Icelandic tourism profitability and sustainability strategies

The facilitating role of aviation

Alda Metrass Mendes

Icelandic tourism profitability and sustainability strategies

The facilitating role of aviation

Alda Metrass Mendes

Abstract

This report presents the ongoing project on the facilitating role of aviation for the development of profitable and sustainable strategies for Icelandic inbound tourism. The project is a three year collaboration between the Icelandic Tourism Research Centre and the Icelandair Group and it aims at identifying policy and business strategies expected to help maintain Icelandic tourism sustainability and at the same time improve market profitability. The report starts by introducing the research and presenting the state of the art, along with identifying the existing research gap. General aims and objectives of the project are stated, the proposed methodology is covered as well as the work plan and suggested basis for potential collaborations. In the end some final remarks will be made on the future trajectory of the project.

Keywords: Air transportation, Icelandic tourism, airline business development, niche market, market intelligence, tourist behavior, discrete choice modeling, policy, planning, development, investment, sustainability.

Table of Contents

List of Figures and Tables

1. INTRODUCTION

This report describes the premises of an on-going research on how Iceland can balance the development of aviation based tourism with sustainability. This balancing is of critical importance for the country as in its post-crisis economic development tourism has gained prominence. This tourism depends totally on aviation as flying is currently the only means of getting visitors to the island en masse. Tourism development in Iceland is following a worldwide trend, pushed by the global credit crunch of 2008 and the subsequent national financial crisis. Tourism's prominence in the country by now is reflected in government policy which has identified tourism as a potential tool for economical and regional development (Alþingi, 2011; Jóhannesson *et al.*, 2010; PKF, 2013; and The Boston Consulting Group [BCG], 2013). Policy-makers recognize that tourism development policies require fundamentally new strategies and approaches. They are encouraging industry stakeholders to address capacity and environmental resources management, to coordinate planning and to develop infrastructure, and to innovate and develop products (Alþingi, 2011).

This study proposes to describe and analyze the Icelandic tourism market focusing on the development of source market intelligence for a common understanding of a sustainable business model and its potential for success assessment. The goal is to provide new insights into consumer behavior relating to tourism development, enabling policy-makers and stakeholders to have a better understanding of the market conditions and to improve the planning, development, and investment strategies. Research objectives and questions will be addressed in detail in sections 1.4 and 1.5 respectively.

The motivation of this study is drawn from the implications of tourism on national and regional development and the implications of aviation on Icelandic tourism. It is clear that aviation has had a major impact upon economic development throughout the world (Ishutkina, 2009; and Ishutkina and Hansman, 2008). This is especially true in the case of geographically remote regions and economies that increasingly rely on aviation based tourism (Bowen, 2000; Metrass-Mendes, 2011; and Papatheodorou and Zheng, 2006) such as Iceland.

The remainder of this introduction is organized as follows: section 1.1 provides the motivation for the research; section 1.2 states the research problem; section 1.3 presents the background for the research project; sections 1.4 and 1.5 cover the research objectives and

questions, respectively; section 1.6 reviews the premises, the scope and the constraints of the project; and section 1.7 summarizes the structure of the report.

1.1. Motivation

Tourism and outdoor recreation is one of the most rapidly growing service industries throughout the world. Tourist use of the natural environment concomitantly increases (Orams, 1996). The wilderness areas of the world provide for an allure under these circumstances. As a consequence tourism in Northern peripheral regions is growing fast as the fascination of snow, ice and cold, and as the midnight sun and northern lights appears to be increasing along with motivations to see remote places before they get known or change as result of e.g. climate change (Baldacchino 2006a; Lemelin, *et al.*, 2011 and Sahlberg, 2001). Icelandic tourism has accompanied this trend and is currently performing above the region's average in terms of key growth indicators of the tourism industry (Jóhannesson *et al.*, 2010).

This has resulted in the Icelandic government, local authorities and industry stakeholders looking for the development of profitable opportunities while expressing concern over the impact of the increasing utilization of the island's resources. Developing policy programs for promoting sustainable management responses to increasing tourist demand on the natural environment is a major priority for Icelandic policy-makers and the government has proposed to address the management of attractions and environmental resources in its tourism development strategies (Alþingi, 2011). Balancing the industry's sustainability in the wider sense and its profitability from a business perspective poses a major challenge for all stakeholders. Thus, the motivation to perform a careful analysis of the Icelandic tourist market in order to develop a business model proposal that is both sustainable and profitable, and define policy for its implementation.

One of the key weaknesses of Iceland's current promotional model and approach is the lack of detailed market intelligence. There is an urgent need for better market intelligence, focusing on specific segments and geographic source markets in order to set and refine targets for these (BCG, 2013, pp. 23, 31; and PKF, 2013, pp. 46, 69, 71, 80). According to PKF (2013), "despite an abundance of visitor statistics ranging from airport arrivals to accommodation and from business statistics to visitor surveys there is a clear lack of in-depth analysis of visitor

trends and preferences both by geographic source market and special interest segments" (p. 46).

Source market research is considered a key enabler in tourism development toolkits, allowing optimum efficiency of marketing expenditure by focusing on the areas offering the greatest opportunities. This type of market research links social values with travel preferences and allows targeting the individuals with the highest propensity to visit a destination and specific attractions. This research adds to the body of practical and theoretical knowledge available to the development of aviation based tourism, tourist behavior, segmentation and targeting, and in particular, inbound Icelandic tourism.

1.2.   Problem statement

Right now, Icelandic inbound tourism is experiencing outstanding growth. The industry faces important competitive and sustainability challenges: growing destination competition, high seasonality and high concentration of visitors at few attractions. Moreover, growth of the industry is ahead of planning. Iceland needs industry and business strategies that are both profitable and sustainable.

1.3.   A snapshot of Icelandic tourism: tourism in Iceland, the role of aviation, and national policy and funding

Iceland is the westernmost European country and sits remote just south of the Arctic Circle. Yet, its geographic location makes it a strategic hub for its national carrier Icelandair connecting main destinations in North America and mainland Europe. The airline also provides regional – domestic and international – accessibility through its subsidiary Air Iceland (*Flugfélag Íslands*). Air services operated by the Icelandair Group present thus a valuable opportunity for foreign, national, and regional tourism development. The industry – rooted in a Nordic niche market – is expanding with governmental and industrial promotion of the country's cultural heritage and outstanding natural attractions.

1.3.1. Tourism in Iceland

Though Iceland is one of the most developed nations in the world, ranking among the highest countries in terms of both GDP per capita and Human Development Index (HDI), the modernization of Iceland started relatively late compared to most other European countries. Icelanders have a strong sense of history and culture and due to it being sparsely populated large tracks of land are undeveloped and considered wilderness (Jóhannesson *et al.*, 2010). This rare combination of perceived wilderness in a recently modernized country is increasingly difficult to find. Iceland should thus become a more sought after destination for many travelers. This is reflected in Iceland's competitive position as an adventure destination. The country ranks consistently among the top five worldwide adventure destinations, in the Adventure Tourism Development index. This position is due to Iceland's scores for natural and adventure activity resources that are particularly high. On the other hand, visitors' arrival from long-haul origins may be reduced by rising costs of traveling by air due to the implementation of climate change and greenhouse mitigation policies (Pentelow and Scott, 2011).

Yet, competition is increasingly important as other adventure destinations launch campaigns to capture this rising market segment (BCG, 2013, p. 78). PKF (2013) defines Finland, Norway, Sweden and Alaska as the main competitors of the Icelandic destination. The destinations Greenland, the Faroe Islands, New Zealand, and certain regions of Canada, such as Vancouver, are also considered competitors of Iceland, but to a lesser extent (p. 25). What should be highlighted in this context is the fact that the number of tourists in Iceland is still small in any global comparison (Baum, 1999; Hudman and Jackson, 2003; and Jóhannesson *et al.*, 2010).

Thus, tourism in Iceland maintains the characteristics of a niche market and has been addressed by authors such as Hudman and Jackson (2003), Jóhannesson and Huijbens (2010), Jóhannesson *et al.* (2010), and Sæþórsdóttir (2010). In the early 2000s, Iceland was still receiving a very small number of visitors compared to other Nordic countries. National income from tourism and tourist per capita expenditure were also the lowest among Northern countries (Hudman and Jackson, 2003). However, in the past decade, tourism in Iceland has been experiencing an outstanding growth. The number of visitors arriving yearly at the major Icelandic airport (Keflavík) has increased by over 338,000, which represents almost a 110

percent growth from 2003 (Icelandic Tourist Board, 2013). With this growth, the already identified challenges common to small island tourism destinations, such as high seasonality and high concentration of tourists at few attractions, are arising important environmental issues (Jóhannesson et al., 2010).

Figure 1 shows the evolution of the number of tourists registered at departure from Iceland at Keflavík from 1949 to 2012. Looking into those figures one can immediately identify how the tourist industry is very obviously dependent upon the North American (U.S.A. and Canada) and northern European (Nordic countries and U.K.) regions. In 2012, the U.S.A. and the United Kingdom were the two largest individual markets for Iceland, each accounting for approximately 15 percent of its visitors. Between 2011 and 2012, the three fastest growing citizenships recorded were Russia, China, and Japan, with increases of number of visitors of 82, 60 and 50 percent, respectively although absolute numbers remain small. The UK was the fourth growing market with an annual growth of 40 percent (Icelandic Tourist Board, 2013).
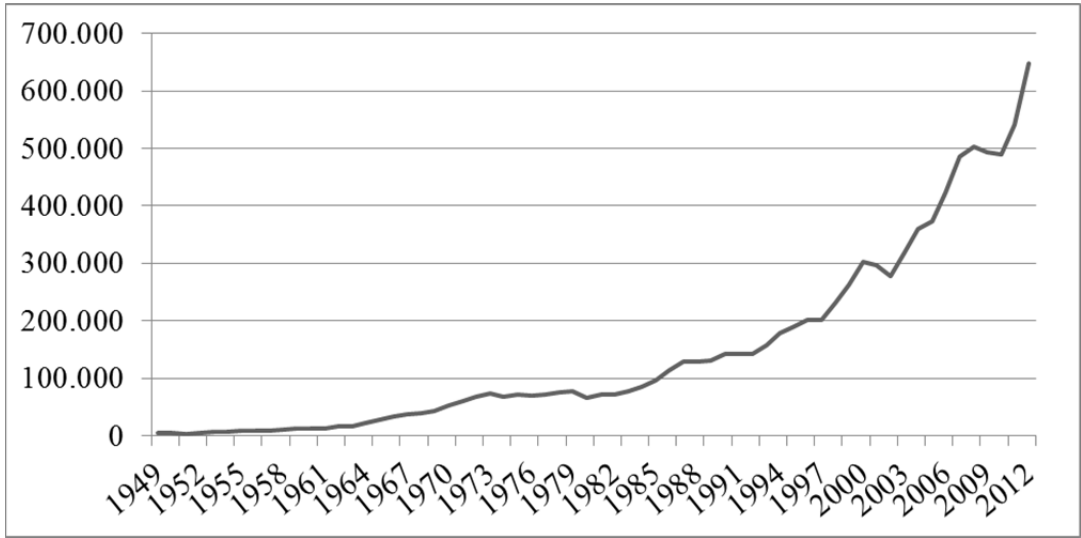
Figure 1: Evolution of number of visitors to Iceland arriving at the major Icelandic airport (KEF).
Source: Icelandic Tourist Board, 2013

PKF (2013) identifies as key international source markets the Nordic countries, North America, the United Kingdom, Japan, France, Germany, and Switzerland (p. 34). Also according to PKF (2013), the majority of tourists come to Iceland for leisure purposes. The report defines the following broad most relevant demand segments (p. 38):

1. Adventure and specialist tourism;
2. MICE (Meetings, Incentives, Conferences and Events);
3. Cruise;
4. Culture;
5. And short-breaks.

Within these defined wide segments, PKF (2013) mentions fishing, bird and whale watching, food and gastronomy as well as health and wellness as "the special interest niche segments demonstrating the greatest untapped potential" (p. 38). Two of the segments identified by PKF - short breaks and MICE – are also identified as promotion targets by BCG (2013). Yet, their report defines a different division of tourist types, and prioritizes older relaxers, affluent adventurers, emerging market explorers, along with the MICE and the short break types. According to BCG (2013), these are the segments "that are both attractive to Iceland and for whom Iceland has an intrinsic appeal (p. 31).

1.3.2. The role of aviation

A major factor contributing to Iceland's limited share of global tourism flows is the location of the country – its remoteness and insularity. Air accessibility plays the foremost role in sustaining and fostering tourism and airlines are major stakeholders of the industry locally. The national airline Icelandair currently carries the large majority of visitors to Iceland (up to 75 percent) and faces competition only on routes to Europe which is also its largest market with 70 percent of its seating capacity (Icelandair Group, 2011). Icelandair follows a low-fare with frills hybrid model and uses the strategic geographical location of Iceland to capture a limited share of trans-Atlantic passengers between North America and northern Europe. However on the European market, low cost competition is increasing with the arrival and route development of LCCs such as EasyJet, WOW Air, Norwegian Air Shuttle and Air Berlin. Marketing managers of all carriers seek to increase profitability and sales opportunities in European and North American markets. Icelandic government encourages airline companies to enter and develop foreign markets in order to attain its economic and regional tourism development goals.

1.3.3. Icelandic tourism policy and funding

The challenge of having growth driving planning, rather than planning managing growth in Icelandic tourism has been unraveled only relatively recently by policy-makers, industry stakeholders and researchers in Iceland (BCG, 2013; Jóhannesson *et al.*, 2010; and PKF, 2013).

Government concerns with this major challenge have been showcased both in the Tourism Administration Act of 2005 and in the new national strategy for tourism approved in 2011. The national strategy for 2011 recognized four main priorities and needs:

- To maintain Iceland's unique nature;
- To improve quality, professionalism and environmental consciousness of tourism industry;
- To promote increased profitability and respect for the industry:
- And to extend tourist season, decrease seasonality and promote better distribution of tourists around the country.

In 2010, the government established the institution "Promote Iceland" to coordinate marketing of Iceland abroad. In 2011, the budget for "Promote Iceland" was ISK 835 million in 2011, of which Visit Iceland's public funding was approximately ISK 200 million. For the same year, the annual budget of the Icelandic Tourist Board was ISK 308 million (PKF, 2013, p. 28).

By the end of 2011, the Icelandic government launched the three year marketing and promotion initiative "Ísland Allt Árið" (Iceland - all year round) with the primary aim of increasing visitor arrivals in Iceland during off-peak periods. According to Huijbens and Árnason (2012), most of the funds made available were earmarked for marketing campaigns which are meant to follow the lead set by the marketing campaign "Inspired by Iceland". The "Inspired by Iceland" campaign was 50/50% public/private funded with the public element capped at ISK 300 million per annum. The other marketing campaign established by the Icelandic authorities, "Iceland Naturally", is 60/40% public/private funded with the public element equating to ISK 74 million (PKF, 2013, p. 28).

The PKF (2013) report identified four critical factors for success. These factors mimicked to some extent the already established national priorities of 2011 while emphasizing other aspects of tourism development such as accessibility and infrastructure. The critical factors identified are:

- Sustainability: commitment and progress towards sustainability criteria and standards;
- Destination appeal and access: quality and diversity of product and its appeal as well as year-round access from international source markets;
- Tourism-related infrastructure: quality and range of infrastructure (accommodation, services, facilities, and transport);
- Tourism industry framework and policy: enabling tourism industry framework and policy in terms of industry support, skills and human resources as well as marketing and promotion (PKF, 2013).

In respect to public funding and investment in tourism services and infrastructure, from 2013 to 2015, ISK 500 million per annum will be allocated to development of attractions and ISK 250 million will be used to improve infrastructure of national parks and nature reserves. As part of the general budget for the development of attractions, The Icelandic Tourist Board allocated ISK 279 million to 75 projects across the country in April 2013.

