ICELANDIC TOURISM
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Icelandic tourism profitability and sustainability strategies

The facilitating role of aviation

Final Project Report

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Abstract

This report presents the final status of implementation of research on the facilitating role of aviation for the development of profitable and sustainable strategies for Icelandic inbound tourism. The project was originally established as a three-year collaboration between the Icelandic Tourism Research Centre and the Icelandair Group and it aimed 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 briefly introducing the research project. It then describes the research that has been conducted to date. The current status of implementation of the project is depicted. Potential future trajectories of the project are discussed. The report concludes with some final remarks on potential deliverables and impact of the project.

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1. INTRODUCTION

This report describes the final status of implementation of a research project on how Icelandic tourism can balance the development of aviation based tourism with sustainability. Icelandic inbound tourism depends almost solely on aviation as flying is currently the only means of getting overnight visitors to the island *en masse*. Balancing the development of aviation based tourism and concerns for sustainability are of critical importance for the country's tourism development. In its post-crisis economy tourism has gained prominence. Policy-makers recognize that tourism development policies require fundamentally new strategies and approaches. They have begun 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; Jóhannesson, Huijbens and Sharpley, 2010; Metrass-Mendes, 2013; The Boston Consulting Group [BCG], 2013; PKF, 2013).

The project aimed to address one of the most prominent problems of Icelandic tourism, which is the absence of long-term industry and business strategies that are both profitable and sustainable. Currently, Icelandic inbound tourism is experiencing outstanding growth, expounding existing competitive and sustainability challenges faced by the industry such as growing destination competition, high seasonality and high concentration of visitors at few attractions, and, moreover, the ways in which the growth of the industry is ahead of planning and policy (Metrass-Mendes, 2013). The challenge of having growth driving planning, rather than planning managing growth in Icelandic tourism has been unravelled only relatively recently by policy-makers, industry stakeholders and researchers in Iceland (BCG, 2013; Jóhannesson *et al*., 2010; PKF, 2013).

The research project proposed 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 motivation of the study was drawn from the implications of tourism on national and regional development and the implications of aviation on Icelandic tourism. The goal was to provide new insights into consumer behaviour relating to tourism development, enabling policy-makers and stakeholders to have a better understanding of the market conditions and to improve planning, development, and investment strategies (Metrass-Mendes, 2013). The urgent need for better

market intelligence, focusing on specific segments and geographic source markets in order to set and refine targets has been discussed. More specifically the lack of detailed market intelligence is one of the key weaknesses of Iceland's current promotional model and approach as identified in the first project report (Metrass-Mendes, 2013) and highlighted in two reports summarising concerns from several sources (BCG, 2013, pp. 23, 31; and PKF, 2013, pp. 46, 69, 71, 80).

Market research focusing on specific segments and geographic source markets links social values with travel preferences and allows targeting the individuals with the highest propensity to visit a destination and specific attractions. 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 as summarised by Metrass-Mendes (2013). Thus the research project was specifically designed and intended to contribute to the body of practical and theoretical knowledge available to the development of aviation based tourism, tourist behaviour, segmentation and targeting, and in particular, inbound Icelandic tourism.

1.1. Research questions, hypotheses and objectives

The main research question was:

> *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 was 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 could successfully balance the trade-offs;

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

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

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

The research project aimed at contributing 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 proposed 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.

Finally, the objectives of the project could 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, finally, to provide guidelines to use when planning Icelandic destination and attraction development and marketing and when taking investment decisions.

1.2. Structure of the report

This report is organized as follows. Chapter 2 summarizes Icelandic inbound tourism. Chapter 3 describes the research conducted to date with an emphasis on the developed discrete choice experiment design and on the current status of implementation of the project. In Chapter 4, potential future trajectories of the project are discussed. Finally, in Chapter 5 some potential deliverables and impact of the project are presented.

2. ICELANDIC INBOUND TOURISM

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. 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, 2013). On the European market, low cost competition is increasing with the arrival and route development of low cost carriers (LCCs) such as EasyJet, WOW Air, Norwegian Air Shuttle and Air Berlin. Air services operated by both Icelandair and its competitors 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 (Metrass-Mendes, 2013).

The Icelandic rare combination of perceived wilderness in a recently modernized country is increasingly difficult to find in the Westernized world. Iceland is thus expected to become a more sought after destination for many travellers. 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 particularly high scores for natural and adventure activity (Metrass-Mendes, 2013).

