

TOURISM RESEARCH PROJECT

Interreg
North Sea Region
PROWAD LINK
European Regional Development Fund



BACKGROUND ANALYSIS ON LOCAL AND TRANSNATIONAL
POTENTIALS FOR SME'S RELATED TO NOCTURNAL DARKNESS AS
NATURE VALUE - OPPORTUNITIES FOR SUSTAINABLE AND MINDFUL
TOURISM APPROACHES.



**PROGRAMMA NAAR EEN
RIJKE WADDENZEE**

The research was conducted within the framework of the Interreg North Sea Project Prowad Link. The project Prowad Link aims to unlock the potential of nature heritage brands as a driver for jobs and sustainable regional development. The project has been engaging small and medium-sized enterprises in nature conservation and innovative tools and strategies have been developed and tested to improve access to nature heritage brands, enhance sustainability efforts and develop innovative marketable offers. The project partner regions are the Wadden Sea (DK, D, NL), Geiranger Fjord (NO), Wash & North Norfolk Coast (UK), which are also the pilot regions of this study.

NHL Stenden Group Members

Alicia Katharina Räck, Janna Wieling, Gemma Kootstra, Lena Pawellek

Student Numbers

5209315; 5207983; 3395684; 5239109

Group

LT-TOM-3C-RP

Supervisor

Carolin Giarra (NHL Stenden)

Principals

Ellen van der Spoel (NHL Stenden), Cristina Nazzari (CWSS), Sonja van der Graaf (PRW)

Deadline

November 04, 2022

Word count

9387 words

Table of Contents

- Introduction 1
- 1 Literature review 3
 - 1.1 Dark Sky Tourism 3
 - 1.1.1 Dark Sky Tourism products 5
 - 1.2 Sustainability 5
 - 1.2.1 Triple bottom line 6
 - 1.2.2 Sustainability in tourism 7
 - 1.2.3 Sustainable tourists' behavior 8
 - 1.3 Nature preservation 8
 - 1.4 Small and medium-sized enterprises 10
- 2 Methodology 10
 - 2.1 Conceptual framework 10
 - 2.2 Research questions 11
 - 2.3 Research method 12
 - 2.5 Validity and reliability 14
 - 2.4 Limitations 15
- 3 Results 16
 - 3.1 What are the experiences of Dark Sky Tourism? 16
 - 3.2 How do tourism companies make sure that tourists behave sustainably in natural areas? 21
 - 3.3 What strategies do SMEs have to include sustainable DST-related products in terms of the triple bottom line (Planet, People, Profit)? 24
 - 3.4 Approaches from SME in Norway 26
 - 3.5 Outlook on the future 27
- 4 Analysis 28
 - 4.1 What are the experiences of Dark Sky tourism? 29

4.2	How do tourism companies make sure that tourists behave sustainably in natural areas?	31
4.3	What strategies do SMEs have to include sustainable DST–related products in terms of the triple bottom line (Planet, People, Profit)?	32
5	Conclusions and recommendations.....	33
	References	39
	Appendices.....	42
	Appendix A: Project plan.....	42
	Appendix B: Research matrix.....	43
	Appendix C: Interview guide	53
	Appendix D: Interview transcripts and Coding matrices.....	57

Introduction

Dark skies are not just a tourist attraction where travelers and locals can gaze up to the stars, they are also an essential factor of conservation efforts of wildlife and its protection. Post covid, more tourists are looking for ways to travel in a more immersive way, this means somewhere else than over touristic places towards more nature-based places. With Dark Sky Tourism (DST), there are two free resources namely, the night sky and nature, this allows a form of frugal innovation within tourism (Dark Sky Ecotourism, 2022).

Therefore, it is worth researching what the potential of the DST product is and how this could be sustainably developed in the locations covering small and medium-sized enterprises (SMEs) in the Netherlands, the United Kingdom, Germany, Denmark, and Norway. The relevance of this research project varies depending on the different stakeholders. For the Wadden Sea World Heritage, it is relevant in order to promote investments in sustainability and especially in nature preservation. There is also relevance for the destinations concerning hospitality and tourism businesses, as the results of the project can be helpful to increase the regional economy. Further, it is relevant for other SMEs to see how they can differentiate and expand their touristic offers as well as extend their touristic season and attract new target groups. This is possible due to an overview of easily replicable and adaptable Dark Sky-related products and activities as well as best practice examples. It can also help SMEs to attract the attention of tourists to value nature more than they do now.

In this respect, the main topics relevant to this research are DST, sustainability in tourism, and nature preservation. The aim is to identify how destinations and SMEs in

the Netherlands, the United Kingdom, Germany, Denmark, and Norway that offer DST products, experience this type of tourism. New ideas on how to develop DST products in a sustainable way and how to acquire jobs to increase revenues to invest in sustainability in the long term can arise from this research. For the respective destination management, the research can also be crucial, as they have to consider corresponding offers and novelties in their program.

Accordingly, the crucial question is, how the product “Dark Sky Tourism” is connectable to sustainability. Consequently, the following problem statement was determined for this research:

“How can Dark Sky Tourism sustainably link with nature preservation while contributing to SMEs?”.

With the intention to achieve the overall aim of the research and to answer the abovementioned problem statement, the following objectives adhere to this research:

1. To understand the connection between sustainability and DST.
2. To identify existing gaps as well as local and transnational potentials for SMEs related to the topic of darkness as nature value.
3. To evaluate the experiences DST SMEs have already made (in terms of sustainability, partnerships, and customer feedback).
4. To develop recommendations for SMEs that offer or plan to offer darkness or Dark Sky-related tourist products on how to improve their business.

This report is divided into six sections and begins by analyzing and reviewing the literature relevant to the concepts of the research. These concepts include DST, sustainability in tourism, and nature preservation. In section two, there will be a focus on the methodology of the research in which it becomes clear what the conceptual framework looks like. Further, the research questions which derive from the literature

review towards satisfying the problem statement, will be described. Also, there will be an outline of the information needed to answer these research questions. The most important results will be presented in the third section, which is structured per research question. In the fourth section, there will be a focus on the analysis where the primary research results will be compared with the secondary data as presented in the literature review. The conclusions and recommendations, derived from the results and analysis, will be described in the fifth section. Within this section, various elements of the research will be drawn together. This section is followed by references. The report ends with the appendices in which the project plan, research matrix, interview guide as well as interview transcripts, and coding matrices can be found.

1 Literature review

In this section, the literature review will be examined. Various topics are discussed which all are included in the research questions. The commitment of the literature review is to provide a foundation of knowledge on different explanations. To gain a better understanding of the background of this research, this literature review first deals with the topic of DST, then goes into more detail about the associated concepts of sustainability, nature preservation, and small and medium-sized enterprises.

1.1 Dark Sky Tourism

According to the Government of Western Australia (n.d.), "Dark Sky Tourism is defined as traveling to destinations to experience the night sky, free from artificial light pollution" (p. 4). Some dark sky related activities and attractions comprise star gazing, observatories, open-air accommodations, and night walking tours. Further, it entails solar eclipses and meteor showers which are examples of space-related natural events. Some other types of tourism such as nature-based tourism, ecotourism,

adventure tourism, and science tourism can be linked to DST (Government of Western Australia, n.d.).

Eaves (2019) states that DST is becoming a trend. Artificial light pollution makes DST an endangered resource. Therefore, natural darkness should be a resource for nature-based tourism. Many people are looking for the last remaining places where they can see a dark sky that gives them a clear view of the stars and the Milky Way. The opportunity is mostly in the Nordic regions.

Niiranen (2020), said that an entrepreneur of the Finnish company “Good Night” has remarked on the position of dark skies in society. He aims to open a private night sky park for gaining experiences in darkness and learning about phenomena like aurora borealis and stars. There are already several national parks dealing with dark skies and working to protect natural darkness from light pollution. And tourists are beginning to realize the inimitability of it as well.

According to Seeler and Schänzel (2019), DST is a challenge because it has been associated negatively. The tourists are becoming more experienced and have higher expectations and wishes. Tourism companies must react to this and create new attractive products.

The aim of the Dark Sky Initiative in the Wadden Sea region is to create more darkness and awareness. In addition, invent more opportunities to experience and appreciate the darkness. They want to develop policies to include the importance of darkness in societal living (Programma naar een Rijke Waddenzee, 2021).

The interest in space-related activities, such as dark sky observation, astronomy, and astrophotography is seeing rising popularity nowadays.

It will play a key role in rebuilding and refocusing European tourism to make it more sustainable and future oriented. The Dark Sky Ecotourism (2022) also talked about the increase in light pollution and the growing awareness. For that reason, people will become more sensitive to their surroundings and enjoy the darkness with various activities.

1.1.1 Dark Sky Tourism products

Dark sky products include public areas that have an exceptional night landscape, an educational offering about the night sky, and work to protect the night landscape through appropriate lighting. For example, stars, planets, moons, or galaxies are observed. These are either observed with a telescope, binoculars, or with the naked eye. Dalglish and Bjelajac (2022) mention that dark sky activities can also include astrophotography or storytelling. They also state that DST is becoming more well-known among tourists. The media are increasingly focusing on the issue and there are more and more organizations dealing with the dark skies.

1.2 Sustainability

Since sustainability plays an important role in DST, the following chapter will deal with this topic in more detail.

In academic literature, there are several definitions of sustainability, thus also for sustainable tourism, as it “is a complex subject and it is evolving over time” (Dowling et al., 2013).

Already in 1987, the Brundtland Commission provided a definition of sustainable development. According to this definition, it stands for development that can “ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs”, including the three pillars social, environmental, and economic (World Commission on Environment and Development, n.d.). In conjunction with this definition, it is mentioned that different factors such as climate change need to be considered, and “concrete efforts must be made to ensure development today does not negatively affect future generations” (Sustainability, n.d.). Later, based on this definition, several definitions of sustainability have been provided such as the people, planet, and profit model (‘triple bottom line’) by Elkington in order to measure and report the process of sustainability in businesses (Virtanen et al., 2020). All these definitions and models of sustainability consider sustainable development as a process to reach the goal of sustainability (Leach et al., 2018).

1.2.1 Triple bottom line

Regarding the aspect of sustainability, this report will refer to the triple bottom line model by Elkington. The three main focuses of this model are people, planet, and profit. The advantage of this method is that this type of reporting reflects the principles according to which a company should work in order to focus on the overall impact of its actions – both positive and negative (Amos & Uniamikogbo, 2016, p.104).

The environmental pillar of the triple bottom line “refers to engaging in practices that do not compromise the environmental resources for future generations” (Amos & Uniamikogbo, 2016, p. 104). The second pillar, people, “focuses on the interaction

between the community and the organization and addresses issues related to community involvement, employee relations, and fair wages” (Amos & Uniamikogbo, 2016, p. 104-105). Lastly, the third pillar of the model, profit, “focuses on the economic value provided by the organization to the surrounding system in a way that prospers it and promotes for its capability to support future generations” (Amos & Uniamikogbo, 2016, p. 105).

The main focus of the research is on the environmental pillar because it helps answer the problem statement and creates recommendations for SMEs on how to integrate sustainability, in terms of the planet pillar, into DST products. To get a holistic picture of sustainability the other pillars are not left out completely. Nevertheless, the main focus is not on the social and economic pillars, but on the environmental pillar.

1.2.2 Sustainability in tourism

According to Dowling et al. (2013), sustainable tourism is characterized as policies, practices, and programs which consider both “the expectations of tourists regarding responsible natural resource management (demand)” and “the needs of communities that support or are affected by tourism projects and the environment (supply)”. Dowling et al. (2013), also state that sustainable tourism contains the conservation of biodiversity, cultural heritage, and traditional values, generating local income as well as awareness raising plus support for the sustainable use of natural resources. Pushpakumara et al. (2019) claims that sustainability is about preventing “the loss of biodiversity and ecosystem services as well as creating growth in income and employments” (p. 4).

Since DST uses darkness as a natural resource, it is important to look at the connection between this form of tourism and sustainability. The previously mentioned aspects should also be considered in DST to ensure a sustainable form of tourism. DST products should consider those aspects. However, since this topic is still a rather new type of tourism and thus still small researched, primary research is intended to help to find out more about this connection.

1.2.3 Sustainable tourists' behavior

Since one of the recherche questions deals with the sustainable behavior of tourists, the following chapter will go into more detail about it. Their behavior is crucial to ensure a sustainable tourism experience.

According to the Davos Declaration (World Tourism Organization et al., 2008) tourists should be encouraged in their choices for travel and destination in terms of considering “the climate, economic, societal, and environmental impacts of their options and, where possible reduce their carbon footprint, or offset emissions that cannot be reduced directly” (p. 15). In addition, “tourists should also be encouraged to opt for environmentally-friendly activities that reduce their carbon footprint as well as contribute to the preservation of the natural environment and cultural heritage” in their choice of activity in the destination (World Tourism Organization et al., 2008, p. 15).

1.3 Nature preservation

Since DST happens in natural areas, the concept of nature preservation needs to be considered in order to give recommendations on sustainable ways to implement DST

products. If nature is not preserved, the product can't be offered any longer which would negatively affect SMEs.

To start by defining the concept, nature preservation is the totality of all measures that serve to protect, uphold, and restore nature and its biodiversity (Jedicke, n.d.).

The importance of protecting nature is a widespread topic worldwide. However, the consequences of global warming – such as the sea level rise - are now more perceptible than ever (Letcher, 2021). Therefore, the issue of nature conservation has gained attention in recent years. Letcher (2021) points out that if nature protection will not be executed professionally and sufficiently from now on, this “will have a devastating effect on both the ecosystem and human life.” Human interference into nature such as forest clearing and the destruction of green spaces for building land as well as human-caused nature pollution, has a negative impact on the earth. It is, for example, scientifically proven that global warming leads to sea level rise (NASA, 2022). This in turn can pose a threat to islands and coastal areas in the long term as flooding is more likely to occur. In order to stop or slow down this and similar processes, nature preservation is of great importance.

The protection of nature can be carried out by individuals, non-governmental organizations, or the government of the respective countries. Even companies apart from the environmental sector are more likely to take responsibility nowadays and invest in nature preservation. As nature protection can be categorized by focus of the issue (e. g. global warming, water, biodiversity etc. (Aden, 2012)), there are large numbers of non-governmental environmental organizations worldwide. The world's largest environmental network Greenpeace is working on their mission to “protect biodiversity in all its forms” since 1972 (Greenpeace International, n.d.).

1.4 Small and medium-sized enterprises

Since the recommendations, i.e., the results of this research, are directed at SMEs and the primary data are sourced from SMEs, the following chapter provides a definition.

The European Union defines Small and Medium-sized Enterprises based on the number of employees and the annual sales achieved. Accordingly, each company with less than 250 employees and less than 50 million euros in annual turnover is considered a SME. The relevance of categorizing businesses as SMEs lies in the respective entitlement to subsidies. One example of this is the financial support for research (SME Definition, n.d.). Despite the definition of the EU, certain countries set their own criteria. In the Netherlands, for instance, the maximum amount of annual sales is 40 million euro (KVK, n.d.).

2 Methodology

In this section the methodology will be discussed in which it becomes clear how the conceptual framework looks like. This framework is the link from the literature review, as discussed in the previous section, to the methodology. Further, the research questions will be described which derive from the literature review and will help answering the problem statement as stated in the introduction.

2.1 Conceptual framework

The conceptual framework, derived from the literature review, can be seen in figure 1 below. This framework shows the relation and link between the different key concepts

of this research. It forms the fundament of the problem statement: “*How can Dark Sky Tourism sustainably link with nature preservation while contributing to SMEs?*”.

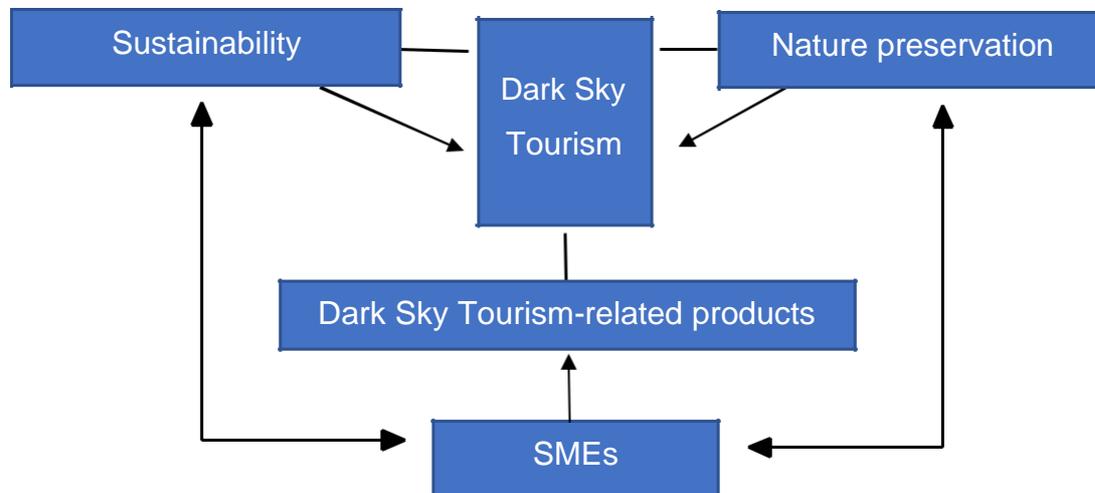


Figure 1 - Conceptual framework

2.2 Research questions

In this part the research questions will be presented as an outcome of the literature review discussed in section one. The literature questions will help answering the problem statement which is as follows: “*How can Dark Sky Tourism sustainably link with nature preservation while contributing to SMEs?*”.

Also, the information needed to answer the research questions is being discussed.

The outcome of this can be seen in table 1 below.

Table 1 – Research Matrix Columns 3 and 4

Research questions	Information needed
RQ 1: What are the experiences of DST?	<ul style="list-style-type: none"> • Positive/negative feedback • Target group • Partnerships
RQ 2: How do tourism companies make sure that tourists behave sustainably in natural areas?	<ul style="list-style-type: none"> • Legal situation • Measures • Individual definition of sustainability
RQ 3: What strategies do SMEs have to include sustainable DST–related products in terms of the triple bottom line (Planet, People, Profit)?	<ul style="list-style-type: none"> • Partnerships • Infrastructure • Aims of the SMEs

The complete research matrix including theoretical concepts, explanation concepts, research questions, information needed, research method and interview questions can be seen in appendix 2.

2.3 Research method

To answer the abovementioned research questions and eventually answer the problem statement, qualitative research is going to be used for this research to collect the data. On basis of the information needs, interview questions were formed.

According to Veal (2017), qualitative research is most efficient when the people involved in the research are going to explain their experiences, feelings, and worldview in their own words. As stated in the objectives before, the aim of the research is to find out about DST experiences of SMEs and to identify potentials as well as risks. DST is still a rather small researched topic and there are currently only a few SMEs offering DST-related products. Therefore, it is necessary to conduct in-depth interviews with experts in the field and thus, do qualitative research rather than quantitative research.

Those experts are within the considered population, which consists of touristic SMEs of Denmark, Germany, Norway, the Netherlands, and the UK. The chosen sample is a selection of at least one expert per country from Dark Sky initiatives in those five different countries who offer DST-related products for a balanced representation. For this reason, the criterion sampling method is being used. Veal (2017) characterizes this sampling method as: "Individuals selected on the basis of a key criterion – e.g., age-group, membership of an organization, purchasers of souvenirs" (p. 430). Due to the fact that this research aims to find out about DST experiences of SMEs to eventually generate recommendations, the sample needs to meet the criteria that they are offering DST related products and are from one of the mentioned countries.

Contact details of the sample are provided by the principals. However, it is indicated that the provided experts from Norway do not offer DST products. As this research aims for data gathering of organizations who do offer this, the data gathered from Norway will be handled differently, as they haven't implemented DST products yet. In the results chapter, the income of the interview with Norway will be displayed but not related to the research questions.

The interview consists of 12 questions, using the structure of a semi-structured interview. An interview script with a checklist for the interviewers is designed. The 13

estimated time for each expert interview is a maximum of 45 minutes. The interview questions are sent out to the experts in advance, together with an interview request and the consent form. Due to time and geographical circumstances, the interviews will be conducted via video calls. Also, the minutes/notes of the interview will be sent to the interviewee after the interview. In agreement with each interviewee, the interviews will be recorded and transcribed (e. g. via Microsoft Teams).