1.4.   Research objectives

This research contributes to the analysis of how Iceland can balance the promotion of air transportation based tourism and its profitability with social, cultural, economic and ecological well-being and sustainability of communities. It proposes to enable stakeholders to identify and select market development opportunities (high yield sustainable customers) for Icelandic inbound tourism with a methodological framework that addresses the lack of detailed market intelligence and existing gap in source market research. More specifically, the research aims:

a) to assess the Icelandic tourism source markets: to screen, cluster and rank countries of origin by relevance to the industry both in terms of sustainability and profitability;

b) to model the Icelandic tourist behavior, both in terms of destination choice and choice of attraction/activity within the destination;

c) to link a) market research analysis and b) tourist behavior modelling and taking a step forward towards market segmentation for accurate targeting;

d) and to provide guidelines to use when planning Icelandic destination and attraction development and marketing and when taking investment decisions.

At present, no studies are available in which 'cold water island destinations', using a term derived from Baldacchino (2006a; and 2006b), are perceived pre and post-visit by tourists. This research project will identify visitors' images and perceptions of Iceland as a tourism destination, and of Icelandic attractions, before and after a first visit. This analysis will guide and facilitate the development of a sustainable and profitable Icelandic tourism product. A major contribution of this research will be proposals to inform both community and industry stakeholders on the adoption of both profitable and sustainable strategies and thus contribute to the development of a community-based nature and cultural tourism. Community members, policy-makers and airline and tourism stakeholders will be able to draw several strategic lessons from the research findings.

1.4.1. Summary of objectives

The objectives of the project can be summarized in four items:

1. To critically assess opportunities for Icelandic inbound tourism
    1.1. To perform Icelandic inbound tourism market clustering and segmentation;
    1.2. To rank source markets based on effective factors and estimated weights;

2. To capture attractions' development opportunities and assess congestion threats
    2.1. To model preferences of visitors for Icelandic attraction and activity attributes;
    2.2. To capture current visitors' sensitivity to congestion;

3. To appraise attraction choices linked with market development opportunities and simulate changes in tourism demand under alternative scenarios;

4. And to provide guidelines to use when planning Icelandic destination and attraction development and marketing and when taking investment decisions.

1.5.   Research questions and hypotheses

The main research question is:

What strategies should Iceland adopt to improve Icelandic tourism profitability and at the same time maintain its sustainability? What could be the facilitating role of aviation in this process?

The research design is based on four major hypotheses:

- H1: Profitability and sustainability do not have to be exclusive. By considering environmental issues when setting revenue objectives for tourism, industrial strategies (government policies) and business strategies can successfully balance the trade-offs;

- H2: Linking market research analysis and tourist behavior modeling could present great value for tourism industry stakeholders;

- H3: Foreign source markets for inbound Icelandic tourism can be further explored and studied to increase sales opportunities and profitability for airlines and Icelandic attractions;

- H4: Improving tourist choice behavior knowledge and information prepares policy-makers and industry stakeholders to adopt strategies that work from both profitability and sustainability viewpoints.

1.6.   Premises, scope and constraints

The following premises forms the basis upon which this research rests:

- There is still relatively little formal literature to substantiate the value of market research for the development of sustainable and profitable tourism.

- Yet, continued rapid growth in the body of knowledge will challenge policy and management to develop effective ways to identify and extract relevant knowledge and apply it to the tourism planning, investment, management and marketing processes.

- The employment of tourist behavior knowledge will be the most effective way to address strategies and relevant issues in these processes.

The following delimitations define the scope of the research:

- This research project will focus on the study of Icelandic foreign tourism arriving to the country by air and the legacy carrier Icelandair. It will not cover domestic tourism and tourism done by visitors arriving to Iceland with other transportation modes or carriers.

- This research assumes that the tourist behavior and segmentation of foreign air travelers at the level researched herein is not generalizable to other groups - domestic tourism and tourism done by visitors arriving to Iceland with other transportation modes or carriers.

- Whilst some research with foreign travelers arriving to Iceland with low cost carriers will hopefully be conducted, current restrictions cause some concern in this respect. Should the access to these passengers prove impossible to, secondary research will be extended in order to provide an alternative means of analysis.

- However, this research assumes that the use of foreign air travelers as subjects might be generalizable to some extent to other groups of tourists visiting Nordic countries and/or regions – with several features in common with Iceland - using the same transportation mode to reach their destination. Application of this research can therefore extend to other Nordic destination whilst cross-national comparison is dependent on potential collaborations.

- This research will not study the impacts of tourist behavior on the local communities, on natural environment, and on existing and developing infrastructures and services.

Instead, this research is expected to link with other ongoing research to address environmental issues whereas this link is dependent on potential collaborations.

- Finally, whilst every endeavor will be made to present a global perspective, many original documents are written in Icelandic. Obtaining technical translation of these documents may prove difficult or limited. Electronic translation software may be employed for documentary analysis along with help from other staff at the Icelandic Tourism Research Centre.

1.7.   Structure of the report

This report is organized as follows. Chapter 2 discusses the literature on air transportation and economic activity, tourism in islands and small states, nature-based tourism, tourism development in Nordic countries and in Iceland, role of governments, airline business models, involvement of local communities, and limits to tourism growth, and it identifies the research gap. Chapter 3 describes the proposed methodology. The design overview and the data sources are presented, and the research quality issues are addressed. In Chapter 4, the work plan is presented including the project structure, the schedule, the management and reporting. Chapter 5 describes expected collaborations with the industry and other research centers. Finally, in Chapter 6 some proposed deliverables and impact of the project are presented.

2. LITERATURE REVIEW

The purpose of this chapter is to review the relevant literature on which this research is based. The literature discussed in this chapter comprises the theoretical and practical domain of the research, leaving references most directly related to methodology and context to the methodology chapter of the report.

The review predominantly draws on three distinct bodies of literature that together reflect the interdisciplinary nature of the research project. The first focuses on tourism competitiveness models, the second focuses on the market research analysis, and the third addresses tourism demand modeling and forecasting. This diverse literature pertains directly to the problem of analyzing and conceiving strategies for the planning, the investment, and the development of Icelandic tourism by addressing both the technical and social aspects of these processes. To address this diversity of aspects, it is necessary to draw on multiple strands in the literature, as no single framework is adequate to fully justify results. On the basis of the literature reviewed a gap analysis will be conducted to identify research opportunities and indicate the potential contribution of the research presented here.

The remainder of this chapter is organized as follows: section 2.1 offers a description of certain relevant aspects of tourism competitiveness models, 2.2 reviews the literature on the source market analysis, section 2.3 provides a discussion of some of the current literature on tourism demand modeling, and section 2.4 identifies the research gap in literature.

2.1.   Tourism competitiveness models

The identification and evaluation of tourism competitiveness factors is a common research problem and there is a vast literature dedicated to the topic in tourism economics. Porter's generic competitive strategies (1990) have however been a recurrent theme in the theory of tourism competitiveness despite Inskeep (1991) and Poon (1993) introducing the tourism point of view.

Interest in destination competitiveness has stimulated a number of research studies. Many of these studies had the aim of diagnosing the competitive positions of specific destinations.

On the other hand, other research has focused on particular aspects of destination competitiveness including destination positioning, destination management systems, destination marketing (Buhalis, 2000), price competitiveness (Dwyer *et al.*, 2000), strategic management (Haugland *et al*, 2011), and quality management (Go and Govers, 2000). A third group of research has sought to develop general models and theories of destination competitiveness. Crouch and Ritchie began to study the nature and structure of destination competitiveness in 1992, and detailed a comprehensive model of tourism competitiveness in 2003, in their book *The competitive destination: a sustainable tourism perspective* (see also Vanhove, 2011).

The model presented by Crouch and Ritchie (2003) is a conceptual model that is tailored to the distinctive characteristics of destination competition. The model recognizes that destination competitiveness is based upon a destination's resource endowments (comparative advantage) as well as its capacity to deploy resources (competitive advantage). The model also acknowledges the impact of global macro-environmental forces (e.g., the global economy, terrorism, cultural and demographic trends, etc.) and competitive micro-environmental circumstances that impact the functioning of the tourism system associated with the destination. The factors of destination competitiveness are represented in the model clustered into five main groups, and, in total, the model identifies 36 destination competitiveness attributes. Figure 2 shows the model developed by Ritchie and Crouch.
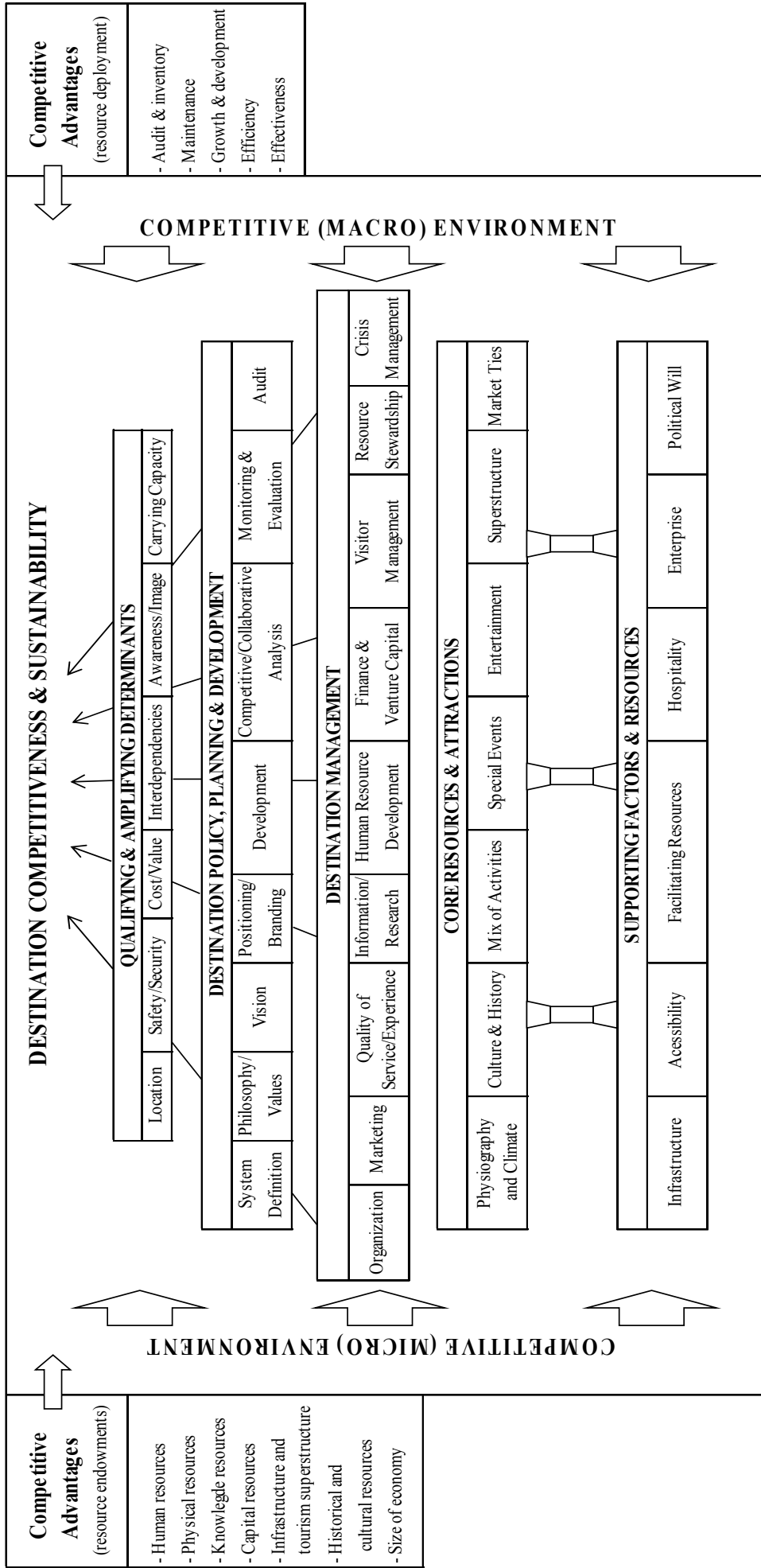
Figure 2: Ritchie and Crouch's conceptual model of destination competitiveness.
Source: Ritchie and Crouch, 2003, p. 63.

23

Since the original development of this model, many authors have addressed the topic and contributed to the analysis of factors that influence tourism success and tourism destination competitiveness. For example, Dwyer *et al* (2004) included as the primary elements of their model endowed resources of four kinds. "Natural" (e.g. mountains, coasts, lakes, and general scenic features), "heritage" resources (e.g., handicrafts, language, cuisine, customs, etc.); created resources (such as tourism infrastructure, special events, shopping, etc.); and supporting resources (such as general infrastructure, accessibility, service quality, etc.). Destination management is the second core component of their model comprising government and industry. Their model then reveals that resources and destination management interact with tourism demand and situational conditions to influence destination competitiveness and socio-economic prosperity. The model by Dwyer *et al* (200) differs from the one of Crouch and Ritchie (2003) in that it does not include the core components "Qualifying and amplifying determinants" and "Destination policy, planning and development", and it is therefore less complete. Despite being less comprehensive, this model is also relevant to this research since it highlights important aspects of the endowed resources.

For more examples of how tourism destination competitiveness models have been developed conceptually and implemented empirically see Buhalis (2000), Crouch and Louviere (2004), Crouch and Ritchie (2005), Crouch and Ritchie (1999), Dwyer *et al.* (2000), Go and Govers (2000), Goeldner *et al.* (2000), Gooroochurn and Sugiyarto (2005), Mangion *et al.* (2005), and Mihalič (2000), and, more recently, Bornhorst *et al.* (2010) and Navickas and Malakauskaite (2009).

Destination competitiveness models and their associated literature are proposed as a starting point for identifying factors of Icelandic tourism success and competitiveness. Within the model of Ritchie and Crouch (2003), this research is particularly focused on the components of "Destination Management", "Core resources and attractors", and "Supporting factors and resources". Within the element of "Destination Management", this research addresses the marketing, quality of service and experience, information/research, and visitor management elements. Under the umbrella of "Core resources and attractors", the study is mostly concerned with the mix of activities element. Within the component "Supporting factors and resources", the research focuses on both the infrastructure and accessibility elements. On the other hand, this research also focuses aspects – endowed resources - highlighted on the model

of Dwyer *et al.*, by integrating them in the design of the discrete choice experiment and, in particular, in the design of the attractions' packages.

2.2.   Source market analysis

Icelandic tourism, in its quest for sustainable and profitable expansion and development, is faced with the complex task of screening and evaluating sources markets. Sources markets for Icelandic inbound tourism differ in terms of market attractiveness, due to variations in the economic and commercial environment, growth rates, political stability, consumption capacity, interest for the Icelandic destination, receptiveness to Icelandic tourism products, and other factors.

Two main questions arise when screening and evaluating sources markets. Namely
1. "How can the industry define, characterize, and express source market opportunity?"
2. "What makes a good market, an attractive environment?"

The issue of delineating and quantifying market opportunity has always been a primary concern for policy-makers, industry stakeholders, and marketers, and numerous methods have been proposed to address this concern (see e.g. Douglas and Craig, 1983; Helsen *et al.* 1993 and, more recently, McQuarrie, 2011).

Within the context of export market research, authors like Cavusgil (1985) have proposed procedures for identifying the markets with the best potential. These procedures involve a three-step process for identifying the markets with the best potential. The author recommends a preliminary screening to determine which markets justify further investigation, to be followed by an assessment of the market potential to estimate aggregate demand, and finally, an analysis of sales potential in light of the destination's unique product and circumstances. The procedure of a market analysis and selection may change; however, it is commonly accepted that country screening should be the first step (Cavusgil *et al.*, 2004).

More recently, Cavusgil *et al.* (2004) have proposed and recommended the use of two complementary approaches to this preliminary foreign market assessment and selection: country clustering and country ranking. This approach has been supported by the works of Sakarya *et al.* (2007), and Gaston-Breton and Martín (2011), among others.

On the one hand, country of origin clustering yields a group of source markets with similar commercial, economic, political, and cultural dimensions. These similarities not only help managers compare the countries, but also provide information on possible synergies among markets (Cavusgil *et al*., 2004). On the other hand, ranking essentially rates countries in terms of their overall market attractiveness according to dimensions that are relevant to the policy-maker, industry stakeholders and the marketers. When the two methods are combined, policy-makers, industry stakeholders, and marketers are able to identify a reduced set, or sets, of potentially attractive source markets with meaningful similarities. According to Cavusgil *et al*. (2004), the combination of these two methods can be extremely useful to managerial decision makers in the early stages of foreign market selection. Yet, the authors also acknowledge that, once the screening is completed, in-depth evaluation is still necessary for source market entry and development decisions.

