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RESEARCH ARTICLES

The Potential of Disruptive Transport Infrastructure for Tourism Development in Emerging Island Destinations: Research Project in the Faroe Islands

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This qualitative research paper investigates the role of transport infrastructure for community and tourism development in emerging island destinations. The Faroe Islands, a trending tourism attraction, have lately become pioneers in subsea tunnel construction. Their innovative and avant-garde road system is replacing cross-sea ferry links and providing users with shorter travel times across the country, part of a national plan which aims to unite the entire archipelago under one main network. Local actors interviewed through ethnographic fieldwork convey that Faroese subsea tunnels are undisputable, active signs of infrastructure development and can potentially play a key role for the growth and prosperity of tourism across the islands. However, the findings also suggest that policymakers are underestimating the system's tourism potential. Overall, building underwater is expensive and time-consuming and presents opportunities as well as threats for the destination. This paper encourages Faroese authorities to consider tourism development as an inevitable phenomenon and a potential additional challenge for the small, vulnerable territory. In this context, governmental entities need to understand local dynamics and make the most of the unique features of the destination to create tailored and effective policies which allow the archipelago to benefit from its assets while minimising the risk of socio-economic and environmental issues.

Introduction

Insular tourism development

Islands and archipelagos are gaining worldwide interest and, in line with new trends in tourism, are increasingly seen as marketing opportunities (Agius et al., 2021). Demand for island tourism is "on the rise due to

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increased interest in the environment and in tranquil, less developed areas such as coastal settings which are still pristine for tourism purposes" (Agius et al., 2021, p. 149; Pine & Gilmore, 1999; United Nations Environment Programme, 2009). Insular tourism (also termed 'island tourism') can potentially contribute to islands' economic growth and employment generation, however overdependence and mismanagement can threaten cultural identity, nature, and wellbeing (Grilli et al., 2021). Indeed, the Faroe Islands have been described as vulnerable to social, ecological, and economic changes (Plieninger et al., 2018).

This paper shows that the national tourism industry of the Faroe Islands can constitute a threat as visitor arrivals are expected to flourish. Tourism flows have continuously increased in the past decade and were only slowed down by the COVID-19 pandemic (Hagstova Føroya, 2022). Local stakeholders believe tourism arrivals will rise steeply in the coming years (Bertolucci et al., 2021), with visitor numbers becoming ten times higher than the number of Faroese inhabitants (Statista, 2021). Bujosa Bestard and Nadal (2007) argue that growing pressure from tourism might be fatal for destinations and can cause issues like congestion, urban pressure, and pollution, with inevitable consequences on local flora and fauna. The current construction of transport infrastructures in the Faroe Islands is part of the *National Development Plan*, which aims to connect the remotest areas of the archipelago by road by 2030 (Johannesen, 2020). Data arising from the present research demonstrate that road networks support local communities and play a key role for tourism as well, since "the development of the hospitality sector depends on the available infrastructure" (Dalimunthe et al., 2020, p. 220). Bertolucci and colleagues (2021) underline the aims of Visit Faroe Islands (the official national tourist board) to spread tourists across the archipelago, however a specific tourism strategy related to the innovative national road system is lacking. Accordingly, this paper examines and emphasises the role of transport infrastructures for tourism development in emerging island destinations.

Area of study

The Faroe Islands are a small, archipelagic Nordic nation made of ancient volcanoes. This stretch of land between Scotland, Iceland, and Norway consists of 17 inhabited islands and permanently hosts 52,000 citizens, spread unevenly throughout the territory (Statista, 2021; Tägil, 1995). Sheep outnumber inhabitants (Føroya landsstýri, 2019), and the vast majority of the land is pristine. Apart from the two biggest towns, Torshavn (the capital) and Klaksvik, the rest of the population is distributed in villages of small or medium-small size. Settlements are connected by ferry or by road and, most recently, by underwater (or 'subsea') tunnels. Due to territorial isolation and dependence on local ecosystems, inhabitants of the Faroe Islands are deeply devoted to their birthland and have developed a relevant sense of community (Plieninger et al., 2018). In terms of the economy, Faroese industry is undifferentiated and depends heavily on fishing — an overdependence which

culminated in a severe fishery-related economic crisis in the 1990s (Cooke & Petersen, 2019). Despite an incredibly low unemployment rate of 1.1% (Trading Economics, 2021), fish products still represent between 90–95% of total export value and around 20% of the national GDP (Visit Faroe Islands, 2020).