Open, axial, and selective coding is used to analyze the interviews. Starting with open coding, the raw data is fragmented and labeled with a code. The next step is axial coding, by finding connections between the labeled fragments and summarizing them into categories. Lastly, with the selective coding core categories are formed and related to the literature review (Saunders et al., pp. 670-673).

2.5 Validity and reliability

Validity refers to the trust in the content of the research and indicates the extent to which the observed effect also applies to the relevant population. This will depend on the sampling method and on how the data is represented (Veal, 2017, p. 53).

Tourism research is often dependent on answers from experts because it often deals with the behavior of tourists. There are not many existing sources on the topic of DST right now, as the topic is still being researched and discovered. In addition, there are currently only a few SMEs offering DST-related products. In order to ensure the validity of this research, experts from different destinations were consulted to share their experiences on DST. All interview questions were built on already existing data.

Reliability includes “the extent to which research findings would be the same if the research were to be repeated at a later date or with a different sample of subjects”

(Veal, 2017, p. 53). The sample for this topic is still limited. Therefore, the results from 14

other SMEs would probably be similar. At a later stage, in a few years' time, the results in terms of experience with Dark Sky products might look different because more has developed.

2.4 Limitations

This chapter includes the flaws and shortcomings of this work. Study limitations can impact the findings of the research due to constraints on materials, methodology, or research design. The findings of this study also have to be seen in the light of some limitations.

The first limitation occurred due to geographical differences between interviewers and respondents. Interviews had to be conducted online, which led to technical issues during the interviews.

Due to the tight time schedule and deadlines, only a few interviews were conducted. That does not necessarily decrease the reliability of the gathered data but if more interviews could have taken place, more information about experiences with DST could have been collected. Another limitation lays in the population of this research. Since some of the partners of the Prowad Link project have not yet implemented DST products, the access to relevant data is limited. The aim to gather data from all five Prowad Link partner destinations about their experiences could only partly be achieved. The interview with the Norwegian partner was only able to provide information about approaches and future perspectives as they have not implemented any DST products yet.

Because some interviews could not take place in the possible time frame, written answers were given by three interviewees. As a result, those interviews have less

content than the face-to-face interviews, because follow-up questions could not have been asked. Due to competition and other reasons, it cannot be guaranteed that all interviewees shared their full experience as they might not want to share their trade secrets.

3 Results

Within this chapter, the most important results of the conducted interviews, structured and presented per research question, are presented. Lastly, the results of the interview with Norway are presented. Since in this case no implementation of DST products has taken place yet and therefore no experiences can be shared, a short summary regarding the approaches of this SME will be given.

For reasons of data protection, the interviewees are not mentioned by name but are called Interviewee A – G. Interviewee A and B represent the Netherlands, Interviewee C and D represent the United Kingdom (UK), Interviewee E Denmark, Interviewee F Germany, and Interviewee G represents Norway. However, the associated countries of the respective interviewees can be mentioned since the interviewees as representatives of the respective destination stand in this research.

3.1 What are the experiences of Dark Sky Tourism?

Interviewee A generates the experiences of the tourists as a small organization that only offers one type of activity. This is related to DST for two years now. This activity consists of a mudflat walking tour which takes about two and a half hour in total in the area of North Groningen, the Netherlands at the Wadden Sea. The activity is guided by a certified guide. Personal stories and attention are important factors hence, the

groups only consist of a maximum of twelve people. The activity takes place the whole year also including the night walks. As a small organization, they don't have direct partnerships besides other mudflat walking organizations and nature-educative campsites in the area. The activity mainly attracts the target group consisting of nature lovers who enjoy peace and space. The night of the night, a dark sky related event, only attracts Dutch people to the activity. The normal tours attract tourists from all over the world, some of them include an overnight stay. Interviewee A mentions that the group size has changed over the years. Tourists prefer smaller groups where there is more personal attention and peace and quietness. According to Interviewee A:

The massiveness is in the background. People want to enjoy more in small groups with the peace and space and personal attention everywhere.

[Translation to English].

Interviewee A also states that only positive feedback has been given, tourists mention that they don't feel rushed and enjoy the space and therefore fully enjoy the experience. In addition, with the activity there is a lot of personal attention, and stories are being told about the Wadden Sea and mudflats.

Interviewee B started offering DST related products from 2014 onwards but certainly from 2016 when they received official recognition by the IDA, International Dark-Sky Association. Their products range from dark sky related lectures at the information center to dark sky excursions which are full moon walks and an independent dark sky route. Guided tours are also included, where information about the moon, shooting stars, and zodiac signs are shared. The main objective and message is:

to inform public about existence of light pollution and its effect on nature to make people aware. Because most people don't regard light pollution as pollution or as something negative. Light is mostly experienced as something positive. But too much light results in light pollution.

Interviewee B mentions that they have partnerships with provinces, municipalities, marketing organizations, a university, and a hotel. They want to get the main objective and message across to the target group being the general public. Another target group is a certain group who have already the interest in Dark Sky related phenomena. Or specific groups with specific interests and families. The target group is mainly Dutch however, journalists from various countries have visited the site. Interviewee B says that the feedback depends on the product type. The general public experience and realize things they have never experienced and realized before. Looking at the effect of the products on the community, interviewee B mentions a lot of skepticism at the beginning. Some locals were opposed to the Dark Sky related products and feared changes. Locals expected something negative from it which was not the intention in the end.

Interviewee C has already more experience, as the team has held Dark Sky events informally for about 6 or 7 years. This attention to Dark Sky has grown and the interest in this kind of event continues to build. The British company aims to grow further through partnerships and new products in the coming years. In 2022 they have increased to a 'dark skies season' with a suite of many events. Their product range includes events through

Talks from experts on a range of topics related to the night sky, guided night walks, pop-up planetariums, stargazing hosted by local Astronomy societies, events co-hosted with local schools, and candlelight performances by sea shanty singers.

In previous years they have worked with partnerships like local brewers and offered workshops. In general, the team of interviewee C mostly cooperates with partners. Thus, they want their events to appeal to a broad range of different people and expand their product range. This company also wants to grow further and is on a good path due to good feedback.

Interviewee D and her team from the United Kingdom are still in the beginning of the implementation of DST. Besides the already existing stargazing experience, by the end of the three-year project, more activities will be implemented. The new activities have the aim to extend the tourist season in the destination into the winter, raise awareness for light pollution, and to

provide information about the Broads National Park area, stargazing information, and local daytime & nocturnal wildlife.

For the development of those products, the project group has been working closely with local organizations and businesses.

Accompanied with the aim of this project to extend the visitor distribution, the main target group, the project group wants to attract, are people that can or want to travel

“during the off-season, outside of school holidays”. Different market segments can be identified. According to interviewee D, the implemented products are suitable for either younger people without children from bigger cities, that are interested in new experiences, or people older than 55 years old. Also, visitors that plan on staying for a longer time during the off-season to cycle or wander are suitable for the abovementioned products.

Interviewee E says that as a couple on a small, relatively unknown, Danish Island, they have been involved with the topic of DST for 1 1/2 years and have since offered a few guided tours. A small local council with locals supports the couple in this. The tours are star-guided tours with small groups, guided by one person. During the tours, Interviewee E explains, they talk about living on the island, the universe, the sun, star constellations, planets, and old stories/myths about the different star constellations. In addition, they talk about darkness and about how they are protecting the darkness as well as the locals. They have started to offer this product, on the one hand out of own interest in this topic and on the other hand to extend the tourist season, to help the locals on the island (e. g. the cafe or the restaurant). Since they are only a very small group of locals and have not been offering the product for long, they have no direct partnerships but are only supported by the local council and municipality. Interviewee E states that it would be useful to establish further partnerships with e. g. a nature center on the mainland but since they are not yet certified experts it is difficult to establish such a partnership. Their main target group are people who already are on the island or know the island and “mostly people around middle in the life”. Nevertheless, Interviewee E mentions that they can already see changes in the target group with people from the mainland and younger people coming. So far, they have

received only positive feedback. The participants of the tours were “astonished” and mostly left the tour with more knowledge, some already wanted to go on one of the guided tours again because they had “a really good experience”.

Interviewee F started offering DST products in 2021. Their products include stargazing lectures and walks, as well as infrastructures with stargazing information. In this way, they want to appeal to nature-loving guests as well as astronomy enthusiasts (in connection with Star Island). They already worked in partnerships with the local national park house and the community. Interviewee F says that the DST products are well received, both by residents and guests. However, there is potential for improvement, and

optimization regarding the reduction of light sources is essential in order to meet the expectations raised by Star Island.” [Translation to English]

3.2 How do tourism companies make sure that tourists behave sustainably in natural areas?

Regarding the consideration of sustainable behavior of tourists, people need to be aware and careful with nature (A). Also, to be aware that what you bring in nature, you need to bring back, for example, trash. Interviewee A also states they want the tourists to be one with the nature [translation to English]. They are aware that they are at an UNESCO World Heritage Site, the Wadden Sea, so tourists automatically behave more sustainably. As it is an UNESCO site, governmental requirements apply to this area. The organization has a license, which is required. This was established by the government and municipalities. Also, it is a natura2000 area with breeding areas,

complying with different rules and regulations, for example no access during a specific time period. Some specific areas are also only accessible for nature educative purposes.

Regarding the consideration of sustainable behavior of tourists, they need to adhere to certain rules of area (B), for example, stay on the paths and roads and do not cause unnecessary artificial light. Also, interviewee B mentions that the group size matters, if it is too large then it does not benefit the Dark Sky experience. Interviewee B also states that it is a natura2000 area, which is setting the main guidance in terms of behavior and regulations, as the area includes wild life and a bird sanctuary.

For Interviewee C sustainable behavior is more of a positive impact through visitors.

This applies for nature and economy, and we believe that truly sustainable visitors can deliver meaningfully for both. We are committed to helping visitors to the area understand why the landscape is special and how best to appreciate it and improve it through their visits.

For the Area of Outstanding Natural Beauty the remit is to 'Conserve and Enhance' the natural landscape. This contains the landscape character, biodiversity, geodiversity, and cultural landscape.

Interviewee D states that creating an “offer that is appealing enough to make people choose to travel [during the off-season]” is a way of encouraging tourists to sustainable travels, as that relieves the summer season with big crowds of tourists. To ensure

sustainable tourist behavior in nature areas, the government of the United Kingdom imposes nature protection connected organizations to undertake measures to “improve tourist behavior”.

Interviewee E states that they have a written code of conduct when driving to the island which includes for example taking care of the dark. Before the tours, the guides tell the participants to turn off their phones and to just go next to them, they will take care of everything else. According to interviewee E, the people coming to the island are “just overwhelmed of the nature so you just take care automatically”. However, they are also telling the tourists what they are doing in order to protect the darkness and the locals to raise awareness for that. Interviewee E mentions that they also try to extend the time guests spend on the island by recommending eating and drinking in the cafe or restaurant on the island or shopping in the local store. Furthermore, especially now in the beginning of offering this DST product, they are trying to reach people who are already on the island, because they don't want people to drive long distances by car to the island to stay there for a few hours and then drive back again. “[T]hat will do nothing good for [the island]”.

For Interviewee F, sustainable behavior of tourists in nature reserves means “*to respect the protected areas and to behave mindfully in nature. (garbage, wildlife,...)*”. The German company is subject to the regulatory requirements of the national park.

3.3 What strategies do SMEs have to include sustainable DST-related products in terms of the triple bottom line (Planet, People, Profit)?

Interviewee A mentions that they are a small organization therefore, there is for example no marketing campaign included in the strategy. Interviewee A says:

look all I do is position myself that you are one with nature. So that you can walk in a special area [translation to English]

According to interviewee B, they want to set an example for the people to make them aware that you can use too much unnecessary artificial light. What is also an effect in terms of sustainability, is

the kind of recreation, so we see that more and more entrepreneurs around the Dark Sky park embrace the dark sky as a blessing instead of a threat. And they start offering dark sky arrangements.

Interviewee B does not have anything to add about sustainable accessibility. The only way that tourists can come to the site is by car as a bicycle as transport is only feasible for locals.

Interviewee C: *I would say our approach takes all three elements to be equally important and we seek to deliver for all as we keep building our offerings and partnerships.*

By implementing DST products from October to March, social and economic sustainability will be ensured by creating year-round jobs in the destination for the local inhabitants. That ensures safe income all year long. Furthermore, less economic migration is sought as a result. The local inhabitants as well as nature will be less disturbed when the season will be extended because there will be less people at once but more tourists overall. The planet pillar of sustainability is considered in the product development “e. g. cycling and walking activities, activities promoting local produce, conservation activities.” (Interviewee D)

Regarding the strategy, interviewee E mentions, that no big marketing is done as they are so few people and have only started. They care a lot about the locals and helping the economy of the locals as well as protecting the darkness and nature on the island, which are their main focus when planning the product. Interviewee E explains that they are planning on creating tourism packages together with the café on the island in order to help the locals and to extend the stay of the tourists in order to give them “something more than just looking at the stars”. In addition, this should also be beneficial for the environment, as there is not so much traffic, as tourists stay longer on the island, spend the night there and not just stay for a few hours. Together with the municipality, they talk about light pollution and how to make it darker on the island as well as for example at the big harbor close to the island.

Interviewee F mentions an existing detailed sustainability concept, which is being worked through successively. They would like to optimize all processes, from the arrival to the ferry to the stay on the island, for a sustainable design. “*However, this is independent of the Star Island project.*”

3.4 Approaches from SME in Norway

The interviewed partner from Norway has not implemented DST products yet. However, they are currently working on the identification of opportunities this type of tourism offers as well as on the development of products. Conserving the darkness and the reduction of light pollution are two main aims the organization is focusing on by working out a “strategic plan, [a] lightning plan”. Interviewee G claims that the local inhabitants of the Norwegian destination are leery towards reducing the lights especially during the nights due to safety reasons. Additionally, there is a general antipathy towards the organization’s desired extension of the season within the residents. Therefore, the organization approaches to start off the implementation by introducing the dark sky to the local inhabitants first. That way awareness for the topic can be raised to convince locals of the potential of DST.

As a non-profit organization, the interviewee from Norway does not only focus on DST. They work “towards businesses, [...] landowners, towards the volunteers” to encourage them to work more sustainably. Within a partnership, they successfully used to work on a project for sustainable tourism. Therefore, they are very much interested in continuing to cooperate with that partner for the DST project. Furthermore, Interviewee F shared that partnerships with local businesses are planned. Rooftops of hotels can be used to offer DST products. However, due to seasonality in the destination, many hotels/businesses are “closed down during the winter [...] and they are not interested in being open”.

First ideas for actual products are for instance stargazing experiences on the hotel rooftops. Another product idea is to use boats “to go out in the fjord” and experience

total darkness in the middle of the water. In order to protect the nature areas and due to governmental regulations, only 0 emissions boats will be used by 2026. Furthermore, DST products are not going to be offered inside nature-protected areas but more within the village.

Lastly, the interviewee emphasizes, that the potential of this type of products can already be seen in other destinations. Harnessing this potential is important to guarantee economical sustainability for the destination and raise awareness for the topic.

3.5 Outlook on the future

Interviewee A came to notice that more organizations are joining in terms of Dark Sky tourism product offering. For example, boat tours in the area. More activities are being composed and initiated although, not a lot in the area of activities concerning mudflat walking.

Interviewee B hopes that DST becomes a popular and growing trend in the future because, in that way, they have the possibility to bring their message across. In the near future the entire Wadden Sea region, including the other countries, need to become a Dark Sky region. The darkness, or lack of light pollution, will become one of the unique selling points (USPs) of the entire region and will attract a certain type of tourism.

Interviewee C and the team estimate Dark Sky products to be a growing trend.

C: There is a lot of potential to partner with SMEs and local businesses to develop further offerings and we're looking forward to continuing to grow our suite of DS products.

According to Interviewee D, DST is a growing trend with huge potential. Due to the climate change, people started thinking more about the environment when making (travel) decisions. Sustainable DST products are suitable for these people. Also, Covid-19 contributes to “the rise of Dark Sky products” as people focus again more on their well-being and want to escape from the digital daily life.

Interviewee E thinks that darkness and protecting darkness is an upcoming topic, about which more people want to learn something about. Also, people all over the world want to get closer to nature again so protecting nature will be more common.

According to Interviewee F, the enthusiasm of customers is great. In that case, the contents of Dark Sky can also be related to the positioning of the destination. Therefore, the topic of the star island in this specific case is to be further addressed and event formats expanded.

4 Analysis

This chapter compares the primary research results with secondary data that was presented in the literature review.

4.1 What are the experiences of Dark Sky tourism?

As mentioned in the literature review, Eaves (2019), states, that light pollution is a threat to DST. The gathered data shows that SMEs that offer DST products are aware of this threat. By providing information on the topic and offering dark sky related experiences in (total) darkness, they raise awareness and educate the tourist on the topic of light pollution. The aim hereby is to conserve the nocturnal darkness. On the other hand, the research also shows that this sometimes represents a conflict with the local inhabitants. Mostly they don't consider a lot of light as something negative, as they feel safer in the luminosity. SMEs must therefore find a compromise to improve the collaboration with locals in the future.

SMEs experienced further discrepancies with the local communities. Even though the literature affirms the positive impact the implementation of DST in destinations can have on the local communities in terms of economic and social sustainability (Amos & Uniamikogbo, 2016, p. 104-105), the interviewed SMEs have not always experienced euphoria but rather skepticism from the local communities before the implementation plans of dark sky related products. The skepticism is mostly directed against changes in general. After the implementation of DST products, the skepticism faded.

However, this shows that more awareness of the potential and benefits regarding social, economic, and environmental sustainability this type of tourism offers, needs to be risen before the implementation of dark sky related products.

For the development as well as the execution of dark sky-related products, SMEs work in partnerships with provinces, municipalities, local businesses, and inhabitants as well as nature organizations such as nature park houses. The overall experience with partnerships was positive and as stated by the SMEs, necessary. Due to limited resources and expertise on nature protection for example, they are dependent on the

cooperations. That also helps expansion, which can then lead to a higher level of awareness for the topic and increase economic sustainability by creating new jobs for the local communities.

Eaves (2019) also claims that many people are looking for the last remaining places where dark skies can be seen. However, the gathered data shows, that the SMEs experienced that most people are not even aware of the topic of nocturnal darkness. The feedback SMEs have received, underlines this statement, as tourists have expressed their astonishment and enlightenment on the phenomenon after the experiences.

Since the literature is lacking information on the target groups of DST, the collected data contributes to filling that gap. SMEs experience mainly nature-orientated tourists that are looking for an unhurried, decelerated experience. This can be explained by the fact that DST is an emerging type of sustainable tourism (Escario-Sierra et al., 2022). One of the overall aims of the SMEs that focus on the implementation of DST is to extend the tourist season in their destination and attract tourists during the off-season, therefore the products are more suitable for the target group without children or with children not of compulsory school-age.

The offered products identified in the research, coincide with the product ideas in the literature review. It is striking that the dark sky related products offered by SMEs have not been in the business for a long time (1-8 years). That shows that this type of tourism is still emerging. This results in the small number of products SMEs are offering. Experience could be gathered from activities such as walking and cycle tours,

educational activities, stargazing. What is most appreciated by tourists within the activities are small visitor groups, personal attention, calm tours, and the phenomenon of nocturnal darkness itself. That again underlines the above-mentioned target group.

4.2 How do tourism companies make sure that tourists behave sustainably in natural areas?

The results of the interviews elaborate on the facts of the already existing data in the literature review. For example, the World Commission on Environment and Development (n.d.) mentions that sustainable development is concerned with meeting the needs of the present without causing negative effects for future generations. The interviewed SMEs all state that they make sure that tourists are careful with nature in their destinations and that they are aware of how to protect the darkness as well as the locals in the destination. With the help of written codes of conduct or nature protection connected organizations, that undertake measures to improve tourist behavior this is to be achieved. Also, when offering guided tours, the guides make sure that the tourists do not cause any artificial light during the tour and that they stay on the paths close to the guide.

Regarding the tourists' behavior, the findings of the interviews also support the literature. By creating offers for the off-season, SMEs encourage tourists in their choices of travel and destination also considering aspects such as the environmental impact of their choice (World Tourism Organization et al., 2008). Off-season products are supposed to help relieve tourist flows in the peak season and extend the tourist season in the destination. Also, SMEs try to create tourism packages in order to extend

the time tourists spend in the destination to help the locals and to also reduce traffic and thus reduce their carbon footprint.

