts. This chapter takes the new perspective into account in order to add a new viewpoint to the approach.

The innovative and knowledge-based stream in cluster theories includes various approaches and schools of thought. For the thesis of importance are the *innovative milieu*

school (Aydalot, 1986; Camagni, 1991; Maillat, Quévit, and Senn 1993), the *Nordic School of innovation and learning* (Lundvall and Johnson, 1994; Malmberg and Maskell, 1997, 2002; Lundvall and Maskell, 2000) and the *Geography of Innovation* (Audretsch and Feldman, 1996; Zucker, Darby, & Armstrong 1998).

These theories can also be classified under *knowledge-based theories*: In these theories cultural aspects, knowledge transfer (especially tacit knowledge that needs face-to-face communication) and learning processes are important as well as social networks and the role of the company in the diffusion of information and innovation. Recent trends in literature indicate the development of themes in knowledge-based theories, social networks or regional development approaches with an importance of learning processes and knowledge spill-overs (Cruz and Teixeira, 2010).

In the *Nordic School of innovation and learning* clusters are part of regional innovative systems, with a strong interaction with diverse elements of innovative systems such as universities and governments that are determining innovation processes. For a company the development of long-term competitiveness is determined by its ability to innovate and engage in processes of continuous learning (Malmberg and Maskell, 2002). This is facilitated by spatial proximity of different organisations that makes it easier for knowledge spill-overs which are the basis for innovations. For the innovation process proximity matters as it is easier for companies in a cluster to exchange tacit knowledge and to enable smooth and cost-minimising interactions (Malmberg and Maskell, 1997). Further it facilitates knowledge transfer and stimulates adaption, learning and innovation (Malmberg and Maskell, 2002). Clusters allow companies to carefully observe and compare one another, putting pressure on companies to outperform others and to innovate. Proximity furthermore reduces misunderstanding, but strengthens trust among cluster members. The Nordic School emphasises the concept of learning economies and regions, which overlap with the concept of national innovation systems (Rocha, 2004), which is further discussed in chapter 5.5.

As the economic environment is permanently changing it is hard for a company or cluster to establish a competitive advantage. Only innovation as a basis is seen as a success factor in order to create different types of knowledge, mostly informal and tacit in nature. Innovation processes are best enhanced in inter-firm relationships or clusters where the according environment facilitates new forms of services or productions (Šarić, 2012). The environment

is often characterised as „local buzz“ which „refers to the information and communication ecology created by face-to-face contacts, co-presence and co-location of people and firms within the same industry and place or region“ (Bathelt, Malmberg, and Maskell, 2004). It follows an automatic process influenced by the local culture with its specific values, norms and institutions stimulating the transfer of knowledge and information without any costs. Local buzz usually stimulates the development of institutional structures, forms coherence and develops trust among its members (Bathelt et al., 2004).

The study of innovation and knowledge creation is not novel (Lundvall and Johnson, 1994), but its rediscovery brings with it new kinds of work (Florida, 1995) and new possibilities for urban and regional regeneration strategies (Lundvall and Johnson, 1994). In this context the concept of “learning region” plays an important role which refers to the socio-economic and innovation stream and evolved on a basis of knowledge-based theories. This theory was developed by authors such as Asheim (1995) or Florida (1995) and tries to explain how knowledge and information in regional networks is passed on and spread out through diffusion. According to Florida (1995) learning regions provide an infrastructure which facilitates the flow of knowledge, ideas and learning. Knowledge-intensive economic regions are characterised by the development of co-dependent complexes of end-users and suppliers consisting of a strong human infrastructure of knowledge workers who can apply their intelligence in production. The competitive advantage is based on innovations, and innovation processes are seen as social and territorial embedded (Asheim, 1995). Malmberg Sölvell, and Zander (1996) state that “economic, entrepreneurial and technological activities tend to agglomerate at certain places, leading to patterns of national and regional specialization” (p. 85). This arises through knowledge accumulation effects of spatial clustering due to the ability to generate new knowledge through interactions, limiting barriers of diffusion of knowledge, and the ability to attract new knowledge to the region from the outside.

Another theory in the innovative stream is the *Geography of Innovation* (Audretsch and Feldman, 1996; Zucker et al. 1998). It has shown that innovation tends to cluster and that it takes place more often in regional concentrations of companies where the presence of a sophisticated learning infrastructure such as universities is the highest (Šarić, 2012). In studies conducted by Audretsch and Feldman (1996) industry’s innovative activities were measured

showing a positive correlation between the geographical concentration of innovation output and the R&D intensity of the industry.

A further approach is the *innovative milieu* introduced by the *Groupe de Recherche Européen sur les Milieux Innovateurs* (GREMI) composed of francophone scholars active in social sciences and economics (Aydalot, 1986; Maillat and Perrin, 1992; Maillat et al., 1993). Their point of departure was the question what differentiates competitive and innovative regions from less successful ones (Šarić, 2012). Thereby emphasis is laid on the importance of inter-firm relationships, dynamic local collective learning processes and territorial socio-economic embeddedness. Here the emphasis is laid on the term “territory” (Crevoisier, 2004) which is created through the interaction between different economic groups and individuals (similar to cluster agents) and the space in which they interact. Territories that imply cultural values and norms, a collective identity, conventions and a mind-set of mutual assistance that pushes its agents towards innovation, are defined as *innovative milieus* (Šarić, 2012). The agents are seen in heterogeneous networks within one territory which serves as the locus of innovations. Innovation is therefore a collective process embedded in a certain milieu where the necessary resources are used mutually. Camagni (1991) defines innovative milieus as

the set, or the complex network of mainly informal social relationships on a limited geographical area, often determining a specific external ‘image’ and a specific internal ‘representation’ and sense of belonging, which enhance the local innovative capability through synergetic and collective learning processes (p. 3).

Although it is hard to identify innovative milieus it provides an insight into inter-firm relations and networks, innovation processes and knowledge creation.

4.3 Cluster members

Clusters can be on different geographic levels such as the city or metropolitan region, regional or nation level. In some occasions it can even go beyond national borders and build a network with neighbouring countries. Clusters can vary in size, in the state of development and in breadth and depth (Porter, 1998). The breadth and depth of a cluster is of great importance so that related industries can profit from spill-over effects while using similar or common inputs. Clusters can consist many SME’s and/or larger companies.

When analysing cluster activities and when mapping the cluster it is important to identify the most important members. Porter (1998a) and Sölvell (2009) classified the most important

cluster members into different groups. Both classifications are similar, however for a better overview the concept of Sölvell (2009) is presented.

The segmentation of cluster members is as followed:

- *The industry* consisting of buyers, suppliers of goods and services, related industries, SME's, services
- *Public bodies* consisting of regional authorities and agencies
- Universities and research institutes (e.g. laboratories, technology parks)
- *Institutions for collaboration*, e.g. formal and informal networks, trade associations, cluster organisations, NGO's, chambers of commerce
- *Media* in order to build a cluster awareness and a regional brand
- *Finance* (e.g. banks, venture capital, private equity, insurance companies)

The different members of the cluster do not compete directly, but rather cooperate as they do share common or similar needs and opportunities. Institutions for Collaboration (IFC's) are not direct part of clusters, but are common in highly developed economies in order to connect parts of the business environment. IFC's can be trade and business associations, entrepreneurs' networks, technology networks etc. They are neither government agencies nor private for-profit companies (Ketels and Memedovic, 2008).

In this thesis special regard is laid on companies as a cluster member as was assessed how clusters can influence the innovative activities of companies. Following, it is explained how companies can profit within a cluster, how they can influence the cluster environment through their active participation, and how they build strong networks within clusters.

4.3.1 The benefits of the company in a cluster

Cluster theory is much about network theory where different actors form ties with each other in a particular geographic region. Companies in a cluster can be directly or indirectly involved forming strong or weak ties in the network. According to Porter (1998a) companies are end-product or service companies, producers of complementary products, specialized infrastructure providers, suppliers of specialized inputs, components, machinery and services or companies in related industries. These companies differ in their degree how much they are involved in the particular cluster. Some are also members of other clusters and are thus connecting between different clusters in the same region. Porter (1998a) argues that much of

a competitive advantage does not lay in a company itself but rather in the location of its business units.

Companies can profit from a cluster as the capacity to innovate and new business formation is increased. This is grounded in a better access to specialized inputs and employees at lower costs, because of lower transaction costs and more transparency through close and special relationships that can offer cost and quality advantages (Porter, 1998a). It also means a better access to know-how and relevant information such as buyer needs, infrastructure benefits, and reputation (Kuah, 2002). Companies in clusters can create complementarities through e.g. joint production or marketing creating a higher buyer value and efficiency among companies. Due to high concentration within one region companies benefit from buyer knowledge and relationships, and observation of other companies.

Clusters facilitate the dialogue between related companies and between companies and the government, suppliers or other institutions and encourages thus cooperation (Porter, 1998). They can also affect competition as companies are constantly comparing each other. A higher competition among members of the cluster increases the productivity of constituent companies or industries, as well as their capacity for innovation and stimulates new business formation which again support innovations.

Choosing the right location is crucial for a company, whereas the most important factors are not cost-minimisation such as low wages, but a strong infrastructure, R&D and innovation potential in the area. Being part of a cluster means participating and engaging locally to facilitate access to important resources and information (Porter, 1998b). This compromises investing into the location and building long-term relationships with the most important members such as universities, suppliers or the local government. The role of a company is furthermore to try to upgrade the cluster and to work collectively with other companies in order to influence e.g. government policy or trade associations (Porter, 1998b).

4.3.2 Networks and Clusters

Building networks between companies and organisations is a necessity for a well-functioning cluster. Networks are analysed in accordance to relationships in order to learn more about social interactions which again influence individual decisions, beliefs and behaviour. A network is usually outlined as a set of “nodes” or “actors” – like persons, organisations,

entities or events - and the relationships among them as lines linking pairs of nodes (Baggio, Scott and Cooper, 2010). These lines have content. The content is variable in nature and can represent friendship, communication, money transfer and exchange of resources like information (Tichy, Tushman and Fombrun, 1979). The network topology - that is the shape of the network and the relationships between the nodes - can be analysed and calculated through graph theory (Godsøl and Royle, 2001). According to Maskell and Lorenzen (2004) firms should invest in building networks as it involves better innovation opportunities and reduces costs. The strength of networks depend on the intensity of partnerships and cooperation, but less on spatial proximity.

Business and industry related networks can be defined as a voluntary arrangement between two or more organisations that involves durable exchange, sharing or co-development of new products and technologies (Groen, 2005). Networks can exist in many forms from informal to formal relations, i.a. strategic alliances, joint ventures, subcontracting, joint marketing or joint R&D activities (Groen, 2005). Networks are connected through partnership, collaboration and cooperation. They can differ in structure, density (number of direct relations) and interaction among single members, and output or benefits derived from network activities. The interest in network theory has increased immensely since the 1990s as globalisation encourages alliances and linkages not only across nations but also to a high degree across organisations (Baggio, Scott, and Cooper, 2010).

Comparing both cluster and network theories Maskell and Lorenzen (2004) summarise that networks and clusters are usually both characterised by “close interaction between organisations, which are in some sense related, but not joined together by any common ownership or management” (p.3). It becomes clear that both approaches deal with relationships between companies relying on cooperation and competition, or “co-opetition.” Companies engage preferably in network formation when their environment is stable and in clustering when high industry uncertainty exists and relations are flexible in nature. Thus companies act as shareholders in networks and as stakeholders in clusters (Maskell and Lorenzen, 2004). Juxtaposing clusters and networks it becomes clear that the understanding of a cluster is broader with a higher level of flexibility, a reinforced range to experiment and to switch collaborating partners. Furthermore, clusters are restricted in space and are often

operating on a local or regional level. The spatial proximity in clusters however implicates a stronger knowledge creation and a higher resource efficiency (Maskell and Lorenzen, 2004).

4.3.3 The role of government in clusters

National and local governments play an important role in building clusters and maintaining competitiveness among companies and regions. Governments have to ensure the supply of a highly educated work force and physical infrastructure and they have to set the rules for competition such as protecting intellectual property (Porter, 1998b). Their task is to remove obstacles and to upgrade existing and emerging clusters as these are the driving forces of regional development, for an increase in exports, and they can attract foreign investment (Porter, 1998a). Governments can be the connection between different actors such as universities and companies or government institutions. In order to upgrade the cluster the national diamond can help identifying government influences (figure 2).

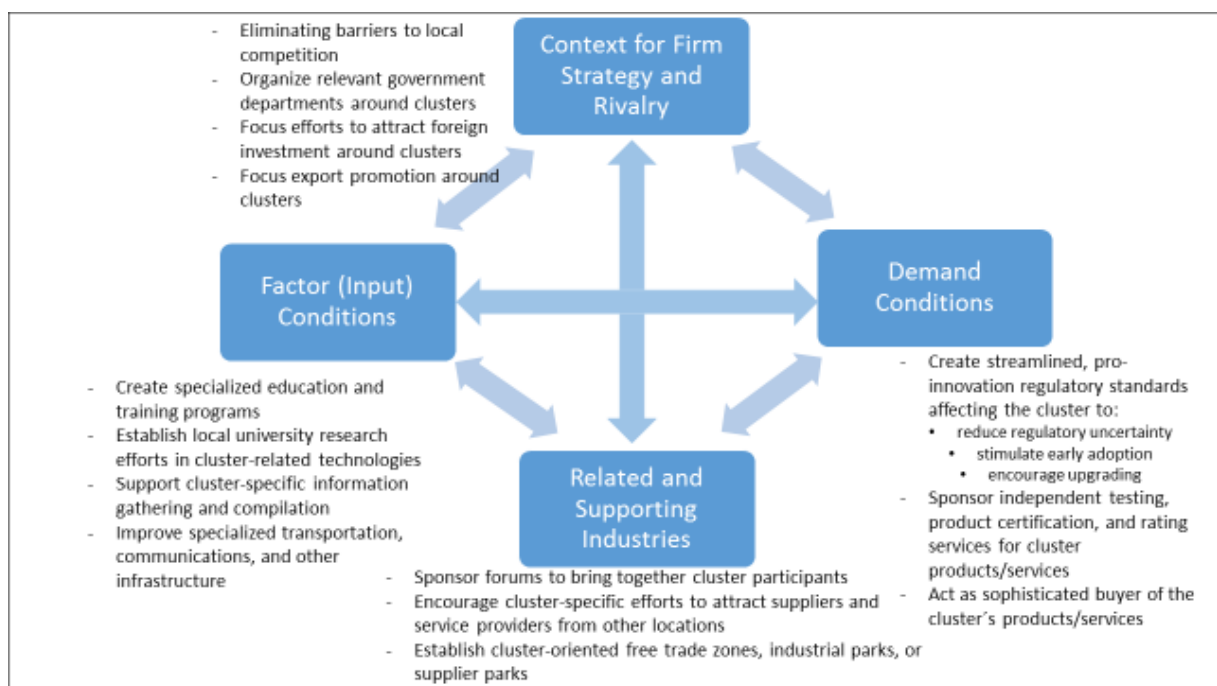


Figure 2: Government influences on clusters (Porter, p. 251, 1998a)

However, the role of government changes when clusters are further developing. In the beginning the focus is laid on improving infrastructure and eliminating disadvantages in the business environment, and at a mature phase it is more essential to remove barriers of trade and innovation. The role of government has already been discussed concerning competitiveness of nations in chapter 3.2.1.1 and is thus not further explained.

4.4 Development and life cycle of clusters

Clusters usually start by chance and are normally not set up by the government. They rather develop when economic transactions across locations are practicable and when specific factors in the environment provide the basis for the emergence of a cluster (Ketels, 2009). Incubators are often SME's and/or successful companies, universities or already existing clusters (Ketels and Memedovic, 2008). The emergence of clusters is shown in figure 3.

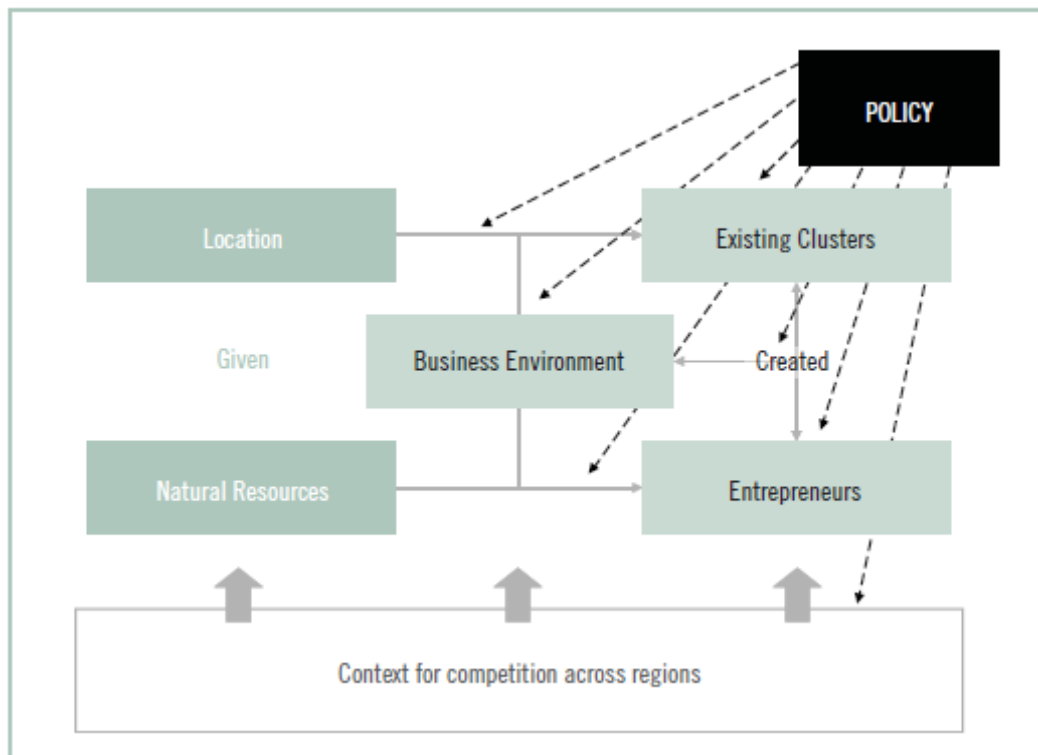


Figure 3: Emergence of clusters (Ketels, p. 13, 2009)

One main principle of cluster theory is path dependency (Kuah, 2002). Building a strong cluster can take a long time and processes are not automatic but follow evolutionary steps (Ketels, 2009). The cluster development can be seen as an organic process with usually three to six different stages.

Isaksen and Hauge (2002) observed phases of regional clusters which they split into six different stages.

1. **Formation of pioneer companies due to historical circumstances often based on specific local knowledge, research institutions or accessible raw materials, followed by new company spin-offs leading to a geographical concentrations of companies.**

- 2. Specialised suppliers and service companies are created and a specialised labour market.**
- 3. Formation of new institutions e.g. in education that serve cluster companies and strengthen learning processes.**
- 4. Because the reputation of the cluster grows foreign capital and companies, as well as skilled workers are attracted to the region.**
- 5. An environment emerges around the cluster that fosters knowledge transfer (tacit knowledge) especially through informal communication.**
- 6. Decline stage due to institutional, technical or social/cultural lock-in effects in business behaviour.**

Reasons for the creation of clusters are to be found in the business environment. The availability of good infrastructure, specialised skills and research institutes or an efficient physical location are good motivators for cluster formation (Porter, 1998a). Other reasons can be found in a very high local demand, cultural traditions, the existence of related industries or a high level of entrepreneurship (Sölvell, 2009). Further endowments of natural resources or a central geographic location used for transportation routes, a particular climate or soil play important roles (Ketels, 2009).

The development of a cluster depends mainly on the intensity of local competition, the preconditions for new business formation and the efficacy and opportunities of interaction between cluster participants (Porter, 1998a). The Diamond Model works as an engine of cluster growth especially when its four determinants start to interact forming upstream and downstream linkages (Sölvell, 2009). As developing clusters offer new opportunities, more people and especially entrepreneurs are attracted to migrate to the location of cluster development. At a certain time linkages to international markets develop and new growth opportunities are formed by the internationalisation of trade.

A cluster can grow by an increased number of companies in three different ways: First, existing companies located outside the cluster relocate their activities to the cluster; second, favourable conditions with an outlook on profit attracts entrepreneurs to establish

companies; third new companies come into the cluster by spin-offs, because former employees recognise potential profitable business opportunities (Maskell, 2001).

At the maturity phase growth is rather small, and more characterised by economy of scale. Clusters can even stay static without any development or keep growing inorganically through acquisitions and mergers. Some clusters can keep their growth for many decades or even centuries, where others have a much shorter life cycle.

The decline of clusters can be either exogenous, due to changes in the external environment or endogenous, by factors evolving from the location itself. Reasons are e.g. a shift in buyer needs, technological discontinuities, or lack of innovation. A decline can also be caused by wars, natural catastrophes or government involvement (Sölvell, 2009). Internal reasons can occur due to diminished productivity or innovation, cartels or other barriers to compete and rigidities such as groupthink. However, it can also be that a cluster experiences a “renaissance” or stays dormant for some time before starting a new life cycle.

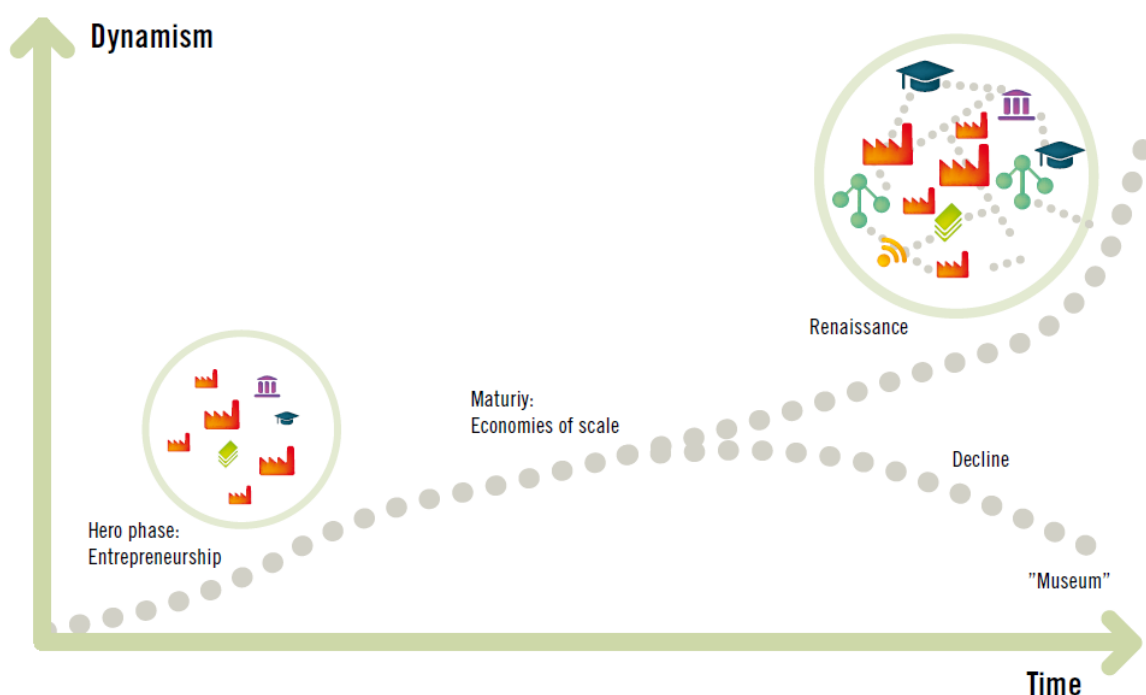


Figure 4: The Cluster Life Cycle (Sölvell, p. 22, 2009)

The development of clusters is not automatic and these stages are only stages clusters might go through. It can also be that shocks occur in the beginning of the development leading to the dispersion of economic activity (Ketels and Memedovic, 2008).

4.5 Clusters in tourism

Until now competitiveness and cluster theories have been debated on a general basis. As this thesis analyses the tourism industry as a specific industry this chapter reveals a literature review on tourism clusters and research conducted in the recent years. Edward H. Huijbens, Hjalti Jóhannesson, and Gunnar Thór Jóhannesson (2014) follow Porter's definition of clusters when they define tourism clusters as "a spatially concentrated group of related service companies and supporting institutions, focused on a tourism product, drawing non-resident attention" (p. 68).

4.5.1 Characteristics of tourism clusters and destination competitiveness

Various tourism clusters have developed in completely different locations in the last decades. Some are similar due to cultural, geographical or climate aspects whereas others can be regarded as unique. Few tourism clusters face decline, where others are about to be discovered or reinvented with new concepts.

Different models of destination competitiveness exist which are generally based on destination's resource endowments (comparative advantage) as well as the capacity to deploy resources (competitive advantage) (Crouch, 2007). The model of Dwyer, Mellor, Livaic, Edwards, and Kim (2004) depicts primary elements of destination competitiveness as core resources and supporting factors and resources. Core resources comprise endowed (inherited) and "created" resources. Endowed resources are either "natural" (e.g. landscape, mountains, lakes, climate) or cultural/heritage resources (e.g. customs, language, handicrafts, cuisine). Created resources include e.g. tourism specific infrastructure, events, or shopping. Supporting factors and resources are the general infrastructure, service, and accessibility³.

Destination competitiveness variates due to different resource endowments, but also as visitor perception changes over time. Due to an increasing globalisation and a higher demand, competition for tourist destinations increases dramatically following a trend towards more quality, efficiency and innovation. According to Poon (1993) four key principles are important to keep a destination competitive:

³ According to the model of Porter (1990) comparative advantage concerns destination's factor endowments, which are infrastructure, human, physical, knowledge and capital resources.

To put the environment first, to make tourism a lead sector, to strengthen the distribution channels in the marketplace, and to build a dynamic private sector (p. 24).

Competitiveness of tourism businesses in a cluster is augmented due to cost reduction, better access and use of technology and information resources (Rutelione and Hopeniene, 2016).

Tourism clusters are essential for regional development as tourism goes far beyond the cluster boarder and has an effect on many other related clusters and/or industries (e.g. agriculture, transportation, health sector). Porter explains that “cluster development often becomes particularly vibrant at the intersection of clusters” (p. 241, 1998). Clusters can upgrade whole regions leading to job creation and a higher productivity which results in better living conditions for locals.

Premises in tourism cluster development are according to Iordache, Ciochina, and Asandei (2010):

- The existence of competitive companies;
- Favourable geographical location, natural potential, cultural traditions, gastronomy, sincere hospitality;
- Key partners are concentrated in the vicinity and well connected;
- Greater diversity of partners;
- Existence of formal and informal links between cluster partners.

The most important aspect are however companies that both compete and complement each other in a concentrated region (Edward H. Huijbens, 2014).

The difference between tourism clusters and manufacturing clusters is consumption of the good. The goods are consumed at the factory level in tourism cluster whereas the consumption of goods are consumed normally faraway from the factory in manufacturing clusters (Gollub, Hosier, and Woo, 2003).

Networks exist throughout local, regional or even cross-border industries and are important elements in tourism. Tourism destinations are often seen as complex networks involving both public and private organisations and other stakeholders which function as co-producing actors delivering a variety of products and services (Timur and Getz, 2008; Baggio

et al., 2010; Haugland, Ness, Grønseth, and Aarstad, 2011). Research has shown that networks in certain tourist destinations are characterised by a high degree of sparseness and low degree of local networking. Consequently, stakeholders engage less in collaboration and cooperation. Following, the capacity to innovate, the exchange of best practice resulting in improved performance and profitability is diminished (Baggio et al., 2010). However, pressure is put on companies to innovate as rapid changes in the global economy and information technology affect destination competitiveness. Networks are crucial in order to strengthen connections between organisations and to develop sustainable tourist destinations that can compete on a global scale (Vernon, Essex, Pinder, and Curry, 2005; Timur and Getz, 2008).

4.5.2 Research of tourism clusters

One pioneer in tourism cluster research is Hjalager (2000) who studied the concept of industrial districts in tourism. Industrial districts are seen as local clusters of single product industries referring to homogeneous products. Hjalager states that new trends in consumer preference, technological developments and environmental prerequisites make the development of special districts in tourism likely that have many characteristics of industrial districts. These characteristics are e.g. a global market, SME-based economy, specialisation in one sector, extended vertical interdependence, existence of a numerical and functional flexibility, some tendencies towards the establishment of supportive public and semi-public policies and institutions. Some elements however are not corresponding with industrial districts that are e.g. non-supportive governance structures, the dependency of multinationals, free-rider behaviour of companies and the lack of stabilised collaborative structures that enhance trust and reciprocity. These disparities can question the application of the industrial district approach in tourism research (Hjalager, 2000).

Jackson and Murphy (2002) put forward the use of Porter's cluster model for measuring success of tourism destinations which is referring to a concentration of interrelated but different industries emerging from similar business ethics. The product range is rather heterogeneous and thus fits better with tourism destinations. Furthermore clusters have life cycles with social structures and relationships resulting in a wide involvement of cluster participants. In later studies Jackson and Murphy (2006) declared a shift from comparative advantage towards a competitive advantage facilitated by tourism clusters. Competition

within tourism clusters is based on differentiation, cooperation and innovation rather than on anti-competitive activity or price or cost cutting. Crouch and Ritchie (1999) developed a conceptual model of destination competitiveness based on Porter. Their model reveals four major components that determine tourism destination competitiveness: *qualifying determinants* (location, safety, cost, dependencies), *destination management* (superstructure, marketing, information, service), *core resources and attractors* (culture and history, special events, market ties, physiography), and *supporting factors and resources* (infrastructure, accessibility, facilitating resources, enterprise). Additionally the micro and macro environments influence these components.

4.5.3 Application of tourism clusters

The Internet reveals a growing number of tourism clusters that have been mapped and analysed for various regions on national and regional levels. Cluster analyses are often conducted by universities or by (local) governments. Tourism clusters have been mapped for different countries where tourism plays an important role in the national economy such as Spain (Perles-Ribes, Rodríguez-Sánchez, and Ramón-Rodríguez 2015; Cirer-Costa, 2014; Segarra-Oña, Miret-Pastor, Peiró-Signes, and Verma 2012) or Australia (McLennan, Becken, and Watt, 2015; Jackson and Murphy, 2006, McRae-Williams, 2004). National governments and regional tourism agencies have started to implement Porter's competitiveness diamond model such as South Africa (The Cluster Consortium, 1999) or Australia (Kelly, 2001). Developing of competitive clusters has been supported by stimulation of networking (e.g. workshops and meetings), infrastructure provision (e.g. university), knowledge transfer (e.g. collaboration among different industry branches) and sharing of best practice (Novelli Schmitz, and Spencer, 2006).

The use and analysis of clusters in tourism is however still a young research field where studies are limited (Nordin, 2003; Novelli, et al., 2006). Porter (1990) studied service industries, but tourism is hardly mentioned in this context. By analysing e.g. the Californian wine cluster tourism and food components are discussed. Reasons of limited research are the difficulty to identify tourism activities, the complexity in defining cluster analysing methods for tourism clusters, a lack of collaboration among tourism companies and that the sector is based on leisure and thus not considered to be "serious" (Hjalager, 2000; Perles-Ribes et al.,

2015). In general the boundaries of tourism clusters are “fairly diffuse” (Nordin, p. 15, 2003) which makes its outcomes hard to measure. Research in the last years was associated with network and cluster development in tourism (Novelli et al., 2006), tourism development planning and policies (Miller and Gibson, 2005), regional growth (Michael, 2003, 2007), the quality of relationships among tourism cluster members (Rutelione and Hopeniene, 2016), the implementation of sustainability within clusters (Erkuş-Öztürk, 2011; McLennan et al., 2015), and the effect of tourism clusters on hotel performance (Peiró-Signes, Segarra-Oña, Miret-Pastor, and Verma 2014; Canina, Enz, and Harrison, 2005).

Research in Iceland on tourism clusters has been conducted by Edward H. Huijbens, Hjalti Jóhannesson and Gunnar Thór Jóhannesson (2014). Research has been supported by the Icelandic Tourism Research Centre, University of Akureyri and University of Iceland. Their emphasises lays on regional policy and tourism development in certain regions in Iceland that face population decline due to a shift on the labour market.

4.6 Critics and limitation of the cluster approach

The contribution of Porter and other scholars to cluster theory has been immense in the last decades. A number of governments use cluster initiatives and set policies in order to facilitate regional development. It is noteworthy, when clusters are studied how much critic is on the subject.

One main point of criticism is the myriad of definitions which exists about clusters. Some definitions are vague and others very limiting (Martin and Sunley, 2003). Little consensus exists about the dynamics that underlie cluster growth and the requirement of geographical proximity is not defined further. The development and the policies that suites best to help building and strengthening clusters are thus often misleading (Feser, 1998). Besides, it is difficult to measure the mechanisms that account for the existence of clusters (Malmberg and Maskell, 2002). Hence the cluster-approach stays “opaque and fuzzy” (Martin and Sunley, p. 11, 2003) and unspecified in its meaning which makes it hard to i.a. compare distinct clusters in a sufficient way as the point of departure seems to be different in each case.

When looking at clusters in different areas such as Silicon Valley it is often referred to as one cluster although many different clusters overlap in one particular area. For this reason regional growth can not only be explained by the existence of one single cluster, but rather by

industry spill-overs. When regarding specific clusters and neglecting others it can lead to insufficient economic diversification and lock-in effects. This means being tied by long-term investment strategies to supporting specific sectors and being unable subsequently to change track (OECD, 2007). Weak and lagging regions and their industries may fall more behind and risk exclusion.

The cluster approach neglects outside factors on which the region cannot have an influence on and it ignores social relations and networks with other regions (Borožan and Strossmayer, 2008). Clusters bear the risk of localised inflation and “overheating” as companies with lower profit may be forced out of the region, the housing and land gets more expensive which makes it difficult for people with lower income to find affordable housing (Martin and Sunley, 2003). Thus not everybody will profit from a strong cluster and social disparity grows.

Most often a case study is applied to identify and analyse cluster. However, empirical methodologies and mapping of clusters vary considerably (Martin and Sunley, 2003). Various clusters have been mapped and analysed, but they are often limited to clusters which are successful and not on clusters that failed. Further, when looking at the Porterian cluster, it has been marketed effectively by Porter and others as a “cluster brand”, but the cluster framework fails to translate the idea into a practical policy concept (Martin and Sunley, 2003).

4.7 Summary of chapter 4

In chapter 4 the development of cluster theories was discussed. In this context the emergence of innovations within clusters were debated which are strengthened through stronger collaboration and competition among its members, diffusion of information and (tacit) knowledge, but also through its local culture and specific infrastructure such as research institutes. In an innovative milieu innovative activities are even seen as a collective process.

Special emphasis was laid on companies as members of a cluster. The benefits for companies in well-developed clusters have shown to be higher productivity and increase in their innovative activities. Positive effects of clusters are furthermore reflected in lower-cost access to products and services, lower transaction costs and more transparency, better access to information (e.g. about the market, customer needs, technology) and limiting of opportunistic behaviour. Another important aspect are complementarities which related industries produce to create even more consumer value (Porter, 1998). These include also

marketing, where especially joint marketing can lead to more efficiency. As clusters do not stand alone in a national economy they can increase the productivity of other clusters or industries as well and upgrade them.

In chapter 4.5 tourism clusters were discussed, their characteristics and the components for a competitive tourism cluster were revealed. One main aspect is the (natural) environment and the specific region of the cluster as production and consumption of tourism products takes place in the same area.

However, tourism clusters are often vague, as many complementary companies have a stake in the cluster and locals or the local community are directly affected of the cluster and/or are part of it as well.

Tourism clusters differ from traditional clusters in the way that:

- 1. Services and products are used locally by the consumers.**
- 2. A successful cluster comprises companies that are more cooperative rather than being competitive. Trust and relationships play thus an important role in order to promote the whole destination offering special experience to the customers.**
- 3. Complementary companies are involved in the tourism cluster following the concept of the diagonal cluster.**

In general, the discussion about tourism clusters is still limited. What is lacking is knowledge about how clusters support the innovation process of SME's, how innovation can be supported in clusters, and how knowledge transfer takes place.

This thesis attempts to identify key success factors that have an influence on innovative activities in tourism clusters with a literature study. These factors are presented in chapter 6.1.2 and a framework is drawn up.

5 Literature review on innovation

In this chapter, innovation in general is discussed by presenting different definitions, theories and types of innovation and their sources. Special emphasises is laid on innovation within clusters and companies where different ways to innovate within companies are explained. The chapter concludes with what role innovation has within the tourism industry.

5.1 Defining innovation

Innovation is a “fashionable topic” today (Fagerberg, Fosaas and Sapprasert, p. 112, 2012) and although innovation itself is not a new phenomenon its “discovery” as a research field in e.g. social science or engineering took place just in the last century with a special “boom” in the last decade.

Innovation can be seen as an interdisciplinary field of study and thus different approaches exist to define the term. For an understanding of the term it is necessary to distinguish between innovation, invention and imitation. Invention is “the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out into practice” (Fagerberg, p. 4, 2004). Inventions are often patented but they do not necessarily lead to technical innovations. Innovation is the first commercial transaction involving the new product or service (Freeman and Soete, 1997). An innovation is thus the result of an invention plus its exploitation. Inventions can happen everywhere, but it can take a long time until it becomes an innovation. Most innovations take place in companies or public organisations as these have the possibility to carry inventions into practice. Thus it can be said that innovation is

the process by which firms master and implement the design and production of goods and services that are new to them, irrespective of whether or not they are new to their competitors – domestic or foreign (Ernst, Ganiatsos, and Mytelka, p. 13, 1995).

It is further important to differentiate between innovation and entrepreneurship. Entrepreneurship can include the creation of new organisations which can be stimulated by the institutional environment through e.g. incentives or support. On the contrary Shane and Venkataraman (2000) assume that entrepreneurship is concerned with opportunities, the influence of individuals, and that it goes further than new business creation. For them entrepreneurship is “concerned with the discovery and exploitation of profitable

opportunities... [and] ...the set of individuals who discover, evaluate, and exploit them" (Shane and Venkataraman, pp. 217, 2000). The definition of Drucker (1985) is underlining the abovementioned. According to him innovation is

the specific instrument of entrepreneurship. It is the act that endows resources with a new capacity to create wealth. Innovation, indeed, creates a resource. There is no such a thing as a 'resource' until man finds a use for something in nature and thus endows it with economic value (p.30).

5.2 Types of innovation

Schumpeter (1934) classified innovations into four different types:

1. *Product innovation*: Introduction of products or services that are new or significantly improved. The products must be new to the company, but not necessarily new to the market. Additionally, the innovation does not need to be developed by the company itself. The new product can be based on new technology or knowledge, on new uses, or on a combination of all.

2. *Process innovation*: Implementation of new methods of production or delivery method with a change in software, equipment or techniques. Results are often a decrease in unit costs, higher quality or an increased production.

3. *Marketing/Market innovation*: Implementation of new marketing methods with changes in the Marketing's four P (product design, packaging, pricing, product placement) and/or the exploitation of new markets.

4. *Organisational innovation*: Introduction of new organisational methods by changing e.g. resource allocation or distribution. Results are improved workplace satisfaction, reduction of administration and transaction costs, increase of productivity, and better access to skills and tacit knowledge.

Innovation is further differentiated into *radical* (e.g. technological breakthrough), *incremental/disruptive* (e.g. small improvements or upgrades to existing products), *architectural* (e.g. reconfiguration of existing product technologies or components), or *modular innovations* (e.g. redesign of core complements)⁴.