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 Iceland as a 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). Yet, the number of tourists in Iceland is still small in any global comparison (Baum, 1999; Hudman and Jackson, 2003; and Jóhannesson *et al*., 2010) and tourism in Iceland maintains the characteristics of a niche market.

In the past decade, nevertheless, tourism in Iceland has been experiencing outstanding growth. In 2012, the number of visitors arriving yearly at the major Icelandic airport (Keflavík) had increased by over 338,000, which represents almost a 110 percent growth from 2003 (Icelandic Tourist Board, 2013). Major challenges, common to small island tourism destinations, such as high seasonality and high concentration of tourists at few attractions raises important environmental issues that remain to be addressed (Jóhannesson *et al*., 2010).

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 in 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). 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 PKF 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) (Metrass-Mendes, 2013).

3. RESEARCH DEVELOPED

The purpose of this chapter is to review the methodology proposed for the project and its development.

The complexity associated with a study of aviation business strategies and transport and tourism policy implementation led to the use of combined research approaches. An engineering systems framework based on mixed quantitative and qualitative methods was proposed; yet, the thrust of this research lay on the quantitative side. The focus of the methodology was three-fold: first, to perform a market assessment; second, to model tourist behaviour; and third, to link the results from the market assessment and the modelling of tourist behaviour and thus arrive at a tourist segmentation that could be of use for precise targeting of sustainable and profitable visitors to Iceland (Metrass-Mendes, 2013).

The chapter focuses on the discrete choice experiment design developed for modelling tourist behaviour and on the status of implementation of this part of the research. The reason for emphasizing the discrete choice modelling step - and the stated preferences technique – is that this step is to date more advanced than the source market analysis.

The remainder of the chapter is organized as follows: sections 3.1 and 3.2 offer a description of the adopted research design for the source market analysis and the discrete choice experiment, respectively, and section 3.3 reviews the current status of implementation of the project.

3.1. Source market analysis

The research design for source market analysis built 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). The modelling and analysis of Icelandic tourism market was to 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 project, this combination of methods was proposed for the latter: ultimate source market selection and segmentation (for more detail on literature see: Metrass-Mendes, 2013).

Regarding clustering, this research intended to combine the two approaches by Cavusgil (1990) and Sakarya, Eckman & Hyllegard (2007) and take into account the critical issues outlined by Dolnicar, Kaiser, Lazarevski & Leisch (2012) as well as their recommendations. Due to data availability, the project intended to use aggregate, macro indicators and neglect specific-product and/or service market indicators; yet, the research would address the constraint related to the hypothesis that countries are homogenous units with the segmentation of tourists within these countries using the discrete choice modelling experiment to study the preferences of individuals – replacing nationalities or countries of residence – for specific attributes of tourist attractions. The final drawback of clustering would be addressed by using data that is comparable and common across the screened countries.

For market ranking, this research proposed a methodology similar to the one used by Cavusgil (1997) and grounded in the findings of the reports from BCG (2013), and PKF (2013). Data needed for the analysis were to be collected both from aviation data bases, passenger data by Icelandair, and data made available by the Icelandic Tourist Board and Statistics Iceland.

3.2. Discrete choice experiment

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. Icelandic inbound tourists also have different degrees of sensitivity to congestion and may avoid visiting attractions when they have experienced or they anticipate overcrowding. This research proposed to employ discrete choice modelling for analysing the preferences of visitors to Iceland for various attraction attributes, and to conduct a discrete choice experiment that would cover the congestion or crowding attribute (Metrass-Mendes, 2013).

The research drew on existing literature (Anderson, De Palma & Thisse, 1992; Ben-Akiva and Lerman, 1985; Garrow, 2010; Morikawa, Ben-Akiva & McFadden, 2002; Train, 2003) to develop a choice model for tourist behaviour in Iceland. Ben-Akiva and Lerman (1985) provide the methodological guidance in terms of applying the model, while Train (2003) would 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. Furthermore, the research would specifically draw on Garrow (2010) and authors that have applied discrete choice modelling methods to the field of tourism like Albaladejo-Pina and Díaz-Delfa (2009), and more recently Beardmore, Haider, Hunt & Arlinghaus (2013), Draper, Oh & Harrill (2012), and Wu, Zhang& Fujiwara (2011). Another application of the discrete choice modelling method relevant to this research was the sensitivity to congestion analysis and, specifically, the works of Eugenio-Martin (2004) and (2011) (for more detail on these sources see: Metrass-Mendes, 2013).