All these aspects are supporting the from World Tourism Organization et al. of sustainable behavior of tourists, as tourists are encouraged to choose environmental-friendly activities in the destination, thus contributing to the preservation of the environment and cultural heritage.

4.3 What strategies do SMEs have to include sustainable DST-related products in terms of the triple bottom line (Planet, People, Profit)?

In order to know what strategies SMEs, need to include within sustainable DST-related products, it was noticed in the results that an example for the people need to be set, where creating awareness is key. For example, by looking at the fact that people can use too much unnecessary artificial light. As found in the literature, it was stated that sustainable tourism contains, among other things, generating awareness (Dowling et al., 2013). Moreover, this is important as human caused nature pollution has a negative impact on the earth (NASA, 2022). The results show that by implementing DST-related products, social and economic sustainability can be ensured by creating jobs in the destination for the local inhabitants all year-round. By this, community involvement will be created (Amos & Uniamikogbo, 2016). Also, by extending the tourism season, there will be less tourists at one specific period, which will result in less disturbance for the local inhabitants. To add, the local economy will benefit if tourism packages, and products will be created in co-operation with local businesses. As found in literature by Dowling et al. (2013), it was stated that sustainable tourism also contains generating local income, besides generating awareness as previously mentioned. Also, it is stated

in the literature that sustainable tourism is about creating growth in income and employments (Pushpakumara et al., 2019). Furthermore, the results show that the planet pillar of sustainability can be considered within the product development and by creating an image that you are one with nature. Also, by extending the tourism season, the nature will be less disturbed as there will be less people at once but more tourists overall. The extending of stays of the tourists is seen as beneficial for the environment, as there is less traffic when tourists are staying longer at the destination. Results show that by planning the tourism product, protecting the darkness and nature, and helping the economy of the locals could be the main focus regarding the strategy. A sustainable design of the tourism product can be established by optimizing all the processes within the tourism product. All in all, the research showcased that the participating SMEs rather work with strategic approaches rather than an actual and official corporate strategy. This might be due to the fact that the companies are still small.

5 Conclusions and recommendations

This research aimed to identify how destinations and SMEs in the Netherlands, the United Kingdom, Germany, Denmark, and Norway that offer Dark Sky tourism products, experience this type of tourism. Also, it aimed to identify what the potential of these products are and, how this could be sustainably developed covering SMEs in the mentioned destinations. In this respect, the following problem statement was determined for this research:

“How can Dark Sky Tourism sustainably link with nature preservation while contributing to SMEs?”.

Upon exploring the situation from multiple perspectives, the research question “What are the experiences of Dark Sky Tourism?” the following can be summarized: Overall, DST products are well received by the customers of the main target group of nature-orientated tourists. The research shows that the SMEs experience little awareness for the topic of dark skies within the population. After the activities, tourists feel astonishment and enlightenment. The experiences go beyond the expectations of the tourists. Especially products that were offered in small groups in calm atmospheres and with an educational background are most preferred within tourists. Further positive experiences arise from partnerships the SMEs have with local businesses, municipalities, local inhabitants etc. They support the SMEs knowledge-wise but also with the development and execution part of dark sky related products. However, SMEs also collect negative experiences. Especially local communities have difficulties with the implementation of DST into the destinations. Fears outweigh the awareness of economic, social, and environmental benefits this type of tourism brings into the destination. In summary, rather positive experiences were made within tourists whereas rather negative experiences were made within the local communities of the destinations. As the industry continues to grow, more experiences can be collected in the future.

Research shows that the sustainable behavior of tourists can be guided and influenced by the providers of DST products. With the help of various measures such as written codes of conduct or information through tour guides, the desired behavior can be brought about and influenced. The main focus hereby is on raising awareness and the appreciation and protection of nature and the environment. Also, it has been shown that sustainable behavior means reducing the carbon footprint by offering tourists

packages that not only include DST products but also include the locals in order to help them economically. Thus, it can be concluded that there are many different approaches for tourism companies to ensure the sustainable behavior of tourists.

The results show that SMEs can include different aspects into their strategy for sustainable Dark Sky tourism-related products in terms of the triple bottom line (Planet, People, Profit). Regarding the main pillar of planet, SMEs should focus on creating awareness amongst tourists and other people and setting an example. Also, by taking seasonality into account and focusing on extending the tourism season. In terms of the product development, the focus should be on the protection of the darkness and nature. Looking at the other two pillars, people and profit, SMEs can include strategies which focus on creating jobs in the destination for the local inhabitants all year-round. This will create community involvement. In addition, the local economy will benefit if tourism packages, and products will be created in cooperation with local businesses.

By combining the results and analysis to the research questions, the problem statement can be answered:

How can Dark Sky Tourism sustainably link with nature preservation while contributing to SMEs?

The fact that the DST products are intended to extend the season and are usually offered from October to March creates sustainability at all levels. Regarding the environmental pillar, by equalizing the masses of tourists due to the extension of the season, the environment is less polluted, and attention is drawn to negative circumstances such as light pollution. In terms of the people pillar, this extension can create year-round jobs and seasonal jobs can be reduced. In addition, there are less

masses to manage in the summer, which also facilitates the work. Economically, it creates year-round income for local businesses, which has a direct impact on the business stability of SMEs.

In general, all products are concerned with protecting or at least not harming the environment. In addition, the products create a greater awareness of conservation and dark skies among the population, so that they can integrate this awareness into their everyday lives and become more environmentally friendly in the long term.

Nevertheless, many locals see the potential as a threat, as they crave a break after the stressful summer season, which the expansion will prevent from happening as usual. In addition, some see the conservation of darkness / reduction of light pollution measures as a threat to their safety if they are outside at night and there are fewer lights.

By offering environmentally friendly products and the educational background on nature preservation accompanied by the extension of the tourism season for local SMEs to become more economically stable year-round, DST can sustainably link with nature preservation by contributing to SMEs.

Based on the results from the analyzed data and the conclusions, the following recommendations can be established:

Recommendation 1: Raise more awareness of the potential and benefits regarding social, economic, and environmental sustainability for DST by doing more marketing.

During this research, it came to notice that raising awareness on the topic of Dark Sky Tourism (DST), and especially light pollution, is a key factor for SMEs. SMEs

experienced that most people are not even aware of the topic of nocturnal darkness. By marketing the DST products efficiently, the tourists and locals can create more awareness of the topic. Efficient marketing by SMEs can be done by establishing partnerships with different organizations such as provinces, municipalities, nature organizations, universities, and destination marketing organizations. Also, by collaborating with local businesses such as cafés, restaurants, hotels and campsites. Dark sky arrangements can be created with these collaborations and eventually, more marketing for the topic DST can be done. Concerning the locals, the results showed that DST can have conflicts with the local inhabitants. Mostly locals don't consider a lot of light as something negative, as they feel safer in the luminosity. By marketing the potential and benefits of DST and by collaborating with the locals, they can create more awareness of the topic.

As some of the SMEs are small enterprises, they don't do a lot of marketing. To consider marketing for all budgets, including small enterprises, the focus should lie on partnerships with local businesses and their network. In terms of marketing planning, there should be a focus on marketing during off-season. Results showed that SMEs want to attract the general public and people that want to travel during the off-season, outside of school holidays which will extend the tourism season and minimizes tourist flows. By marketing DST products, SMEs should create an image that you are one with the nature.

Therefore, the first recommendation is to raise more awareness of the potential and benefits regarding social, economic, and environmental sustainability for DST by doing more marketing.

Recommendation 2: Create products in smaller groups and with an educational background

The second recommendation includes the process of implementing DST products.

The activities offered, for example, guided tours should be created in small groups to produce a calm atmosphere. That is what customers expect from this special type of tourism. In addition, there should be an educational background behind the activities. In this case, there is the awareness of light pollution as a learning aspect.

Recommendation 3: Conduct further research by taking the consumers into account

To get a holistic picture of the experiences on DST it would be of importance to conduct further research by taking the consumers into account and by this the product development.

Recommendation 4: Conduct further research focusing on one specific destination

As the destinations differ in many aspects, such as the offer of activities, (tourist) infrastructure, general possibilities to implement such a type of tourism, it would be advisable to conduct further research by focusing on a specific destination. This would also allow more specific recommendations to be developed for each destination.

References

- Aden, H. (2012). *Umweltpolitik*.
- Arowoshegbe, A. O., Emmanuel, U., & Gina, A. (2016). Sustainability and triple bottom line: An overview of two interrelated concepts. *Igbinedion University Journal of Accounting*, 2(16), 88-126.
- Dark Sky Ecotourism*. (2022, March 28). Dark Sky Tourism. Retrieved September 16, 2022, from <https://darkskytourism.eu/about/>
- Dowling, R.K., Moore, S.A., & Newsorne, D. (2013). *Nocturnal Area Tourism*. Ecology Impacts and Management. 2nd Edition.
- Eaves, M. (2019). *Travel trends for 2019: dark skies*. Lonely Planet. Retrieved on September 10, 2022, from <https://www.lonelyplanet.com/articles/travel-%20trends-for-2019-dark-skies>
- Escario-Sierra, F., Álvarez-Alonso, C., Moseñe-Fierro, J. A., & Sanagustín-Fons, V. (2022, May 24). Sustainable Tourism, Social and Institutional Innovation—The Paradox of Dark Sky in Astrotourism. *Sustainability*, 14(11), 6419. <https://doi.org/10.3390/su14116419>
- Government of Western Australia. (n.d.). A Guide to Developing a Dark Sky Experience. In *Tourism Western Australia*. Department of Jobs, Tourism, Science and Innovation. Retrieved September 27, 2022, from https://www.tourism.wa.gov.au/industry-support-and-events/tourism-development/pages/developing_a_dark_sky_experience.aspx#/
- Greenpeace International. (n.d.). Our Values. Retrieved November 4, 2022, from <https://www.greenpeace.org/international/explore/about/values/>

KVK (n.d.). What do the financial statements comprise? Retrieved October 14, 2022, from <https://www.kvk.nl/english/filing/what-do-the-financial-statements-comprise/>

Leach, M., Reyers, B., Bai, X., Brondizio, E., Cook, C., Díaz, S., Espindola, G., Scobie, M., Stafford-Smith, M., & Subramanian, S. (2018). *Equity and sustainability in the Anthropocene: A social–ecological systems perspective on their intertwined futures*. *Global Sustainability*, 1, E13. doi:10.1017/sus.2018.12

Letcher, T. M. (2021). *The Impacts of Climate Change: A Comprehensive Study of Physical, Biophysical, Social, and Political Issues*. Elsevier Gezondheidszorg.

Niiranen, P. (April 4, 2020). Yrittäjä haluaa pelastaa pimeyden rakentamalla sille suojelualueen – katso videolta, miksi pimeyttä pitää vaalia. [An entrepreneur willing to safe darkness by building a nature reserve]. *Kotimaan Uutiset*. Yle Uutiset. Retrieved on September 10, 2022, from <https://yle.fi/uutiset/3-11527752>

Pushpakumara, W. H., Atan, H., Khatib, A., Azam, S. F., & Tham, J. (2019).

DEVELOPING A FRAMEWORK FOR SCRUTINIZING STRATEGIC GREEN ORIENTATION AND ORGANIZATIONAL PERFORMANCE WITH RELEVANCE TO THE SUSTAINABILITY OF TOURISM INDUSTRY.

European Journal of Social Sciences. from:

<https://doi.org/10.46827/ejsss.v0i0.545>

Programma naar een Rijke Waddenzee. (2021, June 3). *Experience the darkness - Erlebe die Finsternis - At opleve mørket – Beleef de donkerte*. Programma Naar Een Rijke Waddenzee. Retrieved September 16, 2022, from <https://rijkewaddenzee.nl/en/experience-the-darkness/>

Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). *Research Methods For Business Students* (8th ed.). Pearson Education Limited

Seeler, S., & Schänzel, H. (2019). Guest Editorial. *Journals of Tourism Futures*, 5(2), 111-113. doi 10.1108/JTF-06-2019-081

SME definition. (n.d.). Internal Market, Industry, Entrepreneurship and SMEs. Retrieved October 14, 2022, from https://single-market-economy.ec.europa.eu/smes/sme-definition_en

Sustainability. (n.d.). United Nations. Retrieved September 16, 2022, from <https://www.un.org/en/academic-impact/sustainability>

Veal, A. J. (2017). *Research Methods for Leisure and Tourism*. Pearson Education Limited.

Virtanen, P. K., Siragusa, L., & Guttorm, H. (2020, April). Introduction: toward more inclusive definitions of sustainability. *Current Opinion in Environmental Sustainability*, 43, 77–82. <https://doi.org/10.1016/j.cosust.2020.04.003>

Vital Signs. NASA Global Climate Change. Retrieved on September 16, 2022, from Sea Level | Vital Signs – Climate Change: Vital Signs of the Planet (nasa.gov)

World Commission on Environment and Development. (n.d.). *Our Common Future: From One Earth to One World - A/42/427 Annex, Overview - UN Documents: Gathering a body of global agreements*. Retrieved October 3, 2022, from <http://www.un-documents.net/ocf-ov.htm>

World Tourism Organization, United Nations Environment Programme, World Tourism Organization, & United Nations Environment Programme. (2008). *Climate Change and Tourism: Responding to Global Challenges*. World Tourism Organization.

Appendices

Appendix A: Project plan

Activity	Aug 22				Sep 22				Oct 22				Nov 22			
	W1	W2	W3	W4												
Group composition				■												
Review Literature				■												
Set objectives and formulate the problem statement				■	■											
Write project brief					■	■										
Hand in the project brief						■										
Design theoretical framework						■	■									
Decide on methodology						■	■									
Write proposal						■	■									
Hand in proposal							■									
Revise the proposal								■								
Design interview questions							■	■								
Conduct interviews									■	■						
Analyzing data											■	■				
Write research results											■	■				
Create recommendations											■	■				
Write conclusion												■				
Hand in the draft report												■				
Make minor revisions												■				
Prepare presentation for the conference												■	■			
Presentation													■			
Hand in final version of report													■			

Appendix B: Research matrix

Topic: Dark Sky tourism Problem statement: How can Dark Sky tourism sustainably link with nature preservation while contributing to SMEs?					
Theoretical concepts	Explanation, relevance, and definition of each concept	Research questions	Information needed	Research method	Interview Questions
Dark Sky tourism	<p>Defined as traveling to destinations to experience the night sky, free from artificial light pollution. Some other types of tourism such as nature-based tourism, ecotourism, adventure tourism, and science tourism can be linked to Dark Sky tourism (Government of Western Australia, n.d.).</p> <p>This concept is relevant to the research as it is the main concept of the project, and it sets the background of the research. Insight into</p>	<p>What are the experiences of Dark Sky tourism?</p>	<ul style="list-style-type: none"> • Positive/negative feedback • Target group • Partnerships • Effect on local economy and community 	<p>Semi-structured in-depth interviews</p>	<ul style="list-style-type: none"> • For how long have you been offering DST products? • What kinds of DS-related products do you offer to tourists? • Have you been working in partnerships?

	<p>this topic will give a clear scope of what needs to be researched.</p>				<ul style="list-style-type: none">• Who is your main target group?• With the implementation of Dark Sky tourism-related products, did you attract
--	---	--	--	--	--

<p>Dark Sky tourism products</p>	<p>Some examples of Dark Sky tourism-related activities and attractions are star gazing, observatories, night walking tours, and solar eclipses. (Government of Western Australia, n.d.)</p> <p>This concept is relevant because it is an important part of the recommendations to give to SMEs as the products are the main aspect of tourism and those are the aspects SMEs can adjust according to the aspect of sustainability.</p>				<p>new types of target groups?</p> <ul style="list-style-type: none"> • What kinds of feedback have you received from customers? • To what extent did implementing DST in this destination affect the local economy and communities (e. g. extension of tourism season, opinions of inhabitants)?
----------------------------------	---	--	--	--	---

Sustainability	<p>Sustainable development can “ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs”, including the three pillars social, environmental, and economic (World Commission on Environment and Development, n.d.). Based on this, the ‘triple bottom line’ model has been developed (Virtanen et al., 2020).</p> <p>This concept is relevant because it is part of the problem statement and the aim of this research. It has to be considered in the recommendations in the end.</p>	<p>How do tourism companies make sure that tourists behave sustainably in natural areas?</p>	<ul style="list-style-type: none"> • Legal situation • Measures • Individual definition of sustainability and sustainable tourists’ behavior 	<p>Semi-structured in-depth interviews</p>	<ul style="list-style-type: none"> • What do you consider as sustainable behavior of tourists in natural areas? • Are you subject to any governmental requirements regarding touristic behavior in natural areas?
----------------	--	--	---	--	---

Planet	<p>The environmental pillar of the triple bottom line “refers to engaging in practices that do not compromise the environmental resources for future generations” (Amos & Uniamikogbo, 2016).</p> <p>This concept is relevant because it helps answer the problem statement and creates recommendations for SMEs on how to integrate sustainability, in terms of the planet pillar, into Dark Sky tourism products. Therefore, the main focus of the research is on this pillar.</p>				
People	<p>This pillar of the triple bottom line “focuses on the interaction between the community and the organization and addresses issues</p>				

	<p>related to community involvement, employee relations, and fair wages” (Amos & Uniamikogbo, 2016).</p> <p>In order to answer the problem statement and create recommendations on how to sustainably link Dark Sky tourism with nature preservation while it contributes to the SMEs, it is relevant to consider the pillar of people as well.</p>				
Profit	<p>This pillar of the triple bottom line “focuses on the economic value provided by the organization to the surrounding system in a way that prospers it and promotes for its capability to support future generations” (Amos & Uniamikogbo, 2016).</p>				

	<p>This concept is relevant in order to get a holistic picture of sustainability.</p> <p>Nevertheless, the main focus of the research is not on this pillar.</p>				
Sustainability in tourism	<p>Policies, practices, and programs which consider both “the expectations of tourists regarding responsible natural resource management (demand)” and “the needs of communities that support or are affected by tourism projects and the environment (supply)” (Dowling et al., 2013). It also contains the conservation of biodiversity, cultural heritage, and traditional values, generating local income as well as raising awareness and support for the sustainable</p>				

	<p>use of natural resources (Dowling et al., 2013).</p> <p>The concept is relevant for the research as Dark Sky tourism is related to nocturnal darkness which is a natural resource.</p>				
<p>Sustainable tourists' behavior</p>	<p>Tourists should be encouraged in their choices for travel and destination in terms of considering "the climate, economic, societal, and environmental impacts of their options and, where possible reduce their carbon footprint, or offset emissions that cannot be reduced directly" (World Tourism Organization et al., 2008, p. 15).</p>				

Nature preservation	Nature preservation is the totality of all measures that serve to protect, uphold, and restore nature and its biodiversity (Jedicke,	What strategies do SMEs	<ul style="list-style-type: none"> Partnerships Infrastructure Aims of 	Semi-structured in-depth	<ul style="list-style-type: none"> What aspects in terms of sustainability did
	<p>n.d.).</p> <p>This concept is relevant for the research as Dark Sky tourism happens in natural areas and therefore needs to be considered. If nature is not preserved, the product can't be offered any longer which would negatively affect SMEs.</p>	<p>have to include sustainable Dark Sky tourism-related products in terms of the</p>	<ul style="list-style-type: none"> the SMEs Trends 	interviews	<ul style="list-style-type: none"> you include in your strategy? To what extent does the aspect of sustainability go beyond the products you offer? (e.g., accessibility; customer arrival) Based on your experience with the Dark Sky
SMEs	<p>Small and medium-sized enterprises (SMEs) are characterized by the number of employees and the annual turnover.</p> <p>Enterprises with fewer than 250 employees and an annual turnover of up to 50 million</p>	<p>triple bottom line (Planet, People, Profit)?</p>			

	<p>euros, and/or an annual balance sheet total of up to 43 million euros are considered as SMEs ("Commission", 2003).</p>				<p>tourism product, what is your expectation with this for the future? Will it be a growing trend?</p>
--	---	--	--	--	--

Interview Guide – Interview for Dark Sky Tourism project research

Introduction:

First of all, we would like to thank you for your time!