⁴ It is sometimes also referred to as revolutionary, regular, architectural and niche innovations (e.g. Abernathy and Clark, 1985).

The adjective “new” in these classifications can mean new to the world, new to the company, a product extension (adding product features), new product improvements, or product repositioning (new segments of use) (Ahmed and Shepherd, 2010). Most often the focus is laid on new products and new methods of production. This is also the main emphasises in this thesis.

In general innovation is a continuous process where incremental improvements and innovations follow radical innovations: “Much innovation is mundane and incremental, depending more on an accumulation of small insights and advances than on a single, major technological breakthrough” (Porter, p. 75, 1990).

The aspects and distinctions mentioned relate to innovations on a company level. However, for Porter innovation can not only be seen on the company level: it is embedded in a regional, national and international context which has to be taken into consideration. Information that is usually not available for others or that others do not seek is nonetheless important in the process of innovation:

This is why innovators are often outsiders from a different industry or a different country. Innovation may come from a new company, whose founder has a non-traditional background or was simply not appreciated in an older, established company. Or the capacity for innovation may come into an existing company through senior managers who are new to the particular industry and thus more able to perceive opportunities and more likely to pursue them. Or innovation may occur as a company diversifies, bringing new resources, skills, or perspectives to another industry. Or innovation may come from another nation with different circumstances or different ways of competing (Porter, p. 164, 1990).

In this context Porter mentions sources of innovation. These are better discussed in the following chapter.

5.3 Innovation theories

Different innovation theories have developed in the last decades. The theories of Schumpeter and Drucker are probably the most important and influential. However, their theory is built on thoughts and concepts of the Austrian School of economics.

5.3.1 The Austrian School of Economics

The foundation of *The Austrian School of Economics* was laid in 1871 with Carl Menger’s (1840-1921) publication of *Principles of Economics* which was meant to be a counterpart to the

leading German historical school. Menger argued that the unit of analysis is *man* and his choices (and not history) and that economic analysis are universally applicable (Boettke, 2008). Other important members of the Austrian School were Friedrich von Hayek, Israel M. Kirzner and Ludwig von Mises. Following, some of their ideas that laid the foundation of innovation and entrepreneurship studies are explained and compared.

The Austrian school criticised neoclassical theories for their idea of general equilibrium. The nature of economics is not static, nor is a static equilibrium a desirable outcome as nothing will develop further. Competition leads to changes in economy and although it forces the economy in the direction of an equilibrium it will never reach that state as individuals are not perfect, nor information on the market. Driving forces on the market are individuals with their unsatisfied demand who are constantly trying to change the situation and improve it. These individuals can be entrepreneurs that see new business opportunities in offering new or improved goods to satisfy needs. However, uncertainty about the right timing or the right products and information about competitors prevent reaching an equilibrium (Jonsson, 2015).

One of the leader in the Austrian tradition was Kirzner (*1930). He is known for his theory about the alertness of the entrepreneur for an upcoming opportunity (“entrepreneurial alertness”). Furthermore he mentions the constant disequilibrium in the world which the entrepreneur tries to bring back into balance. Kirzner describes entrepreneurs as “extraordinarily bright and greedy individuals whose activities are rather disreputable” (p. 1, 1984). But because of their behaviour they can push economies into a “higher level of well-being” (p. 2). He defines entrepreneurs as those who start companies, introduce new goods, new techniques or new forms of organisations, and get new sources to finance their venture or enter new markets. In doing so the entrepreneur has an alertness for identifying opportunities or errors which others have overlooked. The entrepreneur bridges two different markets: in on market he buys resources and transforms them into new products, and in another market he is selling those transformed resources for a higher price and gains thus a profit. In his theory information and knowledge are equally distributed, which means that everybody has the possibility to detect these opportunities. However, information is scattered and it is the task of the entrepreneur to reach for the dispersed information, to coordinate and to mobilise it. While bundling the information he can make better and more effective use of it and exploit existing resources to create new products.

But also scholars that were more opposing the Austrian School rather than supporting it did contribute to the understanding of innovation and entrepreneurship studies in general. One example is the American economist Frank Knight (1885-1972) who laid the basis of future studies in innovation with his approach of entrepreneurship and uncertainty. Knight's book *Risk, Uncertainty, and Profit*, first published in 1921, deals about how profit can be gained in the economic system and what role the entrepreneur holds in profitmaking. The main criterion for his theory is trying to reach a disequilibrium in the system since in an equilibrium there is no profit as things stay unchanged. In his theory the distinction of the two concepts *uncertainty* and *risk* are very important. Risk is a phenomenon which can be measured and thus also predicted. However, uncertainty can create profit if entrepreneurs deal successfully with high risk by developing new thoughts, products, services and the like. If someone is not willing to take a high degree of risk for developing something new this person will not gain anything, but will rather lose as others may decide to act instead, exploiting opportunities and gain more profit in the future.

Comparing the ideas of Kirzner and Knight, both name profit as a leading incentive for the entrepreneur to act. In their opinion profit for a successful outcome is what motivates entrepreneurs when taking a step into uncertainty.

5.3.2 Joseph Schumpeter

The scholar which is undeniable the most important contributor to innovation studies is Joseph Schumpeter (1883-1950). One of his most influential work regarding innovation studies was *Capitalism, Socialism and Democracy* (1943).

The theory of Schumpeter concerns primarily economic development and innovation. According to Schumpeter companies get steadily bigger whereby the largest companies account for the most progress following an evolutionary process. Changes in the environment happen due to wars, catastrophes or revolutions. However, the most important impulse for a changing environment are innovations. Innovations revolutionise economic structures from *within*, and are thus destroying old patterns, but creating at the same time new systems. Schumpeter named this process "Kreative Zerstörung" ("*creative destruction*"), which is shown in figure 5.

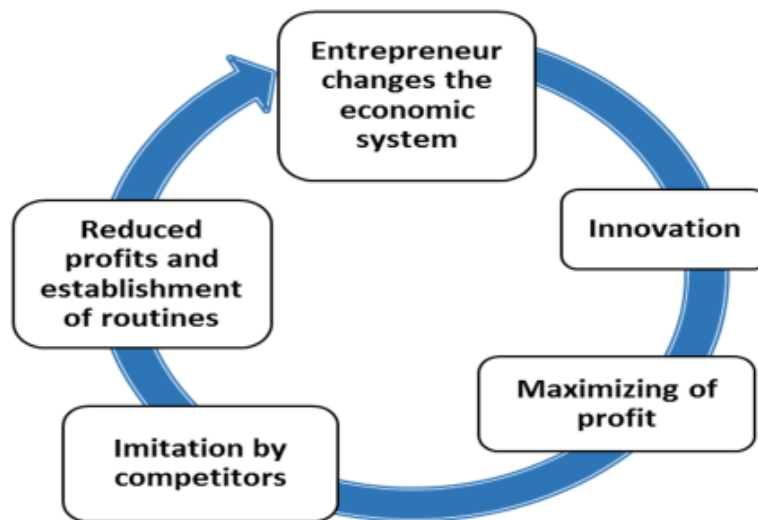


Figure 5: Creative destruction.

The figure shows that entrepreneurs are changing the economic system by making use of innovation. These novelties give the entrepreneur/company an edge over competitors and thus a higher profit as they hold a certain monopoly on the market for the new good. An imbalance is created on the market due to higher competition until competitors start to imitate the innovation. Due to imitations the innovation will lose its “novelty” and develops to a routine on the market. Now it starts all over again.

The concept of creative destruction can also explain why innovation “accumulates” to form clusters at certain times in particular areas or regions as companies usually follow innovative, successful companies and try to imitate them. Consequently, the whole sector grows. But the following companies do not only imitate others, they themselves innovate by improving the original innovation.

In Schumpeter’s theory innovation is stated as the most important factor for economic development, and entrepreneurs execute and foster the innovation. Prior to this economists mainly regarded competition being based on price or quality. A new dimension of competition is introduced with the theory of Schumpeter as new products, processes or technologies, disrupt the market. This can result in a price drop or products becoming obsolete and hence the process of creative destruction. Today the disruptive process is thought to be necessary for the economic development of nations whereas it leads to increased economic growth.

A clear difference between Schumpeter and Knight is that for Schumpeter the entrepreneur is not confronted with uncertainty, but in his mind it is the capitalist or the company itself. The entrepreneur does thus not gain profit through stepping into uncertainty, but by being the first to introduce something new and thus by gaining a monopoly on the market.

5.3.3 Peter Drucker

Drucker (1909-2005) approaches innovation from the view of strategic management with a main focus on entrepreneurial management. With this he shares a similar understanding of entrepreneurship and innovation as Schumpeter. Drucker's emphasises lays however more on the creation of markets and the creation of new customer's and customer needs.

For Drucker innovations do not have to be technical in nature, it does not have to be a "thing" altogether (Drucker, p. 31, 1985), but innovations are often intangible. Drucker thus claims that the term innovation "is an economic or social rather than a technical term" (Drucker, p. 33, 1985).

According to Drucker innovative activity is rooted in seven sources of innovation opportunities:

1. *The unexpected* (success, failure, outside event): Possibilities can arise by the unexpected which lead to success. Unexpected success can be new products, supplements, experiments that exceed all expectations. But most important is to analyse why something was successful (or not) and how it could change future processes and decisions.

2. *Incongruities* (between reality as it actually is and reality as it is assumed to be): The reason for incongruities is often misinterpretation of customer needs or the value that a product or service should give to its users.

3. *Process need*: Process need refers to productivity which can be optimised when processes in production or transaction of services are more effective and faster. This source is now often referred to as the lean start-up method.

4. *Changes in industry and market structures*: New possibilities for innovations arise through the exploitation of new markets or because market structures and industry sectors dramatically change.

5. *Demographics* (population changes): The composition of a population within and across nations changes. This can happen through fluctuations in size of population, age distribution, education, income distribution etc.

6. *Changes in perception, mood, and meaning*: A change in moral values can create new opportunities. It arises by social or economic trends which are often difficult to explain. Examples are the increased need for health and sustainability.

7. *New knowledge*: New knowledge can be inventions, innovations deriving from new technologies or social innovations.

The first four sources lay within an organisation or industry and the other sources lay outside of them. Most innovations are found only in a few of these sources such as process innovation through lean start-up and technical innovations. Taking all sources into consideration would augment the possibility for more/better innovations in the future.

Drucker added another source, the eighth source: a bright idea. But according to him it is the worst, riskiest and least likely source for successful innovations.

5.3.4 Innovation studies and entrepreneurship today

One of the main aspects of change in innovation theories is a higher competition through globalisation and technological progress. Some decades ago industries were competing on products and quantity, now competition is rather about processes and quality. Thus it becomes necessary to find new competitive advantages through innovations. A new dimension in competition is not only about new products or services. It is about creating new business models as it becomes more difficult for competitors to imitate products offered by the company (Amit and Zott, 2012). This method can either create new markets or exploit new opportunities in already existing markets. Business model innovation is a new configuration of what is done and how it is done in a company. It creates new options for applying and exploiting knowledge and technology differently than its competitors and determines thus how value is created and delivered to the customer.

5.4 Innovation policies and the role of government

The government can play a role in knowledge creation and diffusion e.g. by granting intellectual property rights, by establishing the necessary legal infrastructure or

communication systems. The innovation process involves a certain degree of uncertainty which can hinder innovative activities. The government can approach this problem by supporting activities such as subsidising, providing tax advantages or supporting R&D projects. With public-private partnerships the government can influence the spatial distribution of innovative activity or support investments which are characterised by higher-risk, early-stage or high-technology (Deakins and Freel, 2006).

Furthermore low inflation, low interest rates and a stable economic growth has a positive impact on companies as it encourages to invest in innovative activities. The role of the government is also creating international and regional standards in terms of environmental, safety or human rights issues (Trott, 2017).

The role of the government is depicted in the figure six based on Porter's model of industry attractiveness.

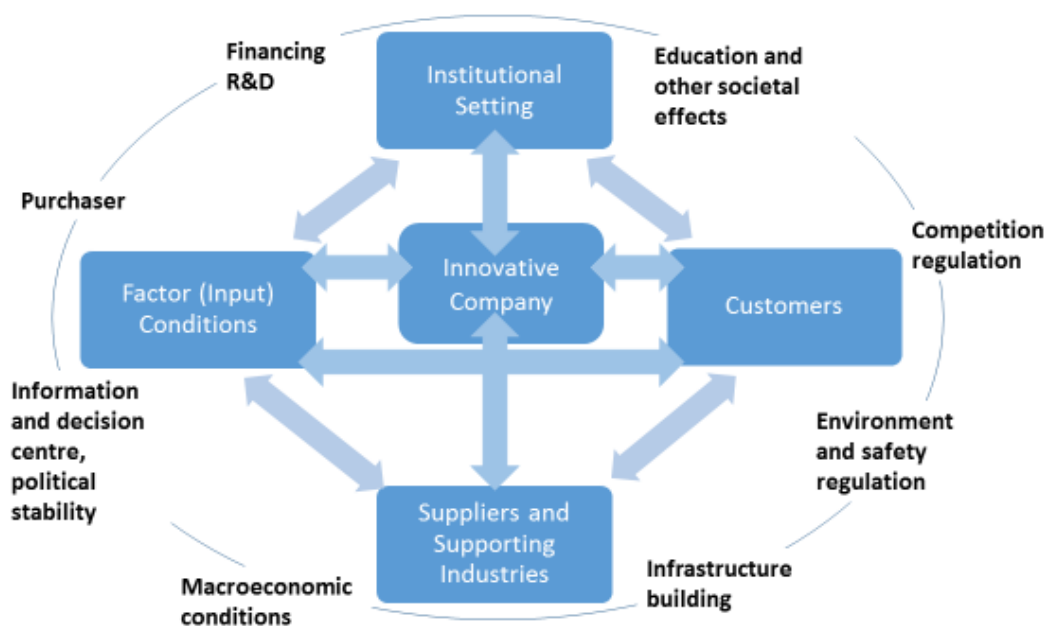


Figure 6: The role of the state in innovation (Trott, p. 51, 2017).

5.5 The innovation system

Companies that innovate are highly dependent on their environment and the interaction with different players. The environment can be explained as a system, a network or milieu.

Innovation systems are classified into a national innovation system, a regional innovation system, a local innovation system and a technological innovation system (Carlson, 2007).

The term “National Innovation System” was first mentioned by Freeman (1988) in his study of the success of the Japanese economy. It was earlier introduced by Lundvall (1985). The National Innovation System (NIS) is a complex set of relationships among research institutes, universities and companies that enable the flow of technology and information which in turn pushes the innovation process. The term “system” in the concept indicates “something that can be constructed, governed, and manipulated by policy makers” (Lundvall, p. 8, 2005).

Different terms exist to describe an innovation system; sometimes it is referred to as “innovation ecosystem” or “innovation milieu” (which was already discussed under cluster theories in chapter 4.2.2). The term *innovation ecosystem* is often used either as a subset or synonym of innovation system. Similar to a natural organic ecosystem companies are interacting with each other, share the same (political and legal) system and the physical environment. The ecosystem can be explained by the different ecology of actors such as NGO’s, public institutions (political, legal, and financial), companies (including distributors and suppliers) and research institutions. Furthermore regulations and rules, the educational system, location, infrastructure and culture influence the business ecosystem.

Ecosystems can be classified into several sub-types (Hyrnsalmi, Seppänen, Nokkala, Suominen, and Järvi, 2015). One is the innovation ecosystem, which is relevant for this study: The Icelandic innovation ecosystem is further described in chapter 7 in order to assess the conditions and requirements of the system which helps to understand the innovative ability of companies operating in Iceland.

5.5.1 Innovation within clusters

One measurement for a “healthy” cluster is its rate of innovation (Porter, 1998). Sölvell (2009) found out by using data from the *European Cluster Observatory* that regional specialisation (degree of clustering) and innovative performance (measuring as patenting levels) are positively correlated. Another explanation for regional success is the degree of urbanisation, as metropolitan areas consist of a more diverse and creative environment and more academic institutions. What is most important is the diffusion of innovation and the adjustment of the business model (Sölvell, 2009).

Due to a high concentration of supporting companies within a cluster companies can identify customer needs better than isolated competitors (Porter 1998a) as the access to information, knowledge and new technology is faster and less costly and companies are constantly watching other companies and their development. Resulting, the innovation process is not only located in one single company, but affects also suppliers or related industries that might even be involved in the process. Due to a constant comparison the pressure is high on single companies to innovate.

Not only innovation is facilitated in clusters, also new business creation. Most new businesses form in clusters rather than at isolated locations as clusters provide better information about opportunities. Entrepreneurs who are active in clusters find more easily gaps to fill concerning products and services (Porter, 1998a). As a consequence clusters can grow in depth and breadth by attracting new business formation.

5.5.2 Innovation in companies

Companies innovate in order to establish or retain their competitive advantage on the market. The easiest way to innovate is to combine already existing resources and knowledge. The company has to overcome a certain inertia in the beginning, it has to deal with high risk due to an uncertain outcome (e.g. purchasing behaviour of consumers) and the fact that others may be quicker to innovate and thus profit more. Innovation involves also to choose between different possibilities, which can lead to a “path dependency” as history matters for future outcomes and decisions. Consequently, the company has limited choices in the future which involves the risk of being “locked in” to the particular path. Meanwhile other companies could have chosen a superior path which gives them the possibilities of gaining greater profit.

In *The Theory of the Growth of the Firm*, published in 1959, Penrose explains how companies can grow through the management of unused resources. The company is seen as a bundle of human and physical resources which need to be managed. This translates into the fact that even when two companies are equipped with the same resources these resources won't be the same for both companies as their management decides about them in a different manner. Growth can originate by better knowledge of resources and by combining these resources in a smart and effective way. This should give the company limitless opportunities to grow. However, finite capacities of a companies' manager and his experience will limit the

rate at which a company can grow. This is called the *Penrose-Effect* which has been researched and proved in several cases (e.g. Tan and Mahoney, 2005).

It is not completely clear whether the size of a company is a determining factor in the innovativeness of a company. Schumpeter (1943) suggested initially that innovation is mostly found in small entrepreneurial companies but changed his suggestion later and declared that bigger companies with a monopoly power have more financial resources to innovate, better facilities in production and can more often attract the best innovative talent. Also, there will be no imitators when they hold a monopoly. However, research has not found evidence of his assumption (e.g. Kamien and Schwartz, 1975). An argument against Schumpeter is a greater inertia in bigger companies to innovate. Furthermore the lack of rivalry leads to less rapid development for a monopoly.

5.5.2.1 Innovation strategies for companies

Making use of innovation in order to gain market share, enter new markets or to strengthen competition is a business strategy by itself. Accordingly, every company needs clear innovation strategies to create and to successfully implement innovations, especially as a company has often just limited innovation resources that need to be organised efficiently.

For Porter companies achieve competitive advantage by perceiving an entirely new market opportunity or by serving a market segment that others have ignored (Porter, 1998). Holding that advantage means that the company has to improve and upgrade innovations constantly. Porter (1990, 1998) has demonstrated that high competition and rivalry between companies is an important incentive for innovation and product differentiation. To gain a competitive advantage companies follow different strategies.

In practice many companies hold more than one innovation strategy. Furthermore the boundaries of strategies are often indistinct and an accurate classification thus not possible. Some strategies concentrate on the different dimensions of innovations (rooted in Schumpeter's classification types of product, process, market (marketing) or organisational innovation). The types of innovations and their combination results in 16 possible strategies (*complex innovation strategies*). The most popular are: only product innovation, only process, only marketing, only organisation, both product and process, and all four types of innovation. In a study by Karlsson and Tavassoli (2015) these six choices accounted for 70% of all chosen

choices. They could find out that internal R&D investments, machinery investments, training of employees and size of company positively affects process innovation. Outsourcing of R&D has no effects on innovation choices and international linkages positively affects product innovation.

Also the generic strategies of Porter involve innovation strategies: cost reduction can be achieved by process innovation, differentiation is based on innovations where unique or superior products are offered and focus or niching is achieved by innovating in sub-sectors of the market where competition is weak. Small companies choose preferably niche strategies due to limited resources. Niches emerge because others have overlooked or abandoned opportunities or the niche is an emerging market which is not yet identified by others (Ahmed and Shepherd, 2010).

There are also companies that rarely or never innovate (And it might even be a strategy on its own!). Reasons can be a lack of skills and resources, inertia or just ineffective management. Some companies that do not innovate might however hold a strong position on the market because they have access to a unique resource.

5.6 The Innovation process

A main question in innovation studies is why some companies are more successful to innovate than others and what kind of strategies they follow in order to succeed. Innovation processes among companies can strongly depending on the internal capacity to generate new knowledge, links to external information or knowledge, competence of employees, the company's history and resource base, the company's demand conditions, management, external network, strategies, industry and use of technology (Karlsson and Tavassoli, 2015). There is certainly no unique "recipe" to innovate as companies and industries differ. But what can be described and analysed are innovation strategies and the innovation processes.

This chapter deals thus with innovation processes and their development in the last decades.

5.6.1 Models of the innovation process

The first models of the innovation process that appeared in innovation studies were linear models. Linear models are often presented as "technology push" models (1950s – mid-1960s) or as "market push" models (mid 1960s – early-1970s). The former is concerned with

technological development where the industry and scientific discovery is the starting point of the process (figure 7). The latter emerges from the market and customer needs which again influences the direction of R&D in companies. Market push models appeared due to higher manufacturing productivity and prosperity, and due to an intensified competition on the market. This shifted innovation to demand side factors, i.e. the market place (Rothwell, 1994).

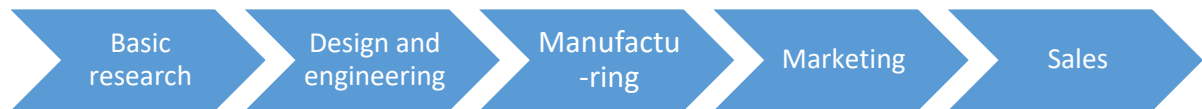


Figure 7: Linear Model, technology push (Rothwell, p.8, 1994).

Linear models of innovation have further developed and changed over time. Different models followed such as the “coupling” model which introduced feedback loops between different stages. Freeman and Soete (1997) explain the development of innovation processes with the changed role of the R&D system that originates in its scale, its scientific content, and higher specialisation and professionalism. Furthermore, from the 1980s onwards there was a rapid growth in the number of strategic alliances between companies, the notion of global strategy emerged and product life cycles shortened. Consequently, the speed of development and innovation processes became an important factor in competition resulting in changed innovation processes and linear models became obsolete (Rothwell, 1994).

Furthermore, innovation is not an event that occurs, but a process that is complex, hard to measure and unpredictable. Also, innovation does not purely happen due to research, but opportunities occur often far away from research fields. In order to get a better idea of innovation as a process, Kline and Rosenberg replaced the linear model with the chain-linked model where design (and not science) is most important in the innovation process (Kline and Rosenberg, 1986). Further, various feedback loops between different steps exist and push and pull factors that occur between knowledge, research and the single steps in the innovation process (e.g. market and consumer), but also between different industries which can be seen as reciprocal influence.

Opposing all models and also the importance of R&D investment for the innovation process are concepts of open innovation and user innovation. These approaches arose in the 1990s

and are often called co-creation processes describing the emerging relationship between customers and companies (Ramaswamy and Gouillart, 2010).

Open innovation is a term introduced by Chesbrough (2003a) in his book with the same title where he outlines a new paradigm for innovation. Through globalisation and the mobility of knowledge workers, quickly changing market trends and a growing availability of venture capital that help to finance small new firms, it is more difficult for companies to rely on their own ideas in order to innovate and grow. This changed the innovation model from closed to open: In the closed model R&D investments are fundamental giving the company control over their ideas by hiring the best people. In the model of open innovation companies commercialise external and internal ideas by developing outside and in-house pathways to the market. Therefore, companies can commercialise their ideas and bring it to the market through e.g. spin-offs, licensing agreements or joint ventures. Boundaries between a company and its environment get more “porous” which allows a higher flow of knowledge on the market as seen in figure 8 (Chesbrough, 2003b).

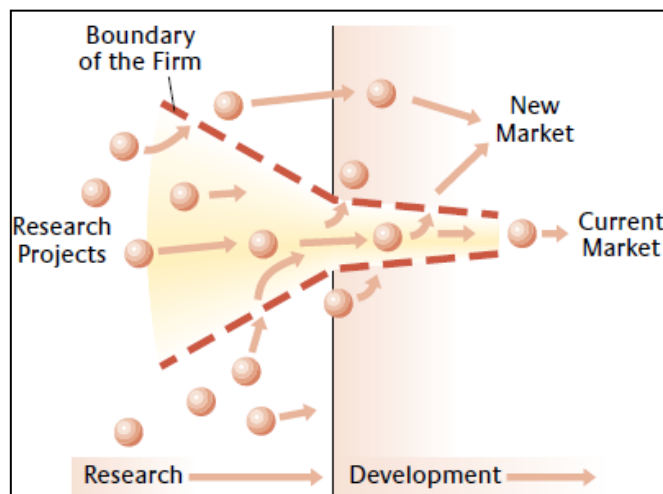


Figure 8: Open Innovation (Chesbrough, p. 37, 2003b)

Von Hippel (1988, 2005, 2017) discussed the growing democratisation of innovation in his user innovation approach. According to him users – and especially so called “lead users” - are the first to develop new ideas as the internet, computer software and hardware gives them the skills and abilities to design and communicate their own innovations. Individual opportunities are established a priori and gain in significance as it is easier and cheaper for everyone to shape their own environment and to create products after their needs.

Companies can profit from user innovations as it makes it easier to forecast market trends and reduces costs related to their own innovations (Jonsson, 2015).

5.6.2 Creativity

Creativity is necessary for the innovation process, but not a sufficient component. An essential aspect in entrepreneurship is that the source of innovation lays in the creativity of companies and/or individuals within companies. Here it is foremost interesting how creativity can have an influence on innovation and how creativity can be stimulated (i.e. already through a suitable educational system).

Cognitive psychology has contributed much to the research on individual creativity in the last decades. For business studies the topic was for a long time peripheral but became more important in the recent years as organisations have changed their search for employees: now it is more desired to hire “creative” people rather than someone with a pleasant personality or memory skills (Sternberg and Lubart, 1999).

A creative person in this context is someone who has “the ability to produce work that is both novel (i.e. original, unexpected) and appropriate (i.e. useful, adaptive concerning task constraints)” (Sternberg and Lubart, p. 3, 1999). Consequently, the creative response must be valuable and fitting to a specific goal. People are most likely to be creative when they are intrinsically motivated, i.e. if the creative process gives them satisfaction, enjoyment, challenge to overcome or a certain interest in the task to accomplish. Extrinsic motivation such as financial incentives can be “a killer of creativity” (Amabile, 1998). A myriad of tests have been developed to measure creativity. Most tests have in common two components that measure creativity: fluency (the total number of responses given) and originality (how unique the responses are) (Kaufman and Plucker, 2011).

Most essential in this context is however creativity seen from an organisational perspective as it can facilitate innovation in businesses. Most research has been conducted on the individual level about creativity and innovation explaining e.g. entrepreneurial behaviour. The understanding of creativity and the innovative process on an organisational level is still little examined.

5.6.2.1 Organisational creativity

Amabile, Conti, Coon, Lazenby, and Herron (1996) claim that “creativity is the seed of all innovation” (p. 1155) and that it is the social environment that can influence the level and the frequency of creative behaviour.

Organisational creativity can be defined as “the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system” (Woodman, Sawyer, and Griffin, p. 293, 1993). According to Andriopoulos (2001) mainly five factors exist that influence organisational creativity and innovativeness: organisational climate, leadership style, organisational culture, resources and skills and the structure and systems of an organisation.

Organisational climate: Participation and freedom of expression, performance standards, freedom to experiment etc.

Leadership style: To establish an organisation that enables creativity depends on how managers form teams, communicate with them and support their work. This means to match employees with jobs that gives the possibility to work at the top of competency levels; give teams autonomy about decisions and product development; create groups with diverse professional and ethnic backgrounds; encouraging and rewarding success; encouraging the collaboration across sectors (Amabile, 1998).

Organisational culture: This includes basic values, assumptions and beliefs which are shared by the members of an organisation. The set of collective norms influences the behaviour of members within the company. To create an organisational creativity should include an open flow of communication, risk-taking, self-initiated activity and trust and respect for the individual.

Resources and skills: Companies need to attract and develop creative talent by providing sufficient resources and training, encouragement for developing new ideas, time to work on the project and financial support.

Structure and systems: Structures that facilitate creativity tend to be flexible and flat, with few rules and high autonomy. Creative performance should be rewarded and evaluated (Andriopoulos, 2001).

5.7 Literature Review: Innovation in tourism - Research and trends

This chapter focuses on recent research that analysed types of innovation and innovation processes in tourism with regard to driving forces and barriers to innovate.

Many research studies can be found for the manufacturing industry, however more and more interest is also laid on other industries such as the service industry. Thus research in tourism innovation was growing steadily in the last ten years (Hjalager, 2010; Gomezelj, 2016).

Innovation in tourism is increasingly important on a national/regional level as it creates destination competitiveness, and it might translate into favourable job creation and welfare gains (Hjalager, 2012). Innovation is further important on a company level as competition for customers is high which makes it necessary to improve quality and reputation, cut costs, and increase sales and profits (Ottenbacher and Gnoth, 2005). As consumer trends can change quickly and competitors are eager to copy good ideas it is important for a company to innovate continually and identify innovations that are difficult to copy by others (Gomezelj, 2016). Poon (1993) stated that the tourism industry is in a crisis of change and uncertainty due to a rapidly changing environment based on new technology, more experienced customers and environmental limits to growth. The challenge is to provide increased value for money either through innovation-driven cost reduction in production or through product changes providing a higher degree of differentiation and thus tourism experiences (Weiermair, 2004). Research in this field has augmented in the last years as the trend is towards a highly competitive and saturated tourism industry (Mei, Arcodia, and Ruhanen, 2010). Until now tourism innovation has been of limited political consideration and innovation in tourism is in general not as common as e.g. in manufacturing (Nordin, 2003). Besides, tourism companies regard innovation not as a top priority (Nordin, 2003). Reasons are a lack of linkages to research institutions, and little general funding or access to venture capital. Funds are crucial as companies in tourism are mostly SME's and often affected by economic, financial and other fluctuations and carry thus a high risk in financing new projects. Another limiting factor is the structure of those businesses as they are often run by families. This implies that decision making is slower and investments are only undertaken when they are feasible and not when they are necessary.

In this thesis tourism is defined as an industry that "encompasses all the activities dedicated to the satisfaction of tourists needs, and borrows from multiple activities" (Aldebert, Dang and

Longhi, p.2, 2011). Tourism products are often packages of interrelated products and services such as transport, accommodation or leisure services. Accordingly, the unit of analysis for tourism should be on a cluster level in order to include all influencing forces. Companies providing products and services can be very heterogeneous from huge multinational companies to small family companies. As tourism is in general “multidimensional” (Gomezelj, 2016) research in this field can be complex as it introduces many different dimensions. It becomes further evident when looking at the “product” which can only be used when transmitted: it has intangible and tangible elements (Souto, 2015), it cannot be tested in advance, can’t be stored or transported, is formed by aggregation of different products from different suppliers, standardisation is difficult to apply and production and consumption are simultaneous (Gomezelj, 2016). Also, it is characterised by variability due to special circumstances and conditions and competition is not only between tourism companies in the same geographic area but between companies in different destinations (Souto, 2015). Innovation activities in tourism are hard to measure (Camison and Monfors-Mir, 2012) as the distinction between different products is not clear and the distinction between product and process becomes blurred (Toivonen and Tuominen, 2009). Furthermore, tourism companies rarely have R&D departments and spin-offs from universities rarely exist (Hjalager, 2010).

Hjalager (2013) presented 100 innovations that demonstrate how strongly dependent tourism development is on innovation that takes place in science and technology and other fields⁵. It shows that innovations in tourism are often originating outside of the industry and that tourism companies are not first to invent or innovate a product or service and cannot be considered to be “innovation pioneers”. It becomes apparent that boundaries between tourism and other industries are challenged and that tourism innovations are the results of interdisciplinary setups. This is crucial for entrepreneurs as they might have to analyse not only tourism but other disciplines (especially science and technology) when searching for ideas and when challenging the development of their business. A specific innovation ecosystem research is needed if processes and origins of innovations are examined.

Innovation in tourism is in general highly connected with new touristic experiences, increased productivity and performance of tourism companies. Technological innovations

⁵ Some examples: passport, railway, sunscreen, backpack, GPS, Gore-Tex, Schengen Agreement.

reach tourism often with some delay depending on institutional changes and absorptive capacities. The impacts are mainly in improved mobility and accessibility and opening of new destinations (Hjalager, 2013). Innovativeness in tourism should not be dealt with in the same way as other sectors or industries as its structure is unique and its products particular (Gomezelj, 2016). Further different regulations and policies are needed to enhance innovation and to support companies and their business environment.

5.7.1 Characteristics of tourism innovation

Innovation in tourism can be classified into different categories. According to Hjalager (2001, 2010) five different types of innovation in tourism can be identified. These are based on the framework of Schumpeter, but the category *institutional innovation* is added as a fifth type. This category is very specific as collaboration in tourism is of great importance as customer experience is composed of many different factors and various businesses have a share in creating one product and a region with a good reputation.

- *Product or service innovations* refer to changes directly observed by the customer and regarded as new; either in the sense of never seen before, or new to the particular company or destination (e.g. exploitation of new destinations, packaging tourism products, more comfortable hardware in the hotel room, new design).
- *Process innovations* refer typically to backstage initiatives which aim at escalating efficiency, productivity and flow (e.g. adopting of IT e.g. reservation system, self-check-in-systems, service optimisation, new distribution such as online booking).
- *Management innovations* deal with new ways of organising internal collaboration, directing and empowering staff, building careers and new job profiles and compensating work with financial and non-financial benefits (e.g. well-planned training, new business models) (Bilgihan and Nejad, 2015).
- *Marketing innovations* are concerned with new marketing concepts (e.g. loyalty programs, price innovation).
- *Institutional innovations* is a new embracing collaborative structure or legal framework that goes beyond the individual company and that efficiently redirects or enhances the business in certain field of tourism (e.g. networks fostering innovations, destination management systems, reform of financial incentives).

Sometimes it is though difficult to distinguish between these categories and the interplay among them is close (Gomezeli, 2016). However, most innovations in tourism are either product or process innovations carried out in information technology (Pikkemaat, 2008). Consequently, the quality of services is improved and services offered are in general more customized. As a result it is easier to predict customers' needs, increase loyalty through various programs, expand the customer base while reducing unused capacities and increasing efficiency and productivity (Bilgihan and Nejad, 2015). Service innovations determine ways of creating and delivering more value to customers through technology or processes. It involves continuous improvement and streamlining ideas to empower employees, shareholders and consumers. As a result of service innovation, new types of customer experiences can emerge (Hjalager, 2010).

Innovation in tourism include rather minor or major adaptations of products and services and rarely entirely new products and/or new markets, and rely on differentiation, product line extension or changes in the cost or quality of the product (Weidenfeld, Williams, and Butler, 2010). Innovations are thus mostly incremental (Perles-Ribes, 2015) and therefore often not directly noticed. This explains why tourism companies are usually regarded as not very innovative.

According to Souto (2015) most innovation in tourism companies is non-technological, but based mainly on service innovation and consists of change of behaviour (Sundbo, Orfila-Sintes, and Sørensen, 2007). The technologies that have contributed most to technological innovation in tourism are in the area of information and technology industry (ITC). Technology in tourism is crucial for travel agencies, tour operators and for hotels in order to develop new products and increase productivity. Selling tourism packages has increased massively which is enabled through electronic procurement influencing directly the economic growth of companies (Nedelea and Balan, 2010).

5.7.2 Determinants and driving factors for tourism innovations

In general it can be distinguished between internal and external factors that determine innovation processes in companies.

According to Weiermair (2004) three factors that are situated outside of the company determine the level and pace of innovations in tourism: supply and supply-related

determinants (new technology), demand drivers (needs of customer) and the level and pace of competition (globalisation and deregulation). Taking the supply factor as an example it is doubtlessly true that also for tourism science and technology are the most important driving forces for innovation (e.g. ICT, GPS, and social media). Market demand and demographics play further a crucial role. An ageing population and changes in prosperity of some countries (e.g. Asia) influence the innovative activity of companies. Another driving force are innovative systems which can be facilitated by clusters.

The study conducted by Pikkemaat (2008) reveals similar factors that drive innovation: competition, cooperation, tourist demand, entrepreneurship, trends and development in industries other than tourism. The most important reasons for innovation are quality improvements and customer satisfaction.

Concerning policies in tourism as determinants to innovate, these are largely ignored or mentioned in relation to agriculture or information and communication technologies (Hall, 2009). Policy studies in tourism have been limited in regard how innovation is encouraged by the state (Rodriguez, Williams, and Hall 2015; Hall, 2009). A main problem is that tourism has not been recognised as a particular innovative field despite of tourism's economic significance in many countries. Furthermore, tourism is rather seen as low-skilled, low-income and low-value industry and thus regarded low on innovation as well (Hall, 2009). Consequently innovation in the tourism sector came late into policy discourses (Weidenfeld, Williams, and Butler, 2011).

When looking at factors within a company a study of Grisseemann, Plank, and Brunner-Sperdin (2013) shows five company-internal dimensions that influence innovation behaviour in the hospitality industry: employee engagement, customer engagement, information technologies, innovation management and innovation networks. Due to the strong interaction between supplier and customer the tourism product and process cannot be separated (Gomezelj, 2016). Innovation requires close customer contact, both in idea-generating and in the implementation process of innovation. This can only be achieved by employee commitment, training and empowerment (Ottenbacher and Gnoth, 2005). Thus human resources play a key role for innovations in tourism in order to generate knowledge, assimilate and applicate it (Souto, 2015).

Often the size of a company is taken as a measurement for innovative activities. Research in tourism innovation reveal that the larger the company is and the more professional it acts in terms of applying business and training plans, quality control systems, academic employees, IT and the like, the more innovative the company (Sundbo, et al., 2007; Pikkemaat, 2008).

5.7.2.1 Innovative activities – and its barriers

Many authors noticed that companies in hospitality and tourism industry are less innovative than e.g. the manufacturing industry (e.g. Bilgihan and Nejad, 2015; Evangelista, 2000). Although growth in tourism is strong and competition often intense innovation is on a rather low level (Hjalager, 2002; Camison and Monfort-Mir, 2012). This applies mainly to hotels, restaurants and transportation companies whereas attractions and travel agencies are slightly more innovative (Hjalager, 2010). Reasons why companies do not or just to a little extend innovate can be barriers located inside or outside of the company. The lack of new ideas or financial capital is thereby rarely a reason not to innovate (Najda-Janoszka and Kopera, 2014). Furthermore, various “hidden” innovations occur which are not measured due to specific methodological problems in tourism compared to other industries (Camison and Monfort-Mir, 2012).

A problem in the tourism industry is certainly its low productivity, low levels of linkages between tourism and research institutes, lack of funding and risk taking, lack of trust and cooperation between tourism entrepreneurs, rapid change of ownership, low levels of education and training which explains low wages and a high turnover of workforce. These aspects can in turn discourage investments. When an industry is lacking skilled and experienced labour a decrease in innovative potential especially for non-technological innovation is the result (Hjalager, 2002).