This research builds on the knowledge from this literature to perform two-fold market assessment: (1) market-place assessment (covering changes within existing markets); and a (2) market entry assessment (identifying opportunities in new markets). The modeling and analysis of Icelandic tourism market will be done through the combination of the two methods: (1) country of origin or source market clustering; and (2) source market ranking. While some researchers suggest the combination of the two methods as a preliminary step in market analysis, others recommend it for ultimate source market selection or market segmentation. In this research, this combination of methods is used for the latter: ultimate source market selection and segmentation.

The rationale for this two-method approach is that classification and ranking of markets alone shows similarity between distinct market groups but does not show the market potential, while market ranking identifies the most attractive markets without identifying differences and similarities between the markets. Using the two (clustering and ranking) will provide decision-makers with more useful and improved information about the target markets (Cavusgil *et al*., 2004; and Mullen, 2009).

The following subsections address with further detail the literatures on source market clustering, and source market ranking.

2.2.1. Market Clustering

Empirical data on heterogeneity of demand for specific products and services are sparse. Those most interested in studying markets generally do not make a practice of prospecting for heterogeneity. Instead, they are interested in finding areas where users' needs are similar enough to represent profitable markets for services or products.

Since the 1970s, nearly all market-segmentation studies have been carried out by means of cluster analysis. For examples, see Green and Rao (1971); Helsen and Green (1991); and do Paço and Raposo (2009). Among the earliest studies on marketing research and clustering are the works of Green and Rao (1971), Green and DeSarbo (1978), and Punj and Stewart (1983). Since these pioneer works, clustering has become a very popular way of identifying market segments (see e.g. Cavusgil, 1990; and Sakarya *et al.*, 2007). In tourism research, cluster analysis has been applied to market segmentation by authors like Cha *et al* (1995); Gonzalez and Bello (2002); Arimond and Elfessi (2001), and, more recently, by Park and Yoon (2009), and Dolnicar *et al* (2012).

Cavusgil (1990) offered a market-oriented clustering on the basis of population growth, median age, number of children per household, participation of women in the work force, infant mortality rate, life expectancy, and GNP per capita. The author's classification divided the countries in five clusters: "Dependent Societies", "The Seekers", "The Climbers", "Luxury and Leisure Societies", and "The Rocking Chairs". Moreover, the author discussed the marketing implications for each cluster and highlighted the fast pace of change in societies, noting that this fast pace of change can alter cluster composition, and invited marketers to address this issue by conducting periodic studies.

On the other hand, Sakarya *et al.* (2007) presented a tool composed of four criteria that is used for the preliminary assessment of emerging markets and their international expansion opportunities. Based on the literature pointing out the limitations of international market selection models and the need for a specialized approach, the authors introduce additional criteria to assess emerging market potential. The authors use long-term market potential, cultural distance, competitive strength of the related industry and customer receptiveness as four additional criteria for assessing emerging markets as candidates for subsequent in-depth analysis and clustering. In their findings the authors highlight that the assessment of the

emerging market with these additional criteria revealed growth and sourcing opportunities that might otherwise have been overlooked.

Dolnicar *et al* (2012) illustrate how data-driven segmentation studies are typically conducted in the field of tourism research. They provide a systematic overview of applications published in the last decades and outline critical issues, predominantly related to overestimation of the validity of results. They offer solutions or recommendations that help both the researcher to keep the critical issues in mind as well as the management to evaluate the validity and usefulness of the study. This research will make use of these specific solutions and recommendations when critically reviewing the preliminary findings of the source market analysis.

This research draws on the existing literature on clustering and it combines the two approaches by Cavusgil (1990) and Sakarya *et al.* (2007) and takes into account the critical issues outlined by Dolnicar *et al.* (2012) as well as their recommendations. As in Cavusgil (1990), the research conducts a market-oriented clustering on the basis of population growth, median age, number of children per household, life expectancy, and GDP per capita keeping a critical eye on the fast pace of change in societies. In addition, the research follows the approach by Sakarya *et al.* (2007) and includes: (1) long-term market potential; (2) cultural distance; (3) competitive strength of the related destinations; and (4) tourist receptiveness as additional criteria for assessing emerging markets as candidates for subsequent in-depth analysis.

The basic shortcoming common to these clustering approaches has been repeatedly identified and have to do with exclusive reliance on aggregate, macro indicators at the neglect of specific-product and/or service market indicators. A second criticism of country clustering is centered on the assumption that countries are indivisible homogeneous units. A final drawback of clustering arises from its use of secondary data which typically lags behind in terms of cross-country comparability (Cavusgil, 2004). This research takes into account all these major shortcomings of the market clustering method. Due to data availability, the project will still use aggregate, macro indicators and neglect specific-product and/or service market indicators; yet, the research will address the second constraint – related to the hypothesis that countries are homogenous units – with the segmentation of tourists within these countries using the discrete choice modeling experiment to study the preferences of

individuals – replacing nationalities or countries of residence – for specific attributes of tourist attractions. The final drawback of clustering is addressed by using data that is comparable and common across the screened countries.

2.2.1. Market Ranking

The second principal method for identifying target source markets is to rank countries on some meaningful indicators of market potential.

Country ranking research began with the pioneer work of Liander *et al.* (1967). They derived country preference indices based on two sets of criteria (economic development and internal stability and cohesion). Later, in the 1980s, Harrell and Kiefer (1981) demonstrated the development of a country attractiveness scale in describing Ford Tractor's market portfolio approach. For the scale, the authors used a linear combination of ratings of market size, market growth, price controls and regulations, homologation requirements, local content and compensatory export requirements, inflation, trade balance, and political stability. The weights of each factor were determined according to the relative importance of each variable in Ford's planning efforts. The most important contribution of the study is that it showed how companies can effectively customize and use such scales and indices.

In the 1990s, the most prominent study on country ranking was done by Cavusgil (1997). Using 13 variables, the author examined 23 countries identified as emerging markets by *the Economist* and ranked them based on market size, market growth rate, market intensity, market consumption capacity, commercial infrastructure, economic freedom, and market receptivity. The work derived the dimensions by standardizing the variables and then converting them to a scale of 1–100. The relative weights of the dimensions were determined by a Delphi process of international business professionals and educators. Finally, the seven dimensions were combined into the overall market opportunity index by using the corresponding weights. The work emphasizes that the index is an aggregate measure of attractiveness and that it should only be used at the preliminary market assessment stage.

This research uses a methodology similar to the one used by Cavusgil (1997) and is grounded in the findings of the reports from BCG (2013), and PKF (2013). It conducts a source market ranking based on market size, market growth rate, market intensity, market consumption

capacity, accessibility, market interest in Icelandic attractions, market profitability, and market long-term sustainability. Initially, this research considered including the "tourist expenditure" dimension in this list of dimensions. Yet, this possibility was discarded when the quality of the data currently available and that could be collected by surveys was analyzed. Data used for the analysis of the remaining dimensions are collected both from aviation data bases, passenger data by Icelandair, and data made available by the Icelandic Tourist Board and Statistics Iceland.

The major objections to indexing are similar to the criticisms of clustering. The main drawback is the lack of product specificity in the indicators (Cavusgil, 1997). This research addresses this issue by using the index only for initial country screening, and not for final selection purposes. Moreover, the indexing here developed can easily be customized by policy-makers, stakeholders and marketers, according to their own preferences or priorities. This can be achieved either by adjusting the weights of the dimensions or, if data are available, by adding new and more firm- or Icelandic tourism-specific dimensions.

2.3.   Tourism demand modeling

Visitors to Iceland look for a variety of experiences and different types of visitors look for different experiences. Although the appeal for tourists lies mainly in the natural landscape, other attributes are also important in destination choice. The appeal of Iceland, its major destination attributes, and its main tourism attractions have been extensively researched, as previously mentioned, by authors like Baldacchino (2006b), Hall and Muller (2008), Jóhannesson and Huijbens (2010), Jóhannesson *et al*. (2010), and more recently by Karlsdóttir (2013) and Olafsdottir (2013).

Icelandic tourists also have different degrees of sensitivity to congestion and may avoid visiting attractions when they have experienced or they anticipate overcrowding. From both the environmental perspective and the visitors' experience, congestion issues and the carrying capacity of the Icelandic nature has been analyzed by Sæþórsdóttir (2010), and Sæþórsdóttir and Ólafsson (2010).

This research employs discrete choice modelling for analyzing the preferences of visitors to Iceland for various attraction attributes, and conducts a discrete choice experiment that covers the congestion or crowding attribute thus complementing the existing body of knowledge.

2.3.1. Discrete choice modeling

Discrete choice modeling is commonly used in many research fields, namely in transportation and travel decisions making research. This research will draw on existing literature (Anderson *et al.*, 1992; Ben-Akiva and Lerman, 1985; Garrow, 2010; Morikawa *et al.*, 2002; Train, 2003; and Walker and Ben-Akiva, 2002) to develop a choice model for tourist behavior in Iceland. Ben-Akiva and Lerman (1985) provide the methodological guidance in terms of applying the model, while Train (2003) will guide this research in complementing Ben-Akiva and Lerman with a new generation of discrete choice methods, focusing on the many advances that are made possible by simulating the choices that consumers make.

Ben-Akiva and Lerman (1985) cover the major discrete choice models (logit, generalized extreme value, probit, and mixed logit) as well as a variety of specifications that build on these basic models. Train (2003) investigates and compares simulation-assisted estimation procedures (including maximum simulated likelihood, method of simulated moments, and method of simulated scores); and explores the recent advances in Bayesian procedures. To place these modelling practices of consumer preferences more squarely in the realm of tourism Garrow (2010) addresses the development and application of advanced models of travel demand that integrate discrete choice, econometric, and market research methods to enhance understanding of travel behavior. His work covers binary logit and multinomial logit (MNL) models, nested logit (NL), structured extensions of MNL and NL discrete choice models, Generalized Extreme Value (GEV) models, mixed logit, and MNL, NL and Ordered Generalized Extreme Value (OGEV) models of itinerary choice, with an emphasis on travel demand modelling and airline passenger behavior.

This research will especially draw on Garrow (2010) and authors that have applied discrete choice modeling methods to the field of tourism. The research has analyzed the pioneering work of McCool (1978) on modeling tourist choices analyzed recreation activity packages at water based tourism destinations. It has also analyzed tourist behavior research advances in

the 1990s by authors like Carmichael (1996), Dellaert *et al*. (1995), Eymann and Ronning (1997), Haider and Ewing (1990), Hausman *et al*. (1995), and Morley (1994 and 1998), and Schroeder and Louviere (1999). Finally, the research has reviewed the further developments in the area of tourism choice modeling introduced by authors like Albaladejo-Pina and Díaz-Delfa (2009), Apostolakis and Jaffry (2005), Eluru *et al*. (2010), Hanley *et al*. (2002), Huybers (2003), Moeltner and Englin (2004), Orens and Seidl (2009), Riganti and Nijkamp (2008), Schuhmann and Schwabe (2004), Snowball and Willis (2006); and more recently by Beardmore *et al*. (2013), Draper *et al*. (2012), Smallman and Moore (2010), and Wu *et al*. (2011). The purpose of this extensive literature review was to develop the model for tourist behavior analysis for this research. Informed by this vast literature are the choices of variables to be included in the analysis, the development of the utility function for the tourist. and the choice of latent variables components.

Another application of the discrete choice modeling method relevant to this research is the sensitivity to congestion analysis. Eugenio-Martin (2003; 2004 and 2011) has extensively studied discrete choice modeling methods applied to the field of tourism, and in particular, to sensitivity to congestion. Eugenio-Martin (2003) provides a methodological framework through which the relative importance of different attributes for tourists' destination choice can be analyzed. In addition, the work estimates the probability of visiting defined types of destination for different kind of tourists. Furthermore, the author generates a tool that allows simulation of changes in the demand under alternative scenarios.

In 2004, the same author reuses discrete choice modeling methods to examine how local visitors or tourists may avoid visiting resorts because of fears of overcrowding. In this work, the author proposes the use of the elasticity of the probability of visiting a destination with respect to increases in congestion, from a mixed logit framework. The author outlines the advantage of this approach as it "captures not only the current level of congestion but other aspects, such as the sensitivity of different destinations towards crowding and different visitors' concern about congestion and their probabilities of visiting alternative destinations" (Eugenio-Martin, 2004, p. 1).

In his most recent work, Eugenio-Martin (2011) proposes the use of the elasticity of the probability of visiting a destination with respect to increases in congestion, from a random utility framework. Specifically, the author estimates a different random parameter logit

model. The author shows that the rate of change of the elasticity increases with the number of visitors, capturing the expected underlying non-linear relationship such that, when the number of visitors is low, the index is also low but increases exponentially with the influx of new visitors. The framework proposed by Eugenio-Martin in the abovementioned studies can be applied to any set of alternative sites whose enjoyment is negatively affected by congestion, and it is thus useful relevant to this research.

2.3.2. Stated preferences (SP) and Revealed preferences (RP)

When calibrating discrete choice models two different types of data can be used: (1) revealed preference (RP), or (2) stated preference (SP). RP survey collects information on what an individual has observed or what an individual actually has done, while SP survey asks for self-stated preferences of individuals in response to some hypothetical scenarios.

When using the revealed preference, a population is surveyed to know what they are doing now with the choice set they have available now. This implies having the attributes of the respondents, as well as the attributes of the choices they have available (this is not straightforward) and the choices the population is currently making. However, this need increases the difficulty in evaluating what will happen when a new tourist attraction, or set of attractions, or infrastructure is introduced, or when a change in the attributes of existing attractions or infrastructures goes beyond the respondents' experience.

This is where stated preference experiments appear: when we want to evaluate respondents' responses beyond the existing offer and forecast their behavior. Building SP experiments is a complex task and there are many researchers dedicated to the study of the best methods to do it. In general, the respondent is presented with a series of alternatives characterized by their main instrumental attributes, for example, with a binary choice, and asked to choose or rate his preference.

Through survey and experimental design, SP data are likely to provide more flexibility than RP data. The advantages of SP are summarized as follows:
- SP scenarios can vary with problems of interest, and treat products, and services not existing in the current market by adding new alternatives and/or new attributes;

- SP data examine the trade-off among attributes more efficiently, by enlarging the range of attribute values and avoiding the co-linearity of attributes;

- SP data are more economical than RP data, because each respondent can be provided with multiple scenarios.

However, justifications bias may exist in the SP data or cognitive incongruity with actual behavior, which should be examined during the estimation. When both RP and SP data are available, estimation with the combined RP and SP data is an efficient way to reduce the bias (Ben-Akiva *et al.*, 1994). For examples, see Earnhart (2002), Hanley *et al.* (2003a and 2003b), and Whitehead *et al.* (2011). There are several studies analyzing the differences between results of using stated and revealed preference data. There is also some research on the estimation of logit choice models using mixed stated and revealed preference information done by Bradley and Daly (1997); and more recently by Dissanayake and Morikawa (2010).

This research uses exclusively SP data since RP data regarding the utilization of tourist attractions and choice of activity packages are not available or are extremely limited in Iceland.

Regarding research on stated preferences, the pioneer work of Ewing and Kulka (1979) on both revealed and stated preferences in ski resorts inaugurated research in the field of tourism. Tourist stated preferences were later analyzed by Alexandros and Jaffry (2005), Hensher (1994), Kelly *et al.* (2007), Klenosky *et al.* (1999), LaMondia *et al.* (2010), Oh *et al.* (2010), and Whitehead *et al.* (2000), and more recently by Alegre *et al.* (2013), Brida *et al.* (2012), and Chaminuka *et al.* (2012). Bundling in stated preference experiments has been studied in several areas, including tourism. Agarwal and Chatterjee (2003) and Ben-Akiva and Gershenfeld (1998) addressed its methodological aspects in the *Journal of Product and Brand Management* and in the *Journal of Forecasting*, respectively. More recently, the topic has received the attention of Dixon and Verma (2013) who studied implications for service design and scheduling.