I am Janna Wieling and together with Alicia Räck, Lena Pawellek, and Gemma Kootstra, I am in my third year of our International Tourism Management studies at NHL Stenden in Leeuwarden. In this context, we are working on this project for partners (Cristina Nazzari, CWSS, and Sonja van der Graaf, PRW) within the Interreg North

Sea Region project Prowad Link. For this, we are carrying out a *background analysis on local transnational potentials for SMEs related to nocturnal darkness as nature value – opportunities for sustainable and mindful tourism approaches*. As a result of our research, we are developing recommendations for SMEs on how to improve their business while supporting nature protection with sustainable Dark Sky Tourism products.

The aim hereby is to gather the experiences of different SMEs on their Dark Sky Tourism products and if there is added value to the businesses that offer Dark Sky Tourism-related products.

As you are an expert in that field, we hope to gain a lot of useful information from the interview with you that will help us develop the beforementioned recommendations.

Would you give us your permission to record our conversation? We are only going to use this recording for our transcription. Would you like this conversation to be handled confidentially in our report or are we allowed to use direct quotes in combination with your/your company's name? Would you like to receive the minutes of this interview afterwards?

Do you have any questions before we start with the interview?

Interview:

Experiences of Dark Sky Tourism:

1. For how long have you been offering Dark Sky tourism products? ○ year
 - *Follow-up:* the reason for starting it
2. What kinds of dark sky-related products do you offer to tourists? ○ All year long? Seasonality?
 - Location
 - Guided/Independent
 - Type of product (service/material goods)
3. Have you been working in partnerships?
 - During preparation/implementation?
 - *Follow-up:* if yes: what kinds of partnerships (with local nature management authorities, other DMOs)
 - To what extent did/do you find it helpful?
 - *Follow-up:* If no: why did you choose not to?
4. Who is your main target group?
 - Age
 - Foreigners? /Locals?
 - Type of tourists (Nora, Multifaction type, etc.)
5. With the implementation of Dark Sky tourism-related products, did you attract new types of target groups?
 - How?
6. What kinds of feedback have you received from customers?
 - Positive/negative aspects
 - How did you react to the feedback,
 - How do you feel about the feedback personally, how did you process it?
7. To what extent did implementing Dark Sky tourism in your destination affect the local economy and communities? (e. g. extension of tourism season, opinions of inhabitants)
 - What area is affected?
 - What is the effect?
 - Huge/small effect

Management and measures of tourist's behavior

1. What do you consider sustainable behavior of tourists in nature areas/ preserves?
 - Pillar of planet
 - Behavior (how do tourists actually behave? What are you observing?)
 - *Follow up*: does your company consider any measures to make sure that tourists behave sustainably in nature preserves?
 - if yes: what are they? What are the experiences with those measures? (code of conduct)
 - If no: why not?
2. Are you subject to any governmental requirements regarding touristic behavior in nature preserves?
 - *Follow up*: If yes: what are they?

Strategies to include sustainable Dark Sky tourism products in terms of the three Ps (people, planet, profit?)

1. What aspects in terms of sustainability did you include in your strategy?
 - People (employees)
 - Planet (nature preservation)
 - Profit (long-term success)
2. To what extent does the aspect of sustainability go beyond the products you offer? (e. g. accessibility, customer arrival)
 - Do they have an influence on this?
 - Examples

Closing

1. Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?
 - Positive/negative development
 - Opportunities/potential
 - Threats/risks
 - What will be needed to make use of this possible potential of Dark Sky tourism?

Conclusion:

- Short summary

- Asking for extra info (that is not recorded)
- Informing about data processing and use of material (sending out minutes afterwards?)
- Expression of thanks

Appendix D: Interview transcripts and Coding matrices

Interview A (in Dutch):

Interview 19.10.2022 – The Netherlands

Interviewer: Hoe lang biedt u al Dark Sky toeristische producten aan?

Interviewee: Ik woon onder aan de dijk in noord Groningen dus ik ben al vanaf mijn 10^e over het wad heen. Ja, ik liep altijd al een beetje te struunen, te juttun op het wad dus uhh. En dan kom je wel eens mensen tegen van andere grote organisaties en dan vragen ze, Wim je kunt wel wadloopgids worden dus heb ik de opleidingen allemaal gevolgd en heb ik met succes gedaan. Toen heb ik nog bij een grote organisatie 5 jaar gelopen als vrijwilliger en toen ben ik voor mijzelf begonnen. Dus nu heb ik een eigen wadloopbureau.

Interviewer: Wat voor soorten producten biedt u aan aan de toeristen?

Interviewee: Ik doe alleen maar wadlopen. Meer niet. En dat is ook alleen maar vanaf de Noordpolderzijl. Dat is ook eenvoudig waar de deelnemers naar toe kunnen uhhh. Mooi tochtje van 2,5 uur. Meestal begin ik beetje in het schemer en komen we in het donker weer terug.

Interviewer: Doe je dat het hele jaar door?

Interviewee: Het wadlopen wel. Een nachttocht dan begin je om snachts 3 uur of 2 uur. En dan een tochtje maken en dan steek ik ook wel eens de waddenzee over naar de eilanden toe.

Interviewer: Het moet ook een beetje helder zijn of?

Interviewee: Voor de nacht van de nachts is dat wel leuk natuurlijk, maar dat heb je niet in de hand. Voor een gewone oversteek maakt het mij niet uit hoor. Dat mag ook wel met volle maan of nieuwe maan. We weten toch wel waar we langs moeten.

Interviewer: En die tochten zijn altijd **begeleid**?

Interviewee: Ja

Interviewer: Hoe **groot zijn de groepen** ongeveer?

Interviewee: Is **tweeledig**. Ik mag op gewone tochten **12 man** mee hebben. Of een veelvoud daarvan mag ook. **Tot 36** maar dan moet ik op **elke extra 12** een extra begeleiding hebben, een ervaren gids. **Een gecertificeerde gids**. Daarnaast heb ik nog een **natuur educatieve vergunning**. En dan mag ik weer met **50 mensen** wandelen over het wad heen maar dan steek je geen geulen over. En dan blijf je gewoon **2,5 uur** een beetje in de kust, bepaalde beschermde afgebakende gebied wandelen.

Interviewer: **Werkt u ook samen met andere bedrijven/organisaties**?

Interviewee: Nee **niet direct**. Kijk wat ik wel doe, je hebt wel contacten met **collega wadlooporganisaties**. En ook wel wat **campingeigenaren** die ook een beetje op natuur educatief zitten. Om elkaar een beetje te helpen. Om het qua marketing en commercieel op te pakken.

Interviewer: Wie is uw **doelgroep**?

Interviewee: Doelgroep uhhh.. **mensen die de natuur een warm hart toedragen** en dat ook leuk vinden, en vooral ook de waddenzee. En anders kom je ook niet natuurlijk. Anders gaat men daar niet snachts wandelen. Het zijn allemaal **natuurliefhebbers**. En die vinden dat leuk, die willen eens kijken wat is de Waddenzee? Wat in het breedste zin van zijn woord natuurlijk. Die willen ook **genieten van de rust en de ruimte** die dat biedt.

Interviewer: Zijn dat vooral **Nederlanders** of heb je ook wel eens bijvoorbeeld **buitenlandse toeristen**?

Interviewee: De gewone tochten door de jaren heen heb ik alle windstreken uit de wereld. Nu gewoon de nacht van de nacht, nacht van het Wad zijn gewoon Nederlanders. Ik heb nog geen buitenlander daarbij gehad. Kan nog komen, wie weet.

Interviewer: Met de implementatie van Dark Sky producten, heeft u ook nieuwe doelgroepen aangetrokken?

Interviewee: Ja. Hoe bedoel je dat want ik kom bij een grote organisatie weg en uhh als je daar aanmeld dan loop je gewoon met 100 tot 150 man achter elkaar over het wad heen. En in de loop der Jaren is wel gebleken dat men dat niet meer wil. De massaliteit is naar de achtergrond. Men wil meer genieten in kleine groepjes met de rust en de ruimte en overal persoonlijke aandacht. Dat willen de mensen. Kijk vroeger had je gewoon echt busladingen vol over het wad heen. In de jaren 60/70. Maar dat is nu allemaal ook qua vergunning technisch mag dat niet meer. En ik heb 5 jaar daar gelopen bij zo'n organisatie. Dan hoor je wel link en rechts dat deelnemers zeggen: oh ik had niet verwacht dat ik met 150 man ging wadlopen. Nou ik zei dan moet je een keer bij mij lopen volgend jaar want dan begin ik voor mezelf.

Interviewer: Ik denk dat je ook wel dingen verteld ondertussen?

Interviewee: Ja, dat is ook die persoonlijke aandacht. Ik vertel over het wad. Of het nou 3 uur duurt of 4 uur, als het om het waterstand niveau kan dat maakt mij niet uit. Maar bij die grote organisaties daar is gewoon 2,5 uur over het wad heen en dan kom je weer terug en thats it.

Interviewer: Wat voor soort feedback heeft u van de klanten ontvangen?

Interviewee: Allemaal positief. Ook de tijdsbestek. Niet opjagen. Gewoon genieten en ook stil zijn snachts geeft die mensen ook altijd even de ruimte. Jongens ga gewoon nou eens even 2 minuten je mond dicht houden en hoor wat je kan horen van het wad. Dat is even genieten natuurlijk, dan sta je daar midden in de duisternis, midden op het wad. Ja dan zeg ik ook altijd dan moet

je niet achterom kijken want dan kijk je naar de Eemshaven. Dat is allemaal industrie, daar kun je dan niks aan doen. Ik maak gewoon optimaal genieten en ook aandacht geven en héél veel vertellen over het wad. En dat is het belangrijkste.

Interviewer: In hoeverre heeft de implementatie van Dark Sky toerisme in dit gebied invloed gehad op de lokale economie en de gemeenschap?

Interviewee: Nee. Kijk uhh ik ben ook geattendeerd op, we hebben voor jou wadlopen nacht van de nacht, nacht van het Wad. Ja het bestaat al een aantal jaren. Ik moet zelf, ja ik weet niet hoeveel mensen echt via de site nacht van het Wad/nacht van de nacht komt, maar ik maak zelf ook wel veel reclame op Facebook enzo. Ik hoef ook geen 50 man te hebben, 25 man is meer dan genoeg. Je bent wel verantwoordelijk natuurlijk he, het is wel donker. Meer wil ik ook niet meehebben. Je ziet wel mensen uit verre streken komen die dan een overnachting erbij doen.

Interviewer: Wat vindt u duurzaam gedrag van toeristen in de natuurgebieden?

Interviewee: Die mensen die lezen al de informatie op mijn website. Dus ja het is een stukje natuurgebied, daar moet je zuinig op zijn en ook alles wat je meeneemt dat neem je ook allemaal weer terug. Dus wees er ook van bewust en als er afval ligt op het wad dan nemen we dat ook mee, indien mogelijk. Ik kan dagelijks daar wel lopen, dan heb ik iedere dag een vuilniszak vol maar ja wees 1 met de natuur en wees er zuinig op wat we hebben daar achter de dijk. **Interviewer:** Wat je in het begin ook al zei, de mensen zijn vooral natuurliefhebbers dus dan hebben ze automatisch wel respect voor de natuur?

Interviewee: Ja, er gaat ook wel een knop om dat ze toch bewust zijn dat ze toch in een werelderfgoed komen, je loopt over de bodem van de Waddenzee en dat stukje werelderfgoed UNESCO. In het begin zie je ze al wat denken.

Interviewer: Heeft u ook te maken met overheidsvoorschriften met betrekking tot toeristisch gedrag in natuurgebieden?

Interviewee: Ja kijk dat zijn bij alle wadlooptochten, ook de nacht van de nacht en die Dark Sky tochten allemaal. Je hebt een vergunning en daar moet je aan houden. Die staat echt dichtgetimmerd hoor door de overheid, de provincies Noord-Holland, Friesland en Groningen. Maar dat wordt geïnitieerd door provincie Friesland.

Interviewer: Het is natuurlijk UNESCO werelderfgoed dus ik kan me wel voorstellen dat daar veel regels aan zitten.

Interviewee: Ja natura2000 gebieden, broedgebieden, daar mag niet komen, ook met de kwelders bepaalde gebieden daar mag je alleen maar voor natuur educatief. En bepaalde gebieden daar mag je van mei tot september niet komen, dat weten we allemaal.

Interviewer: Welke aspecten op het gebied van duurzaamheid heeft u in uw strategie opgenomen?

Interviewee: Kijk het enigste wat ik doe is je profileren dat je één bent met de natuur. Dat je dus mag wandelen in het bijzondere gebied. Maar voor de rest doe ik daar niets mee hoor. Ik heb geen uitgebreide marketing campagne. Ik ben maar een kleine speler in het wadlopen. Kijk je hebt 4 grote organisaties en daaromheen heb je een 5/6tal kleine ZZP'ers en daar hoor ik ook bij. En die moeten het puur van je goed verkopen op het wad, er komen mensen terug. Er wordt over gepraat. Facebook, doorlinken op LinkedIn, noem maar op. Campingeigenaren en de provincie, zo ga je steeds verder. En zo bereik je steeds bredere regio. Ik zit altijd vol.

Interviewer: Als u kijkt naar uw ervaring met het Dark Sky product, wat is uw verwachting voor de toekomst? Wordt het een groeiende trend?

Interviewee: Moeilijk te zeggen. Ik zit er nog maar 3 jaar bij dus en daarvoor hebben ze ook wel tig jaren gepromoot, niet dat ik het wist. Maar je ziet wel en je hoort wel van collega's, omdat ik nu 2 jaar ermee bezig ben, ik zet het ook wel breed uit. Je ziet gewoon links en rechts van steeds meer deelnemers of

organisaties zich aansluiten met een zeilbootje op het Lauwersmeer of de Wadden met een boot de Waddenzee op met de nacht van de nacht (29 oktober). Dus je ziet wel steeds meer activiteiten ontplooiën. Maar weinig op wadloopgebied, en dat vind ik best. Dat moet je ook echt goed kunnen plannen met de waterstanden en het feit dat ik ook dicht onderaan de dijk woon is voor mij altijd eenvoudig om dat even op te zetten. Dus ik heb goede contacten met die organisaties. Het liep een beetje stroef dit jaar in verband met de informatievoorziening. Het staat online, staat ook genoeg informatie ook online. Maar je ziet wel dat er een groeiende animo is, dat is wel leuk. Aanbevelingen kunnen zijn meer het gebied in, wat promoten. Ik ken het alleen maar van de website (nacht van de nacht), nog eens een keer een campagne, provinciaal noem maar op. Het wordt nu vooral gepromoot via mond tot mond reclame, ja je moet het net weten natuurlijk.

Coding matrix – Interview A

Interview Questions	Open Coding	Axial Coding	Selective Coding
1. For how long have you been offering Dark Sky Tourism products? → Reason for starting it?	<ul style="list-style-type: none"> ▪ 2 years ▪ Mudflat walking from the age of 10 ▪ Mudflat walking guide ▪ Educations ▪ Volunteering at big organization ▪ Own mudflat walking organization 	<ul style="list-style-type: none"> ▪ Product ▪ Career 	<ul style="list-style-type: none"> ▪ Experiences ▪ Reason
2. What kind of Dark Sky Tourism-related products do you offer to tourists?	<ul style="list-style-type: none"> ▪ Mudflat walking ▪ Area: Noordpolderzijl ▪ Tour of 2,5 hour ▪ Start in dusk end in dark ▪ Mudflat walking whole year 	<ul style="list-style-type: none"> ▪ Product ▪ Time ▪ Location ▪ Guided ▪ Group size ▪ Extraproduct aspects 	<ul style="list-style-type: none"> ▪ Product range

	<ul style="list-style-type: none"> ▪ Night walk ▪ Cross the Wadden Sea to the islands ▪ Guided tours ▪ Normal tour: 12 people ▪ With every extra 12: extra certified guide ▪ Nature educative license: 50 people for 2,5 hour at the coast ▪ Personal attention ▪ Story about the mudflats 		
3. Have you been working in partnerships?	<ul style="list-style-type: none"> ▪ Not directly ▪ Other mudflat walking organizations ▪ Campsites 	<ul style="list-style-type: none"> ▪ Campsites ▪ Similar organizations 	<ul style="list-style-type: none"> ▪ Partnerships
4. Who is your main target group?	<ul style="list-style-type: none"> ▪ Nature lovers ▪ Who enjoy peace and space ▪ Normal tours: all corners of the world ▪ Night of the night tours: only Dutch ▪ Up to 25 people ▪ People from far away: include an overnight stay 	<ul style="list-style-type: none"> ▪ Nature lovers ▪ All nationalities ▪ Group size ▪ Accommodation 	<ul style="list-style-type: none"> ▪ Target group
5. With the implementation of Dark Sky tourism-related products, did you attract new types of target groups?	<ul style="list-style-type: none"> ▪ People who don't want big groups. ▪ Small groups: peace and quiet. ▪ Personal attention 	<ul style="list-style-type: none"> ▪ Small groups ▪ Extraproduct aspects 	<ul style="list-style-type: none"> ▪ Expansion of target group

<p>6. What kinds of feedback have you received from customers?</p>	<ul style="list-style-type: none"> ▪ Positive ▪ People don't feel rushed ▪ Enjoying the space ▪ Fully enjoy experience ▪ Give attention ▪ Talk a lot about the mudflats 	<ul style="list-style-type: none"> ▪ Positive ▪ Space ▪ Experience ▪ Extraproduct aspects 	<ul style="list-style-type: none"> ▪ Feedback
<p>7. To what extent did implementing Dark Sky tourism in your destination affect the local economy and communities? (e. g. extension of tourism season, opinions of inhabitants)</p>	<ul style="list-style-type: none"> ▪ Been around for years 	<ul style="list-style-type: none"> ▪ Time 	<ul style="list-style-type: none"> ▪ Implementation
<p>8. What do you consider as sustainable behavior of tourists in nature areas/preserves?</p>	<ul style="list-style-type: none"> ▪ Awareness ▪ Careful with nature ▪ Clean up trash ▪ 1 with nature ▪ World Heritage Site UNESCO: they are aware of it 	<ul style="list-style-type: none"> ▪ Awareness ▪ Nature ▪ Trash ▪ UNESCO 	<ul style="list-style-type: none"> ▪ Consideration of sustainable behavior of tourists
<p>9. Are you subject to any governmental requirements regarding touristic behavior in nature preserves?</p>	<ul style="list-style-type: none"> ▪ All mudflat walks ▪ License ▪ Government ▪ Municipalities of North-Holland, Friesland, Groningen ▪ Initiated by municipality of Friesland ▪ UNESCO ▪ Nature2000 ▪ Breeding areas 	<ul style="list-style-type: none"> ▪ Government ▪ Municipalities ▪ UNESCO ▪ Nature2000 ▪ Areas 	<ul style="list-style-type: none"> ▪ Governmental requirements

	<ul style="list-style-type: none"> Specific areas: only nature educative 		
10. What aspects in terms of sustainability did you include in your strategy?	<ul style="list-style-type: none"> profiling that you are one with nature No marketing campaigns Small organization 	<ul style="list-style-type: none"> Profile Organization 	<ul style="list-style-type: none"> Strategic aspects regarding sustainability
11. To what extent does the aspect of sustainability go beyond the products you offer?	No information	No information	No information
12. Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?	<ul style="list-style-type: none"> More organizations are joining Products: sailboat (Lauwersmeer area) or boat (Wadden Sea) Night of the night More activities Not a lot within mudflat area 	<ul style="list-style-type: none"> Growth Product development Activities 	<ul style="list-style-type: none"> Prospects

Interview B:

Interview 25.10.2022 – The Netherlands

Interviewer: The first question is “What kind of Dark Sky Tourism-related products do you offer to tourists?”

Interviewee: We offer **lectures** on different subjects, **Dark Sky related subjects** in our **information center “Lauwersnest”**. We do excursions, **Dark Sky excursions** that might be a **full moon walk** for darkness awareness and we have a route, a **Dark Sky route** that people can do **independently**. It is marked with glow in the dark.

Interviewer: A dark sky route you say? Yes okay, that’s nice!

Interviewee: Yes, so people can stand there independent.

Interviewer: Yeah that’s independently. Okay and there are also guided tours?