Ownership structures and franchise models can also inhibit innovative activities. Other barriers are high bureaucracy, the cost of innovation, resistance from owners, resistance to change, pace of advances in new technology and time and budget constraints (Bilgihan and Nejad, 2015). Most entrepreneurs quote internal business factors such as risk aversion, lack of time, lack of motivation and know-how, organisational barriers, lack of willingness to change and difficulties in marketing (Pikkemaat, 2008).

Ronningen (2010) explains the low innovation rate by the size of companies. Micro- and small companies and/or family owned companies are predominant in the tourism industry. Although they are often highly innovative they lack managerial capabilities and financial resources and employees have less experience or skills in innovating. Also, their innovations are often imitations and ideas that others have already introduced or tested. This applies especially for small family-owned companies (Brooker, Joppe, Davidson, and Mules, 2012).

A lack of innovation can also derive from free-riding on investments, ideas or success of others as the industry itself is relatively transparent and ideas can seldomly be fully protected. Another consequence can be little trust among tourism companies and less collaboration. Also, labour in tourism receives little or no industry-relevant training and has a general low educational level and labour turnover is significant higher than in other industries (Hjalager, 2002). It results in negative effects on the profitability of investments in R&D, market research and new product and skills development (Pikkemaat and Peters, 2005).

5.8 Summary of chapter 5

Innovation is about receiving opportunities and exploiting them accordingly. Also the concept of creative destruction explains that innovation in one region or one company seems to transfer to other companies as these themselves try to innovate or to imitate (and improve) in order to hold their competitive position.

The innovation process takes place inside and outside of the company often due to collaboration with other companies or organisations within the innovation system. The process is supported especially by organisational creativity, market pull or technology push.

It is evident that tourism companies within the industry are not accountable for innovations alone, as the industry has wide-reaching dimensions into other industries. Suppliers and the regulation sector play similar important roles. This is especially important for tourism companies as knowledge required for innovation often emerges outside of the company. But as tourism companies operate in different types of sectors such as transportation, leisure or accommodation their innovative behaviour and processes can differ.

6 Summary of Part I: Frame of references

Revising again, tourism and its products are not bound to one single industry, rather to a certain region and its different businesses and resources which have an influence on customer experience. This has been described as “diagonal clustering” (Michael, p. 138, 2003) and tourism as a “multi-sector” (Hopeniene and Rutelione, p. 227, 2016). The experience of consumers depends on many factors derived from the immediate environment. It is in general undeniable that cluster formation leads to a higher competitiveness of businesses and the region in which the cluster has developed in. It is furthermore proven that innovation within companies are a necessity to stay ahead of competitors and to be able to offer new value to its customers. Innovations are not only induced internally within the company itself, but also initiated by the interaction with its environment. The cluster environment has therefore a strong impact on company’s innovative activities.

However, innovation in tourism is not only important for companies but increasingly important for regions or nations to create competitiveness which might translate into favourable job creation and welfare gains (Hjalager, 2012). For this reason the aim of the thesis is to depict how innovative activities can be supported within clusters and companies. A first step of this was a literature study of relevant literature of innovations in tourism clusters whereby supporting factors for innovation in tourism clusters are illustrated. Key success factors were identified, clarified and illustrated in a framework. This can also be seen as a contribution to literature.

6.1 Framework of references: Literature study

In order to find main aspects in the external environment that have an effect on innovative activities in tourism clusters relevant literature was examined and coded.

First, previous literature on the topic was collected. Data for the literature study was derived from empirical material of previous researches or theories on the topic. Articles were the main source for data collection and were screened for relevant aspects of the topic. The main criteria was the relevance of the content of the literature according to the particular research topic. Literature was collected and reviewed until all relevant literature was covered and a saturation point was reached (Merriam and Tisdell, 2016). Literature was then coded according to its main aspects. In the beginning 15 articles were chosen and coded, but after

the second round of coding the number was minimized to ten articles due to redundancy⁶. These articles form the basis of the literature study. In another round of coding different codes from the ten articles were collected and allocated to different core categories. In total seven categories were identified. As no new codes emerged enough data had been collected in order to construct a framework. The categories are strongly connected, but vary in weight and importance. These categories form the key success factors for innovations in tourism clusters. Following, these factors are explained further and a framework drawn up to conclude the discussion. This framework is further used as a tool for assessing the innovative abilities of the Icelandic tourism cluster.

6.1.1 Key success factors

Usually key success factors (KSF) are described as factors which provide an organisation with success and competitive advantage (Rockart, 1979). The first to introduce the concept was Daniel (1961) who claimed that only a few factors decide for the success or failure of a company. Accordingly, the KSF will vary between industries and markets and are often unique for each company.

Identifying KSF of a cluster can help to recognise influencing forces or groups, it can increase quality controls and decrease negative influences of the KSF's. Analysing the KSF and their causal relationships between them can help to formulate goals and eliminate inefficient processes.

In this study it was tried to find which KSFs exist within tourism clusters that are necessary to build a business environment that enhances innovation. The KSF are seen as competences and resources which are needed to achieve success in a cluster. Even though their composition is usually unique for each cluster they can give a general evidence of the success of a cluster and its future development.

⁶ Bell, 2005; Edward H. Huijbens et al., 2014; Jackson and Murphy, 2002; Hjalager, 2000; Moric, 2013; Murphy, 2006; Nordin, 2003; Novelli et al., 2006; Perles-Ribes et al., 2015; Rutelione and Hopeniene, 2016.

6.1.2 Key success factors for innovation in tourism clusters

The following categories form the basis of the framework that explains innovative activities within tourism clusters: collaboration and cooperation (including networks and diagonal clustering), infrastructure, leadership (including common vision and norms), funding and resources, policies, local community, and strategies to innovate. Following, these are explained further.

Collaboration and networking

The purpose of a tourism cluster is in general

to highlight the availability of certain activities in one destination or region and to get SME's that would normally work in isolation to co-operate and build a successful tourism product in the locality (Novelli et al., 2006).

The most important aspect how innovative activities in tourism are supported by clusters is through collaboration. The sub-categories cooperation, networks/networking and diagonal clustering belong under this category.

Collaboration is defined as „exchanging information, altering activities, sharing resources, and enhancing the capacity of another for mutual benefit and to achieve a common purpose“ (Himmelman, p. 3, 2002). When companies collaborate they reduce transaction costs, share risks and responsibilities, but also rewards. For a successful collaboration a high commitment of trust and time is necessary. Cooperation does not go as far as collaboration as it involves less commitment of trust and time and it does not involve enhancing the capacity of others. Both, cooperation and collaboration, are formal relationships.

In the tourism industry it is eminent that businesses use the same or similar resources, which are either endowed or “created”. Created resources can be changed and improved in a way that more value is created and that more businesses can profit from the exploitation of these resources. Furthermore companies in tourism share the same customers or customer groups, infrastructure and distribution channels (Hopeniene and Rutelione, 2016) which makes collaboration unpreventable. Also as travellers consume packaged products and services created by different companies as one item (Kim and Wicks, 2010).

The tourism industry is mainly characterised as SME's that have limited resources and are influenced by uncertainty (Rutelione and Hopeniene, 2016; Novelli et al., 2006). Furthermore

they lack of competent skills, few or no connections to research institutions such as universities and finance especially for R&D is insufficient. In order to overcome these challenges private sector business leaders have to collaborate. Collaboration and cooperation in tourism clusters does not only exist between companies of the private sector but also between public and private organisations (Moric, 2013). Collaboration is accelerated when joining a cluster as it becomes easier for companies to attract funding and to find possibilities for new product development (Rutelione and Hopeniene, 2016).

Collaboration in a cluster exists often also between different industries and organisations (Jackson and Murphy, 2002). The structure of tourism clusters should therefore not only be vertical but horizontal and non-hierarchical and open for other industries and institutions (Jackson and Murphy, 2002; 2006; Moric, 2013). This results in a higher flow of information with spill-over effects from other industries and general stronger competition. Collaboration with different industries as manufacturing, agriculture, retail or health is a necessity to offer a great product and service variety with high quality to its customers. The tourism industry often lacks connections to research institutions and funding. Thus it needs to seek innovations from other industries (Jacksons and Murphy, 2006). This can be achieved through “diagonal clustering” (Michael, p. 138, 2003) where cooperation and collaboration of complementary or symbiotic companies add value to the activities of other companies. Diagonal clustering has a great impact on the overall experience of travellers, and - if done successfully - it can upgrade the whole cluster. Diagonal clustering can be described as a co-location of companies of different industries that are directly or indirectly involved in the tourism industry and benefit from each other. Furthermore it gives SME’s more opportunities to innovate as they can profit from knowledge outside their industry (Novelli et al., 2006). This results in industry spill-overs which are needed in the tourism sector as innovations, knowledge and information come often from other sectors or industries. The tourism industry is e.g. dependent on innovations in the IT sector in order to predict future trends and to reduce costs and enhance efficiency especially in CRM (Moric, 2013). Opening the market for businesses of other industries is a prerequisite for future innovations (Jacksons and Murphy, 2006).

Compared to collaboration, networks are seen as rather informal inter-organisational linkages where information is exchanged with minimal time commitment and limited levels of trust. Networks are characterised by a “cooperative behaviour between otherwise competing

organizations and between organizations linked through economic and social relationships and transactions” (Hall, Mitchel, and Sharples, p. 37, 2003). As networks can exist in different forms and vary in density, structure and interaction among different members, its outcomes vary. Networks make exchange of information and technology possible, encourage coordination and collaboration (Novelli et al., 2006). However the position, especially the centrality and proximity of companies in networks has a strong influence on innovativeness as it is better to observe competitors and imitate them which can result in incremental improvements. Companies benefit from agglomeration economics, and (tacit) knowledge can be exploited collectively (Bell, 2005; Perles-Ribes et al., 2015). The position can influence the access to and control over resources and further also knowledge transfer and innovative activities. One form of a network are alliances whereby suppliers are better linked to more comprehensive supply chains. In the tourism sector accommodation providers form e.g. alliances with tour operators or local farmers that want to sell their product locally. Joint marketing can also result from this kind of collaboration (Novelli et al., 2006). Franchising or licensing also, but it is dislocating competences away from its origins (Hjalager, 2000). Successful collaboration in networks can result in joint tourism products of high quality and less risk of failure (Rutelione and Hopeniene, 2016). Simple forms of networks can be open forums of co-operation (Edward H. Huijbens, 2014) or workshops that offers businesses opportunities for brainstorming, sharing of perceptions, opinions and ideas (Novelli et al., 2006).

Infrastructure

Investment in infrastructure is a prerequisite for building a cluster and for enhancing innovative activities (Novelli et al., 2006; Moric, 2013). This means first of all the provision of social infrastructure (shared meeting and training infrastructure such as the University campus) (Novelli et al., 2006) and physical infrastructure such as roads or airports (Moric, 2013). This can also be a re-zoning of e.g. industrial areas into an area favoured for tourism development (Jackson and Murphy, 2002).

Common vision and leadership

Not only companies and institutions need a strong leadership, but also clusters. A good leader has a vision and can communicate this vision to stakeholders of the whole cluster (Jackson

and Murphy, 2002). As economic and social actors are very different in their interests a common vision about regional development and standards is necessary. According to Gardiner and Scott (2014) tourism clusters are successful when they create a shared vision or norm among members, and when these members build up trust, friendship and camaraderie among each other. Having a common vision also means better collaboration to work on the achievement of shared goals (Rutelione and Hopeniene, 2016).

As the tourism sector consists of various groups composed of different companies and organisations all interests should be represented equally. This calls for a strong private sector leadership that can unify different interests and needs from all stakeholders. Forming an interest group as e.g. a Tourism Taskforce (Jackson and Murphy, 2002) can be a solution. The taskforce should be composed of local and state government representatives, of representatives from the educational sector and the local industry. It serves as a forum for the cluster with the aim to have a shared understanding of future goals and business ethics. The taskforce is not bound to a single industry, but involves all cluster participants. Important roles of the taskforce are to institutionalise concepts, relationships and linkages and to form a cluster organisational structure (Jackson and Murphy, 2002).

Funding and resources

If organisations collaborate closely in a cluster they will appear strong to the outside and can convince investors to support them. They have a better ability to attract external resources such as finance, skills and technology (Novelli et al., 2006).

The creation of a product development fund which operates nationwide or for specific regions of tourism clusters can support several innovative projects each year where companies compete against each other (Edward H. Huijbens, 2014). In general funding of new products or start-ups is not only important at the initial development stage, but should be long-term (Moric, 2013) in order to ensure the success of initiative projects.

Local community

As tourism is often located in communities locals and tourists share the same products and services which makes private-public partnerships necessary. A stronger integration of locals can help to adopt to the market and its customers. Furthermore locals help to identify market needs and are often the source of innovations. The whole community can profit from a rise in

tourism when developing products and events that serve both locals and tourists (Jackson and Murphy, 2002). This again attracts skilled, creative and innovative people (Huijbens et al., 2014; Florida 2014).

Strategies to innovate

Strategies for clusters should be based on trying to exploit new markets by open innovation and bottom-up innovation processes (Hjalager, 2000). As tourism is heavily dependent on market needs open innovation is the key for future success as customers want increasingly individual choices which are not serving the mass market. Innovative activities should reach the whole cluster and as a result the cluster can keep its competitiveness for the future (Rutelione and Hopeniene, 2016). With ideal factor conditions and accelerator programs new business formation is stimulated and innovative activities enhanced (Jackson and Murphy, 2002).

Policies

Concerning cluster policies in tourism it is most important that the government encourages programs to attract private investment, to promote the tourism region, to support collaboration between academic institutes and companies in the area, and to finance the general infrastructure. Tourism policies for rural areas are of great importance as through globalisation and change of industry sectors rural regions face a population decline and a decline in traditional sectors (Michael, 2003). With effective policies tourism can trigger processes of diversification in e.g. agriculture (Quaranta, Citro, and Salvia, 2016).

Governmental institutions can stimulate the development of tourism clusters and product development through specific policies:

- Creation of physical infrastructure and introduction of complementary services;
- Creation of accessibility to tourist destination resources;
- Provision of financial aid to investment projects of tourism companies;
- Improvement of security in a tourist destination;
- Preservation of natural, historical, and cultural resources of a tourist destination.

Academic institutions stimulate the development of tourism clusters through:

- Education of human resources;
- Development of tourism innovations;
- Participation in the creation of tourism products diversification strategies (Malakauskaite and Navickas, 2010).

These policies however involve also innovation policies and it would be a big failure to distinguish between both (Hall, 2009). Rodriguez et al. (2014) revealed that tourism policy implementation with respect to innovation involves also non-state actors such as NGO's, private associations and businesses that have significant roles to play in self-organized innovation regimes, such as geographically proximate clusters. The policy process is a hybrid combination of top-down and bottom-up approaches where actors are included in policy formulation and implementation. This is important in order to achieve desired policy outcomes.

Policy instruments for innovations in tourism might be necessary if companies find innovative efforts too risky (Hjalager, 2012). They can address the cost dimension as some innovations may go beyond the investment capacity of a company although some innovations may eventually lead to saved costs or higher productivity. Policies can furthermore reduce complexity as innovations may be discouraged by public regulations. Innovation policies work against markets that are too competitive or in the hand of monopolies.

Hjalager (2002, 2012) argues that efficient innovation policies for tourism are not likely to include R&D subsidies or financial support, promotion of university-business collaboration, technology scouts, patents and the like. Policies should rather regard the development of attractions by take-up of funds, and knowledge transfer to tourism including the trade system, the technology system, the infrastructure system and the regulation system in collaboration with the primary tourism operators as this promotes dynamics and change.

6.1.3 Summary of KSF in tourism clusters

Although little research has been conducted on clusters and innovation in tourism it becomes clear that clusters provide SME's with innovative opportunities to operate in a competitive tourism environment (Novelli et al., 2006). Innovative activities in tourism clusters are mostly supported by strong collaboration, especially in the form of networks. Clusters are successful when companies co-operate with other local players that are involved in different industrial

areas such as agriculture or retail. The results are cross-marketing, an improved quality of services and a higher reputation. The main aim of clusters is thus business and market diversification. This can only be reached by collaboration between local authorities and supporting bodies, education and research institutions and local SME's.

In order to answer the question on how clusters can support innovative activities in tourism a framework is drawn up (figure 9). The framework consists of four dimension: the national level, the regional/local level, the firm and the government level. Each level can be allocated one or more of the identified KSF. Some of the KSF belong to more than one level. Collaboration belongs to all four levels and stands as a linking parameter in the middle of the framework. Each of these levels has a different influence on innovation in clusters and companies and can support, but also suppress innovative activities.



Figure 9. Framework of KSF supporting innovation in tourism clusters.

It is though necessary to highlight some of the limitations of the literature study. The study is limited to research papers and articles, and those papers do not generally include perspectives from organisations such as governmental actors or industry representatives who formulate and implement policies and strategies. Accordingly the review and the results are based on the researchers' interpretation and perception of research documents and articles.

The framework on its own is thus just a theoretical construct, but can help to analyse the supporting structure of tourism clusters concerning innovative activities. It can support the cluster and its cluster members to revise their status quo, and gives a clearer perception of their strengths and weaknesses.

Part II: Frame of research

The second part of the thesis is an empirical study of innovation in tourism with Iceland as a case study. In order to assess innovative activities the research part is divided into four main sections to analyse the supporting system in Icelandic tourism on a cluster and a company level.

In chapter 7 the business environment for innovative activities in Iceland is described. This is done on a general basis to show the structure of the institutes and financial institutions which form the backbone for innovation support in Iceland. These may not be directly supporting Icelandic tourism, but it gives a general idea of innovative activities and the innovativeness of Icelandic companies in relation to their innovation system.

Chapter 8 depicts the Icelandic tourism and its development, especially focusing on the last years as changes have been multi-layered and massive.

Cluster analysis is done in chapter 9 whereby the Icelandic tourism cluster is mapped and its most important actors presented. Following are approaches of Porter to analyse the competitiveness but also attractiveness of tourism in Iceland. Eventually, innovation is assessed and how it can be supported in the Icelandic tourism cluster.

Last, in chapter 10 innovative activities and general innovativeness of Icelandic companies operating in tourism are recorded and analysed. Here innovation activities are evaluated in order to get an idea of what matters in the innovation process by a company operating in tourism in Iceland and how this can be supported.

7 The innovation system in Iceland

In order to evaluate innovative capabilities of the Icelandic tourism cluster and companies working in the industry, a closer look is taken to the Icelandic innovation system which facilitates and supports innovations. This involves Iceland's position as an island state, its supporting institutions and the development of innovation success and its measurements.

7.1 Innovation and entrepreneurship on small islands

Little research has been conducted on innovation and entrepreneurship on small islands (Burnett and Danson, 2017). Entrepreneurship on island economies is strongly characterised by its natural local environment and local culture (Burnett and Danson, 2017). Although information and communication technologies have advanced, businesses on islands still face harsher conditions as market and consumers are often located elsewhere and financial sources are limited. Accordingly, small islands should take advantage of their natural assets and "otherness". Furthermore, specific policies are needed from the national and local government, but also from e.g. the *European Union* or *United Nations* to help small islands and communities in the work on innovation and entrepreneurship (Danson and Burnett, 2014).

Many small islands have developed strong tourism-related businesses offering "otherness" and differences, especially in geography and culture (Burnett and Danson, 2017). This also involves products of food and drink, craft, heritage and arts, but also clean energy and technologies. Further the information and communication technology sector allows small firms to compete successfully on the export markets (Baldacchino, 2005). Especially the absence of local demand forces companies on small islands to create an export driven business. Advantages are often a well-functioning network on the island, contacts abroad and global-local entrepreneurial founder-owners (Baldacchino, 2005).

7.2 The innovation system in Iceland and its institutions

The innovation system in Iceland is first of all characterised by the far distance from both continents and thus from international markets, and its few inhabitants which are mostly living in the capital area. This however means that people are strongly connected and distances to e.g. suppliers short. Relationships are close and many are involved in more than

one organisation. Through this dense network transfer of knowledge and expertise is high. The main difficulty is the small market size in Iceland which limits national growth possibilities.

Various institutions support innovation and business formation and many different ministries are involved when it comes to science and technology policies (figure 10). The two key funding agencies are in general *The Icelandic Centre for Research Rannís* (*Rannsóknamiðstöð Íslands*) and *Innovation Centre Iceland ICI* (*Nýsköpunarmiðstöð*).

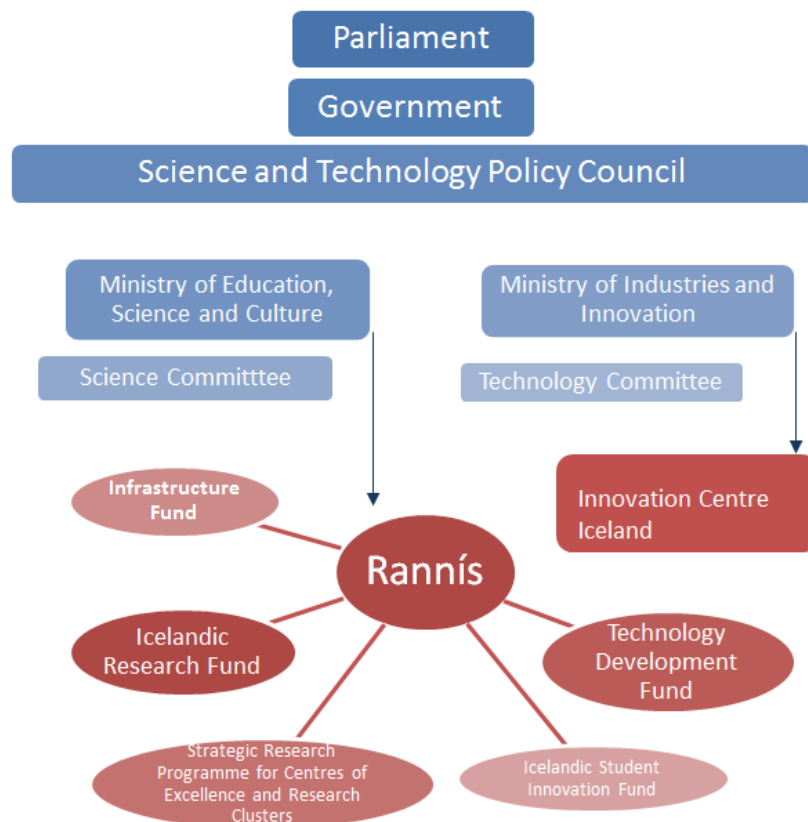


Figure 10. Public Sector elements of the Icelandic Science and Innovation System (Ministry of Education Science, and Culture, n.d.).

The Science and Technology Council STPC (*Vísinda- og tækniráð*) is responsible for developing and adapting policies on science and technology. The policies are prepared by the two boards Science Committee and Technology Committee. The STPC is supervised by the Ministry of Education, Science and Culture and the Science Committee and the Ministry of Industries and Innovation and the Technology Committee. Hence, innovation has become an inter-ministerial concern. It was established in 2003 to strengthen scientific research and

innovation. The STPB is chaired by the Prime Minister and three ministers from Education, Science, and Culture, and Industries and Innovation, and Commerce and Finance.

The Innovation Center Iceland (ICI) belongs to the Ministry of Industries and Innovation and tries to “encourages innovation and promotes the advancement of new ideas in Iceland economy by providing active participation and support to entrepreneurs and businesses” (Innovation Center Iceland, n.d.). The ICI encourages innovation by supporting new ideas through research, consulting on start-up, growth and management and developing projects and businesses.

The Icelandic Centre for Research Rannís belongs directly under the Ministry of Education, Science and Culture. Rannís supports research, education and innovation in Iceland and administers competitive funds in these fields (infrastructure fund, Icelandic research fund, Icelandic Student Innovation fund, technology development fund). It also coordinates and promotes Icelandic participation in European programs such as Erasmus, Creative Europe or Horizon 2020.

Under the Ministry of Education belong furthermore all seven Icelandic Universities, whereas the University of Iceland is the largest with about 13.000 students in nine faculties. It is the most important university when it comes to innovation, research and publications and it encourages interaction between public and private sector. One example is *Tæknigarður* (Technology house) which was established in 1987 with the purpose to create an environment that supports collaboration between companies and students.

7.2.1 Innovation measures and ranking

In 2016 Iceland was ranked 13th among the world (162 countries) in the *Global Innovation Index* (INSEAD) and 10th in Europe (Global Innovation Index, 2017). Until 2011 Iceland has spent around 2,5% of GDP in R&D, but far less in the last years (figure 11) (Statistics Iceland, n.d.). Spending on R&D is below the OECD average and below other Nordic countries such as Finland or Denmark.

R&D expenditure is most for IT and other information services, manufacture of chemicals and pharmaceuticals and other than food products and beverages and in research and development, including biotechnology (Rannís, 2014).

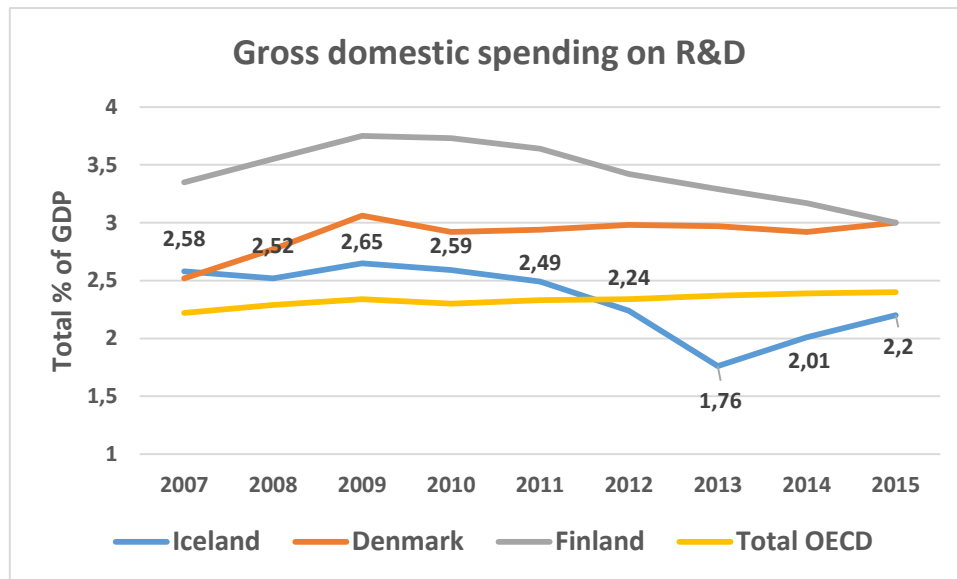


Figure 11. Gross domestic spending on R&D (Total, % of GDP, 2007 – 2015) (Statistics Iceland, n.d.).

Iceland ranks high in creative goods and services and online creativity. The country obtained less points in relation to graduates in science and engineering (15,6% of total tertiary education), university ranking, and domestic market scale (The Global Innovation Index, 2017).

According to the OECD the regulatory and administrative environment is not very conducive to entrepreneurship due to bureaucratic hurdles, foreign ownership restrictions (e.g. in electricity and fisheries) and entry barriers in network industries. Universities and public labs do not actively patent the results of their research activities. Due to the small size of Iceland and its remote location it lacks world-class universities and large corporate investors. However, links between industry and science are strong. ICT infrastructures are well developed, and researchers per thousand total employment is relatively high with 10,5 which is higher than the average of OECD countries of 8. This is however a strong decrease from 2009 where the average was 15,5 researchers on thousand employees.

Government expenditure per student is very low in Iceland which ranks on place 54 behind Bolivia, Bulgaria and Kazakhstan. Average school life expectancy from primary to tertiary education is relatively high with about 19 years.

Iceland ranks on place six when it comes to employment in knowledge-intensive services (48% of workforce) behind Sweden and Norway. University and industry research

collaboration is good with 4,62 (1= not at all; 7= to a great extend). Cluster development is not as good with 3,97.

Although the business environment is friendly in Iceland it can be difficult for new companies on the market as market size is small. This can reduce innovation in general (OECD, 2015).

7.2.2 Supporting institutions investing in innovation

Many financial institutes and institutions for innovation exist in Iceland which support start-ups and innovations in general.

Frumtak ventures founded in 2008 helps companies in their early stage growth. Its shareholders are various pension funds, three main Icelandic banks and the government. *Landsbréf*, also established in 2008, is one of the largest fund management companies in Iceland trying to bridge the gap between savings and investments through active asset management. Landsbréf initiated The *Icelandic Tourism Fund* (ITF) in 2013 for companies in tourism. The ITF has since supported numerous projects. Its operational time is to 2022. Each project is supported for 3-7 years (Landsbréf, n.d.).

Other investors are *NSA Ventures*, *Thule Investments*, *Auður Capital* (*Virðing*), *Icelandic Start-up*, and *The Federation of Icelandic Industries* (*Samtök iðnaðarins*). The three major Icelandic banks *Arion banki*, *Íslandsbanki*, *Landsbankinn* are actively investing in new ventures. Various pension funds are active in investing in innovation projects and companies.

Invest in Iceland is an initiative to attract foreign investors providing information on investment opportunities in the country. It is a part of *Promote Iceland*, which tries to improve the competitiveness of Icelandic companies. *Invest in Iceland* provides advices on investment opportunities, collects business data and influences government legislation (Promote Iceland, n.d.). The initiative promotes investments especially in life science and chemical industries, data centres, carbon fibre production and polysilicon. The most beneficial aspects of investing in these sectors include low-cost geothermal energy, skilled workforce or supportive business environment.

8 Icelandic Tourism

To analyse the Icelandic Tourism cluster the tourism industry itself, the history and development has to be reviewed. This includes basic statistics, the assessment of visitor satisfaction and the general competitiveness of Icelandic tourism.

The performance of Iceland is provided by presenting and explaining basic economic figures. Thereby the country's competitiveness and cluster composition are illustrated, putting emphasis on factors that potentially may have an impact on tourism.

8.1 Economic performance and cluster composition of Iceland

As an island in the North Atlantic Iceland was isolated for many centuries and under foreign rule for a long time. This has influenced its history, culture, but also economy. Derived from that is the strong will to become more economic independent as the country is heavily dependent on merchandise imports. The geographical location forces Iceland to be self-sufficient and innovative in creating national industries that can attract foreign investors.

Iceland's total population totalled 333.000 in 2016 with an annual growth of more than 1 %. About 63% of the total population are living in the capital area. Actually Iceland belongs to the twenty territories having the highest gross national income per capita (World Bank Open Data, n.d.). As a small island it possesses rich social capital which becomes apparent in tight local network structures and a high (tacit) knowledge transfer. The overall business structure is characterised by SME's. Their advantage is that they are in general more flexible and innovative than major corporations, they respond quicker to changes and can adapt more rapidly to the market (Baldacchino, 2005).

As an island state Iceland's economy is still heavily dependent on fishery. With only around 20% arable land which is mostly located in the Southern and Western part of the country, agriculture has always been hard in the far North and farmers are still heavily dependent on subsidies from the government. However, Iceland uses its unique location nowadays as an advantage to build up ocean clusters and heavy industry due to its vast renewable energy sources. Further it holds a well-established transport system between America and Europe.

In 2013 the tourism sector accounted already for more foreign exchange income than the marine industry and the aluminium industry which are the traditional main industries of

Iceland (Figure 12). Tourism's share of foreign exchange earnings has grown from ca. 26 % to more than 40% between 2013–2016 according to measurements of the export of goods and services. The tourism direct contribution to GDP was 8% in 2015 (Statistic Iceland, n.d.).

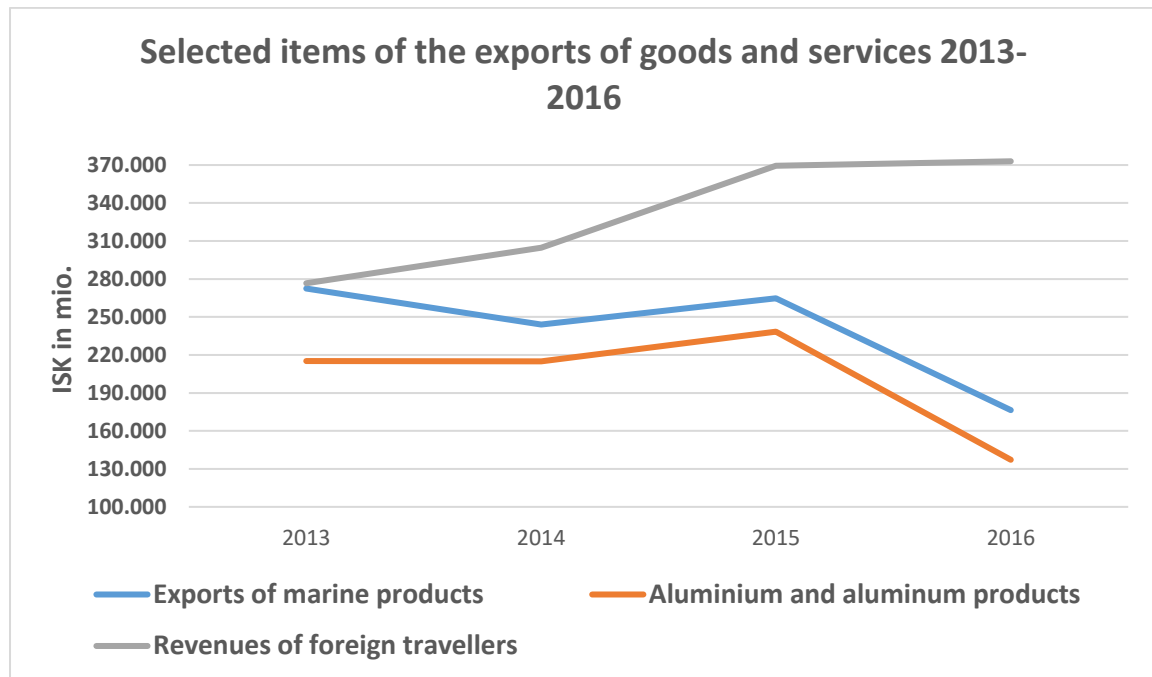


Figure 12: Revenues of marine products, foreign travellers and aluminium and aluminium products (in ISK Million) (Statistics Iceland, n.d.)

A problem of regions outside of the capital area is strong depopulation because traditional businesses and activities are abandoned and sparsely populated areas lack of services. However, relocating industries to the countryside in the past have shown an upgrading of regions with better job opportunities and services (e.g. aluminium smelter in Reyðarfjörður, East Iceland).

In the Global Competitive Report (The Global Competitiveness Index 2016-2017, n.d.), Iceland ranked on the 27th position in 2016 (29th in 2015) – the result of an improving macroeconomic situation, an easing of financial concerns and an innovation driven economy. Iceland performs with a score of 4,96 and lays above the world's average which scores 4,11. It's highest score is health and primary education (6,59) and the lowest score is market size (2,31). Iceland's GDP was 16,7 billion \$ in 2016 (increasing to 7,2%) and GDP per capita was 50.854,6\$ (Statistics Iceland, n.d.).

Advantages are a low crime rate, good public health and little corruption. Generally the capacity to innovate is overall rising e.g. university-industry collaboration in R&D, company

spending on R&D and quality of scientific research institutions. Iceland's most problematic factors for doing business are foreign currency regulations, tax rates, inflation, policy instability, access to financing and inefficient government bureaucracy. What is lacking most are quality of roads, intensity of local competition, affordability of financial services, bigger domestic and foreign market size, and local supplier quantity. Disadvantages are further high government liabilities and agriculture policy costs (The Global Competitiveness Index 2016-2017, n.d.). The 12 pillars of the Global Competitive Index and Iceland's performance are shown in figure 13.

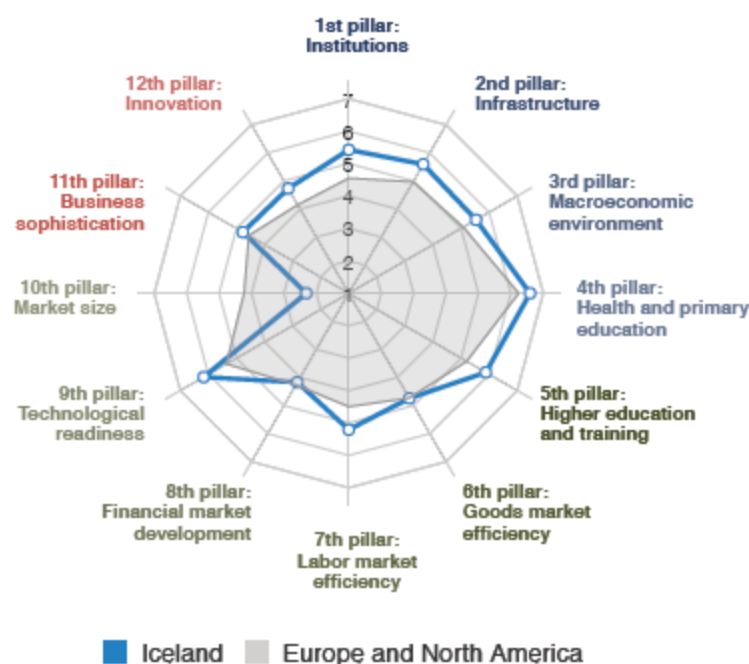


Figure 13. Global Competitive Index: Iceland (The Global Competitiveness Index 2016-2017, n.d.).

The labour force in Iceland totalled 196.700 in the fourth quarter of 2016 (83% labour force participation rate) and the unemployment rate was 2,5% in the end of 2016 (Statistics Iceland, n.d.).

A big problem for doing business is the small local currency. The exchange rate is now much higher towards major global currencies such as the Euro, Dollar and Sterling. In the end of 2013 the ISK accounted for about 164 towards the Euro, in the beginning of 2017 it was only about 115 which is a rise of more than 40%. Especially since July 2015 the exchange rate of the Sterling decreased heavily towards other currencies and lost about 55% towards the ISK

(Central bank of Iceland, n.d.). The development of the exchange rate of ISK towards USD, GDP and EURO in the last decade is exemplified in figure 14.

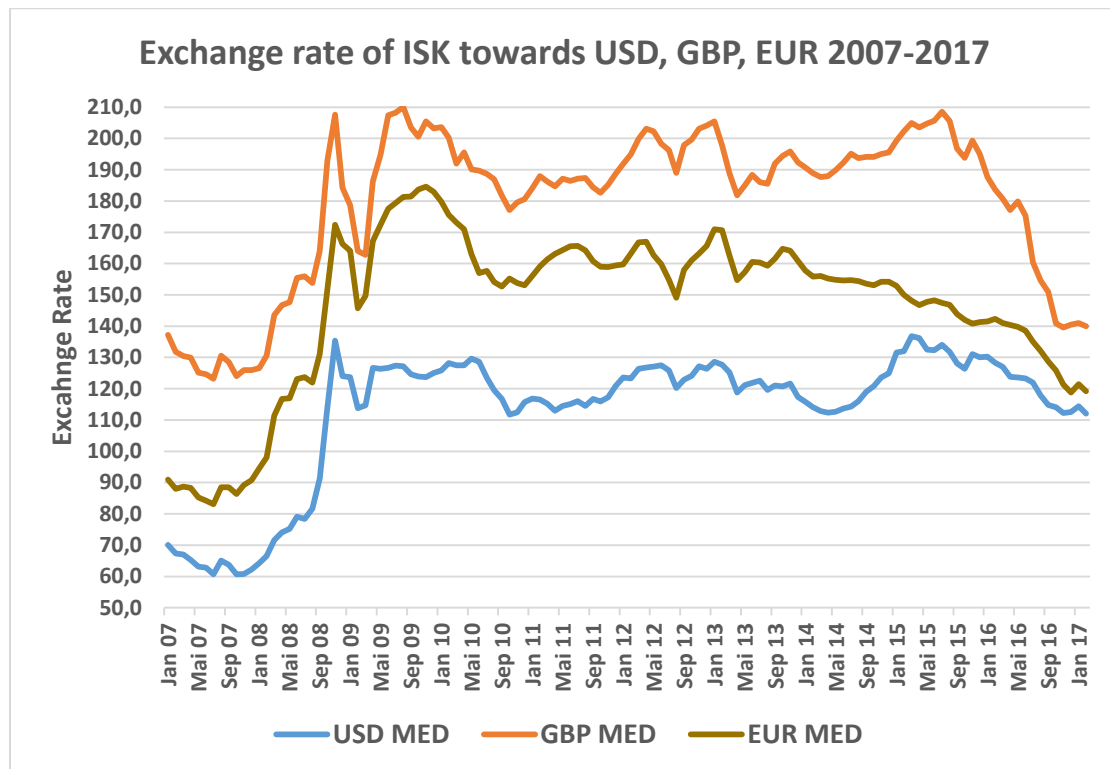


Figure 14. Development of ISK exchange rate 2007-2017 (Central bank of Iceland, n.d.)