2.3.3. Segmentation based on discrete choice modeling

Tourists who purchase nature-based tourism activity products are diverse. It is generally agreed that it is necessary to segment the nature-based tourism market to better understand it,

and provide products that are adapted to segments within this market (Beh and Bruyere, 2007; Bichis-Lupas and Moisey, 2001). Marketers have argued that the most effective predictor of tourism behavior is motivation because it is more directly related to the purchase intentions and actual behavior than for instance demographic variables, and therefore has a higher predictive power (Park and Yoon, 2009; and Tangeland, 2011).

Segmentation in tourist behavior has been addressed in the 1990s by authors like Hsieh *et al*. (1992), Lang *et al*. (1994), later by Fogliatto and da Silveira (2008), Verma *et al*. (2002); and more recently by Masiero and Nicolau (2012a; and 2012b). However, the relation between the choice modeling and stated preferences experiments, and segmentation is still missing and hindering effective and efficient targeting. This research addresses this concern by providing a link between source market assessment (clustering and ranking) and tourist behavior (discrete choice modeling based on stated preferences). This is done by analyzing both which source markets are doing what in Iceland (Which tourist activities? Visiting which attractions?), and why they are doing it (How do tourists choose between attractions? What are the most valued attributes of these activities/attractions?). However, the current status of implementation of this research does not yet allow for the definition and characterization of these segments.

2.4.   Summary and research gap

A key question for any research project is what gap in knowledge it addresses and what contribution it is able to make. Based on the review of the three bodies of literature, the following two gaps were identified:

1. Most of the studies concerning tourist behavior has centered purely on the analysis of choice and specific attributes. Linking the market research analysis and tourist behavior modelling and taking a step forward towards market segmentation and product development is missing in the presented literature. Segmentation relies on market research to identify the product characteristics that resonate with target markets. Product development engineers then provide different iterations of the same basic model that meet the preferred traits for each market segment. The current research is an effort to complement the worldwide discussion on tourist behavior with a thorough analysis of market segmentation and product development based on a

choice model. This market intelligence can be of use to industry stakeholders and policy-makers in attraction development planning and marketing and when taking effective investment decisions.

2. To date, the majority of studies have focused on the examination of tourist behavior in in large or high density markets and other geographic regions or Nordic regions excluding Iceland. Though some inroads have been made, the literature on small remote markets and Nordic countries is much scarcer. There is a clear gap in the analysis of tourist behavior of low density markets and Nordic regions. The current research addresses this gap by conducting an examination of the tourist behavior focused on the small remote Icelandic tourism market.

This literature review confirms that the research proposed herein is unique. Market research analysis and tourism demand modeling and forecasting have not yet been applied to their full potential to tourism product development and the development of national tourism strategies. Clearly from a theoretical standpoint, this combination is applicable as well as relevant.

3. METHODOLOGY

The following chapter presents the research design used in answering the proposed research questions outlined in section 1.5. The complexity associated with a study of aviation business strategies and transport and tourism policy implementation leads to the use of combined research approaches. An engineering systems framework based on mixed quantitative and qualitative methods is proposed; yet, the thrust of this research lies on the quantitative side.

The focus of the methodology is three-fold: first, to perform a market assessment; second, to model tourist behavior; and third, to link the results from the market assessment and the modeling of tourist behavior and thus arrive at a tourist segmentation that can be of use for precise targeting of sustainable and profitable visitors to Iceland.

The chapter has three major sections dealing with the methods and research framework, data sources, and a final section that concludes the chapter with a summary of the main research quality concerns.

3.1. Methods and framework

The mixed methodology this study proposes takes into account the specifics of the Icelandic tourism and at the same time maximizes the degree of comparability and generalizability. The research design is made on the basis that, in social science research, no single method of data collection is ideal, with each procedure having its inherent strengths and weaknesses (Abowitz and Toole, 2010). Hence behavior and market analysis will be both analytical and descriptive.

A mixed quantitative and qualitative approach is used in research design and data collection with the objective of improving validity and reliability and furthermore to strengthen causal inferences by providing the opportunity to observe data convergence or divergence in hypothesis testing (Abowitz and Toole, 2010).

The following subsections address in further detail the methods and framework applied in the research: (1) the source market assessment; (2) the discrete choice approach for modeling of tourist behavior; and (3) the qualitative interview method used to interpret the findings of the

survey and build upon the information gathered from the survey to improve the model on the discrete choice modeling experiment and thus create and expand the knowledge on tourist behavior and segmentation.

3.1.1. Source market assessment

The assessment of Icelandic tourism markets is done through the combination of the two methods: (1) country of origin or source market clustering; and (2) source market ranking. In this research, this combination of methods is used for an ultimate source market selection or market segmentation. Thus, the research performs a two-fold market assessment: (1) market-place assessment (covering changes within existing markets); and a (2) market entry assessment (identifying opportunities in new markets).

As outlined in section 2.2.1., the research draws on the existing literature on clustering and it combines the two approaches by Cavusgil (1990) and Sakarya *et al.* (2007). As in Cavusgil (1990), the research conducts a market-oriented clustering on the basis of population growth, median age, number of children per household, life expectancy, and GDP per capita keeping a critical eye on the fast pace of change in societies. In addition, the research follows the approach by Sakarya *et al.* (2007) and includes: (1) long-term market potential; (2) cultural distance; (3) competitive strength of the related destinations; and (4) tourist receptiveness as additional criteria for assessing emerging markets as candidates for subsequent in-depth analysis.

Identifying the long-term market potential has required hypothesizing on variables such as market size, market concentration, airline agreements, and market receptivity. For this process, the research will interview experts and major tourism stakeholders (including airline managers and market developers, accommodation and restaurant, and tour managers), as well as community members, and use consumers' opinions to support the formulation of the hypotheses on these variables. A confirmatory factor analysis will be performed to examine the validity of the hypotheses.

Furthermore, for the source market clustering, the research will use panel data analysis, which has the advantage of using information concerning both cross-section and time-series analyses

and it can also take heterogeneity of each cross-sectional unit explicitly into account by allowing for individual-specific effects (Davidson and MacKinnon, 1981).

For ranking, and as previously stated, this research uses a methodology similar to the one used by Cavusgil (1997). It conducts a source market ranking based on market size, market growth rate, market intensity, market consumption capacity, accessibility, market interest in Icelandic attractions, market profitability, and market long-term sustainability.

3.1.2. Discrete Choice Modeling and stated preferences

The Discrete Choice Experiment (DCE) is better than other methodologies for eliciting preferences since a normal questionnaire on the same attributes will not get results as strong and as useful as in DCE because: (1) we are not good at assessing our preferences: we can rank them (to some extent), along an ordinal scale, but we have difficulties to assign absolute values to our preferences; (2) when people are asked to rate an attribute, they will reply that "it depends": we always make trade-offs (usually implicitly), that are difficult to measure in a normal questionnaire; and (3) with a DCE, trade-offs are more easily revealed and measured. As seen before, DCE can use stated preference (SP) or revealed preference (RP) data.

Unfortunately, in Iceland we do not have good enough data on revealed preference of the tourist. For example, we do not know the exact number of tourists going to certain places or regions, or doing certain activities. Considering the data that could be available – and the one possible to collect – the option of using RP was dismissed and conjoint analysis (stated preference technique) opted for instead. The exclusive use of stated preferences is the most common approach in tourism and the other research fields. For examples in tourism, see Hearne and Salinas (2002), Hsu *et al*. (2009), and Matyas *et al*. (2011).

Thus, this project uses a stated preference (SP) methodology and sets up a discrete choice experiment that differs from the ones in previous works for the following reasons: (1) the tourist sample is larger than the ones used previously in most studies (due to the approach adopted to conduct the survey – that emails all Icelandair passengers in the survey period, this research is expected to reach a large majority of inbound Icelandic tourists); (2) the sample will also most likely cover a larger percentage of the population than before (due to the size of the Icelandic inbound tourism and the approach adopted to conduct the survey); (3) the

coverage of tourism attractions and activities will also be larger than in previous studies (due to the limited number of sites and activities existing in Iceland). All these factors contribute to having a model that describes more accurately tourist choices and thus findings that are more supported. Figure 3 presents the framework for the SP survey design and modeling.
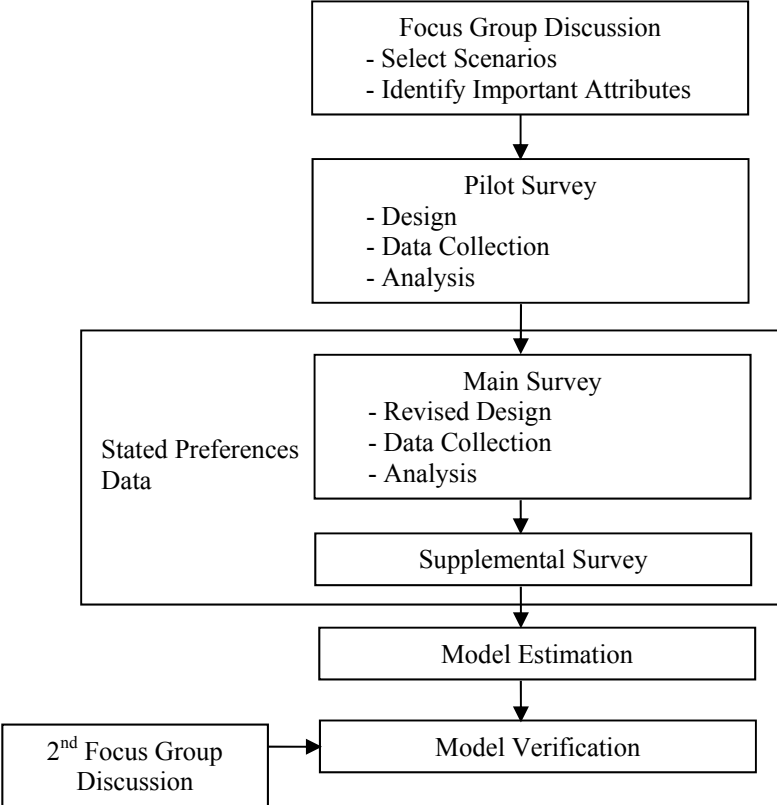
Figure 3: Framework for stated preferences design and modeling.

Table 1 presents the attributes selected for the SP survey design and modeling for the packages of attractions the tourists are asked to select from. The scenarios, that show the selected levels for the attributes, are presented in the survey annex (Annex 1). With the large number of attributes and the large number of levels considered for each attribute, there was a large a number of option combinations to choose from. The analysis will use SPSS to select the combinations that would guarantee the orthogonality of the experiment and, at the same time, the quality of the model. The results from this analysis were used to design the choice-cards to be shown to the respondents. Table 2 presents one example of these choice-cards.

Table 1: Package attributes selected for the SP survey design and modeling.

Infrastructure / accessibility	This is the level of infrastructure and accessibility you will encounter at the locations of your visit. In the infrastructure item, we include visitor's center facilities, coffee shop/restaurant, toilets, shop, etc. In the accessibility item, we include the type of access you have to the location, quality and condition of roads/paths, etc.
Price	This is the total cost you would pay for the package including all transportation costs and admissions to activities.
Culture and Entertainment	This is the level of cultural experience / entertainment provided. In this item, we include the cultural activities you have access to: place of cultural interest, events, museums, exhibitions, festivals, concerts, performances, etc.
Health and well-being / Relaxation /Sports	This relates to the health and well-being/relaxation activities you will experience during your package and also to the sports activities you will have a chance to practice. It includes access to nature-based activities such as nature baths, naturally heated rivers, spa treatments, etc. and sports such as ski, golf, diving, snorkeling, rafting, etc.
Service	This is the level of service you have for the package. In this item we include the level of service/assistance you will be provided for the duration of your package. In this item we include aspects like the presence of a local guide, service available in your language, the level of training of the guides and others – visitors' centers shops and restaurants' employees, etc.
Crowding	This is the level of congestion you experience at each activity: the number of locals and tourists that will be with you at the same time at the location.

Table 2: Choice card example. Respondents are asked to choose between the packages A, B, and C after each package is described in detail to the respondent.

Features	Option A	Option B	Option C
Infrastructure / Accessibility	Good access and good level of facilities	Poor access conditions and poor or no-facilities at the locations	Good access but no facilities at the locations
Price	70.000 ISK	30.000 ISK	45.000 ISK
Culture and Entertainment	Access to several cultural activities	No cultural activity associated	No cultural activity associated
Health and well-being / Relaxation / Sports	Access to at least one nature-based activity	Access to at least one nature-based activity	No
Service	Local guide and service at locations	Local guide but no service at locations	No local guide and no service at locations
Crowding	Very crowded	No	Some crowding

SP data is being collected from tourists that have visited and will visit Iceland in the winter seasons of 2013/2014 and 2014/2015, and in the summer seasons of 2014 and 2015 and that are returning to their place of residency with Icelandair. The survey will be distributed by email on a link one month after their return flight. Moreover, the possibility of having the survey displayed on the in-flight entertainment system of Icelandair is being looked into. In the case this alternative proves to be feasible, the tourists would have the opportunity to state their preferences immediately after leaving Iceland.

The SP data collected though the Icelandair channel will be complemented with qualitative interviews with tourists as described on the following subsection.

3.1.3. Qualitative Interviews with tourists

Semi-structured interviews will be carried out with a selected sample of participants, using a qualitative and largely inductive approach in order to explore the implications that participants assigned to their experiences of Icelandic tourism. The purpose of the interview is to build upon the information gathered from the survey, the documentary sources and quantitative data, and to explore organizational and individual perceptions of the Icelandic tourist attractions. Participants will be encouraged to provide their own detailed narrative, interpreting their understanding of their experiences.

The interviews will be conducted from a position of open ended and flexible enquiry, probing interesting areas that emerged and using a facilitative attitude (Patton, 2001 and Robson, 2002). Once the interviews have been conducted, a systematic review and organization of the interview notes will be done. Interview "coding" classifies the interview responses into major topics for further analysis. The interview responses will be manually coded based on pre-defined broad categories that derived from the developed research question outlined in section 1.5. Based on the content of the responses, subcategories will also be created.

The selection of potential interviewees will be based on their background and on their willingness to voluntarily answer the questions. The group of respondents in this study will most likely not form a representative sample of visitors to Iceland, since statistical representativeness will not be prioritized at this time (Britten, 2006; Kvale, 2008). Yet, the diversity of interviewees' background will be carefully considered to avoid generating an excessively biased sample of tourists. The main objective of this qualitative approach is to cover all tourist segments.

The sampling strategy is determined by the purpose of the research project. The interviews will be with 40 to 60 visitors, covering summer and the winter seasons, as well as shoulder periods. The aim is to explore the experience of every tourist segment and their visit to Iceland and activities and contributing factors, uncovering ideas that were not anticipated at the outset of the research. The questions asked will be more focused on behavior and experience, feelings, opinions and beliefs, and of the sensory type than on the background or demographic aspects (Britten, 2006).

3.2.   Data Sources

Access to informative data is a crucial condition for market analysis, analysis of tourist behavior, and solid economic policy advice (Schmidt, 2007). A combination of quantitative date, documentary sources, surveys and interviews is used as data sources.

Since the aim of the project is not to come up with a mathematical programming-based model for tourism demand nor network revenue management, but to rank each source market in terms of value as well as to evaluate latent demand, the quantitative analysis will be based on two kinds of sources, both accessed through Icelandair: (1) IATA/ICAO data, and (2) internal business information shared with the aid of a confidentiality agreement. In these data, we include passenger data, revenues in Revenue passenger kilometer (RPK), total revenues, ranked yields by source market and legs, values of source markets in proportion to total revenue, information on connectivity and travel times, and data on competition. This information will be complemented with the Eurostat data base – in particular at the aggregate and leg level.

For the discrete choice model, data will be collected through a survey questionnaire implemented by Icelandair and interviews in person with visitors to Iceland. This survey will be used to analyze the choice of travelers between different attractions and types of tourism activities based on attributes as described on the subsection 3.2.1 of this report. Furthermore, the questions will address willingness to pay and willingness to accept visitors to Iceland, and attempt to cover latent variables. The in-depth interview method will be used to build upon the information gathered from the survey on the discrete choice modeling experiment to create and expand the knowledge on tourist behavior and segmentation.