Interviewee: Yeah. The excursion of the **guided tours** are frequently organized and they have a ..by full moon and then we do, we **start in our information center**. We give **information** on the topic in case of **shooting stars** or **full moon**. We give information about the **appearances of the moon**. And what shooting stars are and for different **zodiac signs**. We talk about the **value and the fact that light pollution exists**. So our main objective is to **inform the public about light pollution and with the effect light pollution has on nature in general**. Because most people don’t regard light pollution as pollution or as something negative. Light is mostly experienced as something positive. But too much light results in light pollution. **People are not aware** of that and if people are not aware they are not very likely to change or solve the problem in the future. So that’s our main subject **to inform the general public about the fact that there is light pollution**.

Interviewer: Yeah okay, nice. And for how long have you been offering these products?

Interviewee: I think it was 2014 that we did our second attempt to become an officially Dark Sky.. So from 2014 onwards. And certainly from 2016 onwards because in 2016 we got the recognition by the IDA (International Dark-Sky Association) and we are officially recognized Dark Sky.

Interviewer: Okay. Have you also been working in partnerships?

Interviewee: Yeah. From the beginning the province of Groningen, Friesland as well but mainly the province of Groningen. In fact the province of Groningen initiated us becoming Dark Sky park. It was their initiative. And we also cooperated municipality "Het Hoge Land" in Groningen and "Noardeast-Fryslân", also a municipality in Friesland. And also, the organization from Marketing Groningen, Merk-Fryslân and Visit Wadden. We also cooperate with marketing organizations. And we work with the Rijksuniversiteit Groningen with the astronomy division "Kapteyn Instituut". And they have an observatory in our park because of the darkness. They have their own observatory in the city of Groningen, that's in the middle of the city of Groningen. There is a lot of light pollution. The absent of light pollution in the Lauwersmeer area makes it interesting for them to have their own observatory with a telescope. We also have a cooperation with "Astro Friesland".

Interviewer: Okay nice. So the next question is who is your main target group?

Interviewee: We want to get our message across to the general public, so that means technically everybody. Mainly people who are not yet aware of the fact that something like light pollution is real, and that it exists and that is a real problem. Those people we want to reach out to, but also there is a certain group that is already interested in all kinds of phenomena that one can observe in Dark Sky conditions.

Interviewer: Yeah okay so it's not like a specific target group but more everybody.

Interviewee: No, some of the programs that we offer are for specific groups people who are interested, for example in bats or people who are specifically interested in shooting stars for example. Twice a year we have a shooting stars night in August and in December we have another one, gemini, the meteor shower. So those are for specific people with specific interests in either nature or darkness wildlife or all kind of phenomena. But also we have the more general excursions, or Dark Sky for families etc. That's for the general public and mainly all of are excursions are to make people aware

Interviewer: You also see some foreigners from outside of the Netherlands or mainly Dutch people?

Interviewee: Yeah mainly Dutch people but there are also mainly journalists from Belgium. We have New York times even and Portugal and Switzerland. So that's the journalists that we have. And from time to time there we had people from India even participating, last time there was a meteor shower. Last August there was a group of 6 from India.

Interviewer: So a lot of interest from all over the world?

Interviewee: Yeah but mainly, 95% .. more probably of the participants is Dutch.

Interviewer: And... what kind of feedback have you received from the customers, what are they saying? Are they positive or maybe negative?

Interviewee: Because the Dark Sky park we have is a Dark Sky park because are relatively dark. You must realize that the Netherlands are one of the most light polluted countries in the world. So this by far is not the darkest, Lauwersmeer national Dark Sky park, is by far not the darkest place of North West Europe. It is not even the darkest place in the Netherlands. The Boschplaat on Terschelling for example is darker. The darkest place in the Netherlands is the Vliehors on Vlieland. That's perfectly well explainable because there is nobody living there because it's an exercise area of the Dutch air force. If nobody is living there, there is no need for artificial light. Its

somewhere halfway the Nord Sea from the Dutch coast so there is hardly any light pollution there. That's also the Lauwersmeer National Park is a Dark Sky or a relatively dark part of the Netherlands because nobody is living there. It has been closed down in 1969 from the Wadden Sea. And gradually the national park came to existence. And has formed in the way it is nowadays. And hardly anybody is living there, there are no villages apart of the Lauwersoog, near the harbor. But no other villages so there are practically no people living so there is no need for artificial light. And the absence of artificial light makes it relatively dark.

Interviewer: So the people are mainly also positive it is dark and they can have their full experience.

Interviewee: Yeah, that's why I brought it up because in the beginning people expected it to be the darkest place in North-West Europe for example. And that is not the fact, it is relatively dark but its in the Netherlands. You must always take that in mind. But still it is quite dark so **the feedback that we get is different** from the people that come especially for **stargazing**, for **observing stars** for example. And then, the Lauwersmeer area is **much more suitable** then anywhere near larger cities. And the Netherlands are very densely populated so there is always a larger city anywhere near. There is always light pollution practically everywhere in the Netherlands. So we get different feedback from that **target group** and the feedback that we get from **more general public** is that **they have never before let themselves experience a walk in the forest during night without using a flashlight**. Because that's the point we do not allow people to use flashlights during our nightly walks. Because if you use a flashlight, you will not allow your eyes to get adjusted to the dark circumstances. And you will not be able to see much because it takes the human eye about 20 minutes to get adjusted to the dark circumstances. And be able to see at all in the dark. And after an hour you can see even more. Even though our eyes are not specifically suitable for dark circumstances, we can see much more in the dark than we realize if we give our eyes a chance to adjust. So if after 20 minutes the entire group has their eyes adjusted to the dark circumstances and one of the group switches on their flashlight, the entire group is back to zero. But normally

people do not wait for 20 minutes to allow their eyes to get used to dark circumstances of course. So that's we get back that people have never realized they could even recognize each other's faces in the dark.

Interviewer: That's interesting. And with that time do you also take this into account in terms of the duration of the walks?

Interviewee: Normally, our activities last about 2 hours so which is an introduction of 1 hour in the information center. And then 1 hour walk. Its not very far its about 2 kilometers. That's about it, not even. I don't think it is even 2 kilometers, 1.5 something like that. But you don't walk very fast in dark circumstances of course. But its not about the achievement but it is about the experience.

Interviewer: And you stand still a lot of times I think just to enjoy the environment and what's happening?

Interviewee: Well you don't see much of the environment of course. If there are not many clouds, then you can have a nice look at the nightly stars, sky full of stars. And planets, normally if there aren't many clouds and we get back to the information center, I have a telescope there. We can look at, during summer time, look at Jupiter and Saturn for example. You can see even with a very simple telescope you can see the rings of Saturn. And that's always very exciting experience for people. I can tell if people look in the telescope I can tell by there reaction whether they have actually seen Saturn or not. Because the reaction is different if somebody would look through the telescope and they ask me what can we see here? And I tell them here, through this telescope you can see Saturn. And they look and say ooh yeah, then I know they haven't actually seen it. So then I have to adjust the telescope and aim it at Saturn, and ask them to look again and then they react like ooooooh, surprise. And that brings me to target groups .. Next week I have a meeting with someone who wants to organize a Dark Sky run. And I am not really convinced whether that's the direction we want to go in. Because if you do a run in the Dark Sky, obviously people are going to wear headlights.

Interviewer: Yeah, otherwise its too dangerous to run.

Interviewee: Yeah running around in the forest in the darkness.

Interviewer: Yeah I see what you mean so its not like the experience ..

Interviewee: Then it is about the excitement of running in the dark but it is not about our message.. the message that we want to put through is, I told you before, artificial light in itself is a blessing but unnecessary artificial light also undesirable artificial light. I am not sure yet whether I am enthusiastic about this development or not.

Interviewer: The next question: did the implementing of these Dark Sky tourism related products also have an affect on for example the local community? Do they have opinions about it or?

Interviewee: Yeah certainly *at the beginning, there was a lot of skepticism*. And even people *opposed to the idea of us becoming a Dark Sky park*. The cause is usually the fact, people do not like changes, so *people fear changes*. So then they heard about our plans to become a Dark Sky park. And they fear change so *oppose* it. But it became clear that many people thought that our goal was to eliminate every streetlight for example. Which is not the fact, which wouldn't be very right either. Because we *don't want to compromise on safety* of course. So, you have street lights and street lights. You can have lights that scatter light all around, or you can have the more *modern LED lights* which can direct light more directly. Which can be covered in a much more effective way. Modern LED street lights have result in less light pollution than old fashioned street lights.

Interviewer: Okay. And the next topic is about the tourists' behavior. What do you consider as sustainable behavior of tourists in nature areas? Dark Sky related.

Interviewee: For everything it is lived by the rules that we provide, so **stay on the paths** and **stay on the roads, don't go straying**. In the national park, **keep**

your dog on the leash for example all these things. If people live by those rules, it wouldn't be problem. **They should not make a lot of noise or loud music.** And they should **not cause unnecessary artificial light.**

Interviewer: So no flashlights, as you said before?

Interviewee: **Well flashlights can if necessary,** and If it is not necessary, no flashlights.

Interviewer: And in terms of how big the groups are, do you also take that into account? Like 20 people or less?

Interviewee: Yeah, personally I don't really mind how big the group is. Well **if the group gets too big, then the Dark Sky experience is less obviously.** So the **group should not be too large.** Don't think that really would be a problem.

Interviewer: The second question, are you subject to any governmental requirements?

Interviewee: well **we are government.** So are main guidance here is **natura2000.**

Interviewer: So the protection of the nature.

Interviewee: Yeah after all it's a **wild life a bird sanctuary, wild life reserve** so.

Interviewer: Okay. What aspects in terms of sustainability did you include in your strategy? Or do you have a strategy for that?

Interviewee: We want to **set an example** of course so we have **dimmed lights at our site,** we have lights in a certain part of the spectrum so its yellowish light. **That's for one, its making people aware that you can use too much unnecessary artificial light which in itself is sustainable of course, if you produce less light you use less energy.** And what's also an effect, the **kind of recreation,** so we see

that more and more entrepreneurs around the Dark Sky park embrace the dark sky as a blessing instead of a threat. And they start offering dark sky arrangements. There is a hotel in Dokkum and they have a Dark Sky arrangement. We cooperate with them as well and they have 2 Dark Sky guides and they take their guests, that participate in this specific arrangement, they take them to our center. And they do a Dark Sky walk and they bring across the Dark Sky message to their guests.

Interviewer: That's nice. And if you look beyond the products you are offering, for example the accessibility for the tourists. Is it also something you take into account when you look at sustainability and the behavior. How the people get there?

Interviewee: Yeah. Everybody has to get there by car I am afraid because our site is practically not reachable by public transport. They have to come by car. By bicycle it is only an alternative for people that live relatively nearby but practically nobody lives nearby.

Interviewer: Then we come to the closing question actually. Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Do you think it will be a growing trend. Will it become more popular?

Interviewee: I do hope so because that will provide us with the possibility to bring the message across. And I hope, don't know if this will work out, maybe somewhere in the near future. The entire Wadden Sea region will become a Dark Sky region. And darkness, or lack of light pollution, will become one of the unique selling points (USP's) of the entire region. And it will attract a certain type of tourism. Hopefully that's the direction that we are going in. Not just in the Dutch part of the Wadden Sea, but also in the German and Danish part. That would be my dream for the future, to have the entire Wadden Sea region, so not just the islands and the sea but also the coastal strip, from Denmark down to Den Helder to let that become a Dark Sky region. That would be nice.

Interviewer: That's interesting so, that were all the questions.

Coding matrix – Interview B

Interview Questions	Open Coding	Axial Coding	Selective Coding
<p>1. For how long have you been offering Dark Sky Tourism products? → Reason for starting it?</p>	<ul style="list-style-type: none"> ▪ From 2014 onwards (second attempt to become an official Dark Sky park ▪ Certainly from 2016 (official recognition by the IDA, International Dark-Sky Association). Officially a Dark Sky park. 	<ul style="list-style-type: none"> ▪ Product ▪ Dark Sky park ▪ IDA (International Dark-Sky Association) 	<ul style="list-style-type: none"> ▪ Experiences ▪ Reason
<p>2. What kind of Dark Sky Tourism-related products do you offer to tourists?</p>	<ul style="list-style-type: none"> ▪ Lectures: Dark Sky related subjects ▪ Information center “Lauwersnest” ▪ Dark Sky excursions ▪ Full moon walk ▪ Dark Sky route (independently) ▪ Guided tours ▪ Information about shooting stars/full moon ▪ Information about appearances of the moon ▪ Zodiac signs ▪ Talk about value existence light pollution ▪ Inform public about existence light pollution 	<ul style="list-style-type: none"> ▪ Product ▪ Information center ▪ Guided tours ▪ Independent tours ▪ Zodiac signs ▪ Shooting stars night ▪ Moon ▪ Light pollution ▪ Awareness ▪ Meteor shower ▪ Time ▪ Aim ▪ Extra product aspects: telescope 	<ul style="list-style-type: none"> ▪ Product range

	<p>and its effect on nature to make people aware</p> <ul style="list-style-type: none"> ▪ Twice a year: shooting stars night August December ▪ Meteor shower ▪ General excursions ▪ Activities last about 2 hours, 1 hour introduction in center, 1 hour walk ▪ 1,5 kilometers ▪ It is about the experience ▪ Telescope at information center to look at Jupiter and Saturn ▪ Rings of Saturn 		
<p>3. Have you been working in partnerships?</p>	<ul style="list-style-type: none"> ▪ Province Groningen Friesland ▪ Initiator to become Sky park Groningen ▪ Municipality "Het Hoge Land" and "Noardeast-Fryslân" ▪ Marketing Groningen ▪ Merk-Fryslân ▪ Visit Wadden ▪ Marketing organizations ▪ Rijksuniversiteit Groningen astronomy 	<p>of Provinces and Municipalities to organizations Dark = University Hotel</p>	<ul style="list-style-type: none"> ▪ Partnerships

	division "Kapteyn Instituut" <ul style="list-style-type: none"> ▪ Astro Friesland ▪ Hotel in Dokkum, they have Dark Sky arrangement 		
4. Who is your main target group?	<ul style="list-style-type: none"> ▪ Message across to general public, to make people aware ▪ Technically everybody ▪ People who not yet aware of light pollution and that is a problem ▪ Certain group who have already the interest in Dark Sky related phenomena ▪ Specific groups: interested in bats or shooting stars, nature, darkness wildlife ▪ Families ▪ Mainly Dutch (95%) ▪ Journalists from: Belgium, New York times, Portugal, Switzerland, India 	<ul style="list-style-type: none"> ▪ General public ▪ Everybody ▪ Certain groups ▪ Specific groups ▪ Families ▪ Mainly Dutch ▪ Foreign journalists 	<ul style="list-style-type: none"> ▪ Target group

<p>5. With the implementation of Dark Sky tourism-related products, did you attract new types of target groups?</p>	<ul style="list-style-type: none"> No information 	<ul style="list-style-type: none"> No information 	<ul style="list-style-type: none"> No information
<p>6. What kinds of feedback have you received from customers?</p>	<ul style="list-style-type: none"> Different feedback, depends on the type of product Location more suitable than anywhere near larger cities General public: never before experienced a walk in the forest during night without flashlight Never realized they could recognize each other in the dark 	<ul style="list-style-type: none"> Different feedback Expectations Location General public New realizations 	<ul style="list-style-type: none"> Feedback
<p>7. To what extent did implementing Dark Sky tourism in your destination affect the local economy and communities? (e. g. extension of tourism season, opinions of inhabitants)</p>	<ul style="list-style-type: none"> At beginning: lot of skepticism of locals Locals were opposed to the area becoming a Dark Sky park Locals feared changes The organization doesn't want to compromise on safety, so no complete elimination of streetlights Include modern LED lights instead 	<ul style="list-style-type: none"> Negative: locals Taking it into account 	<ul style="list-style-type: none"> Implementation
<p>8. What do you consider as</p>	<ul style="list-style-type: none"> Stay on the paths 	<ul style="list-style-type: none"> Rules Group size 	<ul style="list-style-type: none"> Consideration of sustainable

<p>sustainable behavior of tourists in nature areas/ preserves?</p>	<ul style="list-style-type: none"> ▪ Stay on the roads ▪ Don't go straying ▪ Keep your dog on the leash ▪ Don't make noise or loud music ▪ No unnecessary artificial light ▪ Flashlights only when necessary ▪ Group too big? Dark Sky experience is less ▪ Group should not be too large 		<p>behavior of tourists</p>
<p>9. Are you subject to any governmental requirements regarding touristic behavior in nature preserves?</p>	<ul style="list-style-type: none"> ▪ We are government ▪ Natura2000 ▪ Wild life ▪ Bird sanctuary ▪ Wild life reserve 	<ul style="list-style-type: none"> ▪ Natura2000 ▪ Wild life reserve 	<ul style="list-style-type: none"> ▪ Governmental requirements
<p>10. What aspects in terms of sustainability did you include in your strategy?</p>	<ul style="list-style-type: none"> ▪ Set an example ▪ Dimmed lights at the site ▪ Increase awareness that you can use too much unnecessary artificial light ▪ Less light = less use of energy ▪ More entrepreneurs around Dark Sky park see it as a blessing 	<ul style="list-style-type: none"> ▪ Setting an example ▪ Awareness ▪ Entrepreneurs 	<ul style="list-style-type: none"> ▪ Strategic aspects regarding sustainability

<p>11. To what extent does the aspect of sustainability go beyond the products you offer?</p>	<ul style="list-style-type: none"> ▪ Accessible by car ▪ Practically not reachable by public transport <ul style="list-style-type: none"> ○ Bicycle only for locals 	<ul style="list-style-type: none"> ▪ Car ▪ Public transport ▪ Bicycle 	<ul style="list-style-type: none"> ▪ Accessibility/customer arrival
<p>12. Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?</p>	<ul style="list-style-type: none"> ▪ If growing trend: possibility to bring the message across ▪ Near future: The entire Wadden Sea region will become a Dark Sky region ▪ Becoming a USP of entire region: darkness, lack of light pollution ▪ Attract certain type of tourism ▪ Also in German and Danish part ▪ Entire Wadden Sea region to become a Dark Sky region (from Denmark to Den Helder) 	<ul style="list-style-type: none"> ▪ Spread out message ▪ Wadden Sea region ▪ Dark Sky region ▪ USP ▪ Attract type of tourism ▪ Entire Wadden Sea 	<ul style="list-style-type: none"> ▪ Prospects ▪ Benefits ▪ Development ▪ Chances/potentials

Interview C:

Interview in written form – the UK

Interviewer: For how long have you been offering Dark Sky Tourism products?

Interviewee: The AONB has held Dark Skies events informally for about 6 or 7 years. This has grown over time, and the interest in the event continues to build. This is the first year we have expended to a 'dark skies season' with a suite of

many events, and we plan to continue to grow this through more partnerships and products to be offered in coming years.

Interviewer: What kind of Dark Sky Tourism-related products do you offer to tourists?

Interviewee: This year we are offering a broad selection of events including Talks from experts on a range of topics related to the night sky, guided night walks, pop-up planetariums, stargazing hosted by local Astronomy societies, events co-hosted with local schools and candlelight performances by sea shanty singers. In previous years we have worked with local brewers to develop a 'Dark Skies' beer, we have worked to develop a suite of workshops for planners and developers to guide construction in the areas as well.

Interviewer: Have you been working in partnerships?

Interviewee: Yes, we have a very small team, so almost all of what we deliver is done in partnership with relevant organizations.

Interviewer: Who is your main target group?

Interviewee: We think the beauty of the AONB at night is for everyone, and in planning our events we have tried to have a really broad range of events that will appeal to lots of different people.

Interviewer: With the implementation of Dark Sky tourism-related products, did you attract new types of target groups?

Interviewee: We are currently working on expanding our audience and our reach. We are hoping that as we expand our offering of DS products we will also reach more new audiences- primarily we are trying to do this through partnering with existing organizations working with various target audiences.

Interviewer: What kinds of feedback have you received from customers?

Interviewee: People really enjoy the Dark Skies events we have delivered in the past. It's a novel way to interact with their environment and brings a new appreciation for the beauty of our landscape.

Interviewer: To what extent did implementing Dark Sky Tourism in this destination affect the local economy and communities (e. g. extension of tourism season, opinions of inhabitants)?

Interviewee: Until this year we have not managed to measure this in a meaningful way. We have seen a very positive impact anecdotally but have only just started to measure these outcomes in a more concrete way this year, so I can't give a more specific answer than that.