3.2.1. Stated preferences (SP) technique

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

Through survey and experimental design, SP data are likely to provide more flexibility than RP data. The advantages of SP are summarized as follows (Metrass-Mendes, 2013):

- 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.

This research proposed to use exclusively SP data since revealed preference data regarding the utilization of tourist attractions and choice of activity packages are not available or are extremely limited in Iceland (Metrass-Mendes, 2013).

3.2.2. Segmentation based on discrete choice modelling

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 behaviour is motivation because it is more directly related to the purchase intentions and actual behaviour than for instance demographic variables, and therefore has a higher predictive power (Park and Yoon, 2009; and Tangeland, 2011).

Segmentation in tourist behaviour has been addressed by several authors, yet the project identified a research gap in the field of tourism: the relation between the choice modelling and stated preferences experiments, and segmentation is still missing and hindering effective and efficient targeting. The research proposed to addresses this concern by providing a link between source market assessment (clustering and ranking) and tourist behaviour (discrete choice modelling based on stated preferences). This would have been done by analysing 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?).

3.2.3. Set up of the discrete choice experiment (DCE)

The proposed stated preference (SP) methodology is set up as a discrete choice experiment (DCE). Figure 1 presents the original framework for the SP survey design and modelling. This framework has been altered to adapt to the needs of the project and due to implementation issues. For example, the focus group discussions on the selection of attributes and scenarios did take place but with a very limited number of stakeholders (mostly from Icelandair). On the other hand, the pilot survey had to be abandoned due to time constraints. If it had taken place, there would be no opportunity to have both two summer and two winter surveys within the three year project time frame, but two of each are necessary to adjust and refine findings. At current the focus groups insights are deemed more relevant than the possible findings of a pilot survey not fully implemented.

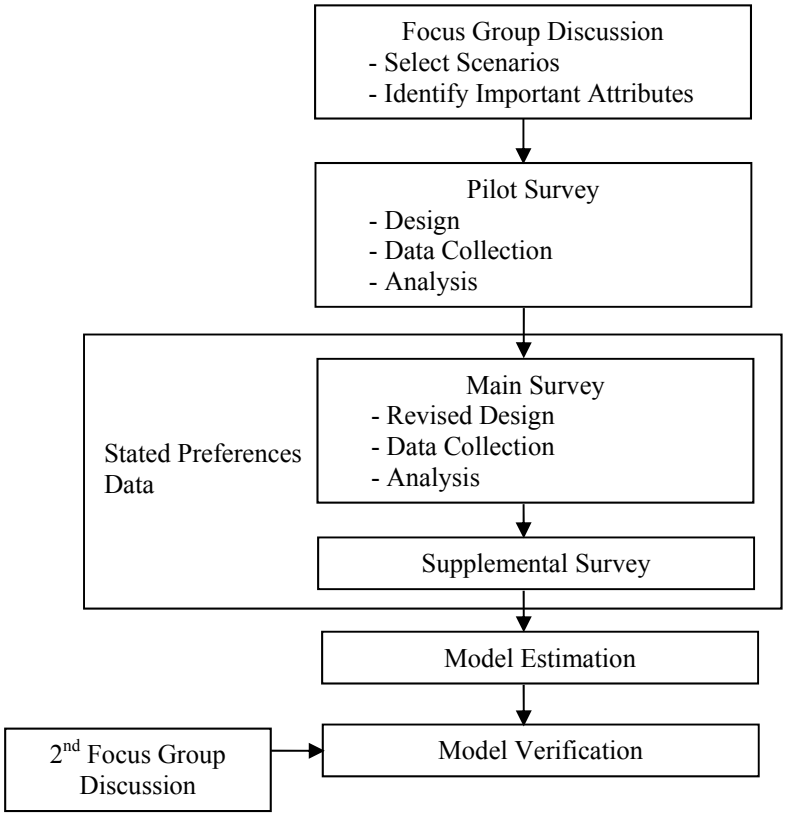

Figure 1: Framework for stated preferences design and modeling.

Table 1 presents the attributes selected and their description for the SP survey design and modelling for the packages of attractions the tourists are asked to select from in the eventual proposed main survey. For each attribute different levels were considered. The following attributes were chosen: 1) infrastructure and accessibility; 2) price; 3) culture and entertainment; 4) health and well-being; 5) service; and 6) crowding.