The main purpose is collect data that can be of use to improve market intelligence for planning, investment and development of industrial strategies, and product development.

Documentary elements used for the analysis include other industry databases, statistics reports, consulting reports, strategic planning documents, airline reports, government reports on their policies, accountability reports on state and private budget for tourism and air transportation development and the explicit allocation of funds to tourism development, and regulatory documents (e.g. legislative provisions). Descriptive statistics about tourists,

individual communities, airports and airlines, and tourism industry companies and stakeholders are available from different sources, including government departments and agencies, other institutions such as the Icelandic Tourist Board, and academic centers such as the Icelandic Tourism Research Center.

Additionally, this information is complemented with personal and focus group interviews with government and industry stakeholders, airport managers, carriers, and members of local government authorities or institutions that can provide precious insight to the analysis of tourist behavior and policy impact, implementation issues and barriers to success.

3.3. Research Design Quality

Whether quantitative, qualitative or mixed, a research design demands external validity, internal validity, construct validity, and reliability (Carmines & Zeller, 1979). Each of these specific issues of the case study method is discussed below. The purpose of combining different methods is to have the strengths of one compensating for the weakness of other (Leonard-Barton, 1990). As in the methodology of Leonard-Barton (1990) the main goal of the combination herein proposed is to enhance three kinds of validity: construct, internal and external.

3.3.1. External Validity

External validity reflects how truthfully the results represent the observable facts, establishing the degree of generalizability of results.

3.3.2. Internal Validity

Internal validity is a common concern in mixed research. Internal validity in this research is addressed by considering alternative explanations, using convergent data, and making proper inferences from the data.

3.3.3. Construct Validity

Construct validity addresses the establishment of the appropriate operational measures for the phenomena being studied and it is thus closely tied to reliability.

Three elements are associated with the establishment of construct validity: using multiple sources of data, establishing a chain of events, and having key informants review the case study research. Each was addressed in the research and is summarized below:

Multiple Data Sources

A major element of construct validity in research is through triangulation. Triangulation is the use of multiple data sources to corroborate evidence in order to avoid informant bias which has been a criticism of research that entails survey interviewing. Triangulation of data helps to overcome this potential issue by using a combination of multiple informants, documentary sources, direct observations, questionnaires, and other data gathering techniques.

Chain of Evidence

This second element of construct validity relates to the comprehensibility of the research structure and data that needs to be simple to follow from the initial formulation of the research questions to its conclusions. In the case of this research, external reviewers will examine the entire document. The analysis will be peer-reviewed specifically for logic, clarity and content.

Draft Review by Key Informants

The third element to support construct validity is to have each of the key informants review the overall research report. The participants will also be required to verify that the case facts are accurate. As a result of this review process, some changes will be made to the analysis, which will be sent to the informants for re-review and approval.

3.3.4. Reliability

Reliability addresses the repeatability of the experiment in a research design, and whether replication is possible and will achieve the same results. In a stated preference survey, there are two keys to reliability: use of a case study protocol, and development of a case study data base. In multiple case methodologies, it is even more important to ensure reliability.

4. WORK PLAN

This chapter summarizes the work plan for the research project. The project structure and schedule are presented in section 4.1, and the state of implementation is showed in section 4.2.

4.1.   Project breakdown structure and schedule

The work plan will follow the structure of five major work packages (WP) divided into tasks as outlined below:

WP 1: Literature review (March 2013 – August 2013)

Task 1.1. Literature review on Icelandic tourism (March – May 2013);

Task 1.2. Literature review on competing destinations (March – May 2013);

Task 1.3. Literature review of methodologies for discrete choice modelling including their applications to the tourism industry (March – December 2013);

Task 1.4. Literature review of methodologies for market clustering, market estimate and market ranking and panel data analysis (July – August 2013).

WP 2: Assessing source markets for Icelandic tourism: market clustering and market ranking (February 2014 - April 2014)

Task 2.1. Preliminary assessment of relevant source markets (February 2014)

Task 2.2. Source market screening (February 2014)

Task 2.3. Source market clustering (March 2014)

Task 2.4. Ranking of markets based on effective factors and calculated weights (April 2014)

Two project meetings are expected for this WP and one short report will be produced and delivered in the end on the attractiveness of foreign tourism markets. Results will also be presented at academic conferences both in Iceland and overseas and one academic paper on the application of these methodologies to Icelandic tourism will be produced.

WP 3: Modeling tourist behavior (March 2013 – February 2016)

> Task 3.1. Personal and focus group interviews with industry stakeholders (March 2013 – May 2014);
>
> Task 3.2. Selection of scenarios for the DCE (September 2013)
>
> Task 3.3. Identification of important attributes (March 2013 – August 2013)
>
> Task 3.4. Design of draft survey (May 2013 – December 2013)
>
> Task 3.5. Review of draft survey by Icelandair (December 2013)
>
> Task 3.6. Implementation of main survey (revised design) (February 2014)
>
> Task 3.7. Data collection (February 2014 – October 2015)
>
> Task 3.8. Data analysis (February 2014 – December 2015)
>
> Task 3.9. Model estimation (February 2014 – December 2015)
>
> Task 3.10. Second round of interviews (analysis of the preliminary results) (February 2015)
>
> Task 3.11. Model verification (December – February 2016).

Two project meetings are expected for this WP and one short report will be produced and delivered in the end of WP3 on the behavior of visitors to Iceland. This report will focus on the results of the DCE and will reveal the stated preferences of inbound Icelandic tourism. Findings will also be presented at academic conferences both in Iceland and overseas and one academic paper on the application of the discrete choice modeling methodology to visitors to Iceland will be produced.

WP 4: Linking source market assessment and tourist behavior: tourist segmentation (February 2015 and February 2016)

> Task 4.1. In-depth personal interviews with a small sample of tourists (July 2014 and December 2014);
>
> Task 4.2. Tourist segmentation based on the DCE results and interviews (October 2015 – December 2015);
>
> Task 4.3. Focus group interviews with industry stakeholders for validation of segmentation (November 2015);
>
> Task 4.4. Crossing segmentation and source market clustering ranking (January 2016 – February 2016).

Two project meetings are expected for this WP and one report will be produced and delivered in the end of WP4 on the segmentation and value of visitors to Iceland. This report will focus on the results of the crossing of the segmentation results with the source market clustering and ranking that will assess the tourist with the most significant value for Iceland. Findings will also be presented at academic conferences both in Iceland and overseas and one academic paper on the application of the discrete choice modeling methodology to visitors to Iceland will be produced.

WP 5: Reporting both to the industry and policy-makers (February 2015 and February 2016)

Task 5.1. Production of a preliminary report on source market and tourist behavior intelligence (February 2015)

Task 5.2. Production of a final report on the findings of the project (February 2016).

During WP 5 two project meetings will be held with policy-makers and industry stakeholders. The results will be delivered in one preliminary report on source market and tourist behavior intelligence and one final report on the general findings of the project. Results will also be presented at academic conferences both in Iceland and overseas and one academic paper will be produced on the overall results of the project.

4.2. State of implementation

The current state of research implementation is summarized in tTable 3.

Table 3: State of implementation of tasks and WP.

Work Package	Task	Estimated Date of Completion	Current Status
WP 1	1.1.	May 2013	Completed
	1.2.	May 2013	Completed
	1.3.	December 2013	Completed
	1.4.	August 2013	Completed
WP 2	2.1.	February 2014	To be started
	2.2.	February 2014	To be started
	2.3.	March 2014	To be started
	2.4.	April 2014	To be started
WP 3	3.1.	May 2014	Ongoing
	3.2.	September 2013	Completed
	3.3.	August 2013	Completed
	3.4.	December 2013	Completed
	3.5.	December 2013	Completed
	3.6.	February 2014	To be started
	3.7.	October 2015	-
	3.8.	December 2015	-
	3.9.	December 2015	-
	3.10.	February 2015	-
	3.11.	February 2016	-
WP 4	4.1.	December 2014	-
	4.2.	December 2015	-
	4.3.	November 2015	-
	4.4.	February 2016	-
WP 5	5.1.	February 2015	-
	5.2.	February 2016	-

4.2.1. Remarks

As this report is being published the survey has been fully programmed and is ready to be sent to the first participants staring the first week of February 2014. This will be done through Icelandair that will send the link through an email. The possibility of having the next survey conducted on-board is also currently being analyzed, using the in-flight entertainment system. This possibility is yet to be assessed by the Icelandair Group.

On the demand study side, the project is currently waiting for aviation data from Icelandair Group in order to further develop the market analysis. This data is to be shared under a confidentiality agreement that is yet to be signed between the parties to this project.

During 2013, the project was presented at several international and Icelandic research conferences and received interest and positive feedback from researchers in the field of tourism and transportation. These conferences included the ATRS (Air Transport Research

Society) Conference 2013, in Bergamo; the WCTR (World Conference on Transport Research), in Rio de Janeiro; the NAF (North Atlantic Forum), in Hólar; and, more recently, the 22nd Nordic Symposium in Tourism and Hospitality Research, in Bodö and the Lofoten Islands; and the annual social sciences conference at the University of Iceland (Þjóðarspegill XIV).

Furthermore, along with this research, the author of this project has submitted a paper for publication to the peer-reviewed journal *Transport Policy,* to the special Issue on Economic Regulation of Transport Infrastructures, in July 2013. Prior to this, the paper was accepted and published under the reference Metrass-Mendes, A., De Neufville, R., Costa, A., Oliveira, A. (2013), Comparing Air Transport Policies for Small Remote Communities: U.S.A., Canada, Portugal, Spain and Brazil. (Working paper collection 02/2013) by the working paper collection "Catedra Pasqual Maragall", from the University of Barcelona, in 2013. Even though this research is not related to this specific project, it will be published under the Icelandic Tourism Research Centre affiliation. The paper examines the regulatory status in the aviation industry, and the efforts of the U.S.A., Canada, Portugal, Spain and Brazil to adopt air transport policies and mechanisms to provide their populations with universal accessibility. A systems engineering grounded theory approach and a cross-national case-based comparison framework are used to look at the impacts of different policies and mechanisms on the air service to small remote communities. The abstract of the paper – as submitted – is attached to this report in Annex 2. The journal review has not yet been received.

5. COLLABORATIONS

Collaborators are researchers and industry stakeholders who share an interest in the outcome of this project. Collaborations can vary greatly in scope, duration, and degree of formality. Within this project, different degrees of collaboration will be developed with both industry and research elements.

The most significant on-going collaboration with the tourism industry is the one established with Icelandair. Icelandair is currently largely funding the project and it is participating in the study in a twofold manner: (1) it is collaborating on the implementation of the survey questionnaire; and (2) it will be sharing data on source markets through a confidentiality agreement. Icelandair has outsourced the survey programming and it is facilitating the implementation of the survey by sending its passengers a link to it by e-mail. Icelandair is also currently analyzing the possibility of having the survey on their in-flight entertainment system so that the passengers can have the possibility of answering the survey on-board when leaving Iceland. Opportunities with other industry stakeholders may emerge at more advanced stages of the project.

The following six opportunities for collaboration have already been identified:

1. **Academic collaboration with the Civil Engineering department of the University of Iceland:**
   There is a research tradition and on-going research using discrete choice modelling in this department. The juxtaposition of methods applied to different research fields could be of use to this project. Resources from the University of Iceland could be allocated to the project to compensate for the scarcity of expertise and lack of training in this methodology within tourism research in Iceland. Master-level students from the department that could feel motivated to work in this study on the analysis of results from the survey are being sought.

2. **Academic collaborations within the Icelandic Tourism Research Center at the University of Iceland, University of Akureyri, and Hólar College:**

   There is a long tradition and on-going research using survey questionnaires in the ITRC. Specifically, PhD students with relevant experience in collecting data from surveys could be of use in the implementation and analysis of the survey results and interviewing.

3. **Academic collaborations with world experts in the field of discrete choice modeling:**

   Dr. Maya Abou-Zeid is a researcher and Assistant Professor at the University of Beirut specialized in the application of discrete choice modeling to the field of transportation and she is now a world-renowned expert in the field. The expertise of this researcher is already being put to use in the design and setting-up of the discrete choice experiment. This project will count on this collaboration also in the analysis of data collected through the survey and qualitative interviews.

4. **Potential academic collaborations with other European research centers studying tourism behavior:**

   At least one research center was identified with expertise in the analysis of tourist behavior - the Tourism Observatory (O-Tur). The O-Tur is integrated in the research activity of the Institute for Economic Research (IRE), as well as involving Master of International Tourism of University of Lugano, Switzerland. They can therefore benefit from the relevant cooperation and diverse competences, in particular for what concerns observation of economic dynamics. The main objective of O-Tur is to increase and disseminate knowledge on the tourism industry of the Canton of Ticino, by means of systematic observation and analysis of tourism demand and local supply at the destinations in Ticino. Furthermore, O-Tur seeks to implement the monitoring system of tourism which would be of considerable support for strategic decision-making processes of the tourism stakeholders, cantonal administration and tour operators. This project has established contacts in June 2013 with Professor Rico Maggi, the manager of the center, Dean of Faculty of Economics, and director of IRE, and with Dr. Stefano Scagnolari, responsible for the O-Tur. The two researchers are world-renowned experts in the field of

tourist behavior and they have already provided valuable input in the design of the survey questionnaire. The project expects to have further links with the ongoing research of O-Tur. Furthermore, results from this project may be used for a cross-national comparison study on tourist behavior and segmentation;

5. **Consulting opportunities and access to data through the projects "Baltic Bird", "SPARA", and "Slow adventure experiences in Northern Europe" (within the Northern Periphery Program funded by the European Union):** "Baltic Bird" and "SPARA" focus on air services to remote locations whereas the project "Slow adventure experiences in Northern Europe" focuses on tourist experiences and choices. The juxtaposition of research fields will likely justify future links between this research project and these projects.

6. **Potential academic collaborations with other European research centers studying tourism policy:** Finally, this project opens the door for future analysis in the integrated and interdisciplinary approach to the study of tourism policy making. Other collaborations may exist and open in other related fields of research. Moreover, similar analyses could be conducted using entirely different methodologies. With the completion of this research the gates will be open for further work in all aspects of how tourist behavior affects tourism resources and how sustainable and profitable tourism development can be sustained by industrial strategies (government policies) and business strategies. This research project is an invitation for discussion and collaboration on future work in the analysis of public policy design and implementation.

6. FINAL REMARKS

The growing intensity of the discussion on Icelandic tourism in the last decade suggests that there is ample space for learning in the field. There is a well-identified urgent need for better market intelligence, focusing on specific segments and geographic source markets in order to set and refine targets for these. This research adds to the body of practical and theoretical knowledge available to the development of aviation dependent tourism development, analysis of tourist behavior, understanding segmentation and targeting, and in particular, inbound Icelandic tourism. The ultimate goal is to provide feedback and formulate recommendations for policy decision-making, though there is also much to be done with respect to improving the tools used in developing market intelligence.

This research has to be recognized in terms of the uncertainty of results associated with the use of extensive survey data collection and qualitative approaches, the lack of institutional data, the eventuality of unavailable data, and other barriers to accomplishments. This report is about proposing the steps to a robust approach for this work, while perceiving that some alterations to the methods may be requested and/or necessary.

The expected results of this research are exciting and promising, but they only scratch the surface of possible research in inbound tourism source markets and tourist behavior. In closing this report some of the potential areas in which this research can be applied and ways in which it can be expanded will be explored.

Besides from improving the currently used methods by which the assessment of sources markets and tourist behavior modeling are conducted, more effort will be needed to reinforce the findings of this research. It is thus advisable to direct future work on the following two areas:

1. Taking advantage of other areas of research: other study fields could be explored such as experimental economics and agent simulations and used in the development of tools for analyzing source markets as well as tourist behavior;

2. Widening the scope of the analysis: this study makes a significant contribution to the understanding of Icelandic tourism. However, it only assesses Nordic destination. It is advisable to direct future work on other Nordic regions and countries.