8.2 In-depth analysis of Icelandic tourism

In the following chapter it is illustrated how Icelandic tourism has developed over time. The history of the industry is explained together with relevant data from the previous years.

8.2.1 Icelandic Tourism Profile: History and development

Iceland as a travel destination was discovered relatively late compared to other countries. From the 19th century on the interest in Iceland awoke among scientists and authors in Europe and scholars started travelling to the little island in the north. Reasons were that in the European romanticism nature and the spiritual affinity to nature became a strong feature and thus the interest of landscapes and wilderness increased dramatically and travelling to remote places became popular. Also during the 18th and 19th century travelling became much safer. Accommodation was not available, hence travellers slept in tents or churches and bought food at farms and travelled on horses (Pfeiffer and Habinger 1999). One pioneer was e.g. Daniel

Bruun, who travelled across the highlands through the old highland road Kjölur that had long been forgotten, because of climate change and the fear of outlaws (Bruun, 1907).

With the beginning of the 20th century infrastructure improved: the first car reached the island in 1904, the first cruise ship arrived in Reykjavik harbour 1905 (Fürst Bismarck, Hamburg), the Icelandic steamship company *Eimskipafélag* was founded in 1914. In 1927 *The Icelandic touring association (Ferðafélag Íslands)* was founded to promote and organise travelling within the country and is operating now 196 huts in the Icelandic highlands. Important for the developing tourism was the founding of *Guðmundur Jónasson Travel*, a pioneer in (group) travel to remote places in the highlands. *Hotel Borg* opened as the first hotel in 1930 and in the same year the first car was driven over the highlands. During WWII two important airports were built: Keflavik international airport and the domestic airport in Reykjavik. Since 1946 *Lofleiðir* or *Icelandic Airlines* (founded in 1944) offered scheduled flights oversea (Flugsafn Íslands, n.d.). In 1974 the last bridge was constructed over the glacier river Skeiðará and enabled people for the first time to drive a round tour around the country.

However, tourism numbers stayed very low up to the year 2000. The census started in 1949 and counted 5.321 tourists, 10 years later they were 12.296. Numbers just slowly increased and reached more than 113.000 in 1986 – the year Reagan and Gorbachev hold a legendary meeting in Reykjavik. In 2008 more than 500.000 tourists came to visit Iceland, but after Europe and especially Iceland was hit by the financial crisis in 2008, tourist numbers slightly decreased. Nevertheless, after the volcanic eruption of Eyjafjallajökull in 2010, the numbers increased in double-digits the following years. The reason for the boom was strong media awareness and better marketing which occurred to spur the attention of tourists coming to the country as other industrial sectors were facing a decline or stagnation. The currency devaluation and higher seating capacity of national and international airlines played further a big role in tourist number increase.

Promote Iceland launched the campaign *Inspired by Iceland* just after the eruption and was supposed to communicate the message that it was safe to travel to Iceland. The campaign enabled everyone to make a difference by telling their stories when travelling to Iceland via Facebook and Twitter. The target audience were people with a higher than average education, higher than average income, with an urban profile and high media consumption (Íslandsstofa, n.d.). Tourist agents started to work together to minimise the negative economic effects which

followed the eruption and tried to attract more tourists. But also for the public and policy makers the campaign raised the awareness of how important the tourism industry is for the whole Icelandic economy.

Many share the view that it was rather the eruption itself that pushed up tourist numbers as Iceland was in the news for many days and captured the interest of many people. Although the eruption had a negative short term effect in the beginning (flight cancellations and breakdown of transportation), its long term effects are still visible and positive:

In fact, the risk associated with the eruption seems to have been almost entirely of the positive kind: the sort of risk that works to the advance of the destination rather than the reverse, making it more rather than less exciting. [...] Risk does not only mean possible danger: it is invariably also connected to the sublime experience. And tourism still feeds on that age-old aesthetic idea (Karl Benediktsson, Katrín Anna Lund and Taina Anita Mustonen, p. 154, 2010).

Various campaigns promoted Iceland in the last years such as *Iceland Naturally* which promotes Icelandic products in North America. *Iceland-all year-round* (*Ísland allt árið*) is another campaign which was launched in 2011 (Íslandsstofa, n.d). The purpose is to attract visitors all year round, especially during the winter months. It “aims to even seasonality in tourism and increase profitability from the industry in Iceland” (Ministry of Industries and Innovation, 2014). The campaign was renewed in the end of 2016 for the years 2017-2019 (Ministry of Industries and Innovation, 2016). Participants are the Ministry of Industries and Innovation, the Ministry of Finance and Economic Affairs and *The Icelandic Travel Industry Association* (SAF).

The campaign *Share the secret* launched the competition *The Ultimate Secret Tour of Iceland* in 2014 where Icelanders and tourists were encouraged to share their secrets to visitors who had the opportunity to discover a unique experience around the country (Iceland Naturally, n.d.).

8.2.2 Current figures and development of the Icelandic tourism industry

In 2016 with a growth of almost 40% Iceland more than doubled its number of tourists since 2013 (780.000 tourists), reaching almost 1,8 million tourists (figure 15). The numbers are based on arrivals through the international airport Leifur Eiriksson in Keflavik and ferry's (mostly coming to Seyðisfjörður in East Iceland). However, most of the tourists coming to

Iceland enter via the international airport, or 98%. Additionally 108 cruise ships with about 100.000 passengers came to Reykjavik. Most of the cruise ships come to Reykjavik (96%), but stop often also at other places (e.g. Grundarfjörður, Ísafjörður, Akureyri, Seyðisfjörður, Höfn) (The Icelandic Tourist Board, 2016). Passengers arrived also at airports in Akureyri and Egilsstaðir, but the number decreased by 16% from 2014 to 2015.



Figure 15. International tourist arrival in Iceland through Keflavik International Airport: 2006-2016 (The Icelandic Tourist Board, 2016a).

The ratio of tourists to inhabitants in Iceland is one of the highest in the world but still ranking behind countries like Vatican, Andorra, or Monaco. However, if comparing the number of tourists per land area the rate is not very high for Iceland compared to other countries like Malta, the Maldives, Bahama or Singapore. The average tourist number visiting Iceland per square kilometre was 16 in 2016, which is below the average of OECD with 18, and below the average of the EU with 103 (World Bank Open Data, n.d.).

Most of the passengers came from the USA (14%), the UK (14%), and Germany (6%). The highest increase between the years 2015 and 2016 was from the US (71%; 60% in 2014), Canada (78%; 20% in 2014), Spain (44%; 30% in 2014) and China (40%; 83% in 2014). A decrease was recorded from the Nordics, particularly from Norway (-0,8% in 2015 and -4% in 2014) (The Icelandic Tourist Board, 2016a). Especially tourists from the UK, Northern Europe and the USA visit Iceland almost evenly over the year, while tourists coming from other nations

arrive primarily over the three summer months. Seasonality has been a big problem since tourism increased, but in the last four years the increase of tourist arrivals over the winter months has been proportionally greater than in summer, spring and fall. This can be the effect of the marketing and promotion initiative *Iceland-all year-round* and general cheap airfares. However, in many parts of the country seasonality is still a big issue where many hotels and guesthouses have to close over the winter months, foreign workers leave the country and local workers have to find other employment opportunities. Tourist arrival and increase in 2016 is indicated in figure 16. The increase of over 30% in the months from October to December is significant.

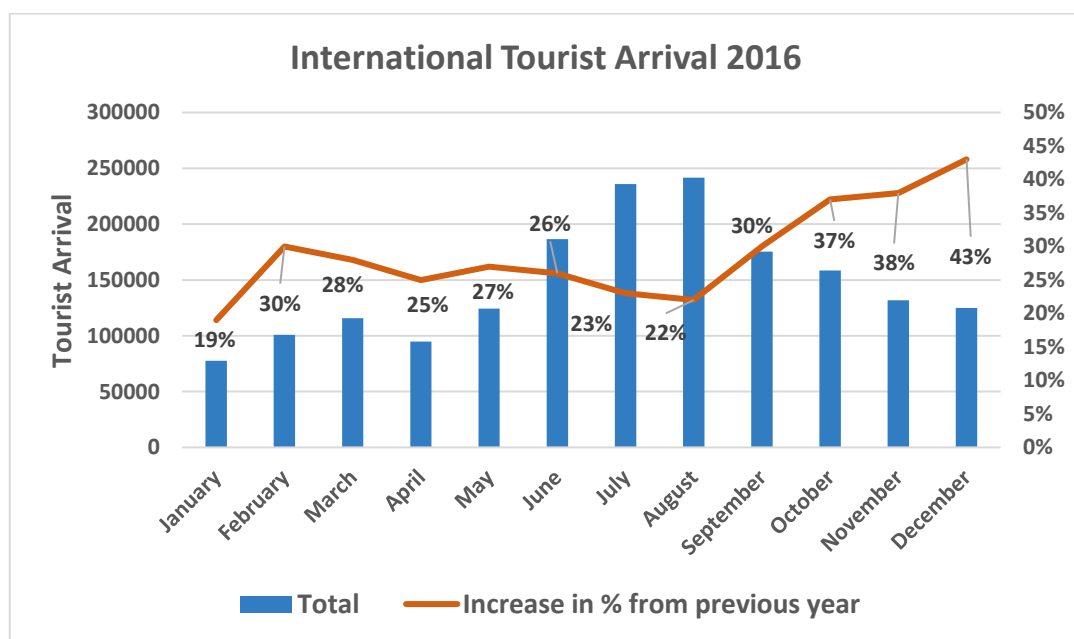


Figure 16. International tourist arrival 2016 through Keflavik International Airport (Statistics Iceland, n.d).

The number of employees in activities related to tourism grew steadily from 2010. The growth is not equal to the overall growth in tourist arrivals, but employment is less seasonal than in the previous years. Almost 4000 people more were employed in August than in December 2016. It is still a difference of 16%, but it has been even more in the years before. In 2014 and 2012 the difference was almost 22% and in 2010 25% (Statistics Iceland, n.d.). It needs to be taken into consideration that a great number of students work during the summer months, e.g. in hotels, restaurants or tourist related activities. As the tourism season is extending, workforce is lacking, especially when school starts again in the middle or end of August.

The highest employment growth is accounted for travel agencies, tour operators and other reservation services and related activities (average more than 35%), in accommodation (20%) and in passenger air transport (21%). Growth is less in food and beverage service activities (10%). More than 13% (15% during the summer) of the total workforce in Iceland are working directly in the tourism industry (Statistics Iceland, n.d.).

Each tourist that visited Iceland in 2016 spent about 202.000 ISK. Most is spent on flights (22%) and accommodation (21%). 10% is spent for food and drinks and 12% for tour operators (Íslandsbanki, 2017). Proportionally expenses for flights are decreasing and for accommodation increasing.

Overnight stays and arrivals in all types of accommodation is not augmenting as fast as general tourist arrival. In 2015 5,6 million overnight stays were registered or 1,2 million more than 2014 (22% increase). Furthermore the number of nights spent in the same accommodation was decreasing from 1,77 nights in 2012 to 1,66 nights in 2015. On average 6,6 nights were spent in Iceland. Almost half of all nights were spent in the capital area (47%), followed by the South (18%) and Northeast (10%). Least nights were spent in the Westfjords (3%) and the Northwest (2,5%) (The Icelandic Tourist Board, 2016a). In these parts of the country most arrivals are in the summer months from June to September and only to a little extend in the winter months. Least seasonality is in the capital area as many hotels are often fully booked throughout the year. The development of overnight stays according to different regions is illustrated in figure 17.

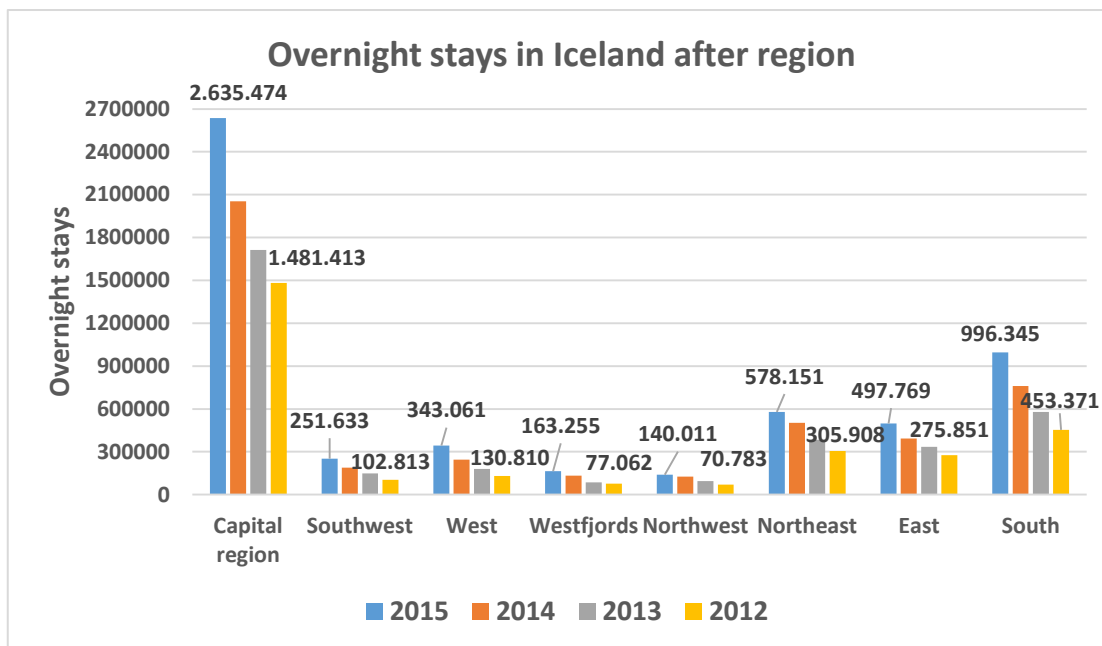


Figure 17. Overnight stays in Iceland after region 2012-2015 (Statistics Iceland, n.d.).

Room occupancy for hotels is steadily growing and reached 71% in 2016, compared to 62% in 2014 and 52% in 2011. The occupancy rate was highest in the capital region with 85% in 2016 and lowest in the East with 44%. Occupancy rate in Reykjavik exceeded 90% in February, July (94,3%), August and November 2016 and July 2015. Occupancy rate is the highest among Nordic capitals in Europe (Nordic Hotel consulting, n.d.). As figure 18 shows occupancy rate is quite low (especially in winter) for all other regions. Occupancy rates are highest for all regions in July and August.

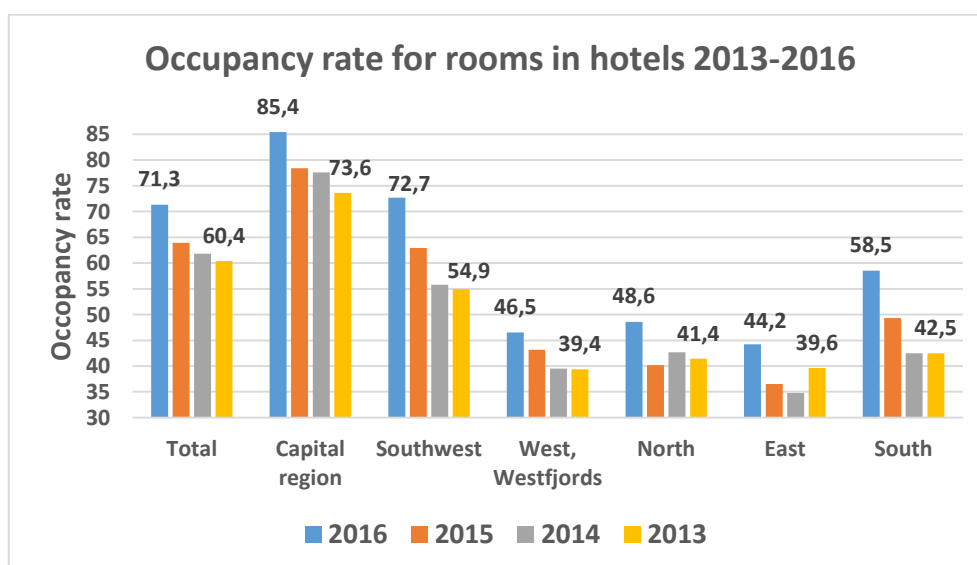


Figure 18. Occupancy rate for rooms in hotels in Iceland 2013-2016 (Statistics Iceland, n.d.).

The development of occupancy rate in different regions in Iceland is indicated in table 1. Red numbers indicate an occupancy rate of <40% and green numbers >70%. Accommodation close to the capital reveal higher occupancy rates than those which are located further from the capital.

Table 1. Occupancy rate 2011-2016 after regions (Statistics Iceland, n.d.).

Region	2016	2015	2014	2013	2012	2011	2010
Capital region	85,4	78,4	77,6	73,6	73,8	63,7	55,3
Southwest	72,7	62,9	55,8	54,9	47	46,3	40,3
West, Westfjords	46,5	43,2	39,5	39,4	32,8	30,2	29,1
North	48,6	40,2	42,7	41,4	35	32,2	32,5
East	44,2	36,5	34,8	39,6	33,7	29,8	27,4
South	58,5	49,3	42,5	42,5	40,7	37,6	38,8
Total	71,3	63,9	61,8	60,4	58,5	52,1	46,9

Most hotels are located in the capital area and most new hotels are constructed there as well (figure 19). In 2015 additionally 26% more hotel rooms were offered in the capital area. Although proportionally the number of establishments and capacities to accommodate tourists is growing every year (11% in 2015), it is not growing to the same extend as tourist arrival (Statistics Iceland, n.d.).

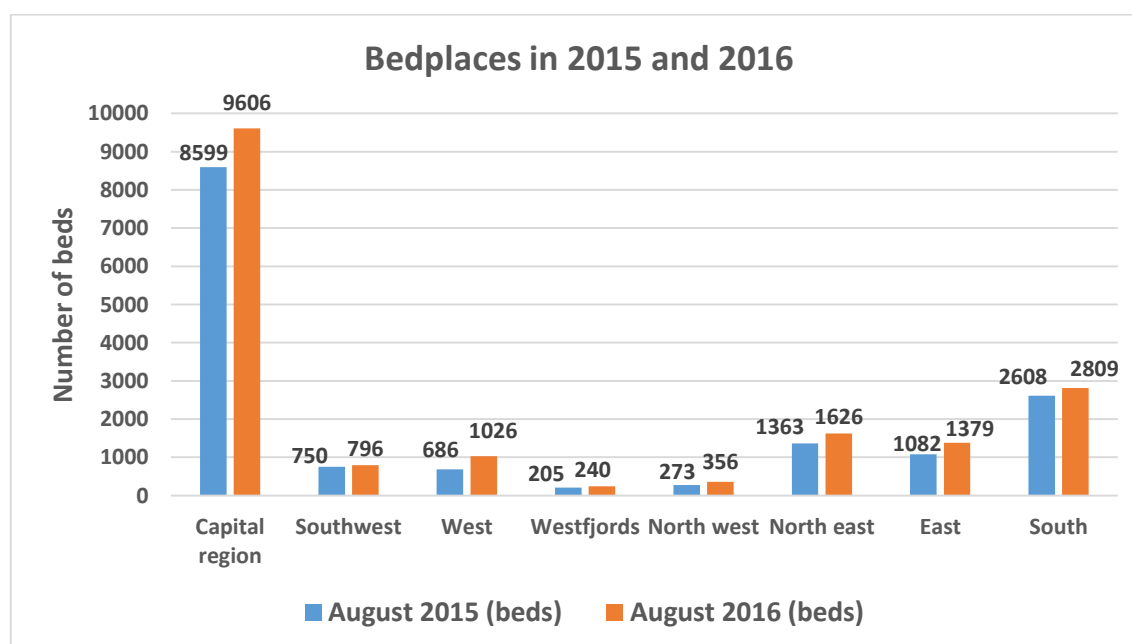


Figure 19. Number of beds in 2015 and 2016 after region (Statistics Iceland, n.d.).

Private home accommodation such as Airbnb has been booming in the recent years especially in the capital. More than 1.900 rooms and apartments were registered in Reykjavik in 2015, but only 13% had the permission to be used as tourist accommodation. In March 2017 2.730 active Airbnb rentals were registered whereas almost half of them were only 1-3 months rented during the year (Airbnb Data, n.d.). Many of these accommodations are however not legal and not listed. Islandsbanki reported that the number of bednights sold through Airbnb where 21% of sold bednights (Islandsbanki, 2017). Airbnb accommodation were in general cheaper than hotel accommodation, also because more people can share such private accommodation to the same time (Íslandsbanki, 2017). In a research conducted by Bifröst University (2015) it was revealed that the increase in hotel rooms was not to the same extent as increase in tourists and that about 4% of all apartments in Reykjavik were rented out for tourists.

The number of companies in tourism has increased most between 2008 and 2014 in tourism agencies (150%), rental car services (120%) and retail such as souvenir shops (220%) (Arion banki, 2015).

An average of 96% of all tourists visit the capital region over the year. Other popular places are Geysir, Gullfoss (62%) and Þingvellir (57%) on the *Golden Circle*, Blue Lagoon (40%) and various places in the South of Iceland. In summer the glacier lagoon Jökulsárlón and the national park Skaftafell attract many visitors (>40%), as well as Akureyri and Lake Mývatn (35%) in the North. Over the summer months less than 10% (less than 3% in winter) visit the Westfjords. In summer about 15% visit Landmannalaugar and 24,5% Þórsmörk (The Icelandic Tourist Board, 2016). These places are situated towards the highlands and only accessible by four-wheel drive. Figure 20 reveals which regions are most visited.

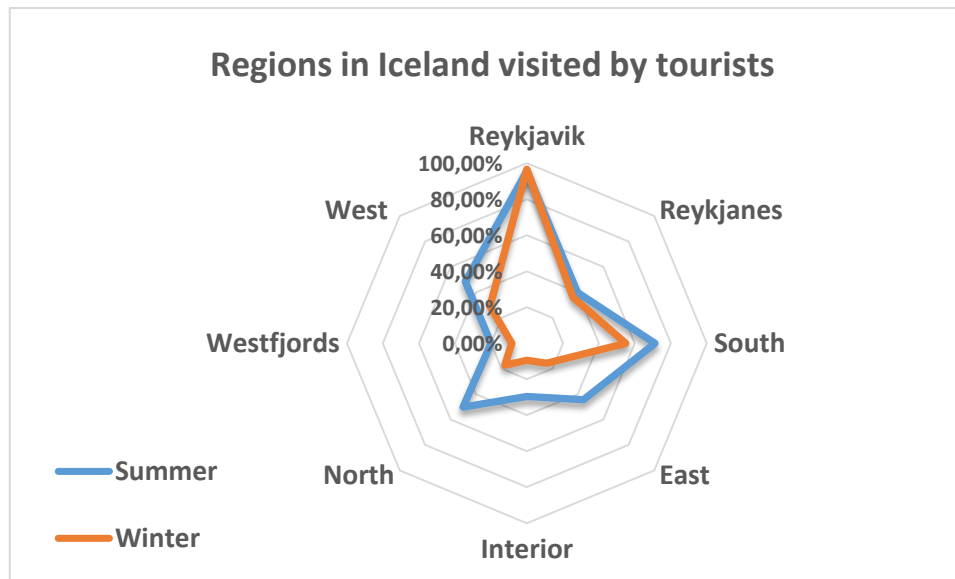


Figure 20. Regions in Iceland visited by tourists: Summer 2016; Winter 2015/16 (The Icelandic Tourist Board, 2016a).

A survey reveals that for almost 80% of tourists coming to Iceland nature had in all seasons a major impact on the decision to visit the country. Also the Icelandic culture and gastronomy and low airfares especially in off season are reasons to come to the country as shown in figure 21 (The Icelandic Tourist Board, 2015).

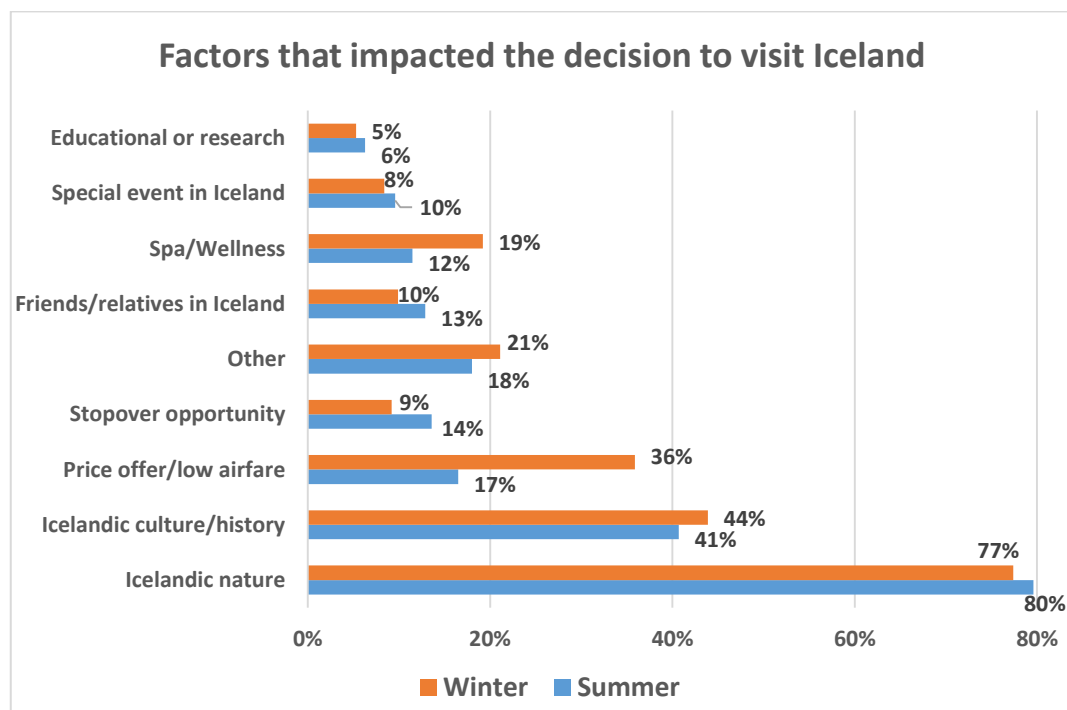


Figure 21. Factors that had an impact on decision making to visit Iceland (The Icelandic Tourist Board, 2015).

The Icelandic Tourist Board (2015) summarizes:

Iceland attracts mostly prosperous individuals who are well employed and are interested in nature, but Icelandic culture is another pull factor to Iceland, most get the idea of travelling to Iceland from friends and relatives, the vast majority of trips to Iceland meet expectations, and many intend to visit Iceland again, when choosing a tour operator, having quality certifications is a very important factor.

8.2.3 Visitor satisfaction and industry competitiveness

In a visitor survey conducted by *Maskína* in 2016 more than 83% of people who visited Iceland would recommend it as a travel destination to others. 67,5% said that the trip met to a great extent their expectations and 28,5% for the most part. Service at restaurants and hotels was rated on a scale from 0-10 with a mean of 7,98. Road conditions were rated at 7,66. 64% are very likely to visit Iceland again and 26% somewhat likely. Only 3% answered that it is somewhat or very unlikely. The number of tourists at tourist sides was rated relatively low with 6,92. People found the number of visitors too many in Geysir (54%), Gullfoss (51%), Glacier Lagoon Jökulsárlón (40%) and Þingvellir national park (40%) in summer 2016 (The Icelandic Tourist Board, n.d., a).

According to the *Travel & Tourism Competitiveness Report 2017*, Iceland ranks 25th among the 140 countries with a total score of 4,50 (World Economic Forum, 2017). Iceland lies behind its main competitors New Zealand, Norway, Ireland and Canada, but before Denmark and Finland. However, Iceland is ranking lower than previous years where it was ranked on place 18 in 2016, place 16 in 2013 and place 11 in 2011.

The Index consists of 14 pillars which are divided into four sub-indices: enabling environment, policies and enabling conditions, infrastructure, and natural and cultural resources. Compared to Northern and Eastern Europe Iceland is scoring relatively high, but is scoring below the UK. High scores are e.g. in safety and security (6,6), health and hygiene (6,1), human resources and labour market (5,8), and tourist service infrastructure. Low scores are in natural (3,5) and cultural resources, business travel (1,5) and price competitiveness (3,6). In the last category Iceland is among the last five nations with e.g. Switzerland, Israel and the UK.

9 Cluster analysis: The Icelandic Tourism Cluster

In order to answer the research question of how the Icelandic tourism cluster can support innovations, a characterisation and analysis of the cluster is performed. To characterise the Icelandic tourism cluster, the different members of the cluster are compared against relevant changes in the cluster composition. Strengths and weaknesses, but also the structure of the cluster is described as well as the boundaries of the cluster which are identified and the cluster growth explained. For the purpose of the analysis, the Icelandic tourism cluster is mapped following the approach of Porter.

Following questions are put forward in order to characterise and analyse cluster activities in the Icelandic tourism. These questions are answered in the following chapter.

- How did the Icelandic tourism cluster develop over time?
- How is the Icelandic tourism cluster organised?
- How competitive is the Icelandic tourism cluster, especially regarding innovative activities?

9.1 Cluster mapping

The cluster map (figure 22) for the Icelandic tourism cluster shows an inner core with activities directly taking place in the cluster. This is a set of tourist attractions and activities that draw non-resident attention. Further these are tourism service companies such as accommodation, transportation services, tour operators, booking services and tourist information centres. Related and supporting activities in the cluster are broad and comprise gastronomy, events, retail, health care, and the like. These are activities which are not only used by tourists, but also by the local community. Service providers are companies and institutions that provide specialised information and financial capital. Supporting agencies are consulting and IT companies, and companies which are involved in construction, maintenance and marketing. Public activities involve the government and educational and research institutes that can have an impact on tourism activities. Intermediate activities are associations and initiatives which support cluster collaboration and development.

around 2.000 (184 new registrations in 2015 and 130 in 2014) (Icelandic Transport Authority, n.d.).

However, individual travel is gaining in popularity as well with about 37% of all tourists renting a car or camper in Iceland (The Icelandic Tourist Board, 2017). In 2015 about 150 companies operated car rental services (Arion banki, 2016). Few big companies exist, and many small companies with just a few cars. It can be explained by considerable tax reductions for new cars in the sector. The fleet size for rental cars was about 22.000 in September 2016, which were about 7000 more than two years before (Statistics Iceland, n.d.).

Flying to Iceland takes about 2-4 hours from destinations in Europe and 5-7 hours from America. Depending on the season a different number of airlines provide direct flights, but for the summer 2016 about 25 flight operators were flying to around 80 destinations (Isavia, 2017). Two main operators are Icelandic, Icelandair, affiliate of Icelandair Group and Wowair. Iceland's location in the North Atlantic between the continents makes it favourable for stop over or lay-over flights. The airport was extended in the recent years and is still under construction. If the growth continues further the airport will be the largest workplace in Iceland by 2018 (Isavia, 2017). In 2016 40,4% more passengers passed through Keflavik international airport than 2015 with a total number of 6.821.358 departing and arriving passengers. Thereof 2.198.804 were transit or transfer passengers which means that more than 32% are connecting at the airport. The numbers doubled since 2013 (Isavia, 2017). Main city linkages from Iceland are to London, Copenhagen, Paris and New York. In average 14,6 machines were going to/from London daily in 2016, and 9,5 to/from Copenhagen. Less than one percent of international flights arrived outside of Keflavik at Reykjavik, Akureyri, or Egilsstaðir.

In 2016 about 750.000 domestic passengers were registered at Icelandic airports which is a growth of about 8%. Half of all passengers were registered at the domestic airport in Reykjavik. From Reykjavik flights are scheduled to smaller regions around the country (e.g. Bíldudalur, Ísafjörður, Akureyri, Húsavík, Egilsstaðir, Hornafjörður and Westmann Islands). Some flight routes are only seasonal. Flights are operated by three domestic airlines: Flugfélag Íslands, Flugfélagið Ernir and Norlandair.

9.1.1.2 Accommodation

In the last years many hotels and guesthouses have been build. The occupancy rate is high in some regions and best in the capital area with an average of about 85%. A high variety of accommodations exists to choose from: camping grounds, hostels, guesthouses, different kinds of hotels and private accommodation.

The proportional increase of hotel rooms between 2009 and 2013 has been regionally very different. Though the total increase has been mostly in the capital area, the proportional increase was most in the Westfjords and in West Iceland. For the next years many new hotels will be build or existing hotels will increase the number of rooms (KPMG Iceland, 2014). However, there is a strong need for more hotels in some areas especially in the capital area and in the South, a need also for more MICE (meetings, incentives, conferences, exhibitions) facilities and further exists a lack of five star or boutique hotels. Next to the conference and concert hall Harpa a 5-star hotel will be constructed and is due to open in 2018. The Blue Lagoon will open a new 63-room luxury hotel in 2017.

Tourist arrival is increasing by far quicker than new hotels are being built. At the same time has alternative accomodation and the sharing economy grown in popularity such as Airbnb (chapter 8.2.2). Regulations and laws are insufficient to take up with new kinds of private accomodations. Airbnb-listed properties do not pay the same level of income or taxes as hotels and the situation on the rental market has worsened significantly for locals (Íslandsbanki, 2017). House prices and rents have been risen sharply in the recent years. A new law was passed for the beginning of 2017 that states that a person can rent out up to two accomodation up to 90 days or until 2 million ISK income are reached (Jóhann Óli Eiðsson, 2016).

The increased supply in hotels and hotel rooms is less than the pace of tourist demand. Accordingly, the occupancy rate will rise even more and tourists will try to seek accommodation in other forms, e.g. Airbnb or camping. This again has an effect on the real estate market where prices will rise to the disfavour of locals.

9.1.1.3 Tourist related activities (attractions and recreation)

As mentioned in chapter 8.2.2, most people come to Iceland because of its unique nature, but also the culture or cultural heritage is attracting interest among foreigners. The variety of

activities is high. Offered are whale watching, rafting, sailing, helicopter and sightseeing flights, (glacier) hiking, northern lights tours, horseback riding and horse shows, culinary experiences, hunting (reindeer, fish), snowmobile tours, different kinds of glacier tours, jeep tours (off-road), quod tours, museums (art, history, nature and geology, animals such as whales, seals, birds), spas, golf, bird watching and more. New activities are planned for the future, whereas various projects will not be located in the capital area.

9.1.1.4 Booking service/Travel agents and tour operators

In Iceland 312 travel agents are registered, more than 1000 tour operators and 270 tourist information and booking services (Icelandic Tourist Board, n.d.). Almost 60% are registered in the capital area. *The Icelandic Tourist Board* gives out certificates for travel agents and tour operators and holds a list of these online. In 2015 41 new travel agents, 108 new tour operators and 24 new information centres or booking services were listed. This is less than in the previous two years (The Icelandic Tourist Board, 2016b).

9.1.2 Related and supporting activities in the cluster

Related activities play a big part in tourism and are often services or activities used by locals and tourists. Examples are general infrastructure, health care and restaurants. The diversity of restaurants, pubs and cafés has increased significantly all over the country, but especially in the capital area that. Events, entertainment and local retail are more diverse, more frequent and better attended. Events which are popular among foreigners are e.g. Icelandic airwaves, Reykjavik cultural night, Reykjavik marathon, Reykjavik arts festival, Gay pride, EVE Fanfest, or DesignMarch.

Especially Reykjavik and the South of Iceland get more and more attention for meetings, international conferences and incentive trips. Many hotels have the possibility for bigger events or international arrangements. Further, there are tour operators specialising in event management and incentive trips. The annual increase of MICE travellers was 10% in 2015 (14% in 2014; 19% in 2013), and accounted for almost 90.000 travellers in 2015 whereas 70% came outside of the high season. In 2015 218 international conferences were held (188 in 2014; 157 in 2013) (Meet in Reykjavik, n.d.).

Meet in Reykjavik was established in 2012 in order to spur the popularity of Reykjavik as a conference and event city. It consists of a public-private partnership among different

operators with members such as City of Reykjavik, Icelandair Group or the Harpa Concert and Conference Centre. It's mission is to increase the numbers of meetings, incentives and events and that MICE guests account for 11% of the tourism market by the year 2020 (Meet in Reykjavik, n.d.).

9.1.3 Service Providers

Banks and financial institutes are more and more investing in tourism, especially in new hotels. Some banks as well as insurances are specialised in tourism activities and their investment. Since 2017 loans for tourism are more than for companies in the fishing industry and account for 22% of all loans. Further, specialists at *Íslandsbanki* work on loans for tourism (Íslandsbanki, 2017). However, as tourism is a broad field and its activities often undefined, numbers can be misleading. Investments and loans in other sectors like real estate can have in general an influence on tourism.

9.1.4 Public activities

Public activities concern education and research, ministries and municipalities. Further, public investments in tourism play an important role.

9.1.4.1 Education

As the tourism sector grew quickly in the last years, education of workers in the industry is not satisfying. The increase of tourist numbers is much higher than the increase of skilled employees (The Icelandic Tourist Board, 2014). Further, limits exist to connect different educational levels and limits for additional education. Many who are working in tourism or 1/3 are without education. The number is even higher (45%) if just looked at employees in hotels or gastronomy (The Icelandic Tourist Board, 2014).

The University College Hólar, University of Iceland and University Bifröst offer Bachelor and Master programs in tourism, which are however not very connected to the tourism industry in Iceland and deal with a shortage of economical approach and practice in this branch.

The grammar school Menntaskólinn í Kópavogi (MK) provides a wide program for gastronomy education. It further houses the *School of Tourism (Ferðamálaskóli)* that offers a one-year school for people working e.g. as travel agents. Attached is also the *Tourist Guide School (Leiðsögumannaskóli)*, which offers a one year program in tourist guiding. A program

for tourist guides is also offered at the *University of Iceland (Endurmenntunarskólinn HI)*, at the *University of Akureyri*, at *Keilir Academy* and at *The Icelandic School of Travel and Tourism (Ferðamálastólí Íslands)*. More and more are applying yearly for the guide school in MK with now about 100 applicants. However, applicants for the School of Tourism is below expectations and not in line with the general tourist increase. A reason can be that salary in the sector is not very high and/or that companies in the business do not have high requirements in education.