Interviewer: What do you consider sustainable behavior of tourists in nature areas/preserves?

Interviewee: We think of sustainable behaviour as making a positive impact through the visit. This applies for nature and economy, and we believe that truly sustainable visitor can deliver meaningfully for both. We are committed to helping visitors to the area understand why the landscape is special and how best to appreciate it and improve it through their visits.

Interviewer: Are you subject to any governmental requirements regarding touristic behavior in nature preserves?

Interviewee: Yes. As an Area of Outstanding Natural Beauty our remit is to 'Conserve and Enhance' the natural landscape. This includes the landscape character, biodiversity, geodiversity and cultural landscape.

Interviewer: What aspects in terms of sustainability did you include in your strategy?

Interviewee: Without hard data it's a bit difficult to answer this. I would say our approach takes all three elements to be equally important and we seek to deliver for all as we keep building our offerings and partnerships

Interviewer: Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?

Interviewee: We definitely see this as a growing trend. There is a lot of potential to partner with SMEs and local businesses to develop further offerings and we're looking forward to continuing to grow our suite of DS products.

Coding matrix – Interview C

Interview Questions	Open Coding	Axial Coding	Selective Coding
1. For how long have you been offering Dark Sky Tourism products? → Reason for starting it?	<ul style="list-style-type: none"> ▪ about 6 or 7 years ▪ grown over time ▪ interest in the event continues to build ▪ the first year of 'dark skies season' ▪ many events ▪ plan to continue to grow ▪ more partnerships and products (in coming years) 	<ul style="list-style-type: none"> ▪ Temporal design 	<ul style="list-style-type: none"> ▪ Experiences with Dark Sky Tourism
2. What kinds of dark sky related products do you offer to tourists?	<ul style="list-style-type: none"> ▪ broad selection of events (talks from experts) related to the night sky ▪ guided night walks ▪ pop-up planetariums 	<ul style="list-style-type: none"> ▪ Selection of events and activities related to the night sky 	<ul style="list-style-type: none"> ▪ Product range

	<ul style="list-style-type: none"> ▪ stargazing hosted by local Astronomy societies ▪ events co-hosted with local schools ▪ candlelight performances by sea shanty singers ▪ worked with local brewers ('Dark Skies' beer) ▪ develop workshops 		
3. Have you been working in partnerships?	<ul style="list-style-type: none"> ▪ very small team, so almost all of what we deliver is done in partnership with relevant organizations 	<ul style="list-style-type: none"> ▪ High significance in Partnerships with relevant organizations 	<ul style="list-style-type: none"> ▪ Partnerships
4. Who is your main target group?	<ul style="list-style-type: none"> ▪ for everyone ▪ in planning our events we have tried to have a really broad range ▪ appeal to lots of different people 	<ul style="list-style-type: none"> ▪ Reaching a broad range of different people 	<ul style="list-style-type: none"> ▪ Main target group
5. Did you attract new types of target groups with the implementation of Dark Sky tourism related products?	<ul style="list-style-type: none"> ▪ working on expanding the audience and reach ▪ expand the offering of DS products 	<ul style="list-style-type: none"> ▪ Expansion of the offers to attract a new audience 	<ul style="list-style-type: none"> ▪ Expansion of target group
6. What kinds of feedback have you received from customers?	<ul style="list-style-type: none"> ▪ People really enjoy the Dark Skies events ▪ novel way to interact with their environment 	<ul style="list-style-type: none"> ▪ Positive feedback for Dark Sky events 	<ul style="list-style-type: none"> ▪ Feedback from customers

	<ul style="list-style-type: none"> ▪ new appreciation for the beauty of our landscape 		
7. To what extent did implementing Dark Sky tourism in your destination affect the local economy and communities? (e. g. extension of tourism season, opinions of inhabitants)	<ul style="list-style-type: none"> ▪ have not managed to measure this in a meaningful way ▪ very positive impact anecdotally ▪ have only just started to measure these outcomes more concretely this year 	<ul style="list-style-type: none"> ▪ Begin with this measures and had a development to a positive impact 	<ul style="list-style-type: none"> ▪ Impact of Dark Sky Tourism in the Destination
8. What do you consider as sustainable behavior of tourists in nature areas/preserves?	<ul style="list-style-type: none"> ▪ sustainable behavior as making a positive impact through the visit (for nature and the economy) ▪ helping visitors to understand why the landscape is special ▪ how best to appreciate it and improve it 	<ul style="list-style-type: none"> ▪ Impact of the visit and giving an understanding of the landscape 	<ul style="list-style-type: none"> ▪ Consideration on sustainable behavior of tourists
Are you subject to any governmental requirements regarding touristic behavior in nature preserves?	<ul style="list-style-type: none"> ▪ the remit is to 'Conserve and Enhance' the natural landscape - includes character ▪ biodiversity ▪ geodiversity ▪ cultural landscape 	<ul style="list-style-type: none"> ▪ Conserve and enhance natural landscape 	<ul style="list-style-type: none"> ▪ Governmental Requirements

<p>10. What aspects in terms of sustainability did you include in your strategy?</p>	<ul style="list-style-type: none"> the approach takes all three elements seek to deliver for all as we keep building our offerings and partnerships 	<ul style="list-style-type: none"> Three elements of sustainability 	<ul style="list-style-type: none"> Included aspects in terms of sustainability
<p>11. To what extent does the aspect of sustainability go beyond the products you offer? (e. g. accessibility, customer arrival)</p>	<p>No information</p>	<p>No information</p>	<p>No information</p>
<p>12. Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?</p>	<ul style="list-style-type: none"> see this as a growing trend a lot of potential to partner with SMEs and local businesses continuing to grow of DS products 	<ul style="list-style-type: none"> Growing trend 	<ul style="list-style-type: none"> Prospects

Interview D:

Interview in written form – the UK

Interviewer: For how long have you been offering Dark Sky Tourism products?

Interviewee: Not for very long as we've just launched our website and some of the infrastructure and events we are planning around dark skies haven't taken place yet

Interviewer: What kind of Dark Sky Tourism-related products do you offer to tourists?

Interviewee: We have an activity around Dark Skies on our platform and we are aiming to add more in the future. You can also find more details about the activity here.

Hunstanton Observatory - a new Observatory, with exterior night sky discovery interpretation elements and exterior platform, within the seaside resort town of Hunstanton, west Norfolk. Interpretation will be accessible and legible for night-time viewing. A Dark Skies Observatory would be a very beneficial boost to our area's out-of-season tourism along the west Norfolk coastline, can encourage both residents and visitors alike to consider light pollution issues and take an interest in the night sky and can enable the running of major on-site Dark Skies Festival events

Discovery Hub at Salhouse Broad - The Discovery Hub will provide information about the Broads National Park area, stargazing information, and local daytime & nocturnal wildlife. The platform could be used flexibly during the day and evening but would be unique in the autumn/winter as the first dedicated site in the Broads National Park for offering stargazing experiences

Salhouse Broad Dark Skies event – as part of our marketing campaign for Be Norfolk we will organise a Dark Skies event at the Salhouse Broad where attendees will have the chance to explore the night sky with the help of astronomers. The event also coincides with the Earth hour so we are planning to incorporate something around that during the event.

Interviewer: Have you been working in partnerships?

Interviewee: Yes, we have been working closely with local organizations/businesses to develop the above dark sky products.

Interviewer: Who is your main target group?

Interviewee: EXPERIENCE is targeting those audience groups which are seeking experiential travel and are interested in/able to travel during the off-season, outside of school holidays.

Identified market segments include:

Younger, child-free residents of urban areas longing to escape and discover new experiences, beautiful scenery and interesting towns and cities with rich cultural offerings.

Older demographics (55+) who prefer to experience rural life and scenery without the crowds.

- Walkers and cyclists who will travel during the quieter shoulder season, stay longer and spend more in a region than other groups.

- Visitors with additional physical, cognitive or sensory access needs, including wheelchair users, visually impaired, D/deaf visitors and neurodiverse audiences.

EXPERIENCE is also seeking to broaden the cultural diversity of tourism in Norfolk, targeting underrepresented groups such as ethnically diverse and LGBTQ+ communities.

Interviewer: With the implementation of Dark Sky tourism-related products, did you attract new types of target groups?

Interviewee: We are hoping that we will attract the above target audiences following the launch of our products

Interviewer: What kinds of feedback have you received from customers?

Interviewee: No feedback yet

Interviewer: To what extent did implementing Dark Sky Tourism in this destination affect the local economy and communities (e. g. extension of tourism season, opinions of inhabitants)?

Interviewee: We believe that it **can help with extending the season** in a **sustainable way** that's why we tried to **include dark skies products** in our **off-season** offer for Norfolk. The **night sky during the off-season is much richer** and there are **more things to see** really so we are hoping that this is a way to **attract visitors between October to March**, thus taking the pressure from the summer months.

Interviewer: What do you consider sustainable behavior of tourists in nature areas/preserves?

Interviewee: In EXPERIENCE, our aim is to extend the season and attract more visitors to Norfolk in the off-season. This means we are looking to create an offer that is appealing enough to make people choose to travel to Norfolk between October to March and not during summer.

Norfolk has **significant nature areas/preserves** such as Norfolk Coast AONB and the Broads **National Park** so for **us if a tourist chooses to visit those areas in the off-season and not during summer (when most people choose to visit them) is sustainable behaviour.**

Interviewer: Are you subject to any governmental requirements regarding touristic behavior in nature preserves?

Interviewee: I'm not best person to answer that re Norfolk but I'm aware that all **organisations working to protect nature preserves** in the area have put **measures in place to improve tourist behaviour** in those areas. I also assume that areas such as the Norfolk Coast AONB and the Broads National Park are subject to gov requirements.

Interviewer: What aspects in terms of sustainability did you include in your strategy?

Interviewee: All our offer in EXPERIENCE is designed to appeal to visitors between October and March, thereby extending the traditional tourist season and bringing money year-round into the local economies. Season extension has a positive economic sustainability impact via creation of year-round income and jobs improving business stability, job security and reducing migration. Extending the season also helps with spreading the number of visitors in an area in a more sustainable way which means less disruption for the local communities and the environment.

Though our Be Norfolk website, we only promote experiences that are in line with the sustainable ethos of the project e.g. cycling and walking activities, activities promoting local produce, conservation activities etc.

Interviewer: To what extent does the aspect of sustainability go beyond the products you offer (e. g. accessibility, customer arrival, etc.)?

Interviewee: Accessibility and inclusivity are two very important aspects of the EXPERIENCE project and on Be Norfolk we have a great selection of wheelchair friendly and sensory rich experiences. We also tried to make our photography more inclusive; we commissioned a photographer to take pictures of people from various ethnic backgrounds (e.g. Black, Asian etc.), wheelchair users, blind people etc. enjoying out of season activities in Norfolk. These photos were used in promotional material and the Be Norfolk website.

Interviewer: Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?

Interviewee: We definitely believe that Dark Skies tourism products is already a growing trend. There is an increased national appeal and profile of Dark Skies Parks and associated out-of-season festivals of star-gazing and nocturnal outdoor events held throughout the UK. Climate change and its impact has

started making people more env-conscious which means that it's more likely to go for tourism products that are env-friendly when they travel. For example, dark sky products can help with encouraging visitors to think about light pollution. Covid-19 also had an impact on the rise of Dark

Sky products as people are looking for ways to improve their wellbeing, reconnect with nature and disconnect from technology even for a while.

Coding matrix – Interview D

Interview Questions	Open Coding	Axial Coding	Selective Coding
1. For how long have you been offering Dark Sky Tourism products? → Reasons for it?	<ul style="list-style-type: none"> ▪ website ▪ infrastructure ▪ events 	<ul style="list-style-type: none"> ▪ events ▪ current situation 	<ul style="list-style-type: none"> ▪ existence
2. What kind of Dark Sky Tourism-related products do you offer to tourists?	<ul style="list-style-type: none"> ▪ more in the future ▪ observatory ▪ exterior night sky discovery ▪ exterior platform ▪ nighttime viewing ▪ beneficial boost ▪ out-of-season tourism ▪ encourage residents and visitors ▪ light pollution ▪ festivals/events ▪ provide information ▪ National Park area ▪ stargazing experiences ▪ local daytime ▪ nocturnal wildlife ▪ unique in autumn/winter ▪ marketing campaign 	<ul style="list-style-type: none"> ▪ activities ▪ product range ▪ seasonality ▪ mission ▪ awareness 	<ul style="list-style-type: none"> ▪ Dark sky tourism products

	<ul style="list-style-type: none"> ▪ dark skies event ▪ explore the night sky ▪ astronomers ▪ earth hour 		
3. Have you been working in partnerships?	<ul style="list-style-type: none"> ▪ organizations /businesses ▪ - develop products 	<ul style="list-style-type: none"> ▪ product development ▪ organizations ▪ businesses 	<ul style="list-style-type: none"> ▪ partnerships
4. Who is your main target group?	<ul style="list-style-type: none"> ▪ experiential travel ▪ interested in/able to travel during off season ▪ outside of school holidays ▪ younger, child-free residents of urban areas ▪ escape ▪ beautiful scenery ▪ rich cultural offerings ▪ older demographics (55+) ▪ experience rural life ▪ without crowds ▪ walkers/cyclists ▪ quieter shoulder season ▪ long stays ▪ visitors with physical, cognitive, sensory 	<ul style="list-style-type: none"> ▪ - seasonality ▪ - market segments ▪ - offerings ▪ - demographics ▪ - wishes/expectations of visitors ▪ - diversity 	<ul style="list-style-type: none"> ▪ target groups

	<ul style="list-style-type: none"> access needs cultural diversity underrepresented groups (ethnically diverse, LGBTQ+) 		
5. With the implementation of Dark Sky tourism-related products, did you attract new types of target groups?	<ul style="list-style-type: none"> hoping to attract target audiences 	<ul style="list-style-type: none"> Hopes 	<ul style="list-style-type: none"> Extension of target audience
6. What kinds of feedback have you received from customers?	No information	No information	No information
7. To what extent did implementing Dark Sky Tourism in this destination affect the local economy and communities (e.g. extension of tourism season, opinions of inhabitants)?	<ul style="list-style-type: none"> extending the season in a sustainable way off-season attract visitors October-March less pressure than in summer 	<ul style="list-style-type: none"> seasonality off-season 	<ul style="list-style-type: none"> Seasonality
8. What do you consider sustainable behavior of tourists in nature areas/preserves?	<ul style="list-style-type: none"> choosing to travel during off-season is sustainable behavior 	<ul style="list-style-type: none"> decisive criteria for choice of vacation 	<ul style="list-style-type: none"> Sustainable tourism behavior
9. Are you subject to any governmental	<ul style="list-style-type: none"> organizations working to protect 	<ul style="list-style-type: none"> Measures Tourist behavior 	<ul style="list-style-type: none"> Obligatory measures

<p>requirements regarding touristic behavior in nature preserves?</p>	<p>nature preservation</p> <ul style="list-style-type: none"> ▪ measures in place to improve tourist behavior 		
<p>10. What aspects in terms of sustainability did you include in your strategy?</p>	<ul style="list-style-type: none"> ▪ extending traditional tourist season ▪ bringing money all year round ▪ local economies ▪ positive economic sustainability impact ▪ year-round income ▪ jobs ▪ improving business stability ▪ job security ▪ reducing migration ▪ spreading the numbers of visitors ▪ less disruption for the local communities/ environment ▪ experiences that are in line with the sustainable ethos ▪ cycling, walking activities 	<ul style="list-style-type: none"> ▪ season extension ▪ locals ▪ economical sustainability ▪ jobs ▪ visitor distribution ▪ activities 	<ul style="list-style-type: none"> ▪ strategic aspects regarding sustainability

	<ul style="list-style-type: none"> ▪ activities promoting local produce ▪ conservation activities 		
11. To what extent does the aspect of sustainability go beyond the products you offer (e. g. accessibility, customer arrival, etc.)?	<ul style="list-style-type: none"> ▪ great selection of wheelchair friendly and sensory rich experiences ▪ photography more inclusive 	<ul style="list-style-type: none"> ▪ accessibility ▪ Inclusion 	<ul style="list-style-type: none"> ▪ Inclusion
12. Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?	<ul style="list-style-type: none"> ▪ believe ▪ growing trend ▪ increased national appeal ▪ Dark Sky Parks ▪ out-of-season festivals of star-gazing and nocturnal outdoor events ▪ Climate change ▪ more env-conscious ▪ env-friendly ▪ encouraging visitors to think about light pollution ▪ covid-19 ▪ well-being ▪ re-connecting with nature ▪ disconnect from technology 	<ul style="list-style-type: none"> ▪ events ▪ Climate change ▪ awareness ▪ covid-19 	<ul style="list-style-type: none"> ▪ Prospect

Interview E:

Interview 17.10.2022 – Denmark

Interviewer: If you would like you can quickly maybe introduce yourself as well.

Interviewee: Yes, yes, yes, I would (laughs) OK I'm really not a professional person in this field but I am retired from my work and I'm living in Ribe at the mainland, but we have a house on the island Mandø and we are what we're calling spare time islanders (laughs).

Interviewer: Ah ok (laughs).

Interviewee: Yes, and on Mandø there's only living 30 people, but we are great numbers of this spare time Islanders coming mostly from the mainland around Mandø. In Ribe a lot of us are living and we have a house where we can come all year round and a lot of people. I think we are about we, we used to say about 100 spare time Islanders coming taking part in everything helping the locals ehm example this week cause now it's a (thinks) It's a holiday week in Denmark this week and a lot of us are going there and taking part and having meetings about everything on the island developing the island and example this Saturday, two times a year we gathered all together and cleaning the island, cleaning our plane ground our camping place and so and we will be about 100 people, helping each other. Having a lovely time, we do that twice a year and people are always when something have to we have to take care of our mill. We have an old mill and people are coming together every month. One day in a month and helping each other with that and we are on Mandø now we are trying to be a Dark Sky Park and then yeah, it was starting from our municipality, and the Waddensea National Park.

Interviewer: Mm-hmm.

Interviewee: And then on Mandø we have a local council from locals and some of us coming from the mainland and we thought that would be a great idea to take care of our dark. We haven't thought that much about it. We have always

had the dark (laughs) yes. No. Thinking so much about it just the (laughs) Like yes, um, but but uh now we can see we have the problem with uh. We have tourists coming. Many lots of tourists coming during the summer, but now from now and until Easter there will be not that much tourists and if we could make something during the winter.

Interviewer: Mm-hmm.

Interviewee: The we have a little cafe and a restaurant and little grocery on the island and it very important for us to to be to take care of that and (thinks) So if we could have some tourists coming all year around that would be very important for the island. And if we could use what we have (laughs) our darkness that would be great, so we gathered some people we were six persons having little course 3 evenings talking about the stars and the star constellations. And based on that we were talking about if we could make some waiting for to get the dark sky ehm Ohh, what do I call? It we have asked for being a Dark Sky Park, but we're not yet there.

Interviewer: Yeah.

Interviewee: And but we could start our star guides tours for tourists and but the three evenings was of course, not enough (laughs). So we are two people. My partner Leif has been interested in the universe and the stars for many years I'm just beginning. But I read a lot and yes. But taking some other courses and um. We we're doing it that way that I take a there's three parts in my when I having a dark Sky Tour. One is talking about Mandø living, how is it to live on the island and the darkness and what we're doing to protect the darkness and the locals. We have made a plan with the municipality uh. About our um our lights outside. Like uh lights at the houses and uh on our little there's only a little town. (laughs) Of course, and then there's not so much light, but what we have made it even darker.

Interviewer: Ah okay that's good.

Interviewee: And I will talk about that and I'll and why and how we are trying to be a dark sky park. Then I will talk about the universe, the sun. The planets and so on, and I will talk about the star constellations and some old stories, myths about the constellations.

Interviewer: And for how long have you already been offering these tours?

Interviewee: Um we started 1 1/2 years ago but until now, I only had four tours, and my partner Leif has one so we're not that professional, yet (laughs), but I hope it'll come and this week we're going to Mandø in a few hours now and staying a week and I have pronounced 2 evenings this week, so we will see.

Interviewer: Yeah.

Interviewee: But of course, the Mandø is I don't know if you know Mandø at all. You don't, no?

Interviewer: I just saw it on the map, but otherwise, I haven't heard of it yet.