Finally, this research opens the door for future analysis in the integrated and interdisciplinary approach to the study of Icelandic tourism and tourist behavior in particular. Similar analyses could be conducted using entirely different methodologies. The expected results of this research demonstrate perhaps more than anything else that this is a strong and fruitful area of research. With the completion of this research the gates will be opened for further work in all aspects of a relevant problem – how to improve the profitability of a destination while maintaining its sustainability and how to sustain tourism development by air services. The work is an invitation for discussion and collaboration on future work in the analysis of public policy design and implementation that will put to use the market intelligence derived from this research.

REFERENCES

Abowitz, D.A., & Toole, T.M. (2010). Mixed methods research: Fundamental issues of design, validity, and reliability in construction research. *Journal of Construction Engineering and Management*, Vol. 136, Issue 1, pp. 108-116.

Agarwal, M. K., & Chatterjee, S. (2003). Complexity, uniqueness, and similarity in between-bundle choice. *Journal of Product & Brand Management*, Vol. 12, Issue 6, pp. 358-376.

Albaladejo-Pina, I.P., & Díaz-Delfa, M.T. (2009). Tourist preferences for rural house stays: Evidence from discrete choice modelling in Spain. *Tourism Management*, Vol. 30, Issue 6, pp. 805-811.

Alegre, J., Cladera, M., & Sard, M. (2013). Tourist areas: Examining the effects of location attributes on tour-operator package holiday prices. *Tourism Management,* Vol. 38, pp. 131-141.

Alexandros, A., and Jaffry, S. (2005). Stated preferences for two Cretan heritage attractions. *Annals of Tourism Research*, Vol. 32, Issue 4, pp. 985-1005.

Alþingi, (2011). *Tillaga til þingsályktunar um ferðamálaáætlun 2011-2020*. Þskj.758-467.mál. Retrieved February 26, 2013, from: http://www.althingi.is/dbabin/ferril.pl?ltg=139mnr=467.

Anderson, S.P., De Palma, A., & Thisse, J.F. (1992). *Discrete choice theory of product differentiation*. Cambridge, MA: MIT press.

Apostolakis, A., & Jaffry, S. (2005). A choice modeling application for Greek heritage attractions. *Journal of travel research*, Vol. 43, Issue 3, pp. 309-318.

Arimond, G., & Elfessi, A. (2001). A clustering method for categorical data in tourism market segmentation research. *Journal of Travel Research*, Vol. 39, Issue 4, pp. 391-397.

Baldacchino, G. (Ed.). (2006a). *Extreme tourism: Lessons from the world's cold water islands*. Amsterdam, The Netherlands: Elsevier.

Baldacchino, G. (2006b). Warm versus cold water island tourism: a review of policy implications. *Island Studies Journal*, Vol. 1, Issue 2, pp. 183-200.

Baum, T. (1999). The Decline of the Traditional North Atlantic Fisheries and Tourism's Response: The Cases of Iceland and Newfoundland. *Current Issues in Tourism*, Vol. 2, Issue 1, pp.47-67.

Beardmore, B., Haider, W., Hunt, L.M., & Arlinghaus, R. (2013). Evaluating the ability of specialization indicators to explain fishing preferences. *Leisure Sciences*, Vol. 35, Issue 3, pp. 273-292.

Beh, A., & Bruyere, B.L. (2007). Segmentation by visitor motivation in three Kenyan national reserves. *Tourism Management*, Vol. 28, Issue 6, pp. 1464-1471.

Ben-Akiva, M., Bradley, M., Morikawa, T., Benjamin, J., Novak, T., Oppewal, H., & Rao, V. (1994). Combining revealed and stated preferences data. *Marketing Letters*, Vol. 5, Issue 4, pp. 335-349.

Ben-Akiva, M., & Gershenfeld, S. (1998). Multi-featured products and services: analysing pricing and bundling strategies. *Journal of Forecasting*, Vol. 17, Issue 3-4, pp. 175-196.

Ben-Akiva, M., & Lerman, S. (1985). *Discrete choice analysis: theory and application to travel demand*. Cambridge, MA: MIT press.

Bichis-Lupas, M., & Moisey, R.N. (2001). A benefit segmentation of rail-trail users: implications for marketing by local communities. *Journal of Park and Recreation Administration*, Vol. 19, Issue 3, pp. 78-92.

Bornhorst, T., Brent Ritchie, J.R., & Sheehan, L. (2010). Determinants of tourism success for DMOs and destinations: An empirical examination of stakeholders' perspectives. *Tourism Management*, Vol. 31, Issue 5, pp. 572-589.

Bowen, J. (2000). Airline hubs and in Southeast Asia: national economic development and nodal accessibility. *Journal of Transport Geography*, Vol. 8, Issue 1, pp. 25-41.

Bradley, M.A. and Daly, A.J. (1997). "Chapter 5: Estimation of Logit Choice Models Using Mixed Stated Preference and Revealed Preference Information", In: P.R. Stopher and M. Lee-Gosselin, (Eds.) *Understanding Travel Behaviour in an Era of Change*, Oxford: Pergamon.

Brida, J.G., Meleddu, M., & Pulina, M. (2012). Understanding Urban Tourism Attractiveness The Case of the Archaeological Ötzi Museum in Bolzano. *Journal of Travel Research*, Vol. 51, Issue 6, pp. 730-741.

Britten, N. (2006). "Chapter 2: Qualitative interviews", In: C. Pope and N. Mays (Eds.) *Qualitative research in health care*. Malden (MA), Blackwell Publishing.

Buhalis, D. (2000). Marketing the competitive destination of the future. *Tourism management*, Vol. 21, Issue 1, pp. 97-116.

Carmichael, B.A. (1996). Conjoint analysis of downhill skiers used to improve data collection for market segmentation. *Journal of Travel & Tourism Marketing*, Vol. 5, Issue 3, pp. 187-206.

Carmines, E.G. and Zeller, R.A. (1979). *Reliability and Validity Assessment*. Beverly Hills, CA: Sage.

Cavusgil, S.T. (1990). "Chapter 4: A market-oriented clustering of countries", In: Thorelli, H.B. and Cavusgil, T. (Eds), *International marketing strategy*. Oxford: Pergamon Press.

Cavusgil, S.T. (1997). Measuring the potential of emerging markets: An indexing approach. *Business Horizons*, Vol. 40, Issue 1, pp. 87-91.

Cavusgil, S.T. (1985). Guidelines for export market research. *Business Horizons*, Vol. 28, Issue 6, pp. 27-33.

Cavusgil, S.T., Kiyak, T., and Yeniyurt, S. (2004). Complementary approaches to preliminary foreign market assessment: country clustering and country ranking. *Industrial Marketing Management*, Vol. 33, Issue 7, pp. 607-617.

Cha, S., McCleary, K. W., & Uysal, M. (1995). Travel motivations of Japanese overseas travelers: A factor-cluster segmentation approach. *Journal of Travel Research*, Vol. 34, Issue 1, pp. 33-39.

Chaminuka, P., Groeneveld, R.A., Selomane, A.O., & Van Ierland, E.C. (2012). Tourist preferences for ecotourism in rural communities adjacent to Kruger National Park: A choice experiment approach. *Tourism Management*, Vol. 33, Issue 1, pp. 168-176.

Crouch, G.I., and Louviere, J.J. (2004). The determinants of convention site selection: A logistic choice model from experimental data. *Journal of Travel Research*, Vol. 43, Issue 2, pp. 118-130.

Crouch, G.I., and Ritchie, J.B. (2005). Application of the analytic hierarchy process to tourism choice and decision making: a review and illustration applied to destination competitiveness. *Tourism Analysis*, Vol. 10, Issue 1, pp. 17-25.

Crouch, G.I. & Ritchie, J. B. (2003). *The competitive destination: a sustainable tourism perspective*. Oxford: CAB International.

Crouch, G.I., & Ritchie, J.R. (1999). Tourism, competitiveness, and societal prosperity. *Journal of Business Research*, Vol. 44, Issue 3, pp. 137-152.

Davidson, R. and MacKinnon, J.G. (1981). Several Tests for Model Specification in the Presence of Alternative Hypotheses. *Econometrica*, Vol. 49, pp. 781-793.

Dellaert, B., Borgers, A., & Timmermans, H. (1995). A day in the city: Using conjoint choice experiments to model urban tourists' choice of activity packages. *Tourism*

Management, Vol. 16, Issue 5, pp. 347-353.

Dissanayake, D., & Morikawa, T. (2010). Investigating household vehicle ownership, mode choice and trip sharing decisions using a combined revealed preference/stated preference Nested Logit model: case study in Bangkok Metropolitan Region. *Journal of Transport Geography*, Vol. 18, Issue 3, pp. 402-410.

Dixon, M., & Verma, R. (2013). Sequence effects in service bundles: Implications for service design and scheduling. *Journal of Operations Management*, Vol. 31, Issue 3, pp. 138-152.

do Paço, A., & Raposo, M. (2009). "Green" segmentation: an application to the Portuguese consumer market. *Marketing Intelligence & Planning*, Vol. 27, Issue 3, pp. 364-379.

Dolnicar, S., Kaiser, S., Lazarevski, K., & Leisch, F. (2012). Biclustering overcoming data dimensionality problems in market segmentation. *Journal of Travel Research*, Vol. 51, Issue 1, pp. 41-49.

Douglas, S. P., & Craig, C. S. (1983). *International Market Research*. Upper Saddle River, NJ: Prentice Hall.

Draper, J., Oh, C. O., & Harrill, R. (2012). Preferences for Heritage Tourism Development Using a Choice Modeling Approach. *Tourism Analysis*, Vol. 17, Issue 6, pp. 747-759.

Dwyer, L., Forsyth, P., and Rao, P. (2000). The price competitiveness of travel and tourism: a comparison of 19 destinations. *Tourism Management*, Vol. 21, Issue 1, pp. 9-22.

Dwyer, L., Mellor, R., Livaic, C., Edwards, D. and Kim, C. (2004). Attributes of Destination Competitiveness: A Factor Analysis, *Tourism Analysis*, Vol. 9, Issue 1, pp. 91-101.

Earnhart, D. (2002). Combining revealed and stated data to examine housing decisions using discrete choice analysis. *Journal of Urban Economics,* Vol. 51, Issue 1, pp. 143-169.

Eluru, N., Pinjari, A.R., Pendyala, R.M., & Bhat, C.R. (2010). An econometric multi-dimensional choice model of activity-travel behavior. *Transportation Letters: the international journal of transportation research*, Vol. 2, Issue 4, pp. 217-230.

Eugenio-Martin, J.L. (2003). Modelling determinants of tourism demand as a five-stage process: A discrete choice methodological approach. *Tourism and Hospitality Research*. Vol. 4, Issue 4, pp. 341-354.

Eugenio-Martin, J.L. (2004). Monitoring the congestion level of competitive destinations with mixed logit models. *Tourism and Travel Research Institute Discussion Paper* No. 8. 2004, University of Nottingham.

Eugenio-Martin, J.L. (2011). Assessing Social Carrying Capacity of Tourism Destinations with Random Utility Models. *Estudios de Economía Aplicada*, Vol. 29, Issue 3, pp. 881-902.

Ewing, G.O., & Kulka, T. (1979). Revealed and stated preference analysis of ski resort attractiveness. *Leisure Sciences*, Vol. 2, Issue 3-4, pp. 249-275.

Eymann, A., & Ronning, G. (1997). Microeconometric models of tourists' destination choice. *Regional Science and Urban Economics*, Vol. 27, Issue 6, pp. 735-761.

Fogliatto, F.S., & da Silveira, G.J. (2008). Mass customization: a method for market segmentation and choice menu design. *International Journal of Production Economics*, Vol. 111, Issue 2, pp. 606-622.

Garrow, L.A. (2010). *Discrete choice modelling and air travel demand: theory and applications*. Aldershot, Ashgate Publishing.

Gaston-Breton, C., & Martín, O. M. (2011). International market selection and segmentation: a two-stage model. *International Marketing Review*, Vol. 28, Issue 3, pp. 267-290.

Go, F.M., & Govers, R. (2000). Integrated quality management for tourist destinations: a European perspective on achieving competitiveness. *Tourism Management*, Vol. 21, Issue 1, pp. 79-88.

Goeldner, C.R., Ritchie, J.R.B., & McIntosh, R.W. (2000). *Tourism: Principles, practices, philosophies*. New York: John and Wiley & Sons.

Gonzalez, A.M., & Bello, L. (2002). The construct "lifestyle" in market segmentation: The behaviour of tourist consumers. *European Journal of Marketing*, Vol. 36, Issue 1, pp. 51-85.

Gooroochurn, N., & Sugiyarto, G. (2005). Competitiveness indicators in the travel and tourism industry. *Tourism Economics*, Vol. 11, Issue 1, pp. 25-43.

Green, P. E., & DeSarbo, W.S. (1979). Componential segmentation in the analysis of consumer trade-offs. *The Journal of Marketing*, Vol.43, Issue 4, pp. 83-91.

Green, P.E., & Rao, V.R. (1971). Multidimensional scaling and individual differences. *Journal of Marketing Research*, Vol. 8, Issue 1, pp. 71-77.

Haider, W., & Ewing, G.O. (1990). A model of tourist choices of hypothetical Caribbean destinations. *Leisure Sciences*, Vol. 12, Issue 1, pp. 33-47.

Hall, C. M., & Muller, D.K. (2008). *Nordic tourism: Issues and cases*. Bristol: Channel View Publications.

Hanley, N., Bell, D., & Alvarez-Farizo, B. (2003a). Valuing the benefits of coastal water quality improvements using contingent and real behaviour. *Environmental and resource economics*, Vol. 24, Issue 3, pp. 273-285.

Hanley, N., Ryan, M., & Wright, R. (2003b). Estimating the monetary value of health care: lessons from environmental economics. *Health economics*, Vol. 12, Issue 1, pp. 3-16.

Hanley, N., Wright, R.E., & Koop, G. (2002). Modelling recreation demand using choice experiments: climbing in Scotland. *Environmental and Resource Economics*, Vol. 22, Issue 3, pp. 449-466.

Harrell, G.D., & Kiefer, R.O. (1981). Multinational strategic market portfolios. *MSU Business Topics*, Vol. 21, Issue 1, pp. 5-15.

Haugland, S.A., Ness, H., Grønseth, B.O., & Aarstad, J. (2011). Development of tourism destinations: an integrated multilevel perspective. *Annals of Tourism Research*, Vol. 38, Issue 1, pp. 268-290.

Hausman, J.A., Leonard, G.K., & McFadden, D. (1995). A utility-consistent, combined discrete choice and count data model assessing recreational use losses due to natural resource damage. *Journal of Public Economics*, Vol. 56, Issue 1, pp. 1-30.

Hearne, R.R., & Salinas, Z.M. (2002). The use of choice experiments in the analysis of tourist preferences for ecotourism development in Costa Rica. *Journal of Environmental Management*, Vol. 65, Issue 2, pp. 153-163.

Helsen, K., & Green, P.E. (1991). A Computational Study of Replicated Clustering with an Application to Market Segmentation. *Decision Sciences*, Vol. 22, Isse 5, pp. 1124 1141.

Helsen, K., Jedidi, K., & DeSarbo, W.S. (1993). A new approach to country segmentation utilizing multinational diffusion patterns. *The Journal of marketing*, Vol. 57, Issue 4, pp. 60-71.

Hensher, D.A. (1994). Stated preference analysis of travel choices: the state of practice. *Transportation*, Vol. 21, Issue 2, pp. 107-133.

Hsieh, S., O'Leary, J.T., & Morrison, A.M. (1992). Segmenting the international travel market by activity. *Tourism Management*, Vol. 13, Issue 2, pp. 209-223.

Hsu, T.K., Tsai, Y.F., & Wu, H.H. (2009). The preference analysis for tourist choice of destination: A case study of Taiwan. *Tourism Management*, Vol. 30, Issue 2, pp. 288-297.

Hudman, L.E., & Jackson, R.H. (2003). *Geography of travel and tourism*. Albany, NY: Delmar Learning.

Huijbens, E. & Árnason, Þ. (2012). Understanding seasonality in peripheral regions: the potentials and pitfalls of developing winter tourism in Iceland. Proceedings of the 11th Global Forum on Tourism Statistics.