Until 2015 MK offered a one-year program in Hospitality Management in cooperation with *Cesar Ritz* with the possibility to continue with a bachelor program in Switzerland. Now hotel management and restaurant operations can be studied as a two semester program at the University of Reykjavik. At Keilir Academy the Aviation School offers programs for pilots and aircraft engineers. However, there is no education for hotel managers or tourism management on a bachelor level, and no proper education for reception staff in Iceland.

The Task Force Tourism arranged the new *centre for competence and quality in tourism (Hæfnisetur ferðapjónustunnar)*. The centre was formed in 2017 in order to enhance education, training in tourism and to increase quality at the workplace in the future. This includes education for management and education for everyone who is involved in tourism businesses. Furthermore, internships will be arranged and switching between different educational institutions and recognition of previous studies will be facilitated (Stjórnstöð Ferðamála, n.d.).

Students in foreign languages and in travel, tourism and leisure studies increased from 2008 and peaked in 2013. However, in the years after the crisis - that is from 2008 to 2013 - there was a general increase of students in Iceland. Numbers of registered students increased between 2007 and 2013 in English (35%) and German (28%), but decreased in Spanish (-27%) and French (-12%). Student numbers decreased in all foreign languages again from 2014 on. Student numbers in travel and tourism is still increasing and student numbers more than doubled from 2007 to 2013 (Háskóli Íslands, n.d.).

9.1.4.2 Research

Research in tourism takes place at *The Icelandic Tourism Research Centre ITRC* which is a cooperative project between the University of Iceland, the University of Akureyri, Hólar

University, The Icelandic Tourist Board and The Icelandic Travel Industry Association. The research centre receives funding from the universities as well as from the government. The ITRC is promoting and coordinating tourism research in Iceland, offers courses and lectures in tourism studies, publishes papers and books about research results, increases the cooperation with the industry and facilitates the cooperation between domestic and foreign researchers (The Icelandic Tourism Research Centre, n.d.). The *Tourism Task Force* (Stjórnstöð ferðamála, 2015) and others proposed research projects for the next years with a cost of 135 million ISK. Projects are e.g. sustainability in tourism, market group analysis, extend and impact of tourism in rural areas, and state estimation of various tourism sights.

9.1.4.3 Ministries

In general tourism cannot be separated from any ministry, but the Ministry of Industries and Innovation in Iceland has most responsibilities for the tourism sector. Many other countries have an own ministry for tourism, but this is not the case for Iceland. In September 2012 several ministries (Ministry of Fisheries and Agriculture, the Ministry of Industry, Energy and Tourism and part of the Ministry of Economic Affairs) merged under one ministry with two ministers (one for fisheries and agriculture and one for tourism, industry and innovation).

The Icelandic Tourist Board is related to the ministry and implements tourism affairs under their governance. Under the ministry belongs also the *Icelandic Patent Office*, *Innovation Center Iceland* and *The Competition Authority*. Further *The New Business Venture Fund* (NSA).

In February 2017 the Ministry for Industries and Innovation announced an organisational change to increase the importance of tourism affairs in their administration. A new department was allocated which is dedicated for tourism issues (figure 23) (Ministry of Industries and Innovation, 2017).

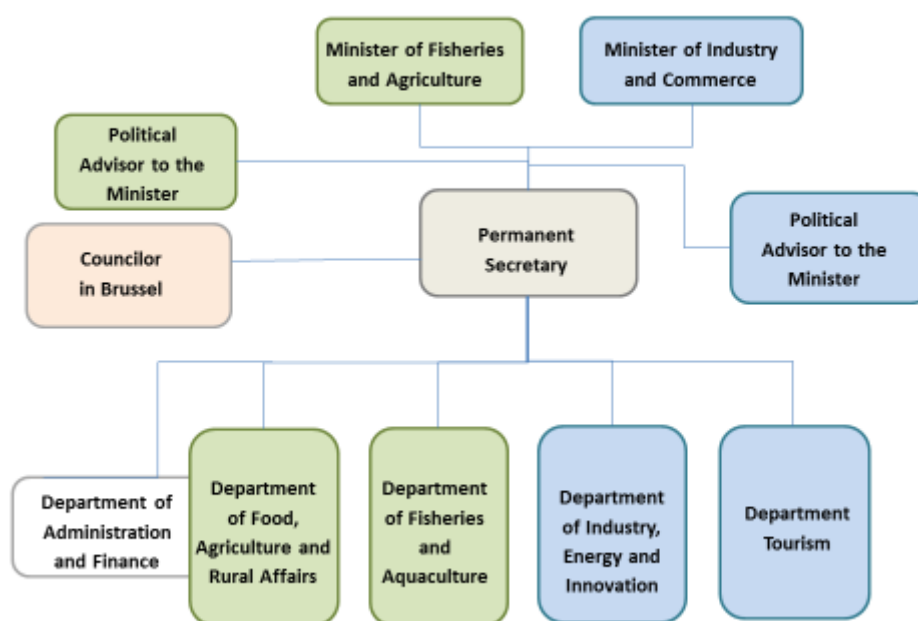


Figure 23. Organisational Chart Ministry of Industries and Innovation (Ministry of Industries and Innovation, 2017).

9.1.4.4 Investments

Total investments in economic affairs in 2015 were about 14.990 million ISK. 1,9% were dedicated to investments in tourism. However, tourism per se is often narrowly defined in economic affairs and investments in other fields can have an influence on tourism activities. Total investments in tourism were growing more than 50% from 2010 (18,7 million ISK) to 2015 (28,4 million ISK) (figure 24).

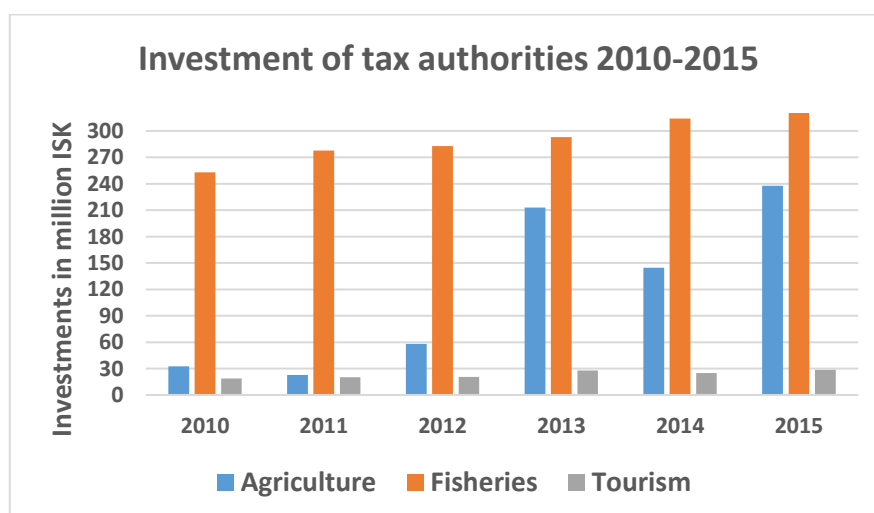


Figure 24. Investment of tax authorities 2010-2015 (Statistics Iceland, n.d.).

In 2011 a new investment fund for tourism sites was established which is under the custody of *The Icelandic Tourist Board*. The investments shall protect special tourist sites, contribute to infrastructure development and nature preservation and ensure the safety of tourists at those places. Once or twice a year applications for funds are accepted and funds accordingly allocated (The Icelandic Tourist Board, n.d., a). These funds were increased and grew by 40% between 2014 and 2015 and accounted for 1.026 million ISK. In March 2016 the last funds were allocated for 66 projects that received all together about 600 million ISK (The Icelandic Tourist Board, n.d., b). Until now more than 500 projects have been supported with a total sum of ca. 2.510 million ISK. However, not all of the money has been used (efficiently) due to problems with permits, general planning, weather conditions, lack of labour and uncertainty about future financial sources. Most of the funds went to the national parks Vatnajökull (especially to the sites Goðafoss, Dettifoss, Skaftafell) and Þingvellir (The Icelandic Tourist Board, n.d., a).

9.1.4.5 Municipalities

Local governments (*Sveitarfélög*) play a big role in tourism as they organise the development of their region. Their task is to look after infrastructure for the community, e.g. footpaths, visitor platforms, museums, swimming pools, camping grounds and the like. They have to care for information centres, the road system, quality assurance and environmental issues at tourist sites and education of people. Municipalities are further responsible for collaboration with e.g. The Icelandic Tourist Board and for cooperating with the newly set up destination management plan (DMP).

9.1.5 Intermediate activities: Associations and initiatives

The Icelandic Tourist Board (*Ferðamálastofa*) operates in Reykjavik and in Akureyri and is a public governmental organisation under the Ministry of Industries and Innovation. Its roots can be traced back to 1964 when the tourist board (*ferðamálaráð*) was founded which was active until 2005. The reason for this is the fact that laws were changed and the obligations of the former tourist board expanded those requiring a new public institution which was given the name *The Icelandic Tourist Board*. Its activities are now regulated through the *Tourism Administration Act*, with the overall authority in the hands of the minister. The tasks of The Icelandic Tourist Board are e.g. the registration and issuance of operation licenses, providing

information to tourists, travel agents and researchers, research and statistics such as conducting surveys among domestic and foreign tourists, quality and environmental issues, regional development, employment and environment aspects, public strategic planning, and international co-operation. Until 2010 the board was also active in marketing Iceland as a tourist destination. Now it is the task of *Promote Iceland (Íslandsstofa)*. The board is working closely together with *Promote Iceland* and also cooperating with numerous other associations such as *SAF* or *The Icelandic Tourism Research Centre*. It participates further in international collaboration and is part of the *ETC (European Travel Commission)* and *NATA (North Atlantic Tourist Association)*.

In 2011 *The Icelandic Tourist Board* introduced *VAKINN*, the official quality and environmental system in Iceland:

The main goal of the system is to enhance and promote the quality of tourism in Iceland and to promote the social responsibility of tourism companies in Iceland. The quality system can be divided into two categories: star ratings for accommodation and the auditing of other services that are connected to tourism (Vakinn, n.d.).

Vakinn star rating is based on the European *Hotelstars* system. Star rating for other categories as accommodation is based on *Qualmark*, a mark of quality in New Zealand. More than 90 companies are part of Vakinn and another 90 are in the application process. However, almost 90% of all tourists do not know about Vakinn (The Icelandic Tourist Board, n.d., a).

The Tourism Task Force (Stjórnstöð ferðamála) was launched in Oktober 2015 to propose new tourism policies⁷, to investigate the needs of the tourism industry, and to continue the improvement of tourism in Iceland with new orientation guidelines. The Task Force consists of four cabinet ministers, four representatives of the tourism industry, and two municipal representatives:

The new Tourism Task Force will operate for five years and will work closely with persons of authority within public bodies involved in tourism issues, with

⁷ This was already recommended in 2012 by BCG (The Boston Consulting Group, 2013): „We recommend that a Tourism Task Force, with participation from the public and private sectors, be set up to take on this task, as well as several other key coordinating functions.“

representatives of the tourism industry, and with other stakeholders (Stjórnstöð ferðamála, n.d.).

It is based on an agreement with the Icelandic government, The Icelandic Travel Industry Association (SAF) and the local municipalities. The main issues are: coordinated navigation in tourism, a more positive experience of tourists (many tourists come repeatedly), reliable data and documents, conservation of nature, higher profitability, and better distribution of tourists around the country.

DMP (Destination Management Plan) is a new campaign initiated by The Icelandic Tourist Board and the Taskforce Tourism and started in April 2017. In the first weeks and months data is collected and analysed. The DMP is a business plan or statement to promote and develop a destination, define the roles of stakeholders, and identifying the responsibilities and tasks of direct stakeholders. In this project many different parties participate in financing, implementation, and passing on information. A steering committee is giving support and supervision, the regional marketing offices are leading the projects and the composition of the DMP teams. The regional council (*svæðisráð*) is hiring the project manager and deciding about the area division of the DMP schedule. The DMP is similar to other project that have been developed in the last years such as Reykjanes or Katla Geopark.

Other associations exist such as *The Icelandic Travel Industry Association* or *SAF* (*Samtök ferðaþjónustunnar*). SAF was founded in 1998 and is dedicated for companies operating in the field of travel and tourism.

Its purpose is to promote and protect the common interest of the membership and to work towards improved proficiency of both staff and management. [...] SAF endeavours to advance quality, safety and professionalism among its membership. It aims to inform its membership about consumer laws and insurance regulations in all the markets from which the travellers originate (The Icelandic Travel Industry Association, n.d.).

Since 2004 SAF is handing over a yearly innovation award for innovative companies in tourism.

A new initiative is *Start-up tourism* which engages in innovation and new business development. The platform was launched in 2016 where yearly ten start-ups in tourism and tourism related businesses can take part in a ten week accelerator program. In the end of the period the start-ups present their business models to investors and key members of the

industry. Start-up Tourism tries to promote innovative projects in tourism in Iceland which support the establishment of infrastructure and businesses which can manage the increase of tourist numbers by building a sustainable tourism environment. Different organisations are involved in the project among them are *Icelandic Start-ups* and the *Icelandic Tourism Cluster* (Start-up Tourism, n. d.).

The Icelandic Tourism Cluster (Íslenski ferðapjónustuklasinn) was founded in March 2015 and has now about 50 members from different areas. Members are not all directly involved in tourism, but consist of financial institutions, law offices, and engineering companies. The mission is to promote innovation and development in tourism and to increase the competitiveness of the Icelandic tourism cluster. The Icelandic Tourism Cluster is a cluster initiative on a national level but well connected to the regional marketing offices. These offices serve as a connecting tie between SME's and the national cluster. Thus the national cluster can have an influence on many companies though they are not directly members of the cluster.

After leading a survey among their members the cluster announced to work particular on three projects: investment in tourism, singularity of areas, and responsibility of tourism and tourism companies. Concerning the singularity of areas, the emphasises is laid on regional clusters and how regions can be assisted in their cluster development. One example is the project *Eimur* which is supporting sustainable tourism linked with energy utilisation in the Northeast of Iceland. Another project is *Austurbrú* in the East which works together with inhabitants, communities and companies. It serves as an interdisciplinary platform working towards innovation and local development.

One of their projects which belongs under *investment in tourism* is *Ratsjáin (radar)*, a project which helps companies to increase, develop and analyse innovation and management (Ratsjáin, n.d.). Companies taking part are trying to change something in their business with the help of consultants, but also with the help of other managers or owners in the same branch through different tools of benchmarking. One tool is the *Innovation health check*, a tool developed in Ireland where the innovation process is evaluated by others. This means concept and product development, idea generation and capturing of customer needs is managed. The health check is measuring and evaluating the innovation culture, the business, strategy, structure, capabilities and resources, and processes (Enterprise Ireland, n.d.).

In terms of responsibility the incentive project *Responsible Tourism* (*Ábyrgð ferðapjónustunni*) was launched together with the pension fund *FESTA*, the Centre for Corporate Social Responsibility. This project is particular dedicated for smaller companies and companies that not yet joined Vakinn. Companies connected with tourism agree on clear and simple measures of responsible tourism in order to support sustainability for the future of Iceland. This involves safety issues, exemplary behaviour, rights of employees and impact on the local community. The cluster and FESTA are supporting companies with workshops, expertise and instructions about corporate social responsibility in order to adjust new methods and ways of thinking in their business plan. Further SAF, Safetravel, Promote Iceland and The Icelandic Tourist Board support the project. The project shall further support the establishment of a broader network among companies working together towards social responsibility (Festa – miðstöð um samfélagsábyrgð, n.d.).

9.1.6 Supporting Agencies

9.1.6.1 Marketing

Destination Marketing is of great importance in order to promote Iceland internationally as a tourism resort. Since 2010 *Promote Iceland* tries to improve the competitiveness of Icelandic companies in foreign markets and to stimulate economic growth through increased export. It is a public-private partnership and was founded shortly after the financial crisis to establish a positive image of Iceland working together with different industries on nation branding. Furthermore, through higher specialisation in marketing and branding the expertise can be used more effectively as it was the case when marketing was part of The Icelandic Tourist Board. The main goals of Promote Iceland are promoting Iceland as a tourism destination, assisting in the promotion of Icelandic culture abroad, and introducing Iceland as an attractive option for foreign direct investment. Promote Iceland launched several campaigns in recent years such as *Inspired by Iceland* (2010) and *Iceland - all year-round* (2011). *Iceland Naturally* is a campaign that represents the best of Icelandic products in North America and emphasises pureness, sustainability, uniqueness and creativity in Iceland.

The country is divided into seven regional marketing offices (*Markaðsstofur landshlutanna*): capital area (Visit Reykjavik), Reykjanes (Visit Reykjanes), the West (Visit West), the South (Visit South), the East, the North, the Westfjords and the West. Each

promotes its own region, holds regular meetings and has information to guests visiting that particular area. The districts are working together with 65 local governments and a total of 780 companies.

9.1.7 Related Clusters

The biggest and most important related clusters are agriculture, fishery and energy. But also the health and food industries have a strong connection to the tourism cluster. The Blue Lagoon and Jarðböðin in the North connect e.g. tourism, energy and health. Another good example is the farm Friðheimar, which is combining tourism and agriculture by offering a greenhouse visit with a tomato soup tasting and an optional horse show.

Other related clusters are music and design where many events are held yearly and special products are sold to tourists. Further health and cosmetic products get more popular. Cosmetic products and cosmetic lines are produced and sold everywhere around the country with Icelandic ingredients, such as herbs or algae.

Gastronomy plays a big role and many restaurants and bars offer Icelandic dishes, and microbreweries around the country brew special beer or hold guided tours in their brewery.

Iceland is further more and more chosen as a travel destination because of wellness (especially due to its spas) and medical treatment (e.g. health clinic NFLÍ and Blue Lagoon) (Iceland of health, n.d.).

9.2 Analysis of the competitiveness of the Icelandic tourism cluster

The tourism cluster and its development were described earlier and thus the next step in the process is an overall competitiveness assessment. This includes classification of the cluster into a development stage. The classification gives the first indication of how the competitiveness of the cluster developed over time. Leading to the importance of assessing the stage of entrepreneurship and innovation resulting in indications of how innovation should be supported depending on the stage of cluster development.

The cluster diamond analysis depicts the advantages but also the disadvantages in the microeconomic dimensions for the competitiveness of the Icelandic tourism cluster. Additionally, the tool of Five Forces is used as a step to assess the attractiveness of the cluster for tourist operating business.

Lastly, key success factors for the cluster are applied to analyse the innovation support for the Icelandic tourism cluster.

9.2.1 Stage of cluster development

Tourism in Iceland has existed long before the “boom” which followed after the financial crisis and the eruption in 2010. The cluster with its different service providers, supporting agencies, organisations, and related activities, emerged just at the same time and is still in a growth phase. The high demand for tourism products became an incubator for the strong growth of SME’s and entrepreneurship that tried to serve the high demand and customer needs. New policies and associations developed shortly after the high growth and are still developing. Before the “boom” pioneer companies such as Icelandair Group, Blue Lagoon, and Hotel Borg already existed and served the small market. With the boom new businesses and business models were formed and specialised suppliers and service companies were created. New institutions such as *The Task Force Tourism* or *Start-up Tourism* were founded as a result of higher demand and need for solutions originating from excess imposition caused by increased numbers of tourists.

The range of education is almost unchanged despite the “boom”: Educational institutions supporting tourism have not developed according to the need of the market. Until now, investment by foreign investors and companies in Iceland has not been significant and regions have not been able to attract enough skilled workers. Resulting in significant number of unskilled workers especially in the countryside, and foreign workers who only stay for a limited time resulting in low company loyalty.

According to the six stage model developed by Isaksen and Hauge (2002) the Icelandic tourism cluster can be situated between stage two and three:

Stage two: “Specialised suppliers and service companies are created and a specialised labour market.” And stage three: “Formation of new institutions e.g. in education that serve cluster companies and strengthen learning processes.”

The next step for the cluster is to increase the reputation, to attract foreign capital, and strengthening of learning processes and knowledge transfer within the cluster. Foreign investment creates opportunities by importing not only capital, but also knowledge, customers, market information and also spreads the risk of failure.

Summarising, it can be said that the Icelandic tourism cluster is still in the growth phase where investments and entrepreneurship are strong. It has been successful so far as many new products were launched, new companies were created, membership grew, investments have increased and some regions have gained in attractiveness. Only few spin-offs exist, but some companies could open affiliates abroad.

9.2.2 Icelandic Tourism Cluster Diamond Model - Analysis of national competitiveness

In this chapter the tourism cluster is analysed according to the Diamond Model. This includes all four factors of the Diamond Model: demand conditions, factor conditions, context for strategy and rivalry, and related and supporting industries.

Demand Conditions: Iceland has a diverse and unspoiled nature with glaciers, volcanoes, lava fields, fjords, geo-parks and well educated people. The strategic position of the country is due to its location which is midway between Europe and North America often used as a layover or transfer destination. The cultural heritage is well known around the world and Iceland has more competitively priced green energy than any other country. There is a strong international tourism interest in the country with a lot of different options to choose from. However, tourist demand is still highest over the summer months and different regions are not visited to the same extend. The airline seating capacity increased in the last years as more airlines entered the market and local airlines enforced their flight schedule. Nevertheless, growth in tourism is still too fast, which means that the infrastructure in the country and also the inhabitants are not yet ready to deal with such a high number of tourists. Further, stress on nature is in many regions too high especially due to lack of infrastructure and tourism controls.

A high demand can be expected for the future for nature-based and wellness tourism, eco-tourism, outdoor and adventure sports and “living like a local”, whereas the popularity for such activities are steadily growing. Generally, tourists have higher level of cultural and environmental awareness today than before e.g. for sustainable and efficient use of natural resources (e.g. Center for Responsible Travel, 2016; Buckley, 2000). There is always a risk of overcrowding that can have negative effects on tourism experience which then can lead to lesser demand.

Factor Conditions: Icelanders are well educated, but in terms of hospitality and tourism industry there is a lack of skilled workers such as chefs and tourism management. As a result the quality of tourism labour is neither sufficient nor efficient. In peak seasons there is a desperate need for more workers, e.g. bus drivers, hotel and restaurant staff, and French or German speaking guides. Language skills are good in English, but could be better in other languages, such as in German, French, or Italian.

Iceland has many local airports, a well located international airport and a number of harbours which are suitable for cruise ships. There are numerous international flights to Keflavik and domestic flights to different destinations within the country. Direct international flights to other locations such as Akureyri and Egilsstaðir are though lacking. The quality of roads and hotels especially in the countryside is often inadequate and there is a shortage of restrooms in places that attract tourists such as Snæfellsnes, Jökulsárlón, and East Iceland. The high number of people causes pollution and destruction of nature, which is also due to low maintenance of tourist sites and little surveillance.

There is a good variety of activities and recreation, with niche segments emerging such as MICE (meetings, incentives, conferences, and exhibitions), wellness and health, or angling tours. A number of opportunities are though still to be exploited further such as eco-tourism and adventure-based tourism. Niche markets could lead to the development of different market groups and customer needs. Remote regions should be developed better and tourists should be attracted to other destinations within the country.

Context for firm strategy, structure, and rivalry: Quality requirements and licensing systems have been revised recently (The Icelandic Tourist Board, 2017). But in some companies and areas quality and safety issues and their surveillance are often not sufficient or not well monitored. Due to this, rules, regulations and authorisation need to be reviewed. Some competition exists among SME's, especially family-run SMEs, but competition is often based on price and quantity and not on quality or service. The boarding capacity of hotels in several areas have reached maximum during peak season and some of them are often overbooked which can lead to complexities.

Competition exists not only between regions in Iceland, but also between different countries in relation to Iceland. The main competitors of Iceland are e.g. other Scandinavian

countries, Canada, Ireland, or New Zealand. For that reason there is a need for stronger collaboration among regions and companies in Iceland, especially towards joined marketing, and also to create a common strategy and vision for the future.

Iceland has a favourable tax environment for tourism-related industries and one of the lowest corporate income taxes in Europe. Despite of the favourable tax environment the companies are struggling against strong local currency which more often renders the local prices out of the international market. The Icelandic currency can therefore engulf the benefits of the tax benefits. As a consequence smaller companies might merge as they can better deal with fluctuations in operating their business (Haraldur Guðjónsson, 2016). Apart from the currency fluctuations also labour costs were rising due to low unemployment rate. Thus, now it becomes increasingly difficult for newcomers on the market as profit decreases.

Related and Supported Industries: In the Icelandic tourism cluster lies a great potential for other clusters or related industries such as food industry, fishing, wellness and health, MICE, design, music, energy and the like. As Icelanders have proven to be very creative and innovative it is likely that more projects will be launched in the future. As a result of the small market it is relatively immature and mainly consists of small (family) businesses that have little knowledge of how to run a company or how to market their products and services.

9.2.3 Five Forces analysis of the Icelandic tourism clusters

With the Five Forces analysis the general “attractiveness” of the Icelandic tourism cluster is illustrated. This includes threats and opportunities which can derive from the microeconomic environment such as of suppliers, buyers or other companies.

The threat of new entrants: As tourism is still growing fast, profitability promises to be high and as the industry does not require a high education level, entry barriers are low and new companies are easily founded. This holds especially for rental car services, companies operating in tourism activities, booking services and tour operators. This is also the reason why many small companies exist on the market. Only a few big companies like Icelandair, Blue Lagoon or chain hotels dominate their sector. There is also a certain threat of foreign companies entering the market e.g. bus companies, airlines, and travel agencies.

Profitability is high among companies based on the assumption that number of companies is increasing and very few have filed for bankruptcy. However, if tourist numbers will stagnate,

tax environment changes and the exchange rate will be unfavourable, profit will also be affected and hence decrease. However, with innovation profitability can be maintained despite adverse effects of aforesaid.

Threat of substitutes: Currently substitutes on the market are not a threat. The situation at the moment echoes in greater number of activities around the country which are not meeting the increasing demand rather than risk of substitution. But while the industry is growing more companies will exist providing similar products and services.

Substitutes can also be represented from other markets outside of Iceland which offer similar services and products with higher value and/or at a lower price. Examples are whale watching in Canada, northern light tours in Finland, or glacier tours in Norway.

The threat of substitutes is not yet very high in Iceland within the country nor does it seem to be high on an international level. First, the country is often described as “unique” and second, in many regions of the country the variety of activities or hotels is low and/or unique and often customers do not have other options to choose from.

The bargaining power of suppliers: As the tourism industry is very labour-intensive and labour is expensive in Iceland, workers have a certain power over their employers. Competition for skilled labour is high and wages have risen in the last years. Workers have often little or no education in tourism and can easily switch between companies. Especially in the countryside there is a need for more stable workers over the summer months as labour supply is not sufficient.

Further, renting houses or buildings is getting more and more expensive especially in the capital area. This applies mostly for accommodation and office buildings. Thus, landlords can rise prices for tourist companies or lower quality which again results in higher prices for the customer and/or lower quality standards. The tourism industry is risking of cannibalising itself by renting out the accommodation which then cannot be rented to employees like in Vík.

As argued here above, the suppliers are powerful in tourism which can result in higher labour and/or service cost (e.g rental cost).

The bargaining power of buyers: For tourists there is generally not a great variety to choose from, as accommodations or restaurants are often fully booked. Thus they do not have a strong bargaining power in areas like the South especially in peak season. However, many try

to avoid high prices and sold out places by booking cheaper private accommodation, by choosing other locations, by renting a car or camper instead of buying a guided tour, or by booking packaged tours. As a result to the development of the exchange rate, people have changed their consuming behaviour and consider of how they spent their money best. Flights are still relatively cheap as competition is high among airlines. This is not the case for accommodation or gastronomy services.

Still, buyers in tourism seem to have more and more power due to social media. Rating services and products is now essential for companies even though customers do not purchase regularly, as customers are choosing services depending on previous experiences and feedback from other guests. This gives buyers more information about products and services and thus more power to choose quality over price.

The bargaining power is best seen as it will make or break a newcomer in the industry. With matured companies the bargaining power is minimal with the situation as it is in Iceland at the moment, i. e. surplus of demand is greater than supply.

Threat of rivals: If many similar products or services exist the threat of rivals is immense. Further, no fixed costs and low exit barriers exist which attract several companies to join the market. Competition seems to be highest among souvenir shops, airlines, bus companies and rental car companies. For tourism activities and hotels in the capital area and South Iceland competition is not yet very high, as demand is immense. And although the numbers of companies is still growing they try to differentiate to avoid competition and rivalry. Rivalry does exist, among diverse companies as tourists spent limited time in the country and therefore book limited number of activities.

For certain areas and sectors rivalry has become intensive: one example is whale watching in the North of Iceland where many similar companies have been created and are offering similar product. There is hardly any difference in price, but by positioning them by offering different service on board as well as different departure times, and location.

9.2.4 Key success factors for the Icelandic tourism industry

In chapter six the number of KSF were identified as being seven, that have an influence on innovative activities in tourism clusters. The Icelandic tourism cluster KSF's were analysed in accordance to aforesaid.

Collaboration and networks

The Icelandic tourism cluster is characterised as a dense and complex network of relationships. This is thought to be caused by the small size of the country and its industry. Many few small actors operate tourism businesses around the country. Contacts and arrangements are mostly informal. However, the relevance of a well-functioning network becomes more important followed with formal and informal contracts and franchising in the industry. Complementary products and services are getting more and more relevant in the development of the cluster. This allows companies to adapt quickly to the growing demand. What could be stronger are networks to share or co-develop new products and services as this becomes easier to realise in a broader context with different kinds of expertise and knowledge. The actual situation is now that companies work on their own when it comes to product development.

Joint marketing exists through the seven regional marketing offices and *Promote Iceland*. Joint marketing means that companies have better access to information, through market analysis and customer needs, and satisfaction of customers. Collaboration in marketing Iceland as an all year-round destination has been a major success as more hotels stay open during the winter months, events have been launched to draw attention of foreign visitors and favourable off-peak airfares and “packaging” tours have been created. Yearly the *Natural Iceland Tourism* workshop *Mannamót* takes place among the marketing offices with about 200 companies taking part. Invitations are sent to various actors in the travel and tourism industry and the event is a set-up for informal communication (Natural Iceland, n.d.). Further the marketing offices arrange an annual conference in autumn.

Collaboration also exists as many companies are involved in different clusters such as in the energy cluster (e.g. through geothermal spas, information centres from Landsvirkjun), the agriculture cluster (e.g. riding tours, country accommodation, gastronomy) or ocean cluster (sailing tours, sea angling, marine products). The strength of the tourism cluster in Iceland are numerous and well connected related clusters and industries. Innovation among clusters and related industries is an important aspect in tourism and plays a growing part in value creation.

Projects initiated by The Icelandic Tourism Cluster, Start-up Tourism or the regional marketing offices such as Ratsjain or DMP show the possibility of effective collaboration,

especially for SME's that usually do not have the possibility to develop further and are lacking professional consulting.

Smaller regional clusters such as *In the realm of Vatnajökull (Í ríki Vatnajökuls)* have exploited upcoming opportunities with the beginning of the tourism boom in a very effective way and succeeded in building a competitive destination all year round. The regional marketing offices are further working as regional clusters and are very important for SME's and the development of single regions.

The private sector seems to be well-connected, but the government lacks in reacting quickly coming to a consensus that suites all parties.

Infrastructure

Most of the companies operating in tourism are located in the capital area. Also the most intensive growth in product development and new business creation have taken place in the capital area. Companies choose their location in accordance to a dense infrastructure, high number of skilled labour and greater innovation opportunities in the area. This is why municipalities should enhance their investment in these factors in order to attract more companies and skilled labour. These will engage locally and participate in developing projects, pay taxes and strengthen the whole region.

An example of a bigger project is the rezoning of the area Grandi in Reykjavik where several new museums opened in the last years. As a consequence tourists are not all bound to the small city centre, but spread to a larger area.

Geo-parks and national parks are also examples of the attempt to strengthen infrastructure and projects related to sustainability which are established inside their borders.

Leadership

The main leadership influence comes from the private sector. Especially Icelandic airlines offering flights to Iceland and bigger hotels and hotel chains are leading forces in the cluster. Airlines expanded their capacities exponentially from 2011 till now with costly marketing campaigns to grow their market share. Competition has increased, resulting in ticket price drop causing a considerable increased number of passengers. Hotels, especially bigger Icelandic hotel chains have expanded and spread across the country. Their growths has

however not been as fast as the increase of tourist numbers, resulting in shortage of accommodation and higher prices.

The government is attempting an infrastructure development and regulations changes. This can be seen with the newly set up Task Force Tourism whose responsibility it is to tackle issues caused by misalignment between tourist numbers and needed service for the customers. Due to discrepancies and lack of governmental long-term strategies the implementation is not efficient nor well defined. Leadership on behalf of the public sector is not adequate and need to be improved. The responsibility and leadership has to come from all stakeholders which are directly or indirectly involved in the tourism cluster as well as from the government.

Funding and resources

Barriers in tourism are often low, especially in tourism activities whereas investment is not required to the same extend as e.g. in manufacturing. Funding and financial services for tourism have increased, but there is still no dedicated product development fund. Financial institutes have specialists working on tourism issues, but have to be developed further. Changes have occurred which can be seen by the fact that a few years ago loans were mostly granted to hotels but now the policies have changed and the lending institutions have extended their lending policy to companies offering tourism activities. An example of this is The Icelandic Tourism Fund which is an initiative of *landsbréf* and was established to support more expensive and long-term projects in Icelandic tourism which were not necessarily real estates.

Policies

The tourism cluster and the government are trying establish a better relationship by creating The Icelandic Tourist Board and The Task Force Tourism. This is important to increase the quality of governmental regulations and policies.

Vegvísir, which was developed by the Task Force Tourism can be seen as a policy instrument from the government. It gives the direction for tasks and conditions by developing strategies for the future. Projects in the foreground are: compatible control of tourism affairs, positive traveller experience, reliable data, nature protection, capabilities and quality, higher

profitability, distribution of tourists. The projects are just proposals, without a concrete business plan or financing.

Policies which have an impact on tourism originate not from one ministry but from a number of ministries. General policies and regulation which are set for other industries have an immense effect on the tourism cluster.

Common vision and norms

Creating norms and a common vision have been an issue in the past years. Until now it seems that a common vision has not been created and the government lacks to set norms for companies and organisations. A main reason is lack of priorities by the Icelandic government to make clear decisions which support all stakeholders.

But creating a vision is not enough. Vision and norms communication need to be improved and reach all members of the cluster. One example is the project *Responsible Tourism (Ábyrgð ferðapjónustunni)* which aims to create a common vision in responsible and sustainable tourism among its members.

Local community

The local communities play a major part in the tourism cluster as tourists use the same resources and services as locals and interact directly with them.

Collaboration between locals and governments and companies will improve with the newly started DMP project. Another example of collaboration within communities are Katla and Reykjanes Geopark. The geo-parks do not only protect the natural environment but promote a local sustainable development. Geo-parks or DMP project can be important in branding the whole region. While developing such a project the starting point is the local community and their story and history.

However the community has to change their understanding and thinking towards tourism as well. Especially with the fact that a great deal of needed workers are foreigners and they will need service from the community but also accommodation which is in short supply. Education and knowledge in the industry need to be improved.

Strategies to innovate

Strategies to innovate are based more on cooperation between companies instead of competition, more open innovation and involvement of customers in the innovation process.

New markets should be exploited by creating niche products or unexplored markets which are not serving the mass market. The niche tourism market in Iceland has grown potentially with an emerged of luxury, health and wellness products. When creating new products or services it should be thought of a greater differentiation and diversity of offerings. The DMP can be seen as a new strategy to foster innovative activities in remote areas.

9.3 Summary of chapter 9

In the case study it was tried to link clustering and innovative activities in the tourism cluster as a means of further cluster development. Thereby it became clear that the cluster was not induced by e.g. the government but developed due to stronger demand, favourable currency development, and strong regional entrepreneurship. What can be fostered directly is innovation within the cluster which again leads to the development of a stronger and sustainable cluster. Innovation in the tourism cluster takes place in the core activities of the cluster, but also in its related and supporting activities. Changes and innovations in the related and supporting activities were e.g. in MICE, infrastructure projects, upcoming of new events and strengthening of establishes ones, souvenirs, new gastronomy services, changes in health care facilities, and changes in society and communities.

The stage of cluster development could explain the changes and progress which happened in tourism in Iceland in the recent years. Evidence can be found in institutional innovations (Hjalager, 2001; 2010) which means a stronger collaborative structure of organisations enhancing development and innovation in tourism. These are *networks* (The Icelandic tourism cluster, Regional marketing offices, Centre for competence and quality in tourism, or projects like Responsible Tourism), *destination management systems* (joint marketing campaigns by Promote Iceland, the newly launched DMP) and *financial incentives* (facilitated through accelerator programs, The Icelandic Tourism Fund, investment fund of The Icelandic Tourist Board, and others).

As the cluster is still developing new entrants continue to enter the market spurring entrepreneurship and innovation. Various new businesses are located in the capital area and the south to lower the risk of failure as the majority of tourists visits these parts equally throughout the year. Plenty of good ideas exist, but did not yet make it to the market as

financial capital is limited. Also, niche products in e.g. adventure sports or eco-tourism could not be established to a great extent as the customer base has not been established yet.

The *diamond model* does not only give evidence of driving factors of competitiveness, but also about innovativeness and innovation possibilities at a certain region. These possibilities can be used as an instrument to support innovative activities with e.g. policies. As became clear possibilities to innovate in Icelandic tourism can also lay outside of the core activities of the cluster, such as infrastructure (e.g. roads, signage) or nature (e.g. nature protection, visitor control). The country has limitations in tourism, especially in tourist numbers due to its fragile nature, limited infrastructure and its low population rate. Thus innovation is important to avoid mass tourism, but to exploit a higher value instead e.g. through niche innovation.

Further lay innovation possibilities in the educational system which did not develop according to the strong tourism increase, but an educated work force is even more crucial when it comes to quality and expertise.

The *Five Forces* analysis gives an evidence for aspects which influence competition but also innovation in companies operating in tourism. Entrepreneurship seems to be strong as the cluster is growing quickly, entry barriers are low and little education is needed. If the growth will stagnate or if little competition exists it is even more important to keep up a high level of innovation.

Substitutes in tourism do not threaten the market as many possibilities for new products exist due to the uniqueness and “otherness” (Burnett and Danson, 2017) of Iceland. On an international basis the threat of substitutes is getting stronger as tourism competitiveness of Iceland became weaker especially due to price sensitivity.

Summarising, innovation within the cluster is strong. But to ensure further innovation in the coming years and to enable SME’s in remote areas to innovate their innovative activities need to be supported. Thus, next it will be describes how the Icelandic tourism cluster can support innovative activities.

9.4 Discussion

Even though this study is only based on the case of Iceland it shows, tourism clusters can support innovation in various ways.

It has become clear that the foundation of the tourism cluster is the most important factor for supporting innovation within the cluster. The foundation consists of big companies, interest groups and associations, education and research institutes, and authorities or the government.