Interviewee: (Laughs) No no of course, not, it's so, so small you can't there. There's not a driving way to Mandø. And in the older days, you could only drive at the at the sea at the Sea Bank. And very few hours in the day, but now we can, we have had a new way, but twice a day you can't drive to and from Mandø and that depends on the tide when the tide is in and out. You have to plan it yes and example yesterday you couldn't drive the whole day because it was blowing the wind. The wind was heavy. So it's a we have to plan it very much and of course, when you're looking at the stars you it had to be clear sky (laughs). So it depends on can you come to Mandø and how clear is the sky. But yes but we're not we, we want to catch the people that already are on the island

Interviewer: OK. Yeah.

Interviewee: Yes, and we hope to help the café, the restaurant and the store too so that our tourists coming having a day on Mandø, eating there, looking at

the star with us in the evening being there sleeping and having another day, we, we don't want to take people from the mainland driving the 8 kilometers to the island looking one hour and the stars and going back again.

Interviewer: Yeah no I get that.

Interviewee: And that's a Yes. We are a bit afraid that our just on the mainland we have our big Waddensea Center we have a big center, nature center and I think no I know they are going to make star guide um tours too and we are afraid on the island that that will mean they come there on the mainland put them into a bus driving them 8 kilometers looking at the stars and going back again and that will do nothing good for Mandø (laughs). So that's why we are with the local um council we are, we are trying to have people few days, not only a few hours, but some days on Mandø and then we could catch them on the evening that's a the background.

Interviewer: Yeah (laughs)

Interviewee: And we are just waiting for this dark Sky Park and I can't find the word and the what you call it no doesn't matter (laughs). Yes, and, yes, that's why I'm I think it's so interesting with the universe and the stars and so on, and yes.

Interviewer: Yeah, it's very interesting.

Interviewee: Yes.

Interviewer: Yeah, and so it's you said many people who are already on the island but now with the few tours you had, did you already see more tourists coming or is it not seeable yet from these few tours?

Interviewee: Yes, I think it is uh my partner has uh guided a tour four months ago and that were people were calling him from the mainland, saying ohh we would like to have a dark Sky tour is that possible. And I have people asking

here at the mainland when will the next Dark sky tour go on so so I think it yes and at Mandø, we, we do a lot with uh municipality and uh waddensea. Uh National Park to make it a better place for the birds and that's (thinks) yes to get more uh tourists to the island. So I think the yes, it will be its upcoming and when we get the certification that was the word yes (laughs) um I think we will have a lot. A lot to do, and that's why we are beginning this morning and hoping to get some experience to say Yes, we can do it and we don't need to be to have a long education in Astronome, you know what I mean,

Interviewer: Astronomy yes

Interviewee: Yes, astronomy, but yes, I'm just a teacher (laughs)and it's interesting in the universe.

Interviewer: How long does it take to get the certification for being a dark sky park?

Interviewee: Ohh (laughs) we don't know we have been waiting for three years I think yes. And when we say yes. Now we have it. And yes, and we have the best we have in the darkness have been, we're trying to see how Dark is it and it is one of the darkest place in Denmark. So that's why we said yes. Of course, we would get it. The municipality has um has talked to the um, next to Mandø on the other side of the Waddensee we have Esbjerg the big city and at the harbor there's a lot of light, but they have discussed with the municipality to make it um not so bright like yes. So it's really a great place to look at the stars so when we get the oh I forget it. Certification yes (laughs), I think we will that would be run fast. Yes, I think so. We have talked we have been visiting there is another dark Sky Park in Denmark at Møn next to um south from Copenhagen and a little island there and we have been there and this, this summer, talking to them and they told us they just run over when they get the certification so we just wait to get run (laughs).

Interviewer: Yeah and from the tourists who are with you on the tours, what kind of feedback have you received from them?

Interviewee: Yes, great received yes (laughs) and yes, they are saying wow. We didn't know and I have had some locals with me too. And they say wow. We didn't know that and that we just been looking at the sky and said wow, but now we learned something about it and that's great and I can tell people well now we see this star constellation. If you come in half year there's another and we can talk about another one and the yes (laughs) Getting some question moves.

Interviewer: (laughs) Yeah.

Interviewee: And yes, and then one day I met some of the people who were on my tour last summer and there's a couple coming from north in ... and they say do you have a tour this evening or tomorrow because last year it was a really good experience. Wow! I said (laughs) so I think they yes, it works.

Interviewer: That's great.

Interviewee: And yes, and now we have uh we have from our local council. We have got some Oculars Small one cause only will a little one as you were in the nature. You could see a lot of more when you look up at the stars. You don't need a big, big I have a big Star Ocular, but it's too difficult when you are having 10 people around you. That's um but the small oculars is great and we've they have giving something someone to us say yes because of course, our local council interested in doing it this way, having the people on the island and not people driving from the mainland. So we hope. Yes, they have given us a UV pencil to point at the stars and so on, so they are yes. They are supporting us.

Interviewer: That's, that's really good that they are supporting you.

Interviewee: Yes, but but we need some more I think it's not enough being two. I think we have to be more people. So we can see? Yes, tonight, I as a it's only a few, 1 1/2 hour and uh of course, my partner Leif and I we can't have it every evening.

Interviewer: Yeah, no.

Interviewee: Yes, so we need more people.

Interviewer: Yes um and we talked about that. You already said something about like the tourists and protecting also the area for the birds and all that and if you think now about the tourist coming or the people joining your tours how what would you consider a sustainable behaviour of them when going with you on the tours. What do you expect from them kind of how they behave?

Interviewee: Hmm. (thinks) Well, when when you come to Mandø we have uh we have um written a code of conduct.

Interviewer: OK mm-hmm.

Interviewee: Uh yes and one of them is taking care of the dark um and when we meet with our guests, on tours we told them to to turn off their phones (laughs) and we yes so we are talking about uh taking care of the dark and they are they are doing what I asked them to. (laughs) They are not. They are going with it and they're stuck and the yes, so I say I will take care you just go next to me. (laughs) so they are doing it and I think they when you come to Mandø you are just overwhelmed of the nature so you just take care automatically yes I think so

Interviewer: OK, that's good.

Interviewee: Yes that's ohh yes. I think so, yes, I haven't experimented anything else.

Interviewer: OK, that is good that they do what you say (laughs)

Interviewee: (laughs) Yes.

Interviewer: And then yeah, um now that you've just started, to what extent does the aspect of sustainability goes beyond the tours, so I mean it's kind of

what you said with the people coming to the island that you don't want them to drive all the way.

Interviewee: Umm no

Interviewer: But like do you have an influence on this? so I mean you can't say no you can't come to the island but um (laughs)

Interviewee: Yes, I think we are, we are **talking about planning tours together with the cafe** come yes come and eat here and I'll pick you up there and we'll **go to town** and **out in the dark** so **making a tourist package** well. I don't know what you call it yeah, and so making it easy for the tourists and uh telling them yes **you're getting something more than just looking at the stars.**

Interviewer: Yeah.

Interviewee: And we have, we have had an I had contact with three uh students from Kolding. I think perhaps the same you are studying or yes from international tourism and we were having, they were at the island three days and they were making the **event, the dining in the dark, dining outside** and

Interviewer: Yeah, I think I read about that.

Interviewee: Oh yes, OK and then some of the **locals** were eating with us and Kyne who has a cafe on there and Kyne, said yes we could do that, if you want to so, so we're thinking about what can we do to **make something else than just going for a walk.** Yes, could we do it well, eating and could we make some we will take care of come to the island eat at Kynes Cafe have a dark Sky to what we will **take care of reservation where you'll stay** and so on, it, it could be **all together**

Interviewer: Yes.

Interviewee: Yes, because I think many people in Denmark don't know Mandø and are afraid of what whoa is there something can, we get something to eat can, we sleep there? How do we get there and so on? And if we could make a? Yes, I think that would be yes but we need someone to help us (laughs)

Interviewer: Yeah (laughs). Umm are you doing, much in terms of marketing?

Interviewee: No (laughs)

Interviewer: Because when you say, Well, a lot of people don't know Mandø if or is it not yet?

Interviewee: No um (laughs) and well, we, we are trying. But yes, I have made a Facebook profile, but just just to make sure that no one else took Mandø Dark Sky (laughs) yes and so we once a month, we send from the local council we, they send a mail to all their members and people coming to Mandø, but that's the **people who know Mandø**, but there is we will say. Hey, this, this week we will have two star tours come and join and we'll put it on Facebook and Kyne at the I will put yes make yes, I don't know how to say, tell her, her guests and, yes, and at our store we will put an announcement too, but **we're not that professional that we could** (laughs).

Interviewer: Yeah no I understand (laughs)

Interviewee: Yes and and we know that the um **Waddensea centre** of course have their yes and that's will be **difficult for us**, too, but they're not they are not started yet so we try (laughs).

Interviewer: But,

Interviewee: Yes, and we have yes oh sorry

Interviewer: no go on I didn't want to interrupt you.

Interviewee: Yeah, yes and we'll have talked about could we make an **partnership** with them but unfortunately **they don't use local people** and so I think **they will have to say No**, you're not going to the university you can't talk about yes. We I'm **afraid** that would be so we have to say no **but we know something about living at the island and we could talk about something else** and yes.

Interviewer: Yeah, that was exactly what I wanted to ask if you what about the partnership, but then yes, I understand that. Yeah um, I believe we already are at my last question.

Interviewee: Yes, OK (laughs)

Interviewer: Yes, um. I mean, it's you kind of mentioned that already but what do you think will be the future trend for Dark Sky tourism products do you think it's going to be a positive development that it's going to get more attention and it's getting more popular around tourists?

Interviewee: Yes, I think about the **darkness and protecting the darkness** that would be that's an **upcoming theme**.

Interviewer: Yeah.

Interviewee: **Yes**, and then and I think people we can, in Denmark and I think all over the world perhaps we are getting we want to **get closer to nature** and more of more people, luckily are like no, we have to **protect our nature**, so I think it will be **more common** and we will **get more and more tourists learning about darkness** and why we have to yeah, project that Uh when you are in a plane you could see lights all around and, yes, we have to take care, we on and we are talking on Mandø, on our tours we're talking about the birds who need to, they are hunting at the night. We have to take care. And I don't think it's good for our health uh if if we don't think about darkness. Today you can go and uh you could uh if you want something at the store you could go all day long. You could go in the night. They just put the light on and we are working all day

Interviewer: Mm-hmm.

Interviewee: All day night long with your turn the **Light**. Yes, and **that's a problem** and **we have to think about it and do something about it** and I think people will come and say OK. I haven't thought about that? Yes, I hope (laughs)

Interviewer: Yeah, but I think it will come more and more that people because they they care about nature more and more now, so I think it's actually becoming more popular to protect it and to see what they can do to help as well. Yeah.

Interviewee: Yeah. Yes on one of my tours. I have **some two local young people** who said yes, well, we'll try to hear and **they were astonished, said wow**. We didn't know that. So that's great **we have to uh catch the young people** (laugh).

Interviewer: (Laughs) yeah that's true.

Interviewee: Yes yes.

Interviewer: Are there mainly? Can you see like an age group within your tours? Is it mainly uh younger people or?

Interviewee: Umm (thinks) No no it's **People Yeah, my age** and I had some uh mother coming to the island two days she was staying with her two grown up boys and she said. Well, I have to and the one of them knew a lot about your universe and so, so she said I invited them to come to Mandø and we are having this together. But I think it will be mostly people around **middle in the life** I think.

Interviewer: OK. Yeah.

Interviewee: Yes, but I haven't uh I've been asking if I could make a tour for some children and I would like to. I have practiced on my own grandchildren and that was a great experience. Every night when we are together I say, Yeah wasn't that the star called that and wasn't that that and so on yes (laughs)

Interviewer: That's that's great. Yeah. And I think it's good already to teach it to the children how to protect nature and

Interviewee: Yes, yes. And I just uh wonder why, why don't we talk about that?

Interviewer: Yeah.

Interviewee: Just now you can see the Big Planet Jupiter. Why don't we say to our children every night we go out wow look at that it's not a bright star. No, it's a planet yes.

Interviewer: Yeah. Very very interesting, I have to say.

Interviewee: Yes, yes, I think so, too (laughs).

Interviewee: (Laughs) So yes I think I've told you everything. And if there is anything else, you can always text me.

Interviewer: Yes, great thank you. Well, I'm just gonna stop recording here.

Coding matrix – Interview E

Interview Questions	Open Coding	Axial Coding	Selective Coding
<p>1. For how long have you been offering Dark Sky Tourism products? → Reason for starting it?</p>	<ul style="list-style-type: none"> ▪ 1 ½ years ago ▪ Four tours ▪ My partner had one ▪ Many tourists during summer ▪ Make something during the winter ▪ Tourists coming all year around ▪ Get more tourists ▪ Important for the island ▪ Use what we have ▪ Darkness ▪ Interested in universe ▪ Stars ▪ Help the café, restaurant, and store ▪ Not a driving way to Mando ▪ Depends on tide ▪ Plan it ▪ Clear sky ▪ Catch the people that already are on the island ▪ Have people few days not only a few hours ▪ Make it a better place for the birds 	<ul style="list-style-type: none"> ▪ Extension of tourism season ▪ Nature product 	<ul style="list-style-type: none"> ▪ Reasons for offering
<p>2. What kind of Dark Sky</p>	<ul style="list-style-type: none"> ▪ Star guided tours 	<ul style="list-style-type: none"> ▪ Product ▪ Content 	<ul style="list-style-type: none"> ▪ Kind of product

<p>Tourism-related products do you offer to tourists?</p>	<ul style="list-style-type: none"> ▪ Dark Sky tour ▪ Mandø living island ▪ Darkness ▪ Protect the darkness and the locals ▪ Darker ▪ Why and how we are trying to be a dark sky park ▪ Universe ▪ Sun ▪ Planets ▪ Star constellations ▪ Myths about the constellations 	<ul style="list-style-type: none"> ▪ nature 	
<p>3. Have you been working in partnerships?</p>	<ul style="list-style-type: none"> ▪ cafe ▪ Municipality ▪ Waddensea National Park ▪ Local council from locals ▪ Local council ▪ Got some oculars ▪ Our local council is interested in doing it this way, having the people on the island and not people driving from the mainland ▪ They have given us a UV pencil to point at the stars ▪ They are supporting us ▪ Municipality talked to the harbor ▪ Discussed with the municipality to make it not so dark ▪ Nature center on the mainland 	<ul style="list-style-type: none"> ▪ Partners ▪ Advantages ▪ Obstacles 	<ul style="list-style-type: none"> ▪ Partnerships and the related aspects

	<ul style="list-style-type: none"> They don't use local people They will say no Afraid Difficult for us 		
4. Who is your main target group?	<ul style="list-style-type: none"> People my age Middle in the life People who know Mando 	<ul style="list-style-type: none"> Target group 	<ul style="list-style-type: none"> Target group
5. With the implementation of Dark Sky tourism-related products, did you attract new types of target groups?	<ul style="list-style-type: none"> Yes People calling from the mainland People asking here at the mainland It's upcoming Some two local young people 	<ul style="list-style-type: none"> Location Age 	<ul style="list-style-type: none"> Types of target groups
6. What kinds of feedback have you received from customers?	<ul style="list-style-type: none"> Great received Saying wow Learned something A really good experience They were astonished Said wow Overwhelmed of the nature 	<ul style="list-style-type: none"> Positive feedback Reactions 	<ul style="list-style-type: none"> Feedback
7. To what extent did implementing Dark Sky tourism in your destination affect the local economy and communities? (e. g. extension of tourism season, opinions of inhabitants)	<ul style="list-style-type: none"> Only 1 ½ years and a couple of tours Not professional yet 		
8. What do you consider as sustainable behavior of tourists in nature areas/preserves?	<ul style="list-style-type: none"> Written code of conduct Taking care of the dark Turn off their phones Taking care of the dark 	<ul style="list-style-type: none"> Measures 	<ul style="list-style-type: none"> Measures of sustainable tourist behavior

	<ul style="list-style-type: none"> ▪ They are doing what I asked them to ▪ Take care ▪ You just go next to me ▪ Overwhelmed of the nature so you take care ▪ Catch the people that already are on the island 		
9. Are you subject to any governmental requirements regarding touristic behavior in nature preserves?	<ul style="list-style-type: none"> ▪ municipality 	<ul style="list-style-type: none"> ▪ institution 	<ul style="list-style-type: none"> ▪ Governmental requirements
10. What aspects in terms of sustainability did you include in your strategy?	<ul style="list-style-type: none"> ▪ Locals ▪ Protect the darkness and the locals ▪ Catch the people that already are on the island ▪ Help the café, the restaurant, and the store ▪ Make it a better place for the birds ▪ not that professional ▪ talk about what we're doing to protect the darkness and the locals ▪ they have discussed with the municipality to make it um not so bright 	<ul style="list-style-type: none"> ▪ Nature ▪ Locals ▪ Local economy 	<ul style="list-style-type: none"> ▪ Aspects of sustainability in strategy
11. To what extent does the aspect of sustainability go beyond the	<ul style="list-style-type: none"> ▪ Talking about planning tours together with the café ▪ Go to town 	<ul style="list-style-type: none"> ▪ Product package ▪ Local economy 	<ul style="list-style-type: none"> ▪ Sustainable aspects beyond product itself

<p>products you offer?</p>	<ul style="list-style-type: none"> ▪ Out in the dark ▪ Make a tourism package ▪ Getting something more than just looking at the stars ▪ Have people few days, not only a few hours ▪ Event, dining outside ▪ Locals ▪ Help the café ▪ Sleeping and having another day 		
<p>12. Based on your experience with the Dark Sky tourism product, what is your expectation with this for the future? Will it be a growing trend?</p>	<ul style="list-style-type: none"> ▪ Yes ▪ Darkness and protecting the darkness ▪ Upcoming theme ▪ Get closer to nature ▪ Protect our nature ▪ Gets more common ▪ Get more and more tourists ▪ Learning about darkness 	<ul style="list-style-type: none"> ▪ Positive trend ▪ Nature 	<ul style="list-style-type: none"> ▪ Trend

Interview F (in German):

Interview in written form – Germany

Interviewer: Seit wann bieten Sie Dark Sky Tourism-Produkte an?

Interviewee: Seit 2021

Interviewer: Welche Art von Dark Sky Tourism-Produkten bieten Sie Touristen an?

Interviewee: Sternen-Vorträge und Wanderungen sowie Infrastrukturen mit Informationen zum Sternegucken.

Interviewer: Haben Sie in Partnerschaften gearbeitet?

Interviewee: Ja, gemeinsam mit dem **Nationalparkhaus Wittbülten** und der **Gemeinde Spiekeroog**

Interviewer: Wer ist Ihre Hauptzielgruppe?

Interviewee: **Naturverbundene Gäste** sowie **Astronomie-Interessierte** (in Verbindung zur **Sterneninsel**)

Interviewer: Haben Sie mit der Einführung von Dark-Sky-Tourismus-Produkten neue Zielgruppen erschlossen?

Interviewee: **Zum Teil ja.**

Interviewer: Welches Feedback haben Sie von Ihren Kunden erhalten?

Interviewee: **Meist sehr positive Äußerungen**, es gilt allerdings die **Defizitliste abzarbeiten**. **Optimieren** hinsichtlich der **Leuchtmittel Reduktion** sind nötig, um die von der Sterneninsel angesprochenen **Erwartungen** zu **erfüllen**.

Interviewer: Inwieweit hat die Einführung von Dark-Sky-Tourismus in dieser Destination die lokale Wirtschaft und die Gemeinden beeinflusst (z.B. Verlängerung der Tourismussaison, Meinungen der Einwohner)?

Interviewee: Das Projekt kommt durchweg **positiv bei den Insulanern an**, eine **Verlängerung der Tourismus-Saison konnte bislang nicht erreicht werden**. **Potential nach oben ist vorhanden.**

Interviewer: Was betrachten Sie als nachhaltiges Verhalten von Touristen in Naturgebieten/ Schutzgebieten?

Interviewee: **Die Schutzzonen zu beachten und sich achtsam in der Natur zu verhalten. (Müll, Wildtiere,...)**

Interviewer: Unterliegen Sie irgendwelchen behördlichen Auflagen bezüglich des touristischen Verhaltens in Schutzgebieten?

Interviewee: Ja, dem des Nationalparks.

Interviewer: Welche Nachhaltigkeitsaspekte haben Sie in Ihre Strategie aufgenommen?