Huybers, T. (2003). Domestic tourism destination choices—a choice modelling analysis. *International Journal of Tourism Research*, Vol. 5, Issue 6, pp. 445-459.

Icelandic Tourist Board, 2013: Tourism in Iceland in figures, April 2013. Available at: http://www.ferdamalastofa.is/static/files/ferdamalastofa/talnaefni/tourism-in-iceland-in-figures-april-2013.pdf (accessed 2 November 2013).

Inskeep, E. (1991). *Tourism planning: An integrated and sustainable development approach.* New York: Van Nostrand Reinhold.

Ishutkina, M.A. (2009). *Analysis of the interaction between air transportation and economic activity: a worldwide perspective.* (Doctoral Dissertation). Massachusetts Institute of Technology, Dept. of Aeronautics and Astronautics.

Ishutkina, M.A., & Hansman, R. J., (2008). *Analysis of interaction between air transportation and economic activity*. Cambridge, MA: International Center for Air Transportation. Massachusetts Institute of Technology, Cambridge.

Jóhannesson, G.T., & Huijbens, E.H. (2010). Tourism in times of crisis: exploring the discourse of tourism development in Iceland. *Current Issues in Tourism*, Vol. 13, Issue 5, pp. 419-434.

Jóhannesson, G.T., Huijbens, E.H., & Sharpley. R. (2010) Icelandic Tourism: Past directions-Future challenges. *Tourism Geographies*, Vol. 12, Issue 2, pp. 278-301.

Karlsdóttir, U.B. (2013). Nature worth seeing! The tourist gaze as a factor in shaping views on nature in Iceland. *Tourist Studies*, Vol. 13, Issue 2, pp. 139-155.

Kelly, J., Haider, W., Williams, P.W., & Englund, K. (2007). Stated preferences of tourists for eco-efficient destination planning options. *Tourism Management*, Vol. 28, Issue 2, pp. 377-390.

Klenosky, D.B., Gengler, C.E., & Mulvey, M.S. (1999). Understanding the factors influencing ski destination choice: A means-end analytic approach. *Consumer behavior in travel and tourism*, Vol. 25, Issue 4, pp. 59-80.

Kvale, S. (2008). *Doing interviews*. London: Sage.

Laesser, C., and Crouch, G.I. (2006). Segmenting markets by travel expenditure patterns: The case of international visitors to Australia. *Journal of Travel Research*, Vol. 44, Issue 4, pp. 397-406.

LaMondia, J., Snell, T., & Bhat, C.R. (2010). Traveler Behavior and Values Analysis in the Context of Vacation Destination and Travel Mode Choices. Transportation Research Record: *Journal of the Transportation Research Board*, Vol. 2156, Issue 1, pp. 140-149.

Lang, C.T., O'Leary, D.J.T., & Morrison, A.M. (1994). Activity segmentation of Japanese female overseas travelers. *Journal of Travel & Tourism Marketing*, Vol. 2, Issue 4, pp. 1-22.

Lee, D.N.B.; and Snepenger, D.J. (1992). An ecotourism assessment of Tortuguero, Costa Rica. *Annals of Tourism Research*, Vol. 19, No. 2, pp. 367-370.

Lemelin, R. H.; Dawson, J. and Stewart, E. (2011). *Last chance tourism*. Wallingford: CABi.

Leonard-Barton, D. (1990). A Dual Methodology for Case Studies: Synergistic Use of a Longitudinal Single Site with Replicated Multiple Sites. *Organization Science*, Vol. 1, Issue 3, pp. 248-266.

Liander, B., Terpstra, V., Yoshino, M. & Sherbini, A.A. (1967). *Comparative analysis for international marketing*. Boston (MA): Allyn and Bacon.

Mangion, M.L., Durbarry, R., and Sinclair, M.T. (2005). Tourism competitiveness: price and quality Tourism competitiveness: price and quality. *Tourism Economics*, Vol. 11, Issue 1, pp. 45-68.

Masiero, L., and Nicolau, J.L. (2012a). Price sensitivity to tourism activities: looking for determinant factors. *Tourism Economics*, Vol. 18, Issue 4, pp. 675-689.

Masiero, L., and Nicolau, J.L. (2012b). Tourism Market Segmentation Based on Price Sensitivity Finding Similar Price Preferences on Tourism Activities. *Journal of Travel Research*, Vol. 51, Issue 4, pp. 426-435.

Matyas, C., Srinivasan, S., Cahyanto, I., Thapa, B., Pennington-Gray, L., & Villegas, J. (2011). Risk perception and evacuation decisions of Florida tourists under hurricane threats: a stated preference analysis. *Natural hazards*, Vol. 59, Issue 2, pp. 871-890.

McCool, S.F. (1978). Recreation activity packages at water-based resources. *Leisure Sciences*, Vol. 1, Issue 2, pp. 163-173.

McQuarrie, E.F. (2011). *The market research toolbox: a concise guide for beginners*. Thousand Oaks, CA: Sage.

Metrass-Mendes, A. (2011). *Air transport for effective and efficient service to small remote communities – Policy options under regulatory reform*. (Doctoral Dissertation). Faculdade de Engenharia da Universidade do Porto.

Mihalič, T. (2000). Environmental management of a tourist destination: A factor of tourism competitiveness. *Tourism Management*, Vol. 21, Issue 1, pp. 65-78.

Moeltner, K., & Englin, J. (2004). Choice behavior under time-variant quality: State dependence versus "Play-It-by-Ear" in selecting ski resorts. *Journal of Business & Economic Statistics*, Vol. 22, Issue 2, pp. 214-224.

Morikawa, T., Ben-Akiva, M., and McFadden, D. (2002). Discrete choice models incorporating revealed preferences and psychometric data. *Advances in Econometrics*, Vol. 16, pp. 29-55.

Morley, C.L. (1998). A dynamic international demand model. *Annals of Tourism Research*, Vol. 25, Issue 1, pp. 70-84.

Morley, C.L. (1994). Experimental destination choice analysis. *Annals of Tourism Research*, Vol. 21, Issue 4, pp. 780-791.

Mullen, M.R., (2009). Foreign Market Analysis. *Irish Marketing Review*, Vol. 20, Issue 1, pp. 47-56.

Navickas, V., & Malakauskaite, A. (2009). The possibilities for the identification and evaluation of tourism sector competitiveness factors. *Inzinerine Ekonomika-Engineering Economics*, Vol. 1, Issue 61, pp. 37-44.

Oh, C.O., Draper, J., & Dixon, A.W. (2010). Comparing resident and tourist preferences for public beach access and related amenities. *Ocean & Coastal Management*, Vol. 53, Issue 5, pp. 245-251.

Olafsdottir, G. (2013). On nature-based tourism. *Tourist Studies*, Vol. 13, Issue 2, pp. 127-138.

Orams, M.B. (1996) Using Interpretation to Manage Nature-based Tourism. *Journal of sustainable tourism*, Vol. 4, No. 2, pp. 81-94.

Orens, A., & Seidl, A. (2009). Working lands and winter tourists in the Rocky Mountain West: a travel cost, contingent behaviour and inputoutput analysis. *Tourism Economics*, Vol. 15, Issue 1, pp. 215-242.

Papatheodorou, A., and Zheng, L. (2006). Leisure Travel in Europe and airline business models: a study of regional airports in Great Britain. *Journal of Air Transport Management*, Vol. 12, Issue 1, pp. 47-52.

Park, D.B., & Yoon, Y.S. (2009). Segmentation by motivation in rural tourism: A Korean case study. *Tourism management*, Vol. 30, Issue 1, pp. 99-108.

Patton, M.Q. (2001). *Qualitative research & evaluation methods*. Thousand Oaks, CA: Sage.

Pentelow, L., and Scott, D.J. (2011). Aviation's inclusion in international climate policy regimes: implications for the Caribbean tourism industry. *Journal of Air Transport Management*, Vol. 17, Issue 3, pp. 199-205.

PKF (2013). *Promote Iceland: Long-term strategy for the Icelandic tourism industry*. Retrieved March 21, 2013, from: http://www.islandsstofa.is/files/final-long-term-strategy-for-icelandic-tourism-industry-270213kh.pdf.

Poon, A. (1993). *Tourism, technology and competitive strategies*. Oxford: CAB International.

Porter, M.E. (1990). New global strategies for competitive advantage. *Strategy & Leadership*, Vol. 18, Issue 3, pp. 4-14.

Punj, G., & Stewart, D.W. (1983). Cluster analysis in marketing research: review and suggestions for application. *Journal of marketing research*, Vol. 2, Issue 2, pp. 134-148.

Riganti, P., & Nijkamp, P. (2008). Congestion in popular tourist areas: a multi-attribute experimental choice analysis of willingness-to-wait in Amsterdam. *Tourism Economics*, Vol. 14, Issue 1, pp. 25-44.

Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers* (Vol. 2). Oxford: Blackwell.

Sæþórsdóttir, A.D. (2010a). Tourism struggling as the Icelandic wilderness is developed. *Scandinavian Journal of Hospitality and Tourism*, Vol. 10, Issue 3, pp. 334-357.

Sæþórsdóttir, A.D. (2010b). Planning nature tourism in Iceland based on tourist attitudes. *Tourism Geographies*, Vol. 12, Issue 1, pp. 25-52.

Sæþórsdóttir, A.D., & Ólafsson, R. (2010). Nature tourism assessment in the Icelandic Master Plan for geothermal and hydropower development. Part I: rapid evaluation of nature tourism resources. *Journal of Heritage Tourism*, Vol. 5, Issue 4, pp. 311-331.

Sahlberg, B. (2001). *Going North: Peripheral Tourism in Canada and Sweden*. European Tourism Research Institute, ETOURs rapport serien, R 2001:6. Östersund, Sweden: Mid-Sweden University.

Sakarya, S., Eckman, M., & Hyllegard, K. H. (2007). Market selection for international expansion: assessing opportunities in emerging markets. *International Marketing Review*, Vol. 24, Issue 2, pp. 208-238.

Schmidt, C. (2007). *Policy Evaluation and Economic Policy advice*. (Discussion paper No. 2700). Forschungsinstitut zur Zukunft der Arbeit. Retrieved August 26, 2011, from: http://ftp.iza.org/dp2700.pdf.

Schroeder, H.W., & Louviere, J. (1999). Stated choice models for predicting the impact of user fees at public recreation sites. *Journal of Leisure Research*, Vol. 31, pp. 300-324.

Schuhmann, P.W., & Schwabe, K.A. (2004). An analysis of congestion measures and heterogeneous angler preferences in a random utility model of recreational fishing. *Environmental and Resource Economics*, Vol. 27, Issue 4, pp. 429-450.

Smallman, C., & Moore, K. (2010). Process studies of tourists' decision-making. *Annals of Tourism Research*, Vol. 37, Issue 2, pp. 397-422.

Snowball, J.D., & Willis, K.G. (2006). Estimating the marginal utility of different sections of an arts festival: the case of visitors to the South African National Arts Festival. *Leisure Studies*, Vol. 25, Issue 1, pp. 43-56.

Sæþórsdóttir, A.D. (2010). Planning Nature Tourism in Iceland based on Tourist Attitudes. *Tourism Geographies*, Vol. 12, No. 1, pp. 25-52.

Tangeland, T. (2011). Why do people purchase nature-based tourism activity products? A Norwegian case study of outdoor recreation. *Scandinavian Journal of Hospitality and Tourism*, Vol. 11, Issue 4, pp. 435-456.

The Boston Consulting Group (2013). Northern Lights: The future of tourism in Iceland. Retrieved November 18, 2013, from: http://www.icelandictourism.is/.

Train, K.E. (2003). *Discrete choice methods with simulation*. New York: Cambridge University Press.

Vanhove, N. (2011). *The economics of tourism destinations*. Oxford: Elsevier.

Vedung, E. (2000). *Public policy and program evaluation*. New Brunswick, NJ: Transaction Pub.

Verma, R., Plaschka, G., & Louviere, J.J. (2002). Understanding customer choices: a key to successful management of hospitality services. *The Cornell Hotel and Restaurant Administration Quarterly*, Vol. 43, Issue 6, pp. 15-24.

Walker, J., and Ben-Akiva, M. (2002). Generalized random utility model. *Mathematical Social Sciences*, Vol. 43, Issue 3, pp. 303-343.

Wang, D., and Ap, J. (2013). Factors affecting tourism policy implementation: A conceptual framework and a case study in China. *Tourism Management*, Vol. 36, pp. 221–233.

Whitehead, J.C., Haab, T.C., & Huang, J.C. (2000). Measuring recreation benefits of quality improvements with revealed and stated behavior data. *Resource and energy economics*, Vol. 22, Issue 4, pp. 339-354.

Whitehead, J., Haab, T., & Huang, J.C. (2011). *Preference data for environmental valuation: combining revealed and stated approaches*. New York: Routledge; 2011.

Wu, L., Zhang, J., & Fujiwara, A. (2011). Representing tourists' heterogeneous choices of destination and travel party with an integrated latent class and nested logit model. *Tourism Management*, Vol. 32, Issue 6, pp. 1407-1413.

1. Implementation Details

An email is to be sent to the email addresses of the selected bookings with an **invitation link** to participate in this study.

The questionnaire is organized as follows: Section 1 covers the Socio-economic and demographic data of the respondent; Section 2 covers its attractions' experience s; Section 3 is the stated choice experiment; Section 4 covers the suppressed visits; and, finally, Section 5 covers the attitudinal questions for new attractions.

The questionnaire design should allow for the questionnaire to be answered in several sessions. There should be **two times** when it is possible to stop the survey, saving the information already filled in, and receive an email with a link to complete the survey later. A first stop should be allowed after Section 2 (Attractions' experiences); and a second stop is allowed after the completion of Section 3 (Stated Choice experiment).

Responses will be treated as **confidential** and should be **not be tracked to individual participants.**

However, we should have access, for each respondent, to the **country of origin of the booking, passenger's nationality, and airport of origin and destination, and complete route.**

The test survey will only be **distributed in English**. Future surveys will be translated to other languages (main source markets' languages).

2. Introduction to the questionnaire (Email body text)

Dear Icelandair passenger,

We ask for your collaboration to complete a questionnaire on tourism patterns and preferences in Iceland. The survey is part of a research project being conducted by The

Icelandic Tourism Research Center and Icelandair. The project aims at identifying policy and business strategies that will help maintain Icelandic tourism sustainability and at the same time improve development opportunities and tourists' level of satisfaction.

The link below takes you to the page of the questionnaire. Please complete this survey at your earliest convenience. It will take about 15-20 minutes to complete. The questionnaire can be answered in several sessions. There are three times when it is possible to stop the answer, saving the information already filled in, and receive an email with a link to complete the survey later. Responses will be treated as confidential and cannot be tracked to individual participants.

{Insert LINK to survey.}

If you have questions or want to verify the legitimacy of this survey, you may contact the email address: {XXXX (Email for assistance that is forwarded to the researcher).}

The project team welcomes your participation and support in the development of Icelandic tourism and this project.

1. Questions

Section 1: Socio-economic and demographic data

1. What is your nationality?

2. What is your country of residence?

3. What was the airport of origin of your trip to Iceland?

4. What is your age?

5. What is your gender?

6. What is your level of education?

   a. High School Diploma

   b. Bachelor Degree

   c. Post-graduate (Masters or doctorate)

   d. Other

7. What is your level of income (compared to your country's average)?

   a. Low

   b. Medium

   c. High

8. What was the purpose of your trip to Iceland?

   a. Visiting friends and relatives

   b. Business

   c. Holiday leisure and recreation

   d. Education and training

   e. Transit

   f. Other. Which?

9. What was the duration/length of your trip to Iceland?

10. What was your mode of transportation in Iceland?

    a. You had your own/rented vehicle

    b. You mostly used bus/organized tour services

    c. You mostly used local transportation (bus)

    d. You mostly hitchhiked.