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

Infrastructure / accessibility	This is the level of infrastructure and accessibility you will encounter at the locations of your visit. In the infrastructure item, visitor's centre facilities were included, coffee shop/restaurant, toilets, shop, etc. In the accessibility item, the type of access you have to the location, quality and condition of roads/paths, etc. were included.
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, the cultural activities you have access to were included: 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, snorkelling, rafting, etc.
Service	This is the level of service you have for the package. In this item the level of service/assistance you will be provided for the duration of your package were included. In this item aspects like the presence of a local guide, service available in your language, the level of training of the guides and others – visitors' centres shops and restaurants' employees, etc. were included.
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.

With the large number of attributes and the large number of levels considered for each attribute, there was a large number of option combinations to choose from. It is neither feasible nor recommendable to present the respondents with all these possibilities. Hence, the analysis used 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 that would have been shown to the respondents. Table 2 presents the choice-card developed to date.

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

The proposed discrete choice experiment would differ from the ones in previous work performed in other contexts for the following reasons: (1) the tourist sample would be larger than the ones used previously in most studies (due to the approach adopted to conduct the survey – that would email all Icelandair passengers in the survey period - this research was expected to reach a large majority of inbound Icelandic tourists); (2) the sample would also most likely cover a larger percentage of the population than before (due to the size of the Icelandic inbound tourism market and the percentage carried by Icelandair); (3) the coverage of tourism attractions and activities would also be larger than in previous studies (due to the limited number of sites and activities existing in Iceland). All these factors would contribute to having a model that would describe more accurately tourist choices and thus findings that would be more supported (Metrass-Mendes, 2013).

3.2.4. Stated preference data collection

SP data would have been 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 would have been distributed by email on a link one month after their return flight. The possibility of having the survey displayed on the in-flight entertainment system of Icelandair was also looked into, yet the option was discarded for operational reasons.

The SP data collected though the Icelandair channel would have been complemented with qualitative interviews with tourists as described on the following subsection.

3.2.5. Qualitative Interviews with tourists

Semi-structured interviews would have been 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 interviews would be to build upon the information gathered from the survey and to explore organizational and individual perceptions of the Icelandic tourist attractions. Participants would be encouraged to provide their own detailed narrative, interpreting their understanding of their experiences.

The selection of potential interviewees would have been based on their background and on their willingness to voluntarily answer the questions in the proposed discrete choice experiment. The group of respondents in this study would most likely not form a representative sample of visitors to Iceland, since statistical representativeness would not be prioritized at that time. Yet, the diversity of interviewees' background would be carefully considered to avoid generating an excessively biased sample of tourists. The main objective of this qualitative approach would be to cover all tourist segments as identified from the discrete choice experiment, complemented by the segments identified by the PKF (2013) and BCG (2013) reports.

The sampling strategy was determined by the purpose of the research project. The interviews would be with 40 to 60 visitors, covering summer and the winter seasons, as well as shoulder periods. The aim would have been to explore the experience of every tourist segment and its visit to Iceland and activities and contributing factors, uncovering ideas that were not anticipated at the outset of the research. The questions asked would be more focused on behaviour and experience, feelings, opinions and beliefs, and of the affective type than on the background, cognitive or demographic aspects (Metrass-Mendes, 2013).

3.3. Status of implementation

The status of implementation of the research project at this point is similar to the one described in the former project report (Metrass-Mendes, 2013). There have been no advances on the research, since no data was made available both regarding the source market analysis and the survey implementation.

The survey had been fully programmed and was ready to be sent to the first participants starting the first week of February 2014. Yet, this was not done through Icelandair and no links to the survey have been sent through emails. Thus the discrete choice experiment did not take place and consequently there was no stated preference data available.

On the source market side, a confidentiality agreement was finally signed between the two parties to this project: the researcher and the Icelandair Group in February 2014. However, the project has been waiting for aviation data from Icelandair Group in order to further develop the market analysis and no information has been shared.

Due to the lack of data, the project has been suspended at this stage. The current status of research implementation as outlined in work packages (WPs) described in detail in the former project report (Metrass-Mendes, 2013) is summarized in table 3.

Table 3: Status 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	-

During 2014, the project was presented at a transportation modelling doctoral school in Turin (Italy) to Professor Cinzia Cirillo from the University of Maryland, and it will be presented at the ATRS (Air Transport Research Society) Conference 2014, in Bordeaux (France) in July.

4. POTENTIAL FUTURE TRAJECTORIES

Access to informative data is a crucial condition for market analysis, analysis of tourist behaviour, and solid tourism development policy advice. For this project, a combination of quantitative data, documentary sources, surveys and interviews as data sources had been planned.