Interviewee:

Wir haben für die Insel ein ausführliches Nachhaltigkeitskonzept vorliegen, welches sukzessive abgearbeitet wird.

Interviewer: Inwieweit geht der Nachhaltigkeitsaspekt über die von Ihnen angebotenen Produkte hinaus (z.B. Zugänglichkeit, Kundenankunft, etc.)?

Interviewee: Wir optimieren von der Ankunft über die Fähre bis hin zum Aufenthalt auf der Insel alle Prozesse, um sie möglichst nachhaltig zu gestalten. Dies allerdings unabhängig von dem Projekt Sterneninsel.

Interviewer: Was erwarten Sie aufgrund Ihrer Erfahrungen mit dem Dark-Sky-Tourismusprodukt für die Zukunft? Wird es ein wachsender Trend sein?

Interviewee: Die Begeisterung der Gäste ist groß und die Inhalte lassen sich hervorragend mit der Positionierung Spiekeroogs in Verbindung bringen. Wir werden daher das Thema Sterneninsel in Zukunft noch stärker thematisieren und die Veranstaltungsformate nochmals ausbauen.

Coding matrix – Interview F

Interview Questions	Open Coding	Axial Coding	Selective Coding
1. For how long have you been offering Dark Sky tourism products? → Reason for starting it	<ul style="list-style-type: none"> ▪ Since 2021 	<ul style="list-style-type: none"> ▪ Temporal design 	<ul style="list-style-type: none"> ▪ Experiences with Dark Sky Tourism
2. What kinds of dark sky related products do you offer to tourists?	<ul style="list-style-type: none"> ▪ star lectures ▪ star walks ▪ infrastructures with given information about stargazing 	<ul style="list-style-type: none"> ▪ Star related products 	<ul style="list-style-type: none"> ▪ Product range
3. Have you been working in partnerships?	<ul style="list-style-type: none"> ▪ with the Nationalparkh aus Wittbülten ▪ community of Spiekeroog 	<ul style="list-style-type: none"> ▪ Different kinds of working in partnerships 	<ul style="list-style-type: none"> ▪ Partnerships
4. Who is your main target group?	<ul style="list-style-type: none"> ▪ Nature-loving guests ▪ People interested in astronomy (in connection with Star Island) 	<ul style="list-style-type: none"> ▪ Different kinds of guests 	<ul style="list-style-type: none"> ▪ Main target group
5. Did you attract new types of target groups with the implementation of Dark Sky tourism related products?	<ul style="list-style-type: none"> ▪ partly yes 	<ul style="list-style-type: none"> ▪ The attractiveness of new types of target groups 	<ul style="list-style-type: none"> ▪ Expansion of target group
6. What kinds of feedback have you received from customers?	<ul style="list-style-type: none"> ▪ Mostly very positive expressions ▪ improving deficits 	<ul style="list-style-type: none"> ▪ Positive feedback with improvements and optimization 	<ul style="list-style-type: none"> ▪ Feedback from customers

	<ul style="list-style-type: none"> optimization in terms of light source reduction (to meet expectations raised by Star Island) 		
7. To what extent did implementing Dark Sky tourism in your destination affect the local economy and communities? (e. g. extension of tourism season, opinions of inhabitants)	<ul style="list-style-type: none"> good feedback from the islanders an extension of the tourism season has not yet been achieved upward potential 	<ul style="list-style-type: none"> Good acceptance by the residents potential for improvement (extension of the tourism season) 	<ul style="list-style-type: none"> Impact of Dark Sky Tourism in the Destination
8. What do you consider as sustainable behavior of tourists in nature areas/preserves?	<ul style="list-style-type: none"> to respect the protected areas to be mindful of nature (litter, wildlife, etc.) 	<ul style="list-style-type: none"> Respect and Attention in nature preserves 	<ul style="list-style-type: none"> Consideration on sustainable behavior of tourists
9. Are you subject to any governmental requirements regarding touristic behavior in nature preserves?	<ul style="list-style-type: none"> yes, subject the official requirements of the National Park 	<ul style="list-style-type: none"> Official Requirements of the National Park (regarding touristic behavior in nature preserves) 	<ul style="list-style-type: none"> Governmental Requirements
10. What aspects in terms of sustainability did you include in your strategy?	<ul style="list-style-type: none"> detailed sustainability concept for the island (successively worked through) 	<ul style="list-style-type: none"> Sustainability Concept for the island 	<ul style="list-style-type: none"> Included aspects in terms of sustainability

<p>11. To what extent does the aspect of sustainability go beyond the products you offer? (e. g. accessibility, customer arrival)</p>	<ul style="list-style-type: none"> ▪ optimizing all processes from arrival to the ferry to the stay on the island (in consideration of sustainability) ▪ independent from the Project “Sterneninsel” 	<ul style="list-style-type: none"> ▪ Optimizing processes from arrival to the stay (in consideration of sustainability) 	<ul style="list-style-type: none"> ▪ Aspects of sustainability
<p>12. How do you assess the influence on sector specific SMEs through nature friendly tourism (such as Dark Sky tourism) in the future?</p>	<ul style="list-style-type: none"> ▪ great enthusiasm of the guests ▪ excellently linking the content with the positioning of Spiekeroog ▪ focus even more on the theme of Star Island in the future ▪ expanding the event formats once again 	<ul style="list-style-type: none"> ▪ Expansion of the “Sterneninsel” and the event formats 	<ul style="list-style-type: none"> ▪ Prospects

Interview G:

Interview 21.10.2022 – Norway

Interviewer: OK. Yeah, because the first questions that we usually ask is about the experience. But of course, you don't have any experience yet. But that's why I wanted to ask, have you thought about implementing Dark Sky tourism products and if yes, what kinds?

Interviewee: Hmm. Yes. Um, we've just started this year to exploring the opportunities and the interest among our partners regarding dark Sky. And so we've had new workshops. One in last winter and then one this autumn. Um, and it was connected to a light project, because we're also looking on how to reduce light pollution and also how to make a strategic lightning plan for the village of Gueranger. So we had, as I said, just uh very briefly workshops and have started just briefly with discussions with partners if there's an interest and what could be possible dark sky tourism product here in our village.

We've talked about maybe using the **roof of the hotels** as a possibility for **stargazing**. Uh, **dark sky experience**. Uh and we also talked about maybe using the signing **boat to go out in the fjord** where it's **completely dark**. There's nothing going on out there. And then you could turn off the engine and everything and then you could have a really, really special dark sky experience on the **World Heritage fjord**. That's just some of the ideas that we are discussing, but nothing formalized. Or put in action we need more. I don't know. I think **we need more enthusiasm among the businesses**, because some of them are a little bit odd. I think it's the **market**, it's too small or it's too narrow and of course the problems with the **bad weather**? How do we solve that and everything. When or if we're going to develop these products, we need to have also some **alternatives**. What do we do when it's bad weather?

Interviewer: Yeah, sure. Yeah. There's no guarantee that the weather is always good. That's something we talked about as a group too.

Interviewee: Yeah. And I think for some of the **inhabitants** here, I think they are more **into having more lights instead of reducing** lights actually. So I don't think they quite yet see that they actually have this great opportunity, because the rest of the world is lacking dark sky. Uh and we have a lot of it. So I think we need to work with the mental thing. The people. How you see **your advantages** because people here want to have more light because **they feel unsafe during winter** when it's too little lights on and the street lights are not working and stuff so they are always screaming for more lights. But I think we need also to work on how to **conserve the darkness** so that we don't do mistakes along the way and miss the opportunity to be a dark sky destination, for example, if that possibility comes. So that's why we have this **strategic plan**, Lightning plan as very important tool as well. So, but we need to **work more on working with a lot of awareness**. So it will take some time I think before we are ready.

Interviewer: Yeah, that's interesting too because like the idea is fair. But of course, it's not that easy to implement, right? You have to consider a lot of aspects. You talked about partnerships and that's actually something we are interested in as well. So when you talk about partnerships, is it more that you are talking about smaller SME's like for example as you mentioned the hotels, would each hotel be a partner then?

Interviewee: Yeah, because **we already have a partnership which we called the Greenfield Partnership, which we used to work towards sustainable tourism**. And then the **sustainable development of the site World Heritage site**. So we are a **nonprofit organization which works then towards businesses**. We work **towards land owners, towards the volunteers** and everything. So we try to **make everyone work in a more sustainable way** and I think this partnership would also be ideal to use and kind of. Fox Sky initiative. So **not every hotel or every business would be interested** because some of them really actually **closed down during winter** and they're not opened and they're **not interested in being open**.

Interviewer: So seasonality is also a big topic?

Interviewee: It's a **big topic** because we are a **traditional summer destination** and only a few hotel and restaurants yeah, uh, both companies are actually commercial businesses. So we need so, so I think if we're going to do a partnership within the Greenfield partnership, I think we have to **select those partners that are interested** and then have to see what can we do together to enlighten this opportunity.

Interviewer: OK, of course! You also talked about the locals as they might be afraid of the dark and stuff, but what do you think, how can they benefit from implementing dark sky tourism products?

Interviewee: We've talked about maybe **starting with the local inhabitants**, actually, before we start to just think, "oh, this could be a **commercial product**" or whatever. We might just **develop the experience for the local inhabitants first**. Make an **event** for them. Uh, make be maybe a **stargazing event**. Maybe we can have a **corporation** where **several businesses turn off their lights** and then they see, **experience it and enjoy it** and maybe have a **lecture on it** or something. Uh, **inspirational talks** maybe. So I think that's the way to go. First it needs some **awareness**. They need to **open their eyes** to see what they actually have.

Interviewer: Sure that's a good idea. Like once they see what potential there is, they might be open for it.

Interviewee: Yes and then they might see this is what the tourists could be interested in or this could maybe be a **business idea for me**. I think that's the way to go. **Jobs** and the **restaurants would be more filled** and stuff.

Interviewer: Yeah, that's actually a good idea. We haven't heard anything like that yet that they started with the inhabitants. And then of course the the big topic that is on top of all of this, and you mentioned it already as well, is sustainability. Mainly we are focusing on the planet pillar, as of course mostly this experience has happened in nature preserves or at least in nature areas. And so of course we are interested in if you implement dark sky tourism products, how would you make sure that nature is not harmed and that tourists behave sustainable in those areas?

Interviewee: I think we will mainly develop the business product **outside the protected landscape area**. We will not be in the **protected landscape area** at all. We will **concentrate it within the village area** and that's all **outside the protected landscape area**. The only thing that could be interested within the protected landscape area would be the **boat** if you go into the **Fiord area** with a local sizing boat, but that's like an **ordinary traffic**. So that's it. It's **not going to harm any wildlife** or anything because the fjord is pretty wide and it will be not on the land, it will be only on the boat. So I think that will be very, **very safe** thing to do and of course our **World Heritage Area** has now very strict regulations on the **fjord**. So towards 2026 or after 2026 there will be **only 0 emission boats allowed** into the area. So that means also that the traffic itself or that the transport itself out to the **protected landscape area** will be **0 emission** and **sound free**. So I think that also is a benefit for the **dark sky** and

nature preservation. So I think that's a very important issue because um we don't want to have a new commercial activity within the protected landscape area in the dark season. That's nothing we want to do.

Interviewer: Yeah, that's actually also one question we had and you already answered it like how does the government implement the whole process, for example, having regulations like this. But I think actually tourists are interested in in having zero emissions during their experiences as well. That's the target group, I guess.

Interviewee: Do you do any research on how large the market is for potential?

Interviewer: So the people that we are talking to are from Norway then, but there is no dark sky products yet. And then we are talking to people from Germany, the Netherlands, England and Denmark. Because this is the market yet basically and also there are the partners from our client. So there's a lot of potential and the people that we have talked to so far they are also saying that there is a lot more that they could do but of course there are different stones in their way. Not too many companies offer that yet. And of course also the the aim that we have is that sustainability is in the focus of the whole thing. And that's why I think also SME's are a little bit careful because of course it needs to be considered a lot more when you do the whole thing very sustainable.

Interviewee: Yeah, that's good, that's good.

Interviewer: OK. So basically I only have one or two last questions because the other ones don't really apply to you yet, but do you personally think that this whole dark sky tourism products will be a growing aspect in the future?

Interviewee: Yes, I strongly believe that when you look at all the light pollution have in on the planet and about I think over 90 or 98% or something the population of Europe are not able to see the dark skies. And also in the US, and that's pretty that's a lot of people. They haven't been aware of the dark. Dark sky. Many of them haven't even experienced dark sky at all. So I think the potential could be really, really huge. And we see that in northern Norway, the Northern Lights have grown as a tourism product. In 2019, the dark sky tourism, I think was from Lonely Planet, one of the big, big trends just before the pandemic. So it was announced as the the really big travel tourism trend was the dark sky tourism. And we've seen that in Norway with the Nordic lights, the dark sky Nordic lights experience and both all the northern counties in northern Norway and also small board of course have grown their tourism rapidly because of this, especially Northern Lights experiences. So I absolutely believe there's a huge possibility. But of course it's extremely important that we then also are protecting the nature and have the sustainability uh with us at the same time because we could potential damage a lot if we're not careful.

Interviewer: And then the consequence of not being careful would then be that the products in some time could not be offered anymore because if the place is not as it was, then you can't offer it anymore, right?

Interviewer: And you would have then people pollution or whatever. Too many tourists at once, which would reduce both the experience but also the product and also how also we like to live in these small villages as well. We are very careful about introducing new tourism products during winter without checking with the local inhabitants. We are checking "how do you feel about this? Is this OK or not", and we sense sometimes that because we are just a very large tourism destination during summer. So we sense that some of the population are, or local inhabitants are resistant because they are tired of the season, and they want to rest. We want to, we want to be alone during winter in practice, yeah. So it's not so easy because at the same time you need you need also economic sustainability and also for the local societies, if we're not able to create more jobs all year round within the tourism sector, then it's not sustainable. It's not sustainable to watch the village. So that's the big struggle. I think we need to have more some more tourism during winter so that we can create more whole year round jobs. Otherwise this village will not survive, or be sustainable.

Interviewer: But do you think that Dark Sky products could be implemented during the winter as well?

Interviewee: Yeah, yes, that's that's our main focus. We are hoping to implement some new projects during winter. If the local inhabitants will embrace it and the businesses will embrace it. I think it could be a possible tourism development. That would not be mass tourism, but it will be for smaller volume of tourism.

Interviewer: Well, that's a good thing, right?

Interviewee: Yeah, that's a good thing. Because we don't want the summer in the winter that we could not survive. It's too much. You need a break. So it's a balance. Yeah, it's it's a balance and it's a difficult balance. Of course it is. So yeah.

Interviewer: Well that was very interesting to hear all your thoughts and your plans. What do you think how long is it gonna take until the first products can be offered in your destination?

Interviewee: I'm hoping for maybe launching one or two products, maybe not this winter, but next winter.

Interviewer: Oh yeah, already. OK that's not far away anymore.

Interviewee: No, I'm hoping. But still it's. Yeah, we need to see how it goes. It wasn't like super enthusiastic the workshops we did. So they were like a little bit. We don't know if the market is big enough or we don't know if this is the right thing for us. So yeah, we'll have to see.

Interviewer: OK. And how, how big is your team with how many people are you working on this?

Interviewee: I'm the only one working with the Greenfield partnership or I have one which will also work on cultural events during winter. So that's also something we're trying to combine. We have a light art festival during the winter which is the opposite of dark sky. Then we enlightened the village, and we have light art, um as an attraction. So we have two people working on it, but the whole team is of 6 all year round.

Interviewer: All right, I will stop recording here, just to let you know.

Note: In this coding matrix the initial interview questions were not asked, as this organization doesn't offer dark sky tourism products yet.

Coding matrix – Interview G

Interview Questions	Open Coding	Axial Coding	Selective Coding
1. Have you thought about implementing Dark Sky tourism products and if yes, what kinds?	<ul style="list-style-type: none"> ▪ just started exploring the opportunities ▪ explore interest among partners ▪ workshops ▪ reduce light pollution ▪ strategic lightning plan for village ▪ possible dark sky tourism products ▪ roof of hotels ▪ stargazing ▪ dark sky experience ▪ boats on the fjords ▪ completely dark ▪ World Heritage ▪ more enthusiasm among businesses needed ▪ market (too small) ▪ bad weather alternatives ▪ inhabitants want more lights -> feel unsafe in the dark in winter ▪ conserve the darkness ▪ raise more awareness for topic 	<ul style="list-style-type: none"> ▪ Opportunities ▪ Mission ▪ Market ▪ Inhabitants ▪ Kinds of products 	<ul style="list-style-type: none"> ▪ Implementation approach

<p>2. What do you think about working in partnerships within this topic?</p>	<ul style="list-style-type: none"> ▪ already existing partnerships from previous projects to work with ▪ sustainable tourism ▪ sustainable development ▪ World Heritage site ▪ non-profit organization ▪ work towards businesses/landowners/volunteers ▪ more sustainable way ▪ partnership would be good ▪ roofs of hotels for stargazing ▪ not every hotel/business is interested ▪ some close down during winter ▪ not interested in being open in winter ▪ collect interested partners 	<ul style="list-style-type: none"> ▪ Partnerships ▪ Partners 	<ul style="list-style-type: none"> ▪ Partnership
<p>3. What role does seasonality play in this?</p>	<ul style="list-style-type: none"> ▪ big topic ▪ traditional summer destination 	<ul style="list-style-type: none"> ▪ Seasonality 	<ul style="list-style-type: none"> ▪ Seasonality
<p>4. How can the local inhabitants benefit from implementing dark sky</p>	<ul style="list-style-type: none"> ▪ develop the experience for the local inhabitants first 	<ul style="list-style-type: none"> ▪ Dealing with inhabitants ▪ Opportunities for inhabitants 	<ul style="list-style-type: none"> ▪ Inclusion of inhabitants

<p>tourism products?</p>	<ul style="list-style-type: none"> ▪ not just commercial product ▪ starting with local inhabitants ▪ event ▪ stargazing event ▪ corporation ▪ several businesses turn off their lights ▪ experience it ▪ enjoy it ▪ lecture on it ▪ Inspirational talks ▪ awareness ▪ open their eyes ▪ see potential ▪ business idea for locals ▪ Jobs ▪ More filled restaurants 	<ul style="list-style-type: none"> ▪ Introduction events 	
<p>5. If you implement dark sky tourism products, how would you make sure that nature is not harmed and that tourists behave sustainably in those areas?</p>	<ul style="list-style-type: none"> ▪ outside the protected landscape area ▪ within the village area ▪ boat ▪ fjord area ▪ ordinary traffic ▪ no harm for wildlife ▪ very safe ▪ World Heritage Area ▪ strict regulations on the fjord 	<ul style="list-style-type: none"> ▪ Place of action ▪ Governmental regulations ▪ World Heritage Area 	<ul style="list-style-type: none"> ▪ Sustainable behavior

	<ul style="list-style-type: none"> ▪ 0 emission boats only allowed ▪ sound free ▪ dark sky ▪ nature preservation ▪ no new commercial activity within the protected landscape areas 		
<p>6. Do you think dark sky tourism products will be a growing aspect in the future?</p>	<ul style="list-style-type: none"> ▪ strongly believe ▪ light pollution ▪ Europe ▪ not able to see dark skies ▪ no awareness of the dark ▪ not experienced darkness ▪ huge potential ▪ northern Norway ▪ Northern Lights ▪ big trend ▪ dark sky tourism ▪ grown their tourism rapidly ▪ Northern lights experience ▪ protecting nature ▪ sustainability ▪ damage ▪ careful ▪ people pollution ▪ too many people at once 	<ul style="list-style-type: none"> ▪ Feelings of local inhabitants ▪ Potential ▪ Measures ▪ Economic sustainability ▪ Project aims 	<ul style="list-style-type: none"> ▪ Prospect

	<ul style="list-style-type: none"> ▪ reduce experience, product, life quality of locals ▪ checking in with locals ▪ resistant/tired of season ▪ economic sustainability ▪ jobs all year round ▪ tourism sector ▪ more tourism during winter ▪ new projects during winter ▪ tourism development ▪ no mass tourism ▪ smaller volume 		
<p>7. How long is it going to take until the first dark sky products can be offered in your destination?</p>	<ul style="list-style-type: none"> ▪ One/two products ▪ Next winter (2023/2024) 		