Accelerator and business programs from the regional marketing offices, Start-up Tourism and The Icelandic Tourism Cluster (e.g. ten week accelerator program, Ratsjain) are directly supporting innovation as has become clear earlier. Even though Start-up Tourism and The Icelandic Tourism Cluster only support a few companies every year the influence through events which they organise and host, have increased the general awareness of the importance of innovation in tourism and have promoted further network building of organisations. The Icelandic Tourism Cluster is directly in contact with influential companies (e.g. Blue Lagoon, Icelandair Group, Icelandic Mountain Guides) and supporting agencies (e.g. Icelandic banks, KPMG, engineering companies) as these are also members of The Cluster. Involved in this are associations and initiatives (e.g. SAF) and public activities (collaboration with e.g. The Icelandic Tourist Board or the municipalities with projects such as Austurbrú). The most important concept is the collaboration with the regional marketing offices as they can reach almost 800 SME's in Iceland both rural and urbanely. The Cluster supports new initiatives such as *The centre for competence and quality in tourism (Hæfnisetur ferðapjónustunnar)*. This is again a possibility for companies to collaborate and cooperate which is essential to foster knowledge transfer between companies that might not have much in common or are located in other regions. This enhances new ideas on how to improve business through efficient innovations.

Other direct supporters of innovation in the cluster are The Innovation Center Iceland and SAF. The Innovation Center is consulting and helping in funding projects and SAF is supporting innovation by rewarding innovative companies yearly. This can be seen as an incentive for other companies to follow or to do even better.

Financial support for innovations or start-ups is limited, but has changed dramatically since 2012. Some banks have specialised in start-up support for projects i.a. in tourism, resulting in support for bigger project funds e.g. Icelandic Tourism Fund since 2013. Funding is not limited to banks and lending institutes but it is also possible to apply for other financial supports such as for funds which are managed by Rannís (the Icelandic Research Fund, the Infrastructure Fund, the Icelandic Student Innovation Fund and the Technology Development Fund).

Education and research into innovation is supported i.a. by universities which educate students in entrepreneurship and innovation in tourism or business studies. Several of the companies which the research is based on stem from students who attained these courses and used them as a „springboard“. This will be discussed further in chapter 10.

The government supports innovation through direct and indirect investment for e.g. infrastructure projects. The Ministry of Education, Science and Culture and the Ministry of Industries and Innovation support innovations indirectly through Rannís. The Task Force Tourism which belongs under the government is again cooperating with The Icelandic Tourism Cluster and The Icelandic Tourist Board in order to foster education.

Marketing supports innovative activities as it provides information about e.g. customer needs or market development which companies can again make use of in order to plan their business or organise new projects. Further marketing campaigns from Promote Iceland, especially the campaign *Iceland - all year-round* can be seen as an incentive for regions and companies to make a difference.

Related clusters such as agriculture, design, food, or the ocean cluster can play a role in innovation support within the tourism industry. They can provide companies which are operating in tourism with more opportunities and possibilities to innovate with collaboration.

The Icelandic Tourist Board in collaboration with the regional marketing offices launched the DMP where new opportunities are opened for communities and companies equally around the country. This includes mapping of services and activities (*kortlagning auðlinda*) across the country in an attempt to give a good overview of what needs to be done at various tourist attractions. This leads to possibilities for innovation and further collaboration within smaller communities all over Iceland (Ferðamálastofa, n.d.).

To summarise what has been brought forward in this discussion, it is obvious that various organisations lay the foundation for innovation and innovation support such as Start-up Tourism, Icelandic Tourism Cluster or The Icelandic Tourist Board. Traditional tourism institutions but also government and education play thereby key roles.

10 Analysis of innovation in companies in Icelandic tourism

In the next step the thesis provides an analysis to understand how companies in the Icelandic tourism industry innovate. This again gives an indication of how innovation in companies can be supported. In order to assess and evaluate innovation within companies their capabilities to innovate, their operating practices and their management choices are revealed.

Thus in this chapter the innovative aspects of companies in the Icelandic tourism industry are identified and classified. The unit of analysis is innovation seen from a micro-perspective that is processes which are taking place within companies.

As tourism is a wide field and not easy to classify the research is often qualitative and based on case studies rather than quantitative analysis (Hall, 2009). In Iceland no research into the field of innovation in the tourism has been done and the purpose of this research is to fill into the void. The research was conducted through semi-structured interviews with CEO's of companies working in tourism. To get a deeper understanding into the innovation environment and innovation processes in tourism in Iceland tourist officials were further interviewed.

Accordingly, results cannot be generalised but will rather provide a foundation for future research.

10.1 Methodology

Data was collected through open semi-structured interviews from individuals within small companies in the Icelandic tourism industry. Open semi-structured interviews were used as they leave space for the researcher and respondent to adapt better to the content and to ask further questions.

10.1.1 Questionnaire

The questionnaire was prepared in Icelandic with open and closed questions. Some questions were based on theoretical and research literature, and on *The Community Innovation Survey* (CIS). The CIS is conducted by national statistical institutes of EU member states and several EES member countries offices. The CIS is a survey of innovation activity by companies within EU and is repeated every two years to follow the development within the sector. It is based on the Oslo Manual: Guidelines for collection and interpreting innovation data, which is a joint

publication of OECD and Eurostat (OECD, 2005). The primary data for the CIS is collected by national statistical institutes of the member countries and delivered to Eurostat. Eurostat then processes, reviews and publishes the results. The data is accessible in the Eurostat database with a link from all the member countries national statistical institutes (Eurostat, 2012).

As the CIS includes various businesses in different sectors the tourism industry should be comparable with the CIS if the research was made comparable. As the research is qualitative questions were therefor adjusted to the context and the research method, and extended to its research questions so they would be comparable. The questionnaire was limited to product and process innovation on the ground that they were regarded as the most common type of innovation in tourism.

The questionnaire is divided into four different sections and is structured as followed:

- *Company information*: Information about foundation, employees, strategy, marketing, competition, collaboration.
- *Company innovation*: Product and process innovation, idea development, success and failures.
- *Innovation process*: Searching and selecting process, main contributors, reason of innovation, barriers to innovate, funds, licensing, and importance of innovation.
- *Company growth and opportunities*: Basic statistics, reasons for growth, future opportunities.

Different types of questions were used. In the beginning introductory questions were asked to get to know the company and its owner/CEO, and to make it easier for him/her to get involved in the interview. With the start of each topic open questions were applied that should be easy to answer as the respondent could make use of knowledge that he/she had at hand at the time of the interview. Other questions which were used throughout the interviews were filling in, follow-up and probing questions in order to get a clearer opinion about certain issues. These questions were iterated to establish common understanding by the interviewer and the interviewee. Some questions were more sensitive (e.g. concerning growth in revenue) or needed more involvement of the interviewee. These types of questions were asked at the end were the responded was already involved in the interview and more likely to answer the questions in an appropriate way. The first questions were rather neutral, concerning generally the company and its development.

After the first interview was taken the questions were revised i.e. slightly changed, added or deleted. The questionnaire and the letter which was sent to the interviewees can be found in the appendix.

10.1.2 Sample and execution of interviews

Interviews were carried out with seven different company representatives which were either CEO's and/or owners of the company and actively involved in innovation processes or product management. The companies were chosen because of their intensive innovativeness impact on the market, innovation awards, media awareness, reputation and experience of the researcher.

The seven respondents were owners and/or managers and were contacted through e-mail. Enquiries were sent to 16 companies. Among them was a car rental company, a hotel, museums, travel agencies, and other tourism related companies such as glacier tours or whale watching. A positive response came from 44% of all enquiries. 66% did either not respond or had no time or interest in participating. Finally, seven interviews were performed and took place within the companies. Interviews were done in the period from 31.01.2017 to 14.03.2017. Additional interviews were conducted with Start-up Tourism, The Icelandic Tourism Board and The Icelandic Tourism Cluster. The interviews lasted each about 30-50 minutes and were recorded.

All interviews were conducted face to face with the entrepreneurs or the CEO's of the company or the organisation. The interviews were taken at the organisation location except for one interview which was conducted in a café. Before the interview the confidentiality of any information provided was reassured as well as a promise given that the respondent would not be identifiable in any way. At the beginning of each interview the researcher introduced himself and the research topic. Furthermore, it was explained why the company had been chosen and the participation was voluntary, but the interview needed to be recorded in order to transcribe and analyse it in detail later. Notes were taken down while executing the interview as well as afterwards about the time, place, feelings, environment, and general circumstances related to the interview.

All interviews were conducted in Icelandic. Afterwards the interviews were transcribed in Icelandic, but phrases and codes which were used as a reference in the text were translated into English. This means that some distortion of the data might have occurred.

10.1.2.1 Confidentiality

All information pertaining from the participants will remain the property of the researcher and will not be used for any purpose except for the execution of the study. Company names are not used other than for processing the raw data. The interviews were transcribed in order to analyse its content. Coding was used during the gathering and processing of interview notes, records and transcripts. After the interviews were transcribed the recorded interviews were deleted.

10.1.3 Characteristics of CEO's and company's interviewed

The chosen companies are all operating directly in tourism, except of one company which can be classified in gastronomy and souvenirs. One company is a travel agency and another a software company, the others are operating directly in tourism activities. Most of the companies are located in the capital area. One company is located in the West, one in the South and another one is located in the North as well as in Reykjavik. One company has its head office in Reykjavik, but operates other offices abroad. Even though the companies were mainly founded in the last years they are no longer start-up companies and are not particularly looking for grants/funds or capital, but generate revenue. Some of them have been financed with funds from professional investing companies.

Three of the interviewees are owners and main CEO's of their company. One has initially been hired as a CEO but works now as marketing manager. The background of the CEO's is very diverse, mostly in marketing or tourism, but also in non-related fields such as engineering, biology or naval. All except two have university degrees. All companies are SMEs and one company is mainly family-run. Three companies received innovation awards from either start-up accelerators or the annual innovation award of SAF. For most companies it took approximately one year to build up the company. However, the time from idea generation to product was often more than four years i.e. before first steps were taken to launch the company. Often an unusual situation led to the start-up, such as financial crisis, job situation or further education of the CEO. Most interviewees are owners or working at the company

since its beginning. Only Freya came later into the company when it had been running for about one year. The table 2 illustrates the different companies and their main characteristics. A promise of anonymity has been kept through all processes of the research. Hence the names of the companies are not revealed and the names of interviewees were given pseudonyms to preserve their anonymity. The names chosen are random and do not reveal anything about the person or company.

Table 2. Overview of interviewees.

<i>Pseudonym</i>	<i>Location of company</i>	<i>Business sector</i>	<i>Foundation of company</i>	<i>Number of employees</i>	<i>Position</i>	<i>Background / Education</i>
<i>Odin</i>	West Iceland	Tourism activity	2013	40 (60 in summer)	CEO	Engineer
<i>Thor</i>	Hafnar-fjörður	Gastronomy and souvenirs	2005	6	CEO/owner	Biologist
<i>Baldur</i>	South Iceland	Tourism activity (museum)	2017	12	Marketing manager	Marketing
<i>Magni</i>	Rekjavik	Software company	2013	17 (9 in Iceland, 8 abroad)	CEO/owner	Marketing
<i>Tyr</i>	North Iceland/ Reykjavik (since march 2017)	Tourism activity	2013	35 in summer	CEO	Captain
<i>Freya</i>	Rekjavik	Tourism activity (museum)	2015	14	CEO	Marketing
<i>Frigg</i>	Rekjavik	Travel agency	2011	10	CEO/owner	Tourism studies

10.1.4 Data processing

As foresaid the interviews were recorded with the permission of the participants, transcribed and coded. Different types of coding were used to identify main aspects of innovation within companies operating in tourism. Merriam and Tisdell describe coding as “nothing more than assigning some sort of shorthand designation to various aspects of your data so that you can easily retrieve specific pieces of the data” (Merriam and Tisdell, p. 199, 2016). Codes can be

single words, letters, numbers, phrases, colours or combinations of these. In this research codes were mostly single words or short phrases that summarise the expression of the text or section of the text.

In the beginning it was tried to find main statements in each paragraph through open coding. In the next step the codes were classified into different themes with the method of axial or analytical coding. The topics were further refined and core themes developed. In the end three main themes were identified. These themes have further sub-themes which are discussed further. For a better overview and easier working procedure the interviews were coded with different colours. Three different colours were used for the three different themes.

Even though the interviews differ in length and significance all interviews are useable and underlie the different concepts of the themes. The main themes are *mentality*, *capabilities*, and *innovation process*. Each theme follows three to four sub-themes.

The first theme mentality can be specified with following sub-themes or categories:

- Mentality
 - Mission
 - Driving forces
 - Vision

Mentality was mentioned by some of the respondents during the interview. Mentality refers generally to the way of thinking of a person or a group. Mentality in an innovative company is influenced by a special purpose or its mission and the driving forces of innovative activities. Further mentality implies a vision. A clear vision gives details about how and where the company wants to be in the future. This implies questions such as: Which forces lead companies and people to innovate? Why was the company founded? What is the general purpose of the company? What is the purpose of the company to innovate? What characterizes innovative companies that leads towards a competitive advantage? In the context of the research mentality refers to a certain attitude shared by people working in an innovative organisation and the way how they work together to achieve their goal.

Mission

Mission or the reason why the company or the project was launched describes simply the reason for being. It should reflect the status quo of a company and is present-based. It

describes what is important to the company and which markets it serves. A mission also compromises distinctiveness to other (rivaling) companies. Further it “must appeal to the broadest stakeholder constituency possible and rise above the interests of any single stakeholder group” (Lipton, p. 86, 1996).

Vision

Mission and vision are strongly related: a clear vision needs to take the mission into account to be meaningful. A vision defines where the company wants to be in the future. It is

an aspirational description of what an organization would like to achieve or accomplish in the mid-term or long-term future. It is intended to serve as a clear guide for choosing current and future courses of action (Business dictionary, n. d.).

Defining and following a vision can have different benefits for an organisation. For companies that want to be innovative it means being open to change and transformation. Change and transformation is not equal to innovation, but it can be regarded as a first step for an organisation to become creative and innovative or at least to prepare for it. Further, it is important to leave the status quo behind and to think “outside of the box”. Defining a vision is also about decision making, following a clear future plan and to choose between different options (Lipton, 1996). This is important as decisions are always path-dependent and can hinder future development and innovations.

The vision takes into account the company’s culture, reputation, competences and resources (McGee, et al., 2010). A clear vision shapes the direction of a company but also motivates its employees and can be a guidance of tasks to accomplish.

Driving forces

Driving forces that influence decisions and thus innovation processes can be internal and external to the company. External forces are e.g. demand, general economic situation, competitors or technology. Internal forces are resources such as knowledge and expertise, but also the origin for the competitive advantage. Driving forces have been described and classified e.g. in the book of Tregoe and Zimmerman (1980). Here driving forces can be products or services offered and their special branding, market or needs, product capability or cost advantage, technology, methods of sale and methods of production. Other minor driving forces are return/profit, natural resources, operations capability, and size/growth.

The second theme is capabilities. Capabilities can be further distinguished as followed:

➤ Capabilities

- Knowledge
- Human resources
- Management and leadership
- Dynamic capabilities

Capabilities of a company can be described and defined in various ways. In this case capabilities are regarded as certain processes and activities which help a company to be innovative and to use these innovations to be competitive and successful on the market and/or against competitors. This recalls the resource-based view which was introduced by Penrose (1959). The capability approach goes however further as it is not only about controlling and protecting resources but it is about the ability to create and use these resources accordingly which again leads to a competitive advantage.

In this study capabilities are strongly based on human resources as the companies are operating in tourism. The main capabilities which could be extracted and which influence the innovative capacity of the company are knowledge, human resources, management and leadership, and dynamic capabilities. These capabilities can be either reinforcing (growth) or suppressing (barriers), they can also be absent or lacking.

Knowledge

Knowledge is inevitable in innovation as through knowledge new possibilities to innovate are created. Knowledge exists in different forms: it can be explicit and codified, which means it is accessible for everyone, easily communicated and transferable. Tacit knowledge however is difficult to transfer due to a lack of verbalisation. It is often based on personal experience and is context specific. To access tacit knowledge regular human interaction through social networks is necessary to mediate the knowledge.

Knowledge can be established through experience, research or experimentation e.g. through trial and error, and acquisition. Acquiring knowledge involves further scanning of the direct environment and the recognition of opportunities. According to Henderson and Clark (1990) innovation involves a bundle of knowledge which is brought together into a new configuration.

Human resources

Human resources are people in an organisation and their expertise that refers to skills, knowledge and creativity. Expertise can to a certain extent exist before entering the organisation, but it is also developed while working in an organisation. Innovation comes from people and not from organisations as innovation is about people, about their knowledge and skills, but also about their curiosity, emotions and needs.

Management and leadership

Being an innovative company depends to big parts on management or on how existing resources such as human capital is managed and used to create something new. Further, management is responsible for identifying and following a mission and vision but also for developing an environment which enables innovativeness through trust and collaboration. Management depends in general on humans and their interactions and relationships and on strong leaders. A strong leadership is essential to overcome inertia, to detect opportunities, to take risks and to motivate employees.

Innovation involves high risks and uncertainty which will also result in failures more often than success. It is therefore necessary to bring on a policy where it is stated that it is safe to try new ideas and that failing is part of the innovation process. Failure should be regarded as an opportunity to learn and to do better in the future. Leaders are not always those who formulate new ideas, but those who evaluate and select and give feedback on suggestions and ideas.

Dynamic capabilities

The concept of dynamic capabilities was first introduced by Teece and Pisano (1994). It refers to the changing character of the environment and the role of management in adapting to these changes with organisational skills and resources. Companies with high dynamic capabilities do alternatively shape their environment through innovation and collaboration with others. Dynamic capabilities are firm-specific, idiosyncratic and thus not interchangeable. They have their roots in routines of the company and their business model, but are conditioned by history and are thus path dependent.

Dynamic capabilities can be disaggregated into the capacity (1) to sense and shape opportunities and threats, (2) to seize opportunities, and (3) to maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets (Teece, 2007, p. 1319).

Under the category of innovation process following sub-categories are identified:

➤ Innovation Process

- Nature of innovation
- Preparation: focus, marketing
- Success: value creation, market development

The last theme is innovation process. Innovation cannot be described as a single event that takes place, but it is a complicated process which can take a long time. It is the process to search for opportunities and to select between different options. The chosen option needs to be converted into reality while resources are mobilised and managed to challenge the risky task. In the end the company has to learn from success or failure, it has to protect its innovation and it should gain a benefit, e.g. in financial terms.

The nature of innovation

An innovation can be radical or incremental⁸. Incremental innovations are more than less improvements or developments of an existing product. Products are modified e.g. more customised or offer a broader range of features. Incremental innovations have the purpose to reduce costs or to create more efficient working processes or better product quality. Radical innovations are new to the world and bear thus a higher risk that they might not turn out to be successful. Radical innovations can change the way we live and even think about our environment. They can further change the business model and thus the competitive advantage of a company permanently.

In tourism innovations are mostly service innovations which can easily be imitated such whereas intellectual property rights and entry barriers rarely exist. Therefore a company will be more successful with radical innovations which will give a competitive advantage over a

⁸ Other intermediate forms are not taken into consideration in this thesis for reasons of simplifications.

longer time. Radical innovations in tourism are mostly technological innovations deriving from other industries (Beritelli and Romer, 2006).

Preparation

One theme which re-emerged in all interviews was preparation of the innovation or the innovative project. In this context it refers to the way how to focus solely on the innovation and how the innovation can be connected to the market. This implies further the innovation time which means the time from idea creation to selection and to idea implementation. The start is in general the trickiest phase as it is characterised by a high uncertainty but also flexibility where opportunities are still exploited.

Success

Not only success but to a high extend also failures are part of the innovation process. Even though most innovations are well planned with sufficient financial backup results are not always satisfying. Sometimes innovations need a certain time to become a success and to contribute to the growth of the business. Innovations can be unsuccessful as they lack the connection to the market or customer, or are not in line with the company's strategy and vision. Trial and error, success and failure are part of the innovation process and should be regarded as new opportunities. Further it is part of the learning process of a company and emphasises its dynamic capabilities.

10.2 Results

The purpose of the research was to analyse innovation aspects in companies operating in tourism in Iceland. After coding of all interviews three main themes were identified. Each theme has three to four sub-themes. Following, the results of the analysis are discussed.

10.2.1 Mentality

10.2.1.1 *Driving forces to innovate*

When looking at driving forces it becomes clear that external factors such as higher demand is the main driving force to innovate for companies in tourism in Iceland. As the demand for tourism products is often exceeding supply or offerings of new products, many entrepreneurs have seen opportunities in the market or established companies by extending their product range and market group. Resulting from the increase in the number of tourists over the last

years, new products and emerging start-ups on the market have been flourishing. Another external force is the fast development of the Icelandic innovation support, particularly since 2012. As more and better opportunities to receive funding emerged, as grants and accelerator programs were launched, and as specific consulting companies were founded start-ups emerged that would have not formed without external support. As Baldur says:

The mentality of Icelanders and investors to see opportunities and to be ready to have patience. [...] These are big changes. [...] If you were lucky you became a 200.000 to 300.000 ISK grant to work on a business plan but not more [before 2012].

And also Magni sees changes in the Icelandic innovation environment which has developed quickly in the past two to three years:

Around 2012 the environment was not well developed, in the last three years an environment was created with Icelandic Start-up, the Innovation House and others. On the other hand is the financing part, investments are not very innovative. Four years ago nothing existed to invest in a start-up. It was just occasional. Now it is the Innovation Fund, Frumtak and so on. And private investors, but there are not many which take part in.

Opportunities in tourism innovation are emerging especially in tourism activities and in tourism in combination with IT. According to *The Icelandic Tourist Board* the Icelandic tourism industry consists of small and micro enterprises which all have an “entrepreneurial spirit” as their businesses are built upon human relations and fields of interest of e.g. the entrepreneur.

As customer needs change to better and more personalised products demand is higher for quality products, and for extraordinary activities and experiences. Some entrepreneurs saw quickly the rise of new opportunities and developed ideas according to their expertise, interest and experience. This applies to Frigg who started her company “at the right moment” after many years of thought: Her idea was more a niche product in the beginning and would probably not have functioned before 2011 as high interest did not exist on the market. After company foundation and right marketing attempts the company could develop quickly, gained in popularity and reaches now to different market groups even though it was not their intention in the beginning. A strong tourist demand was forecasted since 2011 and it was the right time, as she said, that they were quite lucky “to chump on the train”. But it is not always about something completely new offered on the market. The driving force for the company

of Freyja was for example to offer a complementary product to an existing product range. Innovations can thus help to expand the scope of businesses when e.g. the market group is large enough and interest and demand high. This can however only work if collaboration is sufficient and if all businesses operate at scale.

Profit does not seem to be relatively important or a main reason for innovation. Many are aware that profit will not come even after many years of operating the business. The company of Magni will receive its first revenue this year after four years of operation, and will be cash flow positive in 2018. And also Baldur says: “The investors give themselves a long time to get something back, like a return on investment. They give themselves a couple of years.” Accordingly, investors are positive about tourism in Iceland. The company of Thor had the first profit after seven years of running the company. And even though he invested a lot and payed high sums for equipment to improve his products his main driving force is passion for what he does and satisfaction to meet new challenges. Internal driving forces to innovate are thus the interest of the entrepreneur and the ability to experiment which again leads to new products. The *Start-up Tourism* states that entrepreneurs should have a burning interest and should work with their passion. Also for Tyr a driving force to innovate derives from himself as it is important to renew his own capacities:

You are working on something and have mastered it quite well. And if you want some freshness in what you are doing. And it is all about innovation when you just start and all you do is just innovation, as you do all for the first time. Then you have to reach a balance in order to start something new again.

Competition in tourism in Iceland cannot be directly seen as a driving force. Competition especially in tourism activities in the countryside is low as there is a lack of offerings and a lack of niche products and services. A driving force is rather the need for more exciting, unusual products in less visited regions. Baldur says about his company: “I just see it as an addition, it will just make the cake for everyone bigger.” In his opinion innovation leads to future growth and further innovations in the region as it acts like a magnet for others. Innovation is thus a “win win for everybody.” In his mind his product will attract many tourists who stay longer in the region and make use of other local services. This again can be a driving force for others to innovate, to offer new products and services. His company is located in the South whereas the company of Freyja is offering an add-on to an existing product in Reykjavik. Competition in

tourism activities is stronger in Reykjavik as in general more companies exist in the capital area. Her company is thus rather seen as competitive instead as complementary for other companies. But in her mind it is wrong as “it all goes well together. We offer them [other complementary companies] the lowest price. Tourists get even a discount if they use both [products].” According to Freyja the driving force to innovate should not be competition, but collaboration in order to serve the market better, to extend the product range and to increase the satisfaction of visitors.

Usually tourism is not as well connected to research institutions and science as e.g. the manufacturing or high-tech sector. Most of the interviewed companies show however a strong connection to experts and research institutions in order to realise their project. Costs might be higher, but foundations are stronger if they are based on research. Scientific research can however not be seen as a direct driving force for innovation in tourism, but is rather used to realise a project with solid foundations which is crucial to satisfy the higher customer demand for quality and interaction. In order to raise the general product quality or customer satisfaction companies make use of smaller incremental innovations. Research confirms these aspects as driving forces to innovate and additionally cost reduction and market expansion (Klausegger and Salzberger, 2006).

According to Pikkemaat (2008) the driving forces of innovation in tourism are primarily globalisation with the consequence of a more intensive competition since the end of 80s and has resulted in greater numbers of travellers around the world. This seems to correspond to a great extent with the driving forces on the Icelandic tourism market: a higher demand, the emergence of a more sophisticated innovation system since 2012, interests and experience of entrepreneurs, collaboration, and competition are main reasons to innovate. Last but not least it is the entrepreneurial spirit which is often declared to be the major driving force (Maskell and Malmberg, 1998). This implies curiosity to try something new and the will to achieve a success.

Most innovations were the initial idea of either two entrepreneurs or single entrepreneurs, as the examples of Thor, Magni or Frigg show. They were first movers in their branch or region, but mostly without proper resources like capital or expertise how to launch the project. However, their idea was a success as they had a clear mission and a plan for the future. This

means that driving forces to innovate are strongly connected to the mission and vision of companies which are discussed next.

10.2.1.2 *Mission*

The mission of innovative companies should reveal the innovative mind-set or the will to adapt to a changing environment.

In the research the interviewees were not directly asked for their mission statements, but according to the interviews it became clear what mission their company follows. What all companies have in common is that they are trying to emphasise their uniqueness and difference in their branch. Thor even claims that he is “a pioneer” in what he does. All the companies in this research, except the company of Loki are unique in Iceland, which means that their product or service did not exist before in the country. Most of them are also unique in the world, although there might be services or products which are similar in certain aspects, but still different. Some CEO’s travelled abroad to get ideas and inspirations from other companies offering products which had a few features in common to their company. They did however not copy the product, but could seize their own ideas better or gained new inputs for further brainstorming. As most products or services offered are directly connected to Iceland, its nature and traditions, it would be hard to transfer the same concept to a different country. The companies of Magni or Frigg however, which are operating in the software industry and travel business (tour agency), could be operated with the same concept in other countries. The company of Magni is the only which also holds offices abroad. Frigg sees her company expanding in the future, opening offices with similar services in e.g. Scandinavian countries.

The CEO’s are well aware of their company’s uniqueness and it can be difficult for competitors to imitate them. Others have tried to copy the concept of Frigg when they saw that her business was doing well. These companies failed as in her opinion it was just a typical attitude which can appear anywhere. She mentions that “people just think they have to open something [a company] and they get all the business.” But imitating or copying the ideas of successful companies is not innovating and will thus not always lead to an expected success as each company has its own customised way to innovate and is influenced by many different factors. Further being successful and an innovative company means to think daily of how to

improve the overall business, being open to new opportunities and possibilities to develop further.

Some companies have the purpose to strengthen the infrastructure and make travel easier. Baldur claims:

All innovation [in tourism] strengthens the infrastructure of the branch in general, to have nature related activities, doing something with or in connection with the nature. It would be very positive to see more innovation there.

The reason for existence is thus often seen in the uniqueness of Iceland as a destination which gives resources to exploit Icelandic nature, but also its culture and heritage with innovation. This has not only an influence on people working in tourism, but directly for all inhabitants, or as Freyja says: “And if the tourists come, we [Icelanders] have to know better [about our closest environment]. And that is our culture.” Icelanders have to self-educate them in order to get the knowledge which is necessary to fulfil the expectations of customers.

Also, companies see many opportunities in the countryside as less competition exists in rural areas than in the capital. Competition means in this case getting more tourists to stay longer at one destination using local products and services. For Baldur it was clear when working on the business plan that “one reason that we are here in this area is there needs to be more tourist activities here.”

Most companies in this research are operating in the tourist market holistically with exception of the company of Frigg which offers personal service to a special clientele and is thus operating in a niche market. Further, as tourism in Iceland is expanding quickly companies want to meet new customer needs and broaden the market group. Their purpose is not to create a mass tourism destination, but personal service giving tourists a memorable and often interactive experience of Iceland. For the company of Frigg this is necessary:

In our company, which is somewhat quite a special company, we have the emphasis on personal service and we want that our customers work with us, that they know our culture very well.

10.2.1.3 Vision

Having a clear vision is essential for all companies and certainly applies for innovation companies. It could be argued that this is even more essential for an innovative company to

keep track. A vision gives employees a reason to take part in innovation processes in order to shape future outcomes and facilitates decision making.

During the interview the CEO's were directly asked where they see their company in the future, especially what kind of innovation or changes they see in their companies in the next five to ten years. Most of them were answering straight forward without hesitating what to say. Only Odin said that he is not thinking longer than 10 years ahead, especially as he is offering a product which is only lasting for a limited time. Further, external circumstances such as volcanic eruptions or climate change can have an influence on future decisions and outcomes. However, his vision is "being leading in safety issues, to be with a top product and being popular and not mass tourism." For Freyja it is important to be "at the top" and to maintain the status, it has to be open for development and constant innovations. Here it becomes clear that not only direct customers are taken into account in the vision statement but all stakeholders of the company.

For Magni and Frigg it is important to become more established on the market, to be the first choice for travellers, and to establish a brand which is known around the world (or at least foremost in Iceland).

Even though the company of Baldur is just opening this year his vision is to offer increased service and quality. Both are for him "number one, two and three" in order to create a successful company in the future. Also for Tyr high quality standards and better service are most important as competition is strong for the company. He wants to offer different options than his competitors. Tyr has clear plans what to offer in the future, but tries rather to innovate in smaller steps due to limited financial resources. He conducted neither market research nor analysed trends, it is often unclear for him which innovations or offerings are successful and which are too costly to implement.

The only CEO which did not seem to have a vision is Thor as he rather follows his intuition and passion what to do next. This seems to be costly for him as he did not clearly decide in which direction to go and on which products to concentrate on. Creating a vision would be necessary and would serve as a compass giving him and his company a future direction.

In general the CEO's were relatively clear and confident in their statements and did less worry about financing future plans or about their feasibility. Some of them were dreaming big

which also means that they are optimistic about the future of tourism in Iceland, positive about the capabilities of their companies to meet future challenges, and aware of their strong position on the market with a possibility to grow further.

10.2.2 Capabilities

10.2.2.1 *Knowledge*

It was surprising to hear that many companies started almost unprepared without any knowledge of the market or experience of how to sell their product to customers. In some cases it seems as if the customer and customer experience was not taken as a main starting point but simply the realisation of the product itself. When the companies of e.g. Odin and Freyja started operating the product was rather undeveloped and processes unorganised. Even though in the beginning of the project a solid expert knowledge existed through connections to the University of Iceland explicit knowledge of the market or customer experience was lacking in many cases. Odin explains: “We started when the script was not ready and training and all that, we just started and until now many things have changed.” The same applies for Freya as she says that only the product existed in the beginning, but nothing else: “Everything was unprepared, [...] there was no activity, no experience [for customers].” As a consequence negative customer reviews followed and it took almost a year to develop a better customer experience. Odin and Freya are CEO’s of companies which are both mainly supported by a large fund. This alone however is not a guaranty for a successful start of an expensive and innovative product.

For the company of Baldur more external and explicit knowledge about the market and marketing instruments was collected before the project was started. Further, knowledge was not only project specific or from research institutes and experts but came from different areas such as design and architecture. Also, market analysis was conducted in order to predict tourist numbers and their interest.

Tacit knowledge exists in general to a high extend in tourism as it is often build on human relations and work experience and companies are mostly SME’s where knowledge is rarely directly codified or transferred. Most CEO’s, but also staff had previous knowledge in tourism. In some cases their knowledge stays tacit as e.g. for Thor who uses a trial and error approach to test new products but keeps his knowledge and results mostly for himself.

Some have found a good way to make better use of knowledge and their personal experience in general by collaborating with different organisations. Collaboration is strong with research institutes such as the University of Iceland or the Marine Research Institute. Further some seek information from e.g. The Icelandic Tourist Board for market research and customer development. But not only experts are taken into account: Baldur searched explicitly for a connection to locals offering open meetings regularly while planning the project. Thus locals were involved from the beginning as they know their area best and can contribute a much to the success of the project and its implementation.

For Frigg, feedback from tour guides is crucial in order to understand the customer better. All her guides are employed on a permanent basis. If there are less tours the guides work at the office and use their experience from guiding to change working processes, tour plans and the like. They see opportunities much better and can react quicker to changes on the market. Their goal for the future is to use knowledge more efficient in the company to facilitate processes: "...now we just increase knowledge in the company, to have it easier for us, being faster, growth can also be reached by working better" (Frigg).

Last, it is important to notice that most of the companies would not have been started without the help of external consulting. Good examples of this are Frigg and Magni who used accelerator programs which helped them to materialise their idea and supported them by granting initial capital.

Knowledge is in general seen as an important source to innovate, but it seems that companies have not yet found a way to administrate knowledge in an adequate and effective way. The ability to generate new knowledge and to keep it in the company is limited. A positive aspect is strong connections to e.g. the University of Iceland or other research institutions. Otherwise links to the scientific community, e.g. to research and educational institutions is rarely found in tourism innovation processes (Hjalager, 2010).

10.2.2.2 *Human resources*

Knowledge and human resources are strongly connected as knowledge is generated, transferred, preserved and changed by people. Concerning innovation, employees in an organisation are responsible for innovation processes. This again refers to a certain mentality (10.2.1).

The tourism industry is a service sector and is influenced by seasonal fluctuations which results in high employee turnover. This can be clearly seen in the cases of Odin, Baldur, Tyr and Freyja who employ more people over the summer time and people with little or no specialisation. However, they try to have a clear division of labour so that “not everybody is doing everything”. In the beginning Odin hired people who could do “a little bit of everything”, but during the last three years working tasks became more specialised: “We changed everything concerning processes, concerning organisation. Weekly meetings, revising everything. For example safety issues, we went over it again.” He could thus create new specialised jobs such as the position of a quality manager.

Employees at Magni’s company have clear tasks but in his company it is important that “everybody is active” as all employees are part of the development:

There is no one who is just thinking of his or her niche, but it is rather a team. And I think it just strengthens innovation if the people just take part in brainstorming, in puking, in speculating and in forecasting in how we can develop the product, and we are doing a lot like that.

Regular meetings – also with the team which is working abroad – are essential in his company.

Strengthening the team spirit and further education is of high importance for Frigg as for her “the team leads the company to success.” Accordingly, they try to enhance the spirit by social activities outside the company some related to work, but a number of them are unrelated. Additionally, employees are offered permanent positions and thus employee commitment is very high. Due to job security employee turnover in her company is low and experienced workforce and their knowledge stays in the company. This is different for Tyr who hires solely workers for the summer season (up until 2017) and has thus to find and select new staff for each year. This means a high loss of knowledge but also work experience which is costly to acquire again and again every year.

10.2.2.3 *Management and leadership*

The sample of interviewees was already described earlier and it can be said that their background is very diverse. All CEO’s had previous knowledge in tourism and some also in marketing. Some of the respondents have a clear focus and are aware of their own abilities and mission and vision of their company. This follows a leadership style which enables

innovation. Other respondents simply just try to manage their company without clearly leading it.

Especially Odin, Magni and Frigg show a supportive and non-controlling leadership style. This becomes clear as they include others in decision making and encourage all employees to contribute to idea generation. Odin and Magni explicitly mentioned brainstorming and regular team meetings in the interview. Odin is even thinking to set up a box for ideas or creating an ideas bank. He tells that his employees constantly ask what will be changed or developed next. And even though it is mostly himself, the marketing manager and the sales manager to decide about new ideas he “listens to all ideas” even though it is not a formal process. Odin clearly learned from previous mistakes and tries now to concentrate on smaller issues where incremental innovations are most important.

Magni had a great business idea, but needed external help to realise it, and uses his and others expertise to build up his company. He uses his ability to empower and trust in his employees, gives them time and motivates them to take part in new idea developing. The same applies for Frigg who has a very strong belief in her team but also in herself. She wanted to be independent from the start, tried to develop her company without external investors:

We just decided that if we can do it, then we want to do it on our own. And we are very relieved today that we have managed it and it was a bit difficult sometimes. And especially when we were three together and were all owners. Everyone was working, and we payed ourselves no or very little salary.

Frigg was highly motivated in the start as it was also a personal concern to start her business. This is also why she sees the responsibility for success or failure mainly in her own business.

The management style of Odin, Magni and Frigg can be described as bottom-up. Thor, Tyr and Freyja however use mainly a top-down approach. Management for Tyr is rather unstructured without any clear organisation. He is trusting too much on external conditions and requirements than on his or his companies abilities. Further, he sees faults not in his management but in e.g. public institutions if things do not work out (“We had often the feeling that they [public institution] tried to prevent that we could start.”). However, he started the project without a clear business plan and it became thus difficult to develop into the right direction (“[We] just did something, started and tried to get people aboard. This is how it

started.”). Now he realises that the company needs to hire experts to continue the business. To the same time he is scared about the future as competition is stronger than before. This becomes clear with his statement: “The big ones buy up the little ones.”

Also Freyja blames others when expectations are not met and seems to be disappointed about collaboration in the industry. Her leadership style is rather directive. She is mostly responsible for decisions which became easier when the entrepreneurs left the company. However, she is doing many things at the same time and needs clearer work methods:

I am with a guy who is the operation manager, and it is mainly we two to develop, implement, sell, market, find employees, look after the staff, after the shop. We are everywhere.

In general it seems that the CEO's who work in the companies are very diverse with different skills. Some show an innovative leadership style where they are guiding, directing and supporting their employees in new idea creating by giving them enough autonomy and time to pursue innovation goals of the company. However, positive reinforcement of innovative behaviour like a reward system or the use of a creative environment was not clearly visible in any company.

10.2.2.4 *Dynamic capabilities*

While interviews were taken it became clear that some companies had problems in the beginning as they failed to address the market properly. Good examples are especially Odin and Freyja. However they could quickly adapt to customer needs by looking for trends and/or ideas on the market, also abroad. The companies of Odin, Freyja and Frigg try in general to keep up with new trends e.g. in marketing (social media) and are trying to “read” the customer. Freyja uses the newest technology in her company which is available on the market in order to appeal to customers' imagination and senses to create a perfect experience. External experts in marketing develop glasses and videos for her company, and even a special app in different languages is available for their product. Odin is reshaping organisational structures in order to meet customer needs better and to address new opportunities. This means he has more employees in general and these employees are more specialised than before, e.g. a quality manager was hired recently. Frigg does not only go with the trend but is even setting the trend with more personalised service, with her individual management style

and with a business model which is unique in Iceland. She actually becomes requests from abroad to try the same concept in other countries.

Even though the company of Baldur is just starting this year it becomes clear that opportunities were identified and assessed well in advance. Also here new technology and design are most important. Further, Baldur is not afraid of competitors or imitators: "If someone does the same, than we just do even better."