Section 2: Attraction's experience

9. Please select all the regions you have visited in Iceland:

   o Reykjavik district area

   o Southwest

   o South Iceland

- o Eastfjords
- o North Iceland
- o Westfjords
- o West Iceland

10. Please select all you have visited/done while in Iceland:

- o Reykjavik Capital
- o Golden Circle
- o Diamond Circle
- o Askja
- o Blue Lagoon
- o Mývatn
- o Fishing
- o Hunting
- o Volcano tour
- o Glacier walk
- o Caving
- o Greenland
- o Museum? Which?
- o Church? Which?
- o Waterfall. Which?
- o Islands. Which?
- o Dining out. Where?
- o Night life. Where?
- o Food festival. Where?
- o Music festival. Where?
- o Cultural festival. Where?
- o Turf house. Where?
- o Whale watching. Where?
- o Bird watching. Where?
- o Diving. Where?
- o Skiing. Where?
- o Backcountry skiing. Where?
- o Northern Lights. Where?

- Rafting and kayaking. Where?
- Golfing. Where?
- Horseback riding. Where?
- ATV adventures. Where?
- Dog sledding. Where?
- Local food tour. Where?
- Other. Which?

11. On a scale of 1 to 5 (1 being least satisfied and 5 being most satisfied), please rate your overall satisfaction with the following types of recreation:
    - Nature activity
    - Cultural activity
    - Health and well-being activity
    - Sports activity

12. On a scale of 1 to 5 (1 being least satisfied and 5 being most satisfied), please rate your satisfaction with the service for the following types of recreation:
    - Nature activity
    - Cultural activity
    - Health and well-being activity
    - Sports activity

13. On a scale of 1 to 5 (1 being least satisfied and 5 being most satisfied), please rate your satisfaction with the prices for the following types of recreation:
    - Nature activity
    - Cultural activity
    - Health and well-being activity
    - Sports activity

14. On a scale of 1 to 5 (1 being least satisfied and 5 being most satisfied), please rate your satisfaction with the infrastructure for the following types of recreation:
    - Nature activity
    - Cultural activity
    - Health and well-being activity

o Sports activity

15. Please rank (1 being least important and 4 being most important) what should be improved in infrastructure for nature activities:
    o Accommodation
    o Restaurant services
    o Transportation/Accessibility
    o Facilities. Which?
    o None

16. Please rank (1 being least important and 4 being most important) what should be improved in infrastructure for cultural activities:
    o Accommodation
    o Restaurant services
    o Transportation/Accessibility
    o Facilities. Which?
    o None

17. Please rank (1 being least important and 4 being most important) what should be improved in infrastructure for health and well-being activities:
    o Accommodation
    o Restaurant services
    o Transportation/Accessibility
    o Facilities. Which?
    o None

18. Please rank (1 being least important and 4 being most important) what should be improved in infrastructure for sports activities:
    o Accommodation
    o Restaurant services
    o Transportation/Accessibility
    o Facilities. Which?
    o None

Section 3.A: Stated Choice Experiment (attributes)

19. On a scale of 1 to 5 (1 being least important and 5 being most important), please rate the importance of the following attributes in selecting Iceland as a destination:
    o Price
    o Quality
    o Service
    o Convenience
    o Sustainability
    o Risk
    o Long term relationship
    o Other (please list)

20. On a scale of 1 to 5 (1 being least important and 5 being most important), please rate the importance of the following attributes in selecting your activities in Iceland:
    o Price
    o Quality
    o Service
    o Convenience
    o Sustainability
    o Risk
    o Long term relationship
    o Other (please list)

21. On a scale of 1 to 5 (1 being least important and 5 being most important), please rate your interest in the following types of recreation:
    o Nature based activity
    o Cultural based activity
    o Health and well-being activity
    o Sports activity
    o Other (please list)

Section 3.B: Stated Choice Experiment (Choice cards)

In this part of the survey, we ask you to consider some potential visits/attractions choices related to the trip you have made to Iceland. Please imagine that you are coming to Iceland as a tourist for the first time and planning your tour and the places you intend to visit. You will be asked to evaluate several attraction choices for the trip. Before you evaluate these choices, please review the information below:

- Each of the following questions contains a choice exercise showing real and potential visit options for your trip. The options have different features, costs, and times from each other.
- These features may be different than what you actually experienced on your recent visit to Iceland.
- We understand that some of the package alternatives that are described may not have been available. We want to understand if and how you would plan your trip if these alternatives were available.

22. Which of the following options would you choose? Select as many as you wish or none of the items. All the activities include pick-up and drop-off from your location.

Glacier trekking including taking a walk on the ice	21.000 ISK
Super Jeep tour visiting seven major waterfalls	25.000 ISK
Super Jeep tour visiting the lunar landscape of Askja	45.000 ISK
Whale watching	10.000 ISK
Exploration of a cave with natural ice sculptures	27.000 ISK
Snorkeling between the American and Eurasian plaques including visit to national park (waterfall, world heritage site, and geysers/hot springs)	25.000 ISK
Northern snorkeling and open water diving in a crack between the American and Eurasian continents around giant submarine cones	50.000 ISK
Horseback riding	10.000 ISK
Farmers visit and local food tasting	30.000 ISK
Northern lights excursion	10.000 ISK
River rafting	25.000 ISK

Sea angling: catching a fish with experienced fishermen	11.500 ISK
Glacial lagoon boat tour	21.500 ISK
ATV/motorbike tour including mountain roads and black sandy beaches	20.000 ISK
Blue lagoon excursion (including admission)	10.000 ISK
National park (Golden Circle) and hot baths	15.000 ISK
Cycling tour including mountain roads and black sandy beaches	15.000 ISK

23. Below there are different package options with visit/activity items and their respective prices. Please select what you would typically choose from the items from just <u>one</u> package.

Package A	Package B	Package C
Northern lights excursion (10.000 ISK)	Glacial lagoon boat tour (21.500 ISK)	National park: geyser, hot springs and hot baths (15.000 ISK)
Snorkeling/Diving (25.000 ISK)	Blue Lagoon (10.000 ISK)	Cave exploration (27.000 ISK)
ATV tour (20.000 ISK)	National park: geyser, hot springs and hot baths (15.000 ISK)	Snorkeling/Diving (25.000 ISK)
Glacier hiking (21.000 ISK)	Snorkeling/Diving (25.000 ISK)	River rafting (25.000 ISK)
River rafting (25.000 ISK)	Gourmet tour visiting farmers (30.000 ISK)	Horseback riding (10.000 ISK)
Sea angling (11.500 ISK)	Whale watching (10.000 ISK)	Gourmet tour visiting farmers (30.000 ISK)
Discounted Package (includes Northern lights + snorkeling/diving + glacier hiking): 50.000 ISK	Discounted Package (includes Glacial lagoon + Blue lagoon + Gourmet tour): 60.000 ISK	Discounted Package (includes National park + Cave + river rafting): 62.500 ISK

{Following question 23, we show the respondents the following text and table:}

We will now ask you to choose between different visit/attraction packages. The following table shows you the features of the visit/attraction packages we would like you to consider when choosing between different options.

Visit/attraction package features

Infrastructure / accessibility	This is the level of infrastructure and accessibility you will encounter at the locations of your visit. In the infrastructure item, we include visitors center facilities, coffee shop/restaurant, toilets, shop, etc. In the accessibility item, we include the type of access you have to the location: quality and condition of roads/paths, etc..
Price	This is the total cost you would pay for the package including all transportation costs and admissions to activities.
Culture and Entertainment	This is the level of cultural experience / entertainment provided. In this item, we include the cultural activities you have access to: place of cultural interest, events, museums, exhibitions, festivals, concerts, performances, etc.
Health and well-being / Relaxation /Sports	This relates to the health and well-being/relaxation activities you will experience during your package and also to the sports activities you will have a chance to practice. It includes access to nature-based activities such as nature baths, natural heated rivers, spa treatments, etc. and sports such as ski, golf, diving, snorkeling, rafting, etc.
Service	This is the level of service you have for the package. In this item we include the level of service/assistance you will be provided for the duration of your package. In this item we include aspects like the presence of a local guide, service available in your language, the level of training of the guides and others – visitors' centers shops and restaurants' employees, etc.
Crowding	This is the level of congestion you experience at each activity: the number of locals and tourists that will be with you at the same time at the location.

24. Please imagine that you are visiting Iceland for the first time as a tourist. You are planning a week-trip in the same circumstances you recently visited the country (you have similar budget, you are traveling in the country using the same transportation mode, you have the same traveling companions, etc.). Please choose between Option A, B and C, for the following 6 cards. The different options represent different activity/attraction packages with different features in respect to the attributes described before.

Card 1. Which of the following options would you prefer?

Features	Option A	Option B	Option C
Infrastructure / Accessibility	Good access and good level of facilities	Poor access conditions and poor or no-facilities at the locations	Good access but no facilities at the locations
Price	70.000 ISK	30.000 ISK	45.000 ISK
Culture and Entertainment	Access to several cultural activities	No cultural activity associated	No cultural activity associated
Health and well-being / Relaxation / Sports	Access to at least one nature-based activity	Access to at least one nature-based activity	No
Service	Local guide and service at locations	Local guide but no service at locations	No local guide and no service at locations
Crowding	Very crowded	No	Some crowding

Card 2. Which of the following options would you prefer?

Features	Option A	Option B	Option C
Infrastructure / Accessibility	Good access and good level of facilities	Good access but no facilities at the locations	Poor access conditions and poor or no-facilities at the locations
Price	90.000 ISK	15.000 ISK	45.000 ISK
Culture and Entertainment	Access to several cultural activities	Access to some cultural activity	No cultural activity associated
Health and well-being / Relaxation / Sports	Access to at least one nature-based activity	No	Access to more than one nature-based activity
Service	Local guide and service at locations	Local guide but no service at locations	No local guide and no service at locations
Crowding	Some crowding	Some crowding	No

Card 3. Which of the following options would you prefer?

Features	Option A	Option B	Option C
Infrastructure / Accessibility	Good access and good level of facilities	Poor access conditions but good facilities at the locations	Good access but no facilities at the locations
Price	55.000 ISK	55.000 ISK	35.000 ISK
Culture and Entertainment	No cultural activity associated	Access to some place of cultural interest/cultural activity	No cultural activity associated
Health and well-being / Relaxation / Sports	No	No	Access to at least one nature-based activity
Service	Local guide and service at locations	Local guide and service at locations	No local guide and no service at locations
Crowding	Some crowding	No	Some crowding

Card 4. Which of the following options would you prefer?

Features	Option A	Option B	Option C
Infrastructure / Accessibility	Poor access conditions and poor or no-facilities at the locations	Good access and good level of facilities	Poor access but good level of facilities at locations
Price	70.000 ISK	30.000 ISK	20.000 ISK
Culture and Entertainment	No cultural activity associated	Access to several cultural activities	Access to at least one cultural activity
Health and well-being / Relaxation / Sports	Access to at least one nature-based activity	Access to at least one nature-based activity	No
Service	Local guide and service at locations	Local guide but no service at locations	No local guide and no service at locations
Crowding	Very crowded	No	No

Card 5. Which of the following options would you prefer?

Features	Option A	Option B	Option C
Infrastructure / Accessibility	Good access conditions but poor or no-facilities at the locations	Poor access and no facilities at the locations	Poor access and no facilities at the locations
Price	55.000 ISK	30.000 ISK	45.000 ISK
Culture and Entertainment	Access to at least one cultural activity	No cultural activity associated	Access to at least one cultural activity
Health and well-being / Relaxation / Sports	Access to at least one nature-based activity	Access to at least one nature-based activity	Access to several nature-based activity
Service	No local guide and no service at locations	Local guide but no service at locations	Local guide and service at locations
Crowding	Some crowding	No	No

Card 6. Which of the following options would you prefer?

Features	Option A	Option B	Option C
Infrastructure / Accessibility	Poor access conditions and poor or no-facilities at the locations	Good access but no facilities at the locations	Poor access but good level of facilities
Price	20.000 ISK	30.000 ISK	90.000 ISK
Culture and Entertainment	No cultural activity associated	No cultural activity associated	Access to at least one cultural activity
Health and well-being / Relaxation / Sports	Access to at least one nature-based activity	Access to several nature-based activity	Access to several nature-based activity
Service	No local guide and no service at locations	No local guide and no service at locations	Local guide and service at locations
Crowding	No	Some crowding	No

Section 4: Suppressed visits

24. Please list all other the activities you would have liked to have done while in Iceland:

_____

_____

25. In the case you have listed nature activities, on a scale of 1 to 8 (1 being least important and 8 being most important), please rate the importance of the following reasons for not having done these:

- o Lack of time
- o Schedule
- o Price
- o Quality
- o Service
- o Convenience
- o Sustainability
- o Risk

26. In the case you have listed cultural activities, on a scale of 1 to 8 (1 being least important and 8 being most important), please rate the importance of the following reasons for not having done these:

- o Lack of time
- o Schedule
- o Price
- o Quality
- o Service
- o Convenience
- o Sustainability
- o Risk

27. In the case you have listed health and well-being activities, on a scale of 1 to 8 (1 being least important and 8 being most important), please rate the importance of the following reasons for not having done these:

     o Lack of time

     o Schedule

     o Price

     o Quality

     o Service

     o Convenience

     o Sustainability

     o Risk

28. In the case you have listed sport activities, on a scale of 1 to 8 (1 being least important and 8 being most important), please rate the importance of the following reasons for not having done these:

     o Lack of time

     o Schedule

     o Price

     o Quality

     o Service

     o Convenience

     o Sustainability

     o Risk

Please list all other places you would have liked to have visited while in Iceland:

_____

_____

29. On a scale of 1 to 8 (1 being least important and 8 being most important), please rate the importance of the following reasons for not having visited these:

     o Lack of time

     o Schedule

     o Price

     o Quality

     o Service

     o Convenience

     o Sustainability

     o Risk

Section 5: Attitudinal questions for new attractions

30. Would you like to have access to a "tourist-pass" with combined packages of several activities?

     o Yes

     o No

31. If you replied yes to the previous question, on a scale of 1 to 5 (1 being least likely and 5 being most likely), please rate the probability of choosing one of these types of pass:

     o Nature based activity

     o Cultural based activity

     o Health and well-being activity

     o Sports activity

     o Other (please list)

32. Would you prefer a pass for only one kind of activity to a combined activity pass?

COMPARING AIR TRANSPORT POLICIES FOR SMALL REMOTE COMMUNITIES: U.S.A., CANADA, PORTUGAL, SPAIN AND BRAZIL

Alda Metrass-Mendes[1a], Richard de Neufville[2], Álvaro Costa[3], Alessandro V.M. Oliveira[4]

[1]The Icelandic Tourism Research Centre, Borgum v/Norðurslóð, 600 Akureyri, Iceland

[2]Massachusetts Institute of Technology, 77 Massachusetts Avenue, E40-245, Cambridge, MA 02139, U.S.A.

[3]Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal

[4]Aeronautics Institute of Technology, Pr. Marechal Eduardo Gomes, 50, 12228-900, S. José dos Campos, Brazil

This paper examines the regulatory status in the aviation industry, and the efforts of the U.S.A., Canada, Portugal, Spain and Brazil to adopt air transport policies and mechanisms to provide their populations with universal accessibility. A systems engineering grounded theory approach and a cross-national case-based comparison framework are used to look at the impacts of different policies and mechanisms on the air service to small remote communities. It is found that the success of a policy design critically depends on five factors: 1) the joint support of infrastructure investment, maintenance and operations and air services; 2) governments' ability to promote competition and protect passengers in markets where competition does not exist; 3) the operating carrier's choice of business model, technology for thin routes, and network; 4) political interest; and 5) local participation. Based on the evaluation of policy designs and assessment of policies in five substantially different national contexts and interviews with several stakeholders, the authors provide insights and suggest recommendations in small remote air transport policy for policy makers and practitioners. The recommendations are applicable to other countries reforming their aviation industries.

HIGHLIGHTS: ► Effective air transport policy requires attending to infrastructure and service. ► Targeting de facto community needs is effective and efficient way of achieving equity. ► Centralized support is recommended where local communities lack resources. ► Policy performance improves with promotion of competition between carriers. ► Efficiency gains are achievable by independent performance benchmarking procedures.

KEYWORDS: Deregulation, air transportation policy, small remote communities, United States, Canada, Portugal, Spain, Brazil.

---

[a] Corresponding author - Email: aldamm@unak.is, Phone: (+354) 460 8931, Fax: (+354) 460 8919.

ICELANDIC TOURISM
RESEARCH CENTRE