Regarding the source market analysis, the quantitative analysis would have been 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 the following is included: passenger data, revenues in Revenue passenger kilometre (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 would have been complemented with the Eurostat data base – in particular at the aggregate and leg level.

For the discrete choice model, data would have been collected through a survey questionnaire implemented by Icelandair and interviews in person with visitors to Iceland. This survey would have been used to analyse the choice of travellers between different attractions and types of tourism activities based on attributes as described in this report. Furthermore, the questions would attempt to cover latent variables expressed through experiences, feelings, opinions and beliefs. The in-depth interview method would have been used to build upon the information gathered from the survey on the discrete choice modelling experiment to create and expand the knowledge on tourist behaviour and segmentation.

Since to date none of these sources were made available and there is the possibility that the research centre will not have access to them, alternatives are proposed here on how implement the previously described methodology. These alternatives allow the research to keep the same focus and main objectives and define potential future trajectories for the project.

4.1. Source market analysis

An alternative to having aviation source market data from Icelandair, and as in Cavusgil (1990), the project could conduct a market-oriented clustering on the basis of population

growth, median age, number of children per household, life expectancy, and GDP per capita while keeping a critical eye on the fast pace of change in several of the source countries. In addition, the research could follow the approach by Sakarya *et al*. (2007) and include: (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.

With respect to the ranking of the source markets, this research could eventually use a methodology similar to the one used by Cavusgil (1997), grounded in the findings of the reports from BCG (2013), and PKF (2013). It could conduct a source market ranking based on market size, market growth rate, market intensity, market consumption capacity, accessibility and market interest in Icelandic attractions, market profitability, and market long-term sustainability.

4.2. Discrete choice experiment

There are a few alternatives to the implementation of the discrete choice experiment through Icelandair. The most feasible options for the implementation of the survey are here presented. All of them would require the current set of questions to be modified to a lesser or greater extent.

The survey could, for example, be conducted at the International airport of Keflavik either through ISAVIA or through other parties active in surveying outbound international tourists. However there are several possibilities for its implementation. The survey could be administered in the airport, with respondents being approached by qualified and specifically trained surveyors that would also conduct interviews. The time that tourists face between check-in and boarding could allow for enough time to conduct the survey; yet this should be confirmed beforehand. Alternatively, the contact with possible respondents could be used to simply ask the tourists for their emails to answer a survey later on. In this case, the survey would be sent to the tourists' emails at a specified time and there would be a lag between the tourist's Icelandic experience and his/her response. There are important differences between these two options, since in the first one the tourist would respond immediately after the experience in Iceland and in the second option there would a time gap between the stay in Iceland and the participation in the survey. These differences will likely affect the results obtained from the model in ways that cannot be predicted, nor if they are significant.

Another option would be to have the survey distributed while the tourists are in Iceland, during their stay, at specific locations. This alternative is challenged by the choice of location as it will determine the set of tourists with access to the survey and not all the tourists go to the same locations. Keflavik is the only common point to the vast majority of tourists in Iceland. Again, and also for this option, there is the possibility of conducting the survey *in situ* and the possibility of simply collecting emails for distribution of the survey on a pre-established date. The latter would serve the behaviour analysis better.

5. 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.

The development and completion of this research project would add to the body of practical and theoretical knowledge available to the development of aviation dependent tourism development, analysis of tourist behaviour, understanding segmentation and targeting, and in particular, inbound Icelandic tourism. The ultimate goal would be to provide feedback and formulate recommendations for policy decision-making, though there would also be much to be done with respect to improving the tools used in developing market intelligence (Metrass-Mendes, 2013).

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. Some alterations to the methods may be requested and/or necessary if the project is to be implemented.

Besides from improving the currently used methods by which the assessment of source markets and tourist behaviour modelling are conducted, more effort would be required to reinforce the findings of this research. Thus, it would be advisable to direct future work into the following two areas:

1. Taking advantage of other areas of research: other fields of study could be explored such as experimental economics and agent simulations and used in the development of tools for analysing source markets as well as tourist behaviour;
2. Widening the scope of the analysis: this study would have made a significant contribution to the understanding of Icelandic tourism. However, it only assesses a particular Nordic destination. It is advisable to direct future work on other Nordic regions and countries.

Finally, this research would have opened the door for future integrated analysis and interdisciplinary approach to the study of Icelandic tourism and tourist behaviour 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 would be opened for further work in all aspects of the relevant problem, i.e. 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.

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