In general, the companies are open to rapid technological change and try to address customers' needs with their best capabilities. No company interviewed is protecting their product or intellectual property, except Magni is considering it for the future. However, most concepts are hard to imitate because they themselves shape new rules in tourism industry in Iceland with extraordinary products and business models.

10.2.3 Innovation process

10.2.3.1 *Nature of innovation*

For almost all companies which were interviewed innovation refers to their main product or concept. Or as Frigg says: "The company itself is (at its base) innovation." Two innovations were radical and can be attributed to the companies of Odin and Freyja. They are radical as their product is completely new to the market and changes perception of customers but also of possible competitors.

Frigg addresses a special clientele which would probably visit Iceland in a lesser extend if the company was not existing. Her innovation is a position innovation as she sees a customer group which was poorly served or even overlooked before. Her company can be seen as disruptive, as it has a clear impact on the market by addressing a new or different market group.

Product innovation was for all companies most determining in the beginning. As they were first movers in their branch they can expect to earn monopoly profits. Later especially process innovations followed and further incremental product innovations or modifications to their existing product. In order to offer increased value for money incremental innovations provide customers with a better customer experience and a higher differentiation from other existing products (Weiermair, 2004).

For Odin process innovations were very important in order to develop his main product better and to operate more efficiently. This includes (labour) specialisation, and time and cost management.

Only the company of Tyr is not an innovation itself but rather an imitation of other successful companies. He operates at a location where there were no competitors in the area at first. After starting to operate he introduced incremental product innovations as competitors followed and competition became stronger. Thus, these innovations were encouraged mostly by competition but did however not pay off.

Most of the innovations introduced in the companies derive not directly from tourism, but emerged e.g. in software, food processing, visual technology, or natural science. They are maybe not even innovations in their original sense but in combination with their use in a company operating in tourism. Innovations which are the contribution of the company alone are e.g. serving different customer groups, new tours, or different business concepts. Research has shown that it is common that innovations are initiated outside of the industry and the innovation level is in general low in comparison with other industries (Volo, 2004). As innovative companies were chosen for the study the last argument cannot be approved.

Incremental innovations mostly modified the touristic experience and process efficiency, the information stream, and the creation of new destinations or more attractions in one destination. These factors correspond to a high extend to the factors which Hjalager (2013) identified in companies operating in tourism.

10.2.3.2 *Preparation*

Most of the companies where established in a relatively short time period. It took usually just one year to develop the product and to build the company. The time between emergence of the idea to the actual planning of the project was however much longer. The shortest time period were 1,5 years for the company of Tyr and about eight years for Frigg. Otherwise the time between the idea and the project start was in average 4-5 years. During this time some companies received grants or finances from different funds. But receiving financial support also depends on the location of the company. Thor wants to apply for the *Icelandic Regional Development Fund*, but has no possibility as his company is located in the capital area and has thus no right for it.

It is obvious that some companies were not ready to start their business after only one year of preparation. Staff was not well-prepared and unexperienced. Information about the market and its customers was lacking and the product offered was actually not ready. Consequently, a focus on customer experience was lacking. The main starting point was the new product, but nothing around it. Due to the short preparation time it was especially hard for Odin and Tyr to deal with bureaucratic hurdles, environmental regulations and public institutions. Their behaviour can be regarded as naïve or as Tyr says: "I just trusted that we would just get the permission [...]." It is clear that preparation was rather haphazardly than planned or elaborated.

The companies of Odin, Thor, Baldur and Freyja invested a lot of time and money into research with e.g. the University of Iceland, Katla Geopark, The Marine Research Institute and others. As tourism industries or companies in tourism do usually not have their own research or development department and as innovation processes are thus not standardised external institutions have to support innovation in tourism. It is also the task of companies in tourism to start collaborating with research institutes.

Baldur is still preparing his project. Preparations started more than two years ago with idea generation. In order to work on a detailed business plan he tried to find the right people which could work as a cross-functional team on the project. In the end it was a heterogenic group of ten including an architect, a designer, consultants and experts in the field. Further, the idea was presented in front of the local community who provided feedback and new ideas but also support for the project. For Baldur a proper network is important to connect to the right people and to connect to people who belief in the project. Marketing started also directly from the start, and the idea was further presented on trade fairs and discussed in the media.

Magni and Frigg took courses explicitly in innovation before starting to work on their idea. It helped them to focus on their idea and to work on a preliminary business plan. Magni explains:

I was in this entrepreneurship program, went to school again, and was listening to lectures from the job market. We learned to focus on what the idea is about. It helped to make use of tools and to create a business plan.

Since then innovation behaviour in Magni's and Frigg's companies is a standard working practice. Both show further a strong will to empower and train their employees and take

customer feedback serious. This is crucial as innovations in tourism dependents on close customer contact and strong commitment of employees (Ottenbacher and Gnoth, 2005).

10.2.3.3 Success

Most start-ups do not survive the first two years and many innovations are risky and not always successful or pay off. However, the interviewed companies cannot be declared as start-ups anymore as they are not dependent on external help or financing. Thus, they have all been successful in some way. For most of them growth had been enormous: Most had a growth of more than 100% in the first year. Only Thor had his first profit after nine years of operating his business. A reason is that equipment and labour are very expensive compared to the outcome. In the future he wants to focus more on fewer products but higher sales by establishing a better and denser seller network.

Odin states that his company is still growing much faster than general tourism but that they already passed its peak. It seems to be even a relief to him as “it is difficult to grow quickly. To hire and train [new people].” He wants to concentrate more on the capabilities of his employees.

Tyr could register a doubling of profits until 2016 when more competitors entered the region. Soon he started to offer new products to the existing product range but had to realise that not everything pays off and products can be into the red if marketing is insufficient and little interest exists among the target group. Also Freyja had to realise that visitor numbers can be less than estimated due to a lack of collaboration and due too high prices.

Frigg had higher growth than expected, both in revenue, but also concerning booking numbers and interest from customers. It seems to become even too much as her company should stay small with personalised service. Some day tours offered by the company do not pay off, but are part of the product range of the company. Further, she sees more growth opportunities in other complementary products.

Some of the companies are certainly successful as they are operating on a “blue ocean” (Kim and Mauborgne, 2005) which is an unknown market where no direct competition exists. Instead of competing with others they position themselves as an alternative on a new market creating new demand and thus a higher growth potential. The blue ocean strategy works well especially for Frigg, Magni, Odin and Thor as the companies or their innovations are unique to

the market. For others competition might exist in the way that customers have limited time while visiting Iceland and that they have to choose how to spend their time and money best.

During the interviews many suggestions came from the interviewees of what could work better and what ought to be changed in order to help start-ups in tourism in Iceland to be more successful. Financing an idea was the main issue for most entrepreneurs. Most companies would not be where they are today without external help of accelerator programs or funds. Baldur and Magni argue that a fund or several private investors to finance smaller projects or start-ups are needed. This is especially crucial in the beginning when the entrepreneur starts to work on a solid business plan which might later convince further investors.

For Freyja and Frigg it is important to teach innovation already at high school, to mobilise creativity, independence and initiative of kids. This changes the mentality in an early stage of life in order to see upcoming opportunities early and to react accordingly to a changing environment.

10.3 Summary of chapter 10

The author concludes that the following antecedent research questions are answered in this chapter:

- How do companies in the Icelandic tourism industry innovate?
- What characterizes innovative companies in Icelandic tourism and what types of innovations are generally common?

Most interviewees identified their company either as innovation or based on innovation. Planning and launching their company normally took only one year. Thus the beginning was often unprepared and unplanned with little knowledge of the market and customer needs as market analysis have not been performed prior to the start-up. The general path of the innovation, such as process innovation took place in small steps in order to change working processes or enhance customer experience. Increased interest has developed in the past years for education in innovation and collaboration with research institutes. Ideas for improvements often originate from similar companies outside of Iceland. The general innovation originates mainly from CEO's and employees experience.

The CEO's serve mainly as leaders is the term that they motivate their employees to be independent and participate in the innovation process. The motivation then results in highly productive teamwork which leads to high success. Employees are regarded to be essential in the strategy work for the company by taking actively part in decision making. The researched companies can truly be regarded as active innovative companies but not only as start-up from one single idea because they keep on developing new ideas and exploit them.

The thesis answers the second question with the blunt statement that successful innovative companies in Iceland have a clear vision, are confident and target-driven in their endeavour. They see and exploit opportunities at the right time and can adapt to the market and fulfil customer needs timely. Icelandic companies are positive about the future of tourism in Iceland and its development. Support is given by CEO's and their leadership style which can be described as non-controlling. Resulting in success build on expertise and experience.

The interviewed companies are mostly first movers and offer distinctive products or services with a strong connection to Iceland and it's unique nature and culture. Their products are interactive, personalised for the customer and usually designated for a smaller customer market. In most cases the company itself is the actual innovation, but further incremental innovations or modifications to their existing product have followed to improve products and processes. Innovations were developed with collaboration of research institutes or organisations of other industries such as software, food processing, visual technology, or natural science. Most of the innovations are incremental, and only a few radical innovations exist which differ significantly from other products or services.

11 Discussion

Research in this thesis was conducted within two different levels of analysis: The first part of the innovation analysis was based on a cluster level. It examined which factors in a tourism cluster are essential for building a competitive and innovative environment for companies operating in the cluster. The second part of the innovation analysis aimed at the company level. The innovative activities of single companies was analysed using open semi-structured interviews as a research method.

It became clear that innovation is not only relevant for e.g. the manufacturing or software industry, but to an extent also for service industries like tourism as well. It was noted that innovation spurs competition as companies have to enhance their competitive advantage by introducing new products and by adapting to a competitive and changing environment in order to be successful. This resulted as increase in revenues and in the general lifespan of the company. Tourism is all about visitor experience and satisfaction leading to the necessity for companies to always fulfil customer expectations. If a company is innovative it will attract the best talent that is skilled and creative workers which are motivated to work and engage in the company's future development. According to surveys done in Iceland, a number of tourists who visit the country are frequent visitors or have the intention to come again. Social media and word-of-mouth recommendations play a big role in customer decision making, a good reputation of companies and the whole destination matter to these visitors as they form an essential source of recommendation.

Through innovation new customers can be attracted or new markets developed which will give destinations new opportunities to develop and to define themselves in a new way.

The answer to the research question which was postulated in this thesis:

- *What is the key to success in supporting innovation in companies and clusters in tourism?*

can be answered generally that the key to success in supporting innovation in clusters and companies is:

- Tourism cluster support is more important than supporting single companies in tourism.

The argument, firstly, company executives want to make the company competitive by enhancing its innovativeness and creativity. Therefore the company has to be adapted to its environment, fulfil customer needs and spot trends on the market. Further, a clear vision has to be formulated and set for the company. Supporting innovation on a company level will be limited on single companies whereas supporting the infrastructure on cluster level will on the other hand smitten and funding within the cluster and support will result in a greater number of start-up companies and innovative products. This is supported by the results of this thesis where the analysis made it clear that cluster support has most effect on innovativeness of companies in tourism as the cluster is wide-reaching and multi-faceted. Supporting companies in their innovation process is best provided indirectly through the innovation system and the direct micro environment of a cluster. The cluster environment as such is thus mainly accountable for supporting innovation in companies. Hence, it is more important to support tourism clusters in order to enhance the innovativeness of companies within the cluster.

11.1 Suggestions for Iceland

The educational sector has to be improved, when it comes to both education in tourism and innovation. The infrastructure needs to be improved and included there is major overhaul of the road system and enhance signposting at major tourist sites to improve safety and visitor's satisfaction. The restroom facilities problems need to be issued.

One of the controversies regarding the quality standards for Icelandic companies operating in tourism is the fact that the same authority is issuing the operating licence to the companies as well as issuing the quality assurance certificates. It is therefore recommended that an independent body would be given the task of quality accreditation for the tourist companies.

The government needs to set policies of how many tourists the country can carry and that means tourist numbers have to be controlled in order to preserve the nature. Included in this is also to preserve visitor satisfaction and good reputation because overcrowding can have devastating effects. New products have to be offered and other sites need to be better assessed whether they can be built up and brought to the market. This requires further collaboration between public and private organisations and individuals such as landowners. It has to be borne in mind that tourists cannot be distributed unwillingly and it is therefore necessary to study the need of customers and general trends on the market as well as doing

a thorough research into the new sites whether they have the capability of receiving additional numbers of tourists.

Niche markets like MICE tourism is still an almost unexploited market with a high potential for Iceland. As the country has a diverse range of clusters it can be a good step in trying to connect these clusters more efficiently with each other. This is first of all important to connect rural areas better with the capital region and to create more sophisticated jobs which are not only in the service or agricultural sector. Existing resources can be utilised better in order to create new and sustainable products and services for locals and visitors alike.

The tourism industry needs to improve its PR (public relations). The industry relies on the acceptance of the locals and the image received by the tourists of the hospitality of the locals. Tourism can be seen as an important industry to foster regional development as population is declining in many areas due to the changing of industrial patterns and stagnation of economic activities, but the tourism industry needs to work with the locals.

A severe problem is the overheating of the Icelandic business environment, a high financial instability and insecurity caused by high inflation and the development of the exchange rate which is now unfavourable for the local export market. Further, political instability (three elections within eight years) and therefor lack of clear policies and tourism strategies hinder an effective cluster development.

As many tourists come repeatedly to Iceland or are intending to come again a high level of innovation is important to keep the interest and visitor satisfaction of customers. But also to attract new customers or even new markets (such as niche markets) which have not yet found a way to Iceland but are a valuable visitor group.

In order to stay ahead and to spur further growth possibilities companies within the cluster have to think more about their singularity and how to offer their products to the customer. There are still unbounded possibilities especially in the countryside and in tourism activities such as adventure sports.

It is therefore concluded, that innovation in tourism is crucial for the competitiveness and to maintain an edge over competitors.

11.2 Limitations and future research

Limitations of the research can be seen in its methodology and research performance.

Case studies have generally limitations. First, there is always the danger of generalisation from limited data. Iceland was taken as a case study and its results can thus not be generalised for other nations or districts.

Secondly, data and information collected during the study is limited by the fact that not all documents were obtained such as policy documents, some regulations and laws which were regarded beyond the scope of this research.

Thirdly, the use of different sources for secondary data and the use of different definitions can limit the correct usage and understanding of results. A further limitation has to be considered that is the use of the cluster approach for tourism. A precise definition of the cluster is difficult in correlation to where the borders are or which organisations belong to the cluster. The Icelandic tourism cluster is strongly intertwined with other clusters so it is not easy to analyse the extent and the scope of the whole sector. Santos, Almeida and Teixeira (2008) suggest thus to use quantitative and qualitative methods to identify and describe clusters. A weakness in this study is the absence of quantitative data which could have been applied for analysing e.g. the innovation process in companies.

Whereas limited research has been done into tourism clusters this study needs to be repeated to establish the results. This should be done in the near future to establish and to follow up the development within the cluster. The purpose should also be to fill in the limitations as mentioned before with policies regulations and laws and how the cluster is complying.

Future research can concentrate on regional or niche clusters in tourism. One example is *In the realm of Vatnajökull*, a regional cluster in tourism which emerged already more than ten years ago and can be described as the most successful and most innovative cluster in Icelandic tourism. Analysing its development, structure and strategies can help similar regional clusters to learn from its success and to adapt to necessary changes in order to become more competitive.

This research is limited to innovation, but the tourism cluster includes not only innovative companies but also traditional companies such as hotels, airlines, transporting which need to be scrutinised further in order to investigate the innovation mentality within these companies. This might support the results of this study.

12 Conclusion

The previous analysis made clear how important the Icelandic tourism cluster is for Iceland. According to Landsbankinn (2016) general economic growth of Iceland depends mostly on tourism and will probably be 6,1% in 2017 with a contribution of 4,9% from the tourism sector.

A competitive advantage in the Icelandic tourism is its location, its unique nature and geology, and general safety and low crime rate. Cultural heritage and high educated people as well as renewable energy resources are further main strengths. These advantages are not to be found on a company level, but they are characterising the whole country which makes it favourable as a tourism destination. Therefor the development of a cluster strategy and common vision is essential for tourism in Iceland.

Innovations in tourism in Iceland are important and have a positive impact on other related businesses, industries or clusters such as agriculture, design or the ocean cluster. A number of companies already exist which “combine” activities based in different clusters. As a small island in the North Atlantic, the market and its consumers are stationed far away and need to be transported to the market. The market size is limited, which then restricts the number of new entrances into the market which leads to reduced innovative capabilities. With strong networks and connections, knowledge is transferred between participants which then facilitates and reinforces innovation.

It is noted that Iceland can take advantage of its uniqueness and “otherness” by offering innovative products and services which are connected to its heritage, culture, geography, gastronomy, but also clean energy resources. Innovation in tourism especially in sparsely populated rural areas can help them to improve the quality of their infrastructure and those attract more foreign visitors but also Icelandic workers.

References

- Abernathy, W. J., & Clark, K. B. (1985). Innovation: Mapping the winds of creative destruction. *Research Policy*, 14(1): 3–22.
- Ahmed, P. K., & Shepherd, Ch. D. (2010). *Innovation management: context, strategies, systems, and processes*. New York, NY: Pearson Prentice Hall, cop.
- Aiginger, K., Bärenthaler-Sieber, S., & Vogel, J. (2013). Competitiveness under New Perspective. *WWWforEurope Working Papers series*, 44.
- Airbnb Data. (n.d.). AirBNB Analytics. Retrieved from <https://www.airdna.co/>
- Aldebert, B., Dang, R. J., & Longhi, C. (2011). Innovation in the tourism industry: The case of Tourism@. *Tourism Management*, 32(5), 1204-1213.
doi:10.1016/j.tourman.2010.08.010
- Amabile, T. M. (1998). How to kill creativity. *Harvard Business Review*, 76(6), 76–87.
- Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *Academy of Management Journal*, 39, 1154-1184.
- Amit, R., & Zott, C. (2012). Creating value through business model innovation. *MIT Sloan Management Review*, 53(3), 41-49.
- Andriopoulos, C. (2001). Determinants of Organisational Creativity: A Literature Review. *Management Decision*, 39(10), 834–840.
- Aranguren, M. J., Franco, S., Ketels, C., Murciego, A., & Wilson, J. R. (2010). *Benchmarking regional competitiveness in the European Cluster Observatory*. European cluster observatory. Retrieved from <http://www.clusterobservatory.eu/eco/uploaded/pdf/1288016756795.pdf>
- Arion banki. (2015). *Við erum öll í ferðapjónustu. Ferðapjónustuúttekt Greiningardeildar Arion banka*. Retrieved from <https://www.arionbanki.is/library/Skrar/Netpostur/Greiningardeild/Tenglar/Vid%20erum%20oll%20i%20ferdathjonustu-final.pdf>
- Arion banki. (2016). *Ferðamannalandið Ísland: Draumaland eða Djöflaeyja. Ferðapjónustuúttekt Greiningardeildar Arion banka. 20. September 2016*. Retrieved from <https://www.arionbanki.is/library/Skrar/Netpostur/Greiningardeild/Tenglar/Fer%C3%B0a%C3%BEj%C3%B3nustu%C3%BAttekt-2016.pdf>
- Asheim, B. (1995). Industrial districts as ‘learning regions’: a condition for prosperity?, *European Planning Studies*, 4(4), 379-400.
- Audretsch, D. B., & Feldman, M. P. (1996). R&D Spillovers and the geography of innovation and production. *The American Economic Review*, 86, 630-640.

- Aydalot, P. (1986). *Milieux innovateurs en Europe*. Paris: GREMI.
- Festa – miðstöð um samfélagsábyrgð. (n.d.). Ábyrg ferðapjónusta. Retrieved from <http://festasamfelagsabyrgd.is/abyrg-ferdathjonusta/>
- Baggio, R., Scott, N., & Cooper, C. (2010). Network science: a review focused on tourism. *Annals of Tourism Research* 37(3), 802-827.
- Baldacchino, G. (2005). Island entrepreneurs: Insights from exceptionally successful knowledge-driven SMEs from 5 European island territories. *Journal of Enterprising Culture* 13(2), 145-170.
- Bathelt, H.; Malmberg, A., & Maskell, P. (2004). Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography*, 28(1), 31-56. doi: 10.1191/0309132504ph469oa
- Beck, B. (1990). *Die internationale Wettbewerbsfähigkeit der schweizerischen Exportindustrie*. Paul Haupt Verlag, Bern, Stuttgart.
- Bell, G. G. (2005). Clusters, networks, and firm innovativeness. *Strategic Management Journal*, 26(3), 287-295. doi:10.1002/smj.448
- Beritelli, P., & Romer, D. (2006). Inkrementelle versus radikale Innovationen im Tourismus. In Pikkemaat, B., Peters, M., & Weiermair, K. (eds.). *Innovationen im Tourismus: Wettbewerbsvorteile durch neue Ideen und Angebote* (37- 52). Berlin: Erich Schmidt.
- Bilgihan, A., & Nejad, M.G. (2015). Innovation in hospitality and tourism industries. *Journal of Hospitality and Tourism Technology*, 6(3), 203-328.
- Boettke, P. J. (2008). Austrian School of Economics. In Henderson, D. R. (ed.). *Concise Encyclopedia of Economics* (2nd ed.). Library of Economics and Liberty.
- Borozan, Đ., & Strossmayer, J. J. (2008). Regional competitiveness: Some conceptual issues and policy implications, In: *Interdisciplinary Management Research IV*, Faculty of Economics in Osijek, Fachhochschule Pforzheim, 50-63.
- Brooker, E.; Joppe, M.; Davidson, M.C.G., & Mules, K. (2012). Innovation within the Australian outdoor hospitality parks industry. *International Journal of Contemporary Hospitality Management*, 24(5), 682-700.
- Bruun, D. (1907). *Iceland; routes over the highlands*. Sprengisandur and Kjalvegur. Copenhagen and Reykjavik: Gyldendal.
- Bryman, A., & Bell, E. (2011). *Business Research Methods*. Oxford: Oxford University Press.
- Buckley, P. J., Pass, C. P., & Prescott, K. (1988). Measures of International Competitiveness: A Critical Survey. *Journal of Marketing Management*, 4(2), 175– 200.

- Buckley, R. (2000). Neat trends: current issues in nature, eco- and adventure tourism. *International Journal of Tourism Research*, 2(6), 437-444. doi:10.1002/1522-1970(200011/12)2:6<437::aid-jtr245>3.3.co;2-r
- Burnett, K. A., & Danson, M. (2017). Enterprise and entrepreneurship on islands and remote rural environments. *International Journal of Entrepreneurship and Innovation*, 18(1), 25-35. doi: 10.1177/1465750316686237
- Business dictionary (n. d.) *Vision statement*. Retrieved from <http://www.businessdictionary.com/definition/vision-statement.html#ixzz3OGy3r4Gn>
- Camagni, R. (1991). *Innovation Networks: Spatial Perspectives*. London: Belhaven Press.
- Camagni, R. (2002). Regional Competitiveness: Towards a Concept of Territorial Capital. *Modelling Regional Scenarios for the Enlarged Europe Advances in Spatial Science*, 33-47. doi:10.1007/978-3-540-74737-6_3
- Camison, C., & Monfort-Mir, V. M. (2012). Measuring innovation in tourism from the Schumpeterian and the dynamic-capabilities perspectives. *Management in Tourism*, 33, 776–789. <http://dx.doi.org/10.1016/j.tourman.2011.08.012>
- Canina, L., K. Enz, and J. Harrison (2005). Agglomeration effects and strategic orientations: Evidence from the U.S. lodging industry. *Academy of Management Journal* 48(4), 565-81.
- Cairncross, F. (1997). *The Death of Distance*. Harvard Business School Press: Cambridge.
- Carlson, B. (2007). Innovation Systems: A survey of the literature from a Schumpeterian Perspective. In Hanusch, H., & Pyka, A. (eds.) *Elgar Companion to Neo-Schumpeterian Economics*. Cheltenham: Edward Elgar, 857-871.
- Cellini, R. & Soci, A. (2002). Pop competitiveness. *Banca Nazionale del Lavoro, Quarterly Review*, 55(220), 71-701.
- Center for Responsible Travel. (2016). *The Case for Responsible Travel: Trends & Statistics 2016*. Retrieved from http://www.responsibletravel.org/whatWeDo/The_Case_for_Responsible_Travel_2016_Final.pdf
- Central bank of Iceland. (n.d.). Retrieved from <http://www.cb.is/>
- Chesbrough, H. W. (2003a). *Open Innovation: The new imperative for creating and profiting from technology*. Boston: Harvard Business School Press.
- Chesbrough, H. W. (2003b.) The Era of Open Innovation. *Sloan Management Review*, 44(3), 35-41.
- Cini, M. and McGowan, L. (2009). *Competition Policy in the European Union*. 2nd edition. Basingstoke: Palgrave Macmillan.

- Cirer-Costa, J. C. (2014). Majorca's Tourism Cluster: The Creation of an Industrial District, 1919–36. *Business History*, 56(8), 1243–61. doi: 10.1080/00076791.2013.876532.
- Crevoisier, O. (2004). The Innovative Milieus Approach: Toward a Territorialized Understanding of the Economy? *Economic Geography*, 80, 367-379.
- Cruz, S. C. S., & Teixeira, A. A. C. (2010). The Evolution of the Cluster Literature: Shedding Light on the Regional Studies–Regional Science Debate. *Regional Studies*, 44(9), 1263-1288. doi: 10.1080/00343400903234670.
- Crouch, G. I., & Ritchie, J. R. B. (1999). Tourism, Competitiveness, and Social Prosperity. *Journal of Business Research*, 44, 137-152.
- Crouch, G. I. (2007). *Modelling destination competitiveness: a survey and analysis of the impact of competitiveness attributes*. In T. Cooperative Research Centre for Sustainable (Ed.). Gold Coast, Qld.: Sustainable Tourism CRC.
- Daniel, D. R. (1961). Management Information Crisis. *Harvard Business Review*, 39(5), 111-116.
- Danson, M., & Burnett, K. A. (2014). Enterprise and entrepreneurship on islands. *Exploring Rural Enterprise: New Perspectives on Research, Policy & Practice*, 4, 151-174.
- Daly, D. J. (1993). Porter's Diamond and Exchange Rates. *Management international Review*, 33, 119-134.
- Deakins, D., & Freel, M. S. (2009). *Entrepreneurship and small firms*. London: McGraw-Hill.
- Douma, S. W., & Schreuder, H. (2018). *Economic approaches to organizations*. Harlow, England: Pearson Education.
- Drucker, P. F. (1969). *The Age of Discontinuity: Guidelines to Our Changing Society*. New York: Harper & Row.
- Drucker P. F. (1985). *Innovation and Entrepreneurship*. London: Pan Books Ltd.
- Dunning, J.H. (1992). The competitive advantage of countries and the activities of transnational corporations. *Transnational Corporations*, 1, 135-168.
- Durand, M., & Giorno, C. (1987). Indicators of International Competitiveness: Conceptual Aspects and Evaluation. *OECD Economics Studies*, 9, 147-197.
- Dwyer, L., Mellor, R., Livaic, Z., Edwards, D., & Kim, C. (2004). Attributes of Destination Competitiveness: A Factor Analysis. *Tourism Analysis*, 9(1-2), 91-101.
- Edward H. Huijbens & Gunnar Þ. Jóhannesson (2013). *Ferðamál á Íslandi*. Reykjavik: Mál og Menning.

- Edward H. Huijbens, Hjalti Jóhannesson & Gunnar Thór Jóhannesson (2014). Clusters without Content? Icelandic National and Regional Tourism Policy. *Scandinavian Journal of Public Administration*, 18(1), 63-85.
- Erkuş-Öztürk, H. (2011). Emerging Importance of Institutional Capacity for the Growth of Tourism Clusters: The Case of Antalya. *European Planning Studies*, 19(10), 1735-1753. doi:10.1080/09654313.2011.614384
- Ernst, D.; Ganiatsos, T., & Mytelka, L. (1998). *Technological Capabilities and Export Success in Asia*. London: Routledge.
- European Commission. (2008). *The Concept of Clusters and Cluster Policies and their Role for Competitiveness and Innovation: Main Statistical Results and Lessons Learned*. Commission Staff Working Paper Number SEC (2008) 2637. Commission of the European Communities, Brussels.
- European Commission. (2016). *European Competitiveness Report*. http://ec.europa.eu/growth/industry/competitiveness/reports/eu-competitiveness-report_de
- Eurostat. (2012). *The Community Innovation Survey 2012*. Reviewed from <http://ec.europa.eu/eurostat/documents/203647/203701/Harmonised+survey+questionnaire+2012/164dfdfd-7f97-4b98-b7b5-80d4e32e73ee>
- Enterprise Ireland. (n.d.). *Competitiveness Benchmarking*. Retrieved from <https://www.enterprise-ireland.com/en/Productivity/Company-Competitiveness-Health-Check/Competitiveness-Benchmarking.shortcut.html>
- Evangelista, R. (2000). Sectoral patterns of technological change in services. *Economics of Innovation and New Technology*, 9, 182–221.
- Fagerberg, J. (2004). Innovation: A guide to the Literature. In Fagerberg, J., Mowery, D., & Nelson, R (Eds.). *The Oxford Handbook of Innovation*, Oxford University Press, Oxford, 1-26.
- Fagerberg, J., Fosaas, M., & Sapprasert, K. (2012). Innovation: Exploring the knowledge base. *Research Policy*, 41(7), 1132-1153. doi:10.1016/j.respol.2012.03.008
- Ferðamálastofa (n.d.). *Kortlagning auðlinda - Mögulegir viðkomustaðir*. Retrieved from <http://www.ferdamalastofa.is/is/troun-og-samstarf/kortlagning-audlinda>
- Feser, E. J. (1998). Old and New Theories of Industry Clusters. In Steiner, M. (Ed.) *Clusters and Regional Specialisation: On Geography, Technology and Networks*. London: Pion, 18-40.
- Flick, U. (2014). *An introduction to qualitative research*. London: Sage.
- Florida, R. (1995). Towards the learning region. *Futures*, 27(5), 527-36.

- Florida, R. (2014). *The rise of the creative class: revisited*. New York: Basic Books.
- Freeman, C. (1988). Japan: A new national innovation system? In Freeman, C. Nelson, R. R., Silverberg, G. & Soete, L. (eds.) *Technology and economy theory*. London: Pinter.
- Freeman, C., & Soete, L. (1997). *The economics of industrial innovation*. Cambridge (MA): The MIT Press.
- Flugsafn Íslands. (n.d.). *ÁGRIP AF SÖGU ATVINNUFLUGS Á ÍSLANDI*. Retrieved from http://www.flugsafn.is/index.php?option=com_content&view=article&id=55&Itemid=145&lang=is
- Gardiner, S., & Scott, N. (2014). Successful tourism clusters: Passion in paradise. *Annals of Tourism Research*, 46, 171–173.
- Gephart, R. P. (2004). Qualitative research and the Academy of Management Journal. *Academy of Management Journal*, 47(4), 454-462.
- Godsil, C., & Royle, G. (2001). *Algebraic Graph Theory. Graduate Texts in Mathematics*. doi:10.1007/978-1-4613-0163-9
- Gollub, J., Hosier, A., & Woo, G. (2003). *Using cluster-based economic strategy to minimize tourism leakages*. Madrid: UN World Tourism Organization.
- Gomezelj, D. O. (2016). A systematic review of research on innovation in hospitality and Tourism. *International Journal of Contemporary Hospitality Management*, 28(3), 516-558.
- Grant, R. M. (1991). *Contemporary Strategy Analysis: Concepts, Techniques and Applications*. Cambridge, MA: Blackwell.
- Grissemann, U., Plank, A., & Brunner-Sperdin, A. (2013). Enhancing business performance of hotels: The role of innovation and customer orientation. *International Journal of Hospitality Management*, 33, 347-356. doi:10.1016/j.ijhm.2012.10.005
- Groen, A. J. (2005). Knowledge intensive entrepreneurship in networks: towards a multi level/multi dimensional approach. *Journal of Enterprising Culture*, 13(1), 69-88.
- Hall, C. M., Mitchel, M., & Sharples, L. (2003). Consuming Places: The Role of Food, Wine and Tourism in Regional Development. In Hall, C.M, Sharples, L., Mitchell, R., Macionis, N., & Cambourne, B. (eds.) *Food Tourism Around the World: Development, management and Markets*. Oxford, Butterworth-Heinemann, 25-59.
- Hall, C. M. (2009). Innovation and tourism policy in Australia and New Zealand: never the twain shall meet? *Journal of Policy Research in Tourism, Leisure and Events*, 1(1), 2-18. doi:10.1080/19407960802703466
- Haraldur Guðjónsson. (6. December 2016). *Sameiningar í ferðaðþjónustu líklegar*. Retrieved from <http://www.vb.is/frettir/sameiningar-i-ferdathjonustu-liklegar/133732/>

- Haugland, S. A., Ness, H., Grønseth, B., & Aarstad, J. (2011). Development of tourism destinations. *Annals of Tourism Research*, 38(1), 268-290. doi:10.1016/j.annals.2010.08.008
- Himmelman, A. T. (2002). *COLLABORATION DEFINED: A Developmental Continuum of Change Strategies*. Retrieved from https://depts.washington.edu/ccph/pdf_files/4achange.pdf
- Hjalager, A. M. (2000). Tourism destinations and the concept of industrial districts. *Tourism and Hospitality Research*, 2, 199-213.
- Hjalager, A. M. (2002). Repairing innovation defectiveness in tourism. *Tourism Management*, 23(5), 465–474.
- Hjalager, A. M. (2010). A review of the innovation research in tourism. *Tourism Management*, 31(1), 1–12.
- Hjalager, A. M. (2012). Innovation policies for tourism. *International Journal for Tourism Policy*, 4(4), 336–355.
- Hjalager, A. (2013). 100 Innovations That Transformed Tourism. *Journal of Travel Research*, 54(1), 3-21. doi:10.1177/0047287513516390
- Henderson, R. M. and Clark, K. B. (1990). Architectural Innovation: The Reconfiguration of Existing Product Technologies and The Failure of Established Firms. *Administrative Science Quarterly*, 35(1), 9–30.
- Hyrnsalmi, S., Seppänen, M., Nokkala, T., Suominen, A., & Järvi, A. (2015). Wealthy, Healthy and/or Happy — What does ‘Ecosystem Health’ Stand for? *Lecture Notes in Business Information Processing Software Business*, 272-287. doi:10.1007/978-3-319-19593-3_24
- Háskóli Íslands. (n. d.). *Heildarskráning nemenda í Háskóla Íslands frá upphafi*. Retrieved from http://www.hi.is/adalvefur/heildarskraning_nemenda_i_haskola_islands_fra_upphafi_0
- Iceland Naturally. (n.d.). Retrieved from <http://www.icelandnaturally.com/article/win-a-secrettour-iceland>
- Iceland of health. (n.d.). Retrieved from <http://icelandofhealth.is/>
- Icelandic Transport Authority. (n.d.). Retrieved from <http://www.samgongustofa.is/>
- Innovation Center Iceland. (n.d.). Reviewed from <http://www.nmi.is/english/about-us/>
- Iordache, C., Ciochina, I., & Asandei, M. (2010). Clusters-Tourism activity increase competitiveness support. *Theoretical and Applied Economics*, 17 (5-546): 99-112.
- Isaksen, A., & Hauge, E. (2002). Regional Clusters in Europe. *Observatory of European SMEs 2002*, 3. Brussels: European Commission.

- Isavia. (2017). *Aviation Fact File 2016*. Reviewed from <http://www.isavia.is/files/flugtolur2016finalenska.pdf>
- Íslandsbanki. (2017). *Íslensk ferðapjónusta*. Retrieved from [https://www.islandsbanki.is/library/Skrar/Fyrirtaeki/Isensk-ferdathjonustaskyrsla 2017-LQ.PDF](https://www.islandsbanki.is/library/Skrar/Fyrirtaeki/Isensk-ferdathjonustaskyrsla%2017-LQ.PDF)
- Íslandsbanki. (2016). *Íslensk ferðapjónusta*. Retrieved from <https://www.islandsbanki.is/library/Skrar/Fyrirtaeki/Ferdathjonustuskysla%202016.pdf>
- Íslandsstofa (n.d.). Retrieved from <http://www.islandsstofa.is/en/>
- Jackson, J. and Murphy, P. (2002). Tourism destinations as clusters: analytical experiences from the New World. *Tourism and Hospitality Research* 4(3), 36–52.
- Jackson, J. and Murphy, P. (2006). Clusters in regional tourism An Australian case. *Annals of Tourism Research*, 33(4): 1018-1035. doi: 10.1016/j.annals.2006.04.005
- Jóhann Óli Eiðsson. (2016, June 2). *Airbnb-lögin samþykkt: Heimilt að sekta um allt að milljón*. Retrieved from <http://www.visir.is/airbnb-login-samthykkt--heimilt-ad-sekta-um-allt-ad-milljon/article/2016160609776>
- Jonsson, I. (2015). *The Political Economy of Innovation and Entrepreneurship. From Theories to Practice*. London: Ashgate Publishing.
- Kamien, M. I., & Schwartz, N. L. (1975). Market structure and innovation: A survey. *Journal of Economic Literature*, 13, 1-37.
- Karl Benediktsson, Katrín Anna Lund & Taina Anita Mustonen (2010). The impact of the Eyjafjallajökull eruption on international tourists in Iceland. In Ingjaldur Hannibalsson (ed.) *Þjóðarspegillinn 2010*. Reykjavik, Félagsvísindastofnun Háskóla Íslands.
- Karlsson, C., & Tavassoli, S. (2015). Innovation Strategies of firms: What strategies and why? *The Journal of Technology Transfer*, 41(6), 1-24. doi 10.1007/s10961-015-9453-4.
- Kaufman J.C., & Plucker J.A. (2011). Intelligence and creativity. In: Sternberg R. J., & Kaufman S. B. (eds.). *The Cambridge handbook of intelligence*, 771–783. New York: Cambridge.
- Kelly, I. (2001). *Australian regional tourism handbook: Industry solutions*. Gold Coast: Cooperative Research Centre for Sustainable Tourism.
- Ketels, C. H. M. (2006). Michael Porter's Competitiveness Framework - Recent Learnings and New Research Priorities. *Journal of Industry, Competition and Trade*, 6(2), 115-136.
- Ketels, C. H.M. (2009). *Clusters, Cluster Policy, and Swedish Competitiveness, Expert Report No. 30*. Swedish Globalisation Council, Stockholm.

- Ketels, C. H. M., & Memedovic, O. (2008). From clusters to cluster-based economic development. *International Journal of Technological Learning, Innovation and Development*, 1(3), 375–392.
- Kim, C. H., & Mauborgne, R. (2005). *Blue ocean strategy. How to Create Uncontested Market Space and Make the Competition Irrelevant*. Boston: Harvard Business School Press.
- Kim, N., & Wicks, B. E. (2010). Rethinking Tourism Cluster Development Models for Global Competitiveness. *International CHRIE Conference-Refereed Track, Paper 28*.
- Kind, S. & Meier zu Köcker, G. (2011). *Evaluation Concept for Clusters and Networks. Prerequisites of a Common and Joint Evaluation System*. iit-Perspektive 7.
- Kirzner, I. M. (1984). The role of the entrepreneurs in the economic system. *CIS occasional papers*, 10, 1-10. St Leonards, New South Wales: Centre for Independent Studies.
- Kitson, M.; Martin, R. & Tyler, P. (2004). Regional competitiveness: an elusive yet key concept? *Regional Studies*, 38(9), 991-999.
- Klausegger, C., & Salzberger, T. (2006). Innovationen und Unternehmenserfolg – untersucht am Beispiel ausgewählter Branchen im Tourismus. In Pikkemaat, B., Peters, M., & Weiermair, K. (eds.), *Innovationen im Tourismus: Wettbewerbsvorteile durch neue Ideen und Angebote*, 37- 52. Berlin: Erich Schmidt.
- Kline, S. J., & Rosenberg, N. (1986). An overview of innovation. In Landau, R. & Rosenberg, N. (eds.) *The Positive Sum Strategy: Harnessing Technology for Economic Growth*, 275- 305. Washington (DC): National Academies Press.
- Knight, F. H. [1921]. (1957). *Risk, uncertainty and profit*. New York: Mineola.
- Kothari, C. R. (2004). *Research Methodology. Methods and Techniques*. (2nd ed.). New Delhi: New Age International.
- KPMG Iceland. (2014). *Hótelgeirinn á Íslandi. Úttekt um arðsemi í hótélrekstri á Íslandi*. Retrieved from <https://www.kpmg.com/IS/is/utgefidefni/greinar-og-utgefidskyrslur/Documents/KPMG-Hotelgeirinn-a-Islandi-2014.pdf>
- KPMG Iceland. (2016). *Framtíð ferða þjónustunnar á Íslandi árið 2030. Sviðsmyndir og áhættugreining*. Retrieved from <https://home.kpmg.com/content/dam/kpmg/is/pdf/2016/09/KPMG-Framtid-ferdathjonustunnar-a-Islandi-arid-2030-utgafa.pdf>
- Krafft, L. (2006). *Entwicklung räumlicher Cluster: Das Beispiel Internet- und E-Commerce Gründungen in Deutschland*. Wiesbaden: Deutscher Universitäts-Verlag.
- Krugman, P. (1990). *The Age of Diminished Expectations*. Cambridge, MA: MIT Press.
- Krugman, P. (1991). Increasing Returns and Economic Geography. *Journal of Political Economy*, 99(3), 483-499. doi:10.1086/261763

- Krugman, P. (1993). *Geography and Trade*. Cambridge, MA: MIT Press.
- Krugman, P. (1998). What's New about the New Economic Geography. *Oxford Review of Economic Policy*, 14(2), 7-17.
- Kuah, A. T. H. (2002). Cluster Theory and Practice: Advantages for the Small Business Locating in a Vibrant Cluster. *Journal of Research in Marketing and Entrepreneurship*, 6(3), 206-228.
- Lall, S. (2001). *Competitiveness, Technology and Skills*. Cheltenham, UK: Edward Elgar.
- Landsbankinn. (2016, December 14). *Hagsjá - Utanríkisviðskipti. Mikil áhrif ferðapjónustu á hagvöxt*. Retrieved from <https://www.landsbankinn.is/Uploads/Documents/Hagsja/2016-12-14-Ahrif%20ferdathonustu-a-hagvoxt-naestu-ara.pdf>
- Landsbréf (n.d.). *Icelandic Tourism Fund I*. Retrieved from <http://landsbref.is/serhaefdar-fjarfestingar/itf-i/>
- Lengyel, I. (2009): Bottom-up Regional Economic Development: Competition, Competitiveness and Clusters. In: Bajmócy, Z., & Lengyel, I. (eds.) *Regional Competitiveness, Innovation and Environment*, 13-38. Szeged: JATEPress.
- Lipschitz L., & McDonald, D. (1991). *Real Exchange Rates and Competitiveness: A Clarification of Concepts and Some Measurements for Europe*. IMF: Working Paper.
- Lipton, M. (1996). Demystifying the Development of an Organizational Vision. *Sloan Management Review*, 37(4), 83-92.
- Lundvall, B.-Å. (1985). *Product innovation and user-producer interaction, industrial Development*. Research Series 31, Aalborg: Aalborg University Press.
- Lundvall, B- Å. (2005). *National Innovation Systems - Analytical Concept and Development Tool*. Paper Presented at the DRUID Conference in Copenhagen.
- Lundvall, B.-Å., & Johnson, B. (1994). The Learning Economy. *Journal of Industry Studies*, 1(2), 23-41.
- Lundvall, B- Å., & Maskell, P. (2000). *Nation states and economic development: from national systems of production to national systems of knowledge creation and learning*. Oxford: Oxford University Press.
- Malakauskaite, A., & Navickas, V. (2010). The Role of Clusters in the Formation Process of Tourism Sector Competitiveness. Conceptual Novelties. *Economics and Management*, 15, 149-154.
- Malecki, E. J. (2000). Knowledge and regional competitiveness. *Erdkunde*, 54, 334-351.

- Malecki, E. J. (2002). Hard and Soft Networks for Urban Competitiveness. *Urban Studies*, 39(5-6), 929-945. doi:10.1080/00420980220128381
- Malmberg, A., & Maskell, P. (1997). Towards an explanation of regional specialization and industry agglomeration. *European Planning Studies*, 5(1), 25-41. doi:10.1080/09654319708720382
- Malmberg, A., & Maskell, P. (2002). The elusive concept of localization economies: towards a knowledge-based theory of spatial clustering. *Environment and Planning, A*(34), 429-449.
- Malmberg, A., Sölvell, Ö., & Zander, I. (1996). Spatial Clustering, local accumulation of knowledge and firm competitiveness. *Geografiska Annaler. Series B, Human Geography*, 78(2), 85-97. doi:10.2307/490807
- Maillat, D., & Perrin, J.-C. (1992). *Entreprises innovatrices et développement territorial*. Neuchâtel, Switzerland: GREMI, EDES.
- Maillat, D., Quévit, M., & Senn, L. (1993). *Réseaux d'innovation et milieux innovateurs: Un pari pour le développement régional*. Neuchâtel, Switzerland: GREMI, EDES.
- Marsh, L.W., & Tokarick, S. P. (1994). *Competitiveness Indicators: A Theoretical and Empirical Assessment*. IMF Working Paper, 94/29.
- Marshall, A. (1890). *Principles of Economics*. London: Macmillan.
- Martin, R., & Sunley, P. (2003). Deconstructing clusters: chaotic concept or policy panacea? *Journal of Economic Geography*, 3(1), 5-35. doi:10.1093/jeg/3.1.5
- Marx, K. (1967 [1867]). *Capital: A Critique of Political Economy*, Vol. 1, (Ben Fowkes, trans.) New York: Norton.
- Maskell, P. (2001). Knowledge Creation And Diffusion In Geographic Clusters. *International Journal of Innovation Management*, 5(02), 213-237. doi:10.1142/s1363919601000373
- McArthur, J. W., & Sachs, J. D. (2001). The Growth Competitiveness Index: Measuring Technological Advancement and the Stages of Development. In *The Global Competitiveness Report 2001-2002* (Porter, M. E. et al., eds.). New York, NY: Oxford University Press, 28-51.
- McGee, J., Thomas, H., & Wilson, D. (2010). *Strategy: analysis and practice*. London: McGraw-Hill.
- McLennan, C.-L., Becken, S., & Watt, M. (2015). Learning through a cluster approach: lessons from the implementation of six Australian tourism business sustainability programs. *Journal of Cleaner Production*, 111, 348-357. doi:10.1016/j.jclepro.2015.01.085

- McRae-Williams, P. (2004). Wine and tourism: cluster complementarity and regional Development. In Smith, K.A. & Schott, C. (eds.). *Proceedings of the New Zealand Tourism and Hospitality Research Conference 2004*. Wellington, 8-10 December, 237-245.
- Meet in Reykjavik. (n.d.). *About Meet in Reykjavik and the international MICE market in Iceland 2011-2015*. Retrieved from <http://digital.meetinreykjavik.is/i/713172-meet-in-reykjavik-mice-market-in-iceland-2011-2015-english/1>
- Mei, X.Y.; Arcodia, Ch. and Ruhanen, L. (2010). *A national government's tourism innovation initiatives: a review of tourism development policies*. Paper presented at the The 21st Council for Australian University Tourism and Hospitality Education annual conference (CAUTHE 2011), Sydney.
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: a guide to design and implementation*. San Francisco, CA: Jossey-Bass.
- Michael, E. J. (2003). Tourism micro-clusters. *Tourism Economics*, 9(2), 133-145.
- Michael, E. J. (2007). *Micro-Clusters and Networks. The Growth of Tourism*, Elsevier, Amsterdam.
- Miller, M. M., & Gibson, L. J. (2005). Cluster-based Development in the Tourism Industry: Putting Practice into Theory. *Applied Research in Economic Development*, 47-64.
- Ministry of Industries and Innovation. (2014, February 2). Retrieved from <https://eng.atvinnuvegaduneyti.is/publications/news/nr/8431>
- Ministry of Industries and Innovation. (2016, Oktober 26) Retrieved from <https://www.atvinnuvegaduneyti.is/idnadar-og-vidskiptamal/frettir/afrahaldandi-samstarf-um-markadsverkefnið-island-allt-arid>
- Ministry of Industries and Innovation. (2017, February 23). *Aukið vægi ferðapjónustunnar innan atvinnuvega- og nýsköpunarráðuneytisins*. Retrieved from <https://www.atvinnuvegaduneyti.is/idnadar-og-vidskiptamal/frettir/aukid-vaegi-ferdathjonustunnar-innan-atvinnuvega-og-nyskopunarraduneytisins>
- Ministry of Education Science, and Culture. (n.d.). *Science and Research*. Reviewed from <https://eng.menntamalaraduneyti.is/subjects/science-and-research/>
- Mintzberg, H., Ahlstrand, B. W., & Lampel, J. (1998). *Strategy safari: A Guided Tour Through the Wilds of Strategic Management*. New York: Free Press.
- Najda-Janoszka, M., & Kopera, S. (2014). Exploring Barriers to Innovation in Tourism Industry - The Case of Southern Region of Poland. *Procedia - Social and Behavioral Sciences*, 110, 190-201. doi:10.1016/j.sbspro.2013.12.862
- Narula, R. (1993). Technology, International Business and Porter's "Diamond": Synthesizing a Dynamic Competitive Development Model, *Management International Review*, 33, 85-107.

- Natural Iceland. (n.d.). Retrieved from <http://www.naturaliceland.is/en/>
- Nedelea, A., & Balan, A. (2010). E-tourism and tourism services consumer protection. *Amfiteatru Economic*, 12(28), 492-503.
- Nordic Hotel Consulting. (n.d.). *Nordic Hotel Report. Fourth Quarter – Q4 2016*. Reviewed from http://www.nordichotelconsulting.com/files/Quarterly-Reports/Q4_2016_NHC_Market_Report.pdf
- Nordin, S. (2003). Tourism Clustering & Innovation – Paths to Economic Growth & Development. *European Tourism Research Institute*, 14, 1-90.
- Novelli, M.; Schmitz, B., & Spencer, T. (2006). Networks, clusters and innovation in tourism: A UK experience. *Tourism Management* 27(6), 1141-1152. doi: 10.1016/j.tourman.2005.11.011.
- OECD. (1992). *Technology and the Economy: The Key Relationships*. OECD: Paris.
- OECD. (2005). *Oslo Manual: Guidelines for Collecting and Interpreting Innovation*. Data, 3rd. Edition. Retrieved from <http://www.oecd-ilibrary.org/docserver/download/9205111e.pdf?expires=1489429863&id=id&accname=guest&checksum=A4C400BE51DFC99D88E94A422F255D3B>
- OECD. (2007). *Competitive Regional Clusters: National Policy Approaches*. OECD publishing, Retrieved from www.oecd.org/document/2/0,3343,en_2649_33735_38174082_1_1_1_1,00.html
- OECD. (2014). *Science and Innovation: Iceland*. Reviewed from <https://www.oecd.org/sti/sti-outlook-2012-iceland.pdf>
- OECD. (2015). *Economic Surveys: Iceland 2015*. Retrieved from <http://www.oecdbetterlifeindex.org/countries/iceland/>
- Ottenbacher, M., & Gnoth, J. (2005). How to develop successful hospitality innovation. *Cornell Hotel and Restaurant Administration Quarterly*, 46(2), 205-222.
- Peiró-Signes, A., Segarra-Oña, M., Miret-Pastor, L., & Verma, R. (2014). The effect of tourism clusters on U.S. hotel performance. *Cornell Hospitality Quarterly*, 55, 1-13. doi: 10.1177/1938965514557354.
- Penrose, E. (1959). *The theory of the growth of the firm*. Oxford: Oxford University Press.
- Perles-Ribes, J. F., Rodríguez-Sánchez, I., & Ramón-Rodríguez, A. B. (2015). Is a cluster a necessary condition for success? The case of Benidorm. *Current Issues in Tourism*, 1-29. doi: 10.1080/13683500.2015.1043247.
- Perroux, F. (1955). Note sur la notion de pôle de croissance. *Économie appliquée*, 8, 307-320.

- Pfeiffer, I., & Habinger, G. (1999). *Nordlandfahrt: eine Reise nach Skandinavien und Island im Jahre 1845*. Wien: Promedia.
- Pikkemaat, B. (2008). Innovation in small and medium-sized tourism enterprises in Tyrol, Austria. *The International Journal of Entrepreneurship and Innovation*, 9(3), 187-197. doi:10.5367/000000008785096601
- Pikkemaat, B., & Peters, M. (2005). Towards the measurement of innovation - a pilot study in the small and medium sized hotel industry. *Journal of Quality Assurance in Hospitality and Tourism*, 6(3-4), 89-112.
- Poon, A. (1993). *Tourism, Technology and Competitive Strategy*. Wallingford, UK: CAB International.
- Porter, M. E. (1979). How competitive forces shape strategy. *Harvard Business Review*, 2(57), 137-145.
- Porter (1980). *Competitive strategy*. New York: Free Press.
- Porter, M.E. (1990). *The Competitive Advantage of Nations*. New York: Free Press. (Republished with a new introduction, 1998)
- Porter, M.E. (1998a). Clusters and Competition. New agenda for companies, governments and institutions. In *On Competition*: Harvard Business Press.
- Porter, M. (1998b). Clusters and the new economics of competition. *Boston: Harvard Business Review*, 76, 77-90.
- Porter, M.E. (2000). Location, Competition, and Economic Development: Local Clusters in a Global Economy. *Economic Development Quarterly*, 14(1), 15-34. doi: 10.1177/089124240001400105
- Porter, M.E. (2004). Building the Microeconomic Foundations of Prosperity: Findings from the Business Competitiveness Index." In *The Global Competitiveness Report 2003-2004*, edited by Michael E. Porter, Klaus Schwab, and Xavier Sala-i-Martin: 29–56, Oxford University Press.
- Porter, M. E., Delgado-Garcia, M., H. M. Ketels, C. H. M., & Stern, S. (2008). Moving to a New Global Competitiveness Index. Chap. 1.2 in *Global Competitiveness Report 2008/2009*, (eds. Porter, M. E. & Schwab, K.), 43–63. Geneva: World Economic Forum.
- & Stern, S. (2001). Innovation: location matters. *Mit Sloan Management Review*, 42(4), 28-36.
- Prahalad, C. K., & Hamel, G. (1990). The Core Competence of the Corporation. *Harvard Business Review*, 68, 79–91.
- Promote Iceland (n.d.). *Invest in Iceland*. Reviewed from <http://www.invest.is/>

- Quaranta, G., Citro E., & Salvia, R. (2016). Economic and Social Sustainable Synergies to Promote Innovations in Rural Tourism and Local Development. *Sustainability*, 8(7), 668.
- Ramaswamy, V., & Gouillart, F.J. (2010). Building the Co-Creative Enterprise. *Harvard Business Review*, 88(10), 100-109.
- Rannís. (2014). *Research, Development and Innovation in Iceland*. 2014 edition. Reviewed from [http://www.rannis.is/media/utgafur-og-skyrslur/Research,-Development-and-Innovation---2014-edition-\(2\).pdf](http://www.rannis.is/media/utgafur-og-skyrslur/Research,-Development-and-Innovation---2014-edition-(2).pdf)
- Ratsjain. (n.d.). Retrieved from <https://ratsjain.is/>.
- Rocha, H. O. (2004). Entrepreneurship and development: The role of clusters. *Small Business Economics*, 23(5), 363-400.
- Rockart J. F. (1979). Chief executives define their own data needs. *Harvard Business Review*, 57(2), 81-91.
- Rodriguez, I.; Williams, A. M., & Hall, C.M. (2015). Tourism innovation policy: Implementation and outcomes. *Annals of Tourism Research*, 49, 76-93.
- Ronningen, M. (2010). Innovative processes in a nature-based tourism case: the role of a tour-operator as the driver of innovation. *Scandinavian Journal of Hospitality and Tourism*, 10(3), 190-206.
- Rothwell, R. (1994). Towards the Fifth-generation Innovation Process. *International Marketing Review*, 11(1), 7-31.
- Rugman, A. M. (1992). Porter takes the wrong turn. *Business Quarterly*, 56(3), 59-64.
- Rutelione, A., & Hopeniene, R. (2016). Relationship Quality in Tourism: A Case of Local Tourism Cluster in Lithuania. *Lex Localis - Journal of Local Self-Government*, 14(2), 225-249. doi: 10.4335/14.2.225-249(2016).
- Santos, C., Almeida, A., & Teixeira, A. (2008). *Searching for clusters in tourism. A quantitative methodological proposal*. Working Paper no. 293, Oporo University, Spain.
- Šarić, S. (2012). *Competitive Advantages through Clusters. An Empirical Study with Evidence from China*. Wiesbaden: Gabler Verlag.
- Schumpeter, J. A. [1943] (1976). *Capitalism, Socialism and Democracy*. New York: Harper.
- Scott, B. R., & Lodge, G. C. (Eds.). (1985). *US Competitiveness in the World Economy*. Harvard Business School Press: Boston, Mass.
- Segarra-Oña, M., Miret-Pastor, L. G., Peiro-Signes, A., & Verma, R. (2012). The Effects of Localization on Economic Performance: Analysis of Spanish Tourism Clusters. *European Planning Studies*, 20(8), 1319-1334. doi:10.1080/09654313.2012.680586

- Shane, S. & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 26, 13–17.
- Smith, A. [1776]. (1981). *An inquiry into the nature and causes of the wealth of nations*. Indianapolis: Liberty Fund.
- Sundbo, J., Orfila-Sintes, F., & Sørensen, F. (2007). The innovative behaviour of tourism firms - Comparative studies of Denmark and Spain. *Research Policy*, 36(1), 88-106. doi:10.1016/j.respol.2006.08.004
- Souto, J. E. (2015). Business model innovation and business concept innovation as the context of incremental innovation and radical innovation. *Tourism Management*, 51, 142–155.
- Start-up Tourism. (n.d.) Retrieved from <http://startuptourism.is/>
- Statistics Iceland. (n.d.). Reviewed from <http://www.statice.is/>
- Sternberg, R. J., & Lubart, T. I. (1999). The concept of creativity: Prospects and Paradigms. In Sternberg, R. J. (ed.). *Handbook of Creativity*, 3-16. London: Cambridge University Press.
- Stjórnstöð ferðamála. (n.d.). *Road Map for tourism in Iceland*. Retrieved from <http://stjornstodin.is/>
- Stjórnstöð Ferðamála. (2016). *Hæfni og gæði í ferðaþjæonustu. Fjárfestum í hæfni starfsmanna*. Reviewed from <https://www.atvinnuvegaraduneyti.is/media/Acrobat/Skyrsla-Menntun-og-haefni.pdf>
- Sölvell, Ö. (2009). *Clusters balancing evolutionary and constructive forces*. Stockholm: Ivory Tower.
- Tan, D., & Mahoney, J. (2005). Examining the Penrose Effect in an international Business Context: The Dynamics of Japanese Firm Growth in U.S. Industries. *Managerial and Decision Economics*, 26, 113-127.
- Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 28(13), 1319-1350. doi:10.1002/smj.640
- Teece, D. J., & G. Pisano (1994). The dynamic capabilities of firms: An introduction. *Industrial and Corporate Change*, 3, 537–556.
- The Boston Consulting Group. (2013). *Northern Sights: The future of tourism in Iceland*. Retrieved from <http://www.icelandictourism.is/servlet/file/store36/item699669/version1/report%20from%20bcg%20on%20the%20future%20of%20tourism%20in%20iceland.pdf>
- The Cluster Consortium. (1999). *South African tourism collaborative action process*. Retrieved from <http://www.ecgroup.com/documents/South%20Africa%20Master.pdf>

- The Global Competitiveness Index 2016-2017. (n.d.). The Global Competitiveness Report. Retrieved from <http://reports.weforum.org/global-competitiveness-index/>
- The Global Innovation Index. (2017). *The Global Innovation Index 2016. Winning with Global Innovation*. Reviewed from <https://www.globalinnovationindex.org/gii-2016-report>
- The Icelandic Tourist Board. (n.d., a). Retrieved from <http://www.ferdamalastofa.is>
- The Icelandic Tourist Board. (n.d. b.). *Framkvæmdasjóður ferðamannastaða Mars 2016 – tillaga stjórnar að styrkjum ásamt rökstuðningi fyrir úthlutun*. Retrieved from <http://www.ferdamalastofa.is/static/files/ferdamalastofa/Frettamyndir/2016/mars/inna-lands-konnun/listi-uthlutun-styrkja-2016-ur-framkvaemdasjodi-ferdamannastada.pdf>
- The Icelandic Tourist Board. (2013). *Pörfin fyrir rannsóknir í íslenskri ferðaþjónustu – Greininghagsmunaaðila*. Retrieved from: http://www.ferdamalastofa.is/static/files/ferdamalastofa/tolur_utgafur/Skyrslur/Iokaskjal-16.pdf
- The Icelandic Tourist Board. (2014). *Betur vinnur vit en strit – eða hvað? Greining menntunar í ferðaþjónustunni*. Retrieved from http://www.ferdamalastofa.is/static/research/files/1416413296-betur_vinnur_vit_en_strit-pdf
- The Icelandic Tourist Board. (2015). *Tourism in Iceland in figures. April 2015*. Retrieved from http://www.ferdamalastofa.is/static/files/ferdamalastofa/Frettamyndir/2015/mai/tourism-in-iceland-in-figures_15.pdf
- The Icelandic Tourist Board. (2016a). *Tourism in Iceland in figures. May 2016*. Retrieved from http://www.ferdamalastofa.is/static/files/ferdamalastofa/Frettamyndir/2016/juni/tourism-in-iceland-in-figures_may2016.pdf
- The Icelandic Tourist Board. (2016b). *Ársskýrsla 2015*. Retrieved from http://www.ferdamalastofa.is/static/files/ferdamalastofa/Frettamyndir/2016/juli/arsskyrsla-2015_2.pdf
- The Icelandic Tourism Research Centre. (n.d.). Retrieved from <http://www.rmfi.is/en/>
- The Icelandic Travel Industry Association. (SAF) (n.d.). Retrieved from <http://www.saf.is/>
- Tichy, N. M., Tushman, M. L., & Fombrun, C. (1979). Social Network Analysis For Organizations. *Academy of Management Review*, 4(4), 507-519. doi:10.5465/amr.1979.4498309
- Timur, S., & Getz, D. (2008). A network perspective on managing stakeholders for sustainable urban tourism. *International Journal of Contemporary Hospitality Management*, 20(4), 445-461. doi:10.1108/09596110810873543
- Toivonen, M., & Tuominen, T. (2009). Emergence of innovations in services. *The Service Industries Journal*, 29(7), 887-902. doi:10.1080/02642060902749492

- Tregoe, B. B., & Zimmerman, J. W. (1980). *Top management strategy: what it is and how to make it work*. New York: Simon and Schuster.
- Trott, P. (2017). *Innovation management and new product development*. Harlow: Prentice Hall.
- Vakinn. (n.d.). Retrieved from <http://www.vakinn.is/>
- von Hippel, E. (1988). *The sources of innovation*. New York: Oxford University Press.
- von Hippel, E. (2005). *Democratizing innovation*. Cambridge (MA): MIT Press.
- von Hippel, E. (2017). *Free innovation*. Cambridge (MA): MIT Press.
- World Bank Open Data. (n.d.). Retrieved from <http://data.worldbank.org/>
- Vernon, J., Essex, S., Pinder, D., & Curry, K. (2005). Collaborative policymaking. *Annals of Tourism Research*, 32(2), 325-345. doi:10.1016/j.annals.2004.06.005
- World Economic Forum. (2014-2015). *The Global Competitiveness Report*. Geneva, Switzerland. Retrieved from http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf
- World Economic Forum. (2017). The Travel & Tourism Competitiveness Report 2017. Geneva, Switzerland. Retrieved from http://www3.weforum.org/docs/WEF_TTCR_2017_web_0401.pdf
- Weidenfeld, A., Williams, A. M., & Butler, R. W. (2010). Knowledge transfer and innovation among attractions. *Annals of Tourism Research*, 37(3), 604-626. doi:10.1016/j.annals.2009.12.001
- Weidenfeld, A., Williams, A. M., & Butler, R. W. (2011). Why Cluster? Text and Sub-text in the Engagement of Tourism Development Policies with the Cluster Concept. In Dredge, D., & Jenkins, J. (eds), *Stories of Practice: Tourism Policy and Planning*, 335-358. Ashgate: Aldershot.
- Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. *Academy of Management Review*, 18, 293-321.
- Yin, R. K. (2009). *Case study research: design and methods* (4th. ed.). Los Angeles, CA: Sage Publications.
- Zucker, L. G., Darby, M. R., & Armstrong, J. S. (1998). Geographically localized knowledge: Spillovers or markets? *Economic Inquiry*, 36(1), 65-86.

Appendix

Table 3. Foundations of the Icelandic tourism cluster.

Authorities/ Government	Education and research Institutes	Influential companies	Interest groups and associations
➤ Ministry of Industries and Innovation	➤ The Icelandic Tourism Research Centre (<i>ITRC: Rannsóknamiðstöð ferðamála</i>)	➤ ISAVIA	➤ The Icelandic Travel Industry Association (SAF)
➤ The Icelandic Tourist Board (<i>Ferðamálastofa</i>)	➤ University of Iceland	➤ Icelandair Group	➤ Icelandic Tourist Association (<i>Ferðafélag Íslands</i>)
➤ Municipalities	➤ University of Reykjavík	➤ WOW air	➤ Promote Iceland (<i>Íslandsstofa</i>)
➤ The Tourism Taskforce (<i>Stjórnstöð ferðamála</i>)	➤ University of Akureyri	➤ Smyrlíne (ferry)	➤ Bigger chain hotels (Hotels of Iceland, KEA hotels, Center hotels, Icelandair hotels)
➤ Regional marketing offices (<i>Markaðsstofur landshlutanna</i>)	➤ Bifröst University	➤ Airbnb	➤ Icelandic tourguide association (<i>Félag Leiðsögumanna</i>)
➤ City of Reykjavík	➤ University College Hólar	➤ Blue Lagoon	➤ Meet in Reykjavík
➤ National Parks (<i>Þingvellir, Snæfellsnes, Skaftafell</i>)	➤ Keilir Academy	➤ Travel Agencies (e.g. Kynnisferðir, Guðmundur Jónasson Travel, Allrahanda, Snæland Grímsson, Atlantik)	➤ Start-up Tourism
	➤ Menntaskólinn í Kópavogi	➤ Artic Adventures	➤ The Icelandic Tourism Cluster (<i>Íslenski ferðaklasinn</i>)
	➤ The Icelandic School of Travel and Tourism (<i>Ferðamála-skóli Íslands</i>)	➤ Icelandic Mountain Guides	➤ Katla Geopark
	➤ Centre for competence and quality in tourism (<i>Hæfnisetur ferðaþjónustunnar</i>)	➤ Harpa Concert and Conference Centre	➤ Reykjanes Geopark

Letter for interview

Sæl/Sæll,

Ég undirrituð er meistaranemi í stjórnun og stefnumótun við Háskóla Íslands og er að skrifa meistararitgerð um nýsköpun innan íslenskrar ferðaþjónustu. Hluti af rannsókninni er eiginleg rannsókn þar sem tekin eru viðtöl við stjórnendur í mismunandi ferðaþjónustufyrirtækjum og reynt að komast að því hver staða nýsköpunar er í greininni. Mér finnst fyrirtækið þitt áhugavert þar sem það kemur upp ítrekað varðandi nýsköpun (og verðmætasköpun). Mig langar því að spyrja þig hvort þú hefur áhuga á því að taka þátt í rannsókninni og gefa mér tækifæri á því að taka við þig viðtal sem verður ca. 30-45 mínútna langt þar sem þú myndir svara nokkrum spurningum varðandi þína upplifun? Ég heiti fullum trúnaði og eru allar upplýsingar sem fást í þessari rannsókn, dulkóðaðar og allt varðandi könnunina er ónafngreinanlegt og órekjanlegt. Þar af leiðir á ekki að vera hægt að rekja nokkur svör til þín. Viðtalið verður tekið upp, þá afritað og dulkóðað. Að lokinni afritun er upptöku svo eytt.

Með von um góðar undirtektir,

Nafn og símannúmer

Questionnaire (Icelandic)

1. Upplýsingar um fyrirtæki

- Hvenær var fyrirtækið stofnað?
- Hver er sérstaða fyrirtækisins þíns?
- Hver er viðskiptastefna/markmið fyrirtækisins þíns?
- Innan hvaða viðskiptasviðs (geira) er fyrirtækið þitt?
- Hvað starfar magrir í fyrirtækinu? Menntunarstig starfsmanna og endurmenntun?
- Hvaða mörkuðum einbeinir fyrirtækið þitt sig að; vöru, þjónustu; þjóðerni?
- Hversu mikil er samkeppnin í þinni grein? Í hverju er fyrirtækið öðruvísi en aðrir?
- Er mismunur á vetri og sumri þegar það kemur að samkeppni?
- Er samstarf og tengslanet til?
- Hverjir eru aðal keppinautar fyrirtækis þíns?
- Hvað er erfitt að vera sprotafyrirtæki á Íslandi í ferðamannabransanum?

2. Nýsköpun fyrirtækisins: Vörunýsköpun eða ferlinýsköpun

Vörunýsköpun (product innovation) er markaðsetning á nýrri vöru eða þjónustu sem er annaðhvort nýjung á markaði eða meiriháttar betrubæting á því sem fyrir er með tilliti til getu eða möguleika s.s. betrubætt forrit, notendavænt viðmót eða viðbættur eða undirforrit. Nýsköpunin (ný eða betrubætt) þarf að vera nýjung fyrir þitt fyrirtæki en þarf ekki endilega ný í þínum geira eða á þínum markaði. Það skiptir í raun ekki máli hvort að nýjungin hafi verið fundin upp af þínu fyrirtæki eða verið þróuð af öðrum.

- Hver hefur verið helsta nýsköpun (vara eða þjónusta) hjá fyrirtækinu þínu síðastliðin fimm ár?
- Hver/Hvernig þróaði nýsköpunarhugmyndirnar?
- Voru þessar nýsköpunarhugmyndir nýjar á markaði eða ný hugmynd fyrir fyrirtækið þitt (eða bæði)?
- Hvaða nýsköpun var árangursríkust og hvað gékk síður upp?
- Nýtur fyrirtæki þitt sérstöðu gagnvart nýsköpuninni eða nýta önnur fyrirtæki líka sömu hugmyndina?

Ferlisnýsköðun (process innovation) er innleiðing nýrra ferla s.s. bættra framleiðsluferla, dreifileiða, eða stoðferla fyrir vörur þínar eða þjónustu. (Nýjungin (ný eða betrubætt) þarf að vera ný fyrir þitt fyrirtæki en þarf ekki endilega ný innan þíns geira eða á þínum markaði. Það skiptir í raun ekki máli hvort að nýjungin hafi verið fundin upp af þínu fyrirtæki eða verið þróuð af öðrum.)

- Hefur fyrirtækið þitt komið fram með nýjungar þar sem verulegar breytingar hafa orðið á framleiðslu vörunnar eða þjónustunni? Ef svo er, hafa orðið breytingar á flutningum eða dreifingu vöru? Eru breytingar í stoðferlum svo sem viðhaldi, innkaupum, bókhaldi eða tölvukerfi?
- Hver þróaði nýsköpunarhugmyndirnar?
- Voru þessar nýsköpunarhugmyndir nýjar á markaði eða ný hugmynd fyrir fyrirtækið þitt (eða bæði)?
- Hvaða nýsköpun var árangursríkust og hvað gekk síður upp?
- Nýtur fyrirtæki þitt sérstöðu gagnvart nýsköpuninni eða nýta önnur fyrirtæki líka sömu hugmyndina?

3. Nýsköpunarferill

- Hvaðan færðu hugmyndir að vöru/þjónustu?
- Hefur verið hætt við einhverja nýsköpunarhugmynd sem var í þróunarferli? Ef já, af hverju?
- Hermir fyrirtæki þitt eftir einhverju sem hefur reynst árangursríkt hjá öðru fyrirtæki? Ef svo er var varan eða þjónustan betrubætt miðað við fyrri framleiðendur eða þjónustuaðila?
- Hverjir eru þáttakendur í nýsköpunarferlinu?
- Leitar fyrirtækið að hugmyndum utan geirans (utan ferðaþjónustu)?
- Hvernig eflir og/eða eflir fyrirtæki þitt við sköpun starfsmanna?
- Veldur samkeppni eða þrýstingur utan frá því að menn verði að skapa eitthvað nýtt til þess að lifa af?
- Hvaða hindranir hefur þú orðið var við sem veldur því að nýsköpun gengur síður upp? (Ytri s.s. kreppur, verðbólga, tækniskortur, reglugerðir eða markaðir. Eða innri s.s. stöðnun/tregða, fjárhagserfiðleikar, lánstarfsemi, starfsmannaskortur eða þekkingarskortur)
- Hefur fyrirtækið þitt fengið nýsköpunarstyrki af einhverju tagi til uppbyggingar eða vöruþróunar?
- Er fyrirtækið með einhver einkaleyfi eða sérleyfi?

- Hvernig gætu stjórnvöld elft nýsköpun í ferðaþjónustu enn frekar?
- Af hverju er nýsköpun mikilvægt fyrir fyrirtækið þitt?
- Af hverju er nýsköpun mikilvægt fyrir íslenskrar ferðaþjónustu?

4. Vöxtur fyrirtækisins

- Hvernig hefur fyrirtækið stækkað með tilliti til fjármagnstreymis/veltu, fjölda starfsfólks (starfsmannapróunin), fjölda gesta, aukning framleiðslu, vöruúrval, uppbygging og síðasta ár. Hvernig hefur vöxturinn verið síðustu ár?
- Hver er aðalástæðan vaxtarins? Hvaða ytri áhrifavaldar (t.d. vöxtur innan ferðaþjónustunnar almennt; gengisþróun) og hvað innri [nýsköpun?]??
- Hverjir eru framtíðar vaxtarmöguleikar?
- Hvaða nýsköpunarmöguleika sérð þú í framtíðinni?
- Hvar sérð þú fyrirtækið þitt eftir fimm ár?
- Ert þú að aðstoða aðra í nýsköpun eða fyrirtækjarekstri t.d. sprotafyrirtæki?
- Hvernig væri hægt að efla samstarf innan geirans?
- Af hverju er nýsköpun í ferðaþjónustu mikilvæg?

Questionnaire for the Icelandic Tourist Board and The Icelandic Tourism Cluster

Almennar upplýsingar

- Hvenær var Ferðamálastofa/Íslensk ferðaþjónustuklasinn stofnuð?
- Hver er ástæðan fyrir stofnuninni með tilliti til stefna eða markmiðs?
- Hafa verið gerðar á skipulagsbreytingar á stofnuninni á síðastu árum?
- Hvernig styður Ferðamálastofa / Íslensk ferðaþjónustuklasinn við nýsköpun innan ferðaþjónustunnar? Hvernig gæti hún eftl nýsköpun or samstarf enn frekar?
- Hvað er aðalástæðan fyrir vexti í greininni? Hverjir eru ytri áhrifavaldarnir (t.d. skapast vöxtur innan ferðaþjónustunnar almennt vegna gengisþróun eða hvað?) og hverjir eru innri áhrifavaldar (svo sem nýsköpun?)?
- Hverjar eru vaxtarhindranirnar í ferðaþjónustunni?

Samkeppnishæfni innan klasans

- Er til mikil samkeppni í greininni? Um hvað snýst samkeppnin, um verð eða .. ? Hvernig væri hægt að styrkja samkeppnina þannig að hún snúist frekar um verðmætasköpun, gæði og skynjun ferðamanna?
- Hvernig eru staðlar t.d. gæðisstaðlar á Íslandi samanborið við fyrirtæki í Evrópu?
- Hver er helsta ógn ferðaþjónustunnar? Keppinautar? Staðkvæmdarvörur? Samkeppnisógn innan atvinnugreinarinnar sjálfar á meðal núverandi keppinauta?
- Hversu mikið vald hafa viðskiptavinir og birgjar? T.d. í samningagerð, vali á fyrirtækjum?
- Hvernig væri hægt að stuðla að samstarfi, efla tengslanetið og þekkingarflæði enn frekar? Milli fyrirtækja? Milli fyrirtækja og stjórnvalda? Hvað geta fyrirtækja gert til að efla samstarf, þekkingarflæði og tengslanet?

Stjórn klasans

- Er forystan sterk og ef já, hvaðan kemur styrkleikinn?
- Hver ber ábyrgð á forystu og stjórn ferðaklasans?
- Hverjir eru helstu leiðtogarnir í ferðaþjónustunni?
- Hvernig mundi þú lýsa stefnumótun stjórnvalda? Hvað eru veikleikarnir og hvað styrkleikarnir?

Nýsköpun innan klasans

- Hvernig mundi þú lýsa nýsköpun innan starfsgreininnar?
- Hver hefur verið helsta nýsköpunin (vara eða þjónusta) í íslensku ferðapjónustunni síðastliðin ár sem þú tókst vel eftir?
- Hvaða nýsköpun hefur verið árangursríkust og hvað hefur síður gengið upp á Íslandi?
- Hvaða hindranir hefur þú orðið var við sem velda því að nýsköpun gengur síður upp? (Ytri s.s. kreppur, verðbólga, tækniskortur, reglugerðir eða markaðir. Eða innri s.s. stöðnun/tregða, fjárhagserfiðleikar, lánstarfsemi, starfsmannaskortur eða þekkingarskortur)
- Af hverju er nýsköpun í ferðapjónustu mikilvæg?
- Eru til hvatning til nýsköpunar innan geirans?
- Hvernig er staðið að fjármögnun sprotafyrirtæki, nýsköpun og vöruþróun? Hvaða sjóðir eru til?
- Hvernig gæti samfélagið tekið meiri þátt í ferðapjónustunni og nýsköpun?
- Hvaða hlutverki gegna sveitafélögin í ferðapjónustunni? Á hverju bera þau ábyrgð?
- Hvernig geta ámóta klasar bætt tengslin við ferðaklasann?

Framtíðarsýn

- Hvaða nýsköpunarmöguleika sérð þú í framtíðinni?
- Hverjir eru framtíðar vaxtarmöguleikarnir?
- Hvaða sértækan markað er hægt að þróa betur?
- Af hverju ættu ferðamenn að velja Ísland í framtíðinni og ekki t.d. önnur lönd í Skandinavíu, Kanada eða Nýja Sjáland?
- Hvert ert framtíðarsýn ferðapjónustunnar fyrir næstu ár á Íslandi (opinber og ætluð)?