Tourism development in the Faroe Islands

Agius and colleagues (2021) claim that islands and archipelagos have lately gained tourism value. Indeed, according to the Minister of Environment, Industry and Trade, Helgi Abrahamsen, and Visit Faroe Islands tourism is getting "big" (Bertolucci et al., 2021). Overnight stays grew more than 60% in 10 years (Hagstova Føroya, 2022), with an astonishing peak registered in 2019, when visitor arrivals increased by 13% (Karantzavelou, 2019). While the aforementioned authors convey that tourism is becoming a tool for islands to diversify their economy, thereby contributing to their economic development, tourism in the Faroe Islands has just begun to take shape in the last twenty years (Bertolucci et al., 2021) and currently represents 6% of the national GDP (Royal Danish Embassy Japan, 2021), as compared to an average global contribution of 10% (Nikolova, 2021).

Infrastructure for development: Investment vs connectivity

Islands and archipelagos are described as being exceptionally dependent on the nature of their transport infrastructure, with transport links being of fundamental importance for mobility (Grydehøj & Zhang, 2020). The Faroe Islands merge cultural sites and unspoilt landscapes with modern and advanced transport infrastructures which have been financed by the national government (Johannesen, 2020). The extreme configuration of the islands did not prevent authorities from commissioning what is considered a "major project on a local scale" (Blindheim et al., 2005, p. 570; Plieninger et al., 2018); the first road tunnel in the Faroe Islands was opened in 1963 (Bennett, 2018) and, since then, road connections among villages have boomed. The archipelago has so far developed a network of 20 road tunnels totaling 44 km, and there is nearly one meter of road tunnel for each inhabitant of the nation (Samuelsen & Grøv, 2018). The most recent and projected constructions are all below the sea surface (see Figure 1).

Of these, Vaga Tunnel (2003), Norðoya Tunnel (2006), and Eysturoy Tunnel (2020) are the installations currently open for traffic. Once the latest construction, the Sandoy Tunnel, is completed, the network will connect 88% of the Faroese population (Samuelsen & Grøv, 2018). The government has so far invested DKK 2.6 million in the construction of the Eysturoy–Sandoy link (Pretec Group, 2020), equivalent to a debt representing 55% of the country's total borrowings (Samuelsen & Grøv, 2018). The proposed Suðuroy Tunnel remains the only project without a straightforward plan, but Transport minister Jørgen Niclasen has reassured his citizens that drills will start "as soon as the Sandoy subsea tunnel project is completed" (Johannesen, 2020), at an estimated cost of DKK 3.4 million.

Figure 1. Existing and proposed Faroese road infrastructure.

Source: Samuelsen & Grøv, 2018, p. 29.

With a population of about 52,000 people, the individual capital invested by the government tops 50,000 Euros per Faroese inhabitant (Samuelsen & Grøv, 2018).

Even though the investment has drastic financial impacts on the local citizens, Dalimunthe and colleagues (2020) underline that infrastructure can become a mediator between the environment and the socio-economic system of a society. In the case of the Faroe Islands, Samuelsen and Grøv (2018) demonstrate that the increasing number of tunnels reduces commuting times. Notably, the inauguration of the Eysturoy Tunnel has shortened commuting trips between the capital, Torshavn, and the village of Strendur from 55 kilometers to just 17 km (NCC, 2021). Furthermore, travel times between Torshavn and the town of Runavik have decreased from 1 hour and 14 minutes to a mere 16 minutes (Kennedy, 2021).

Methodology

The design and process of this research has been conducted inductively, inspired by grounded theory. Flick (2011; see also Peters, 2010) asserts that, in order to avoid preconceptions, grounded theory should avoid testing and predefined theories. Even though researchers in the current study did not consider any theories before their ethnographic field trip, the study process began beforehand by collecting secondary data to construct a social arenas map (Clarke, 2011, pp. 38–82), in which actors and stakeholders were identified through desk research. This social arenas map, presented in Figure 2, aided the destination analysis process and broadened the existing knowledge of the different aspects of the Faroe Islands, especially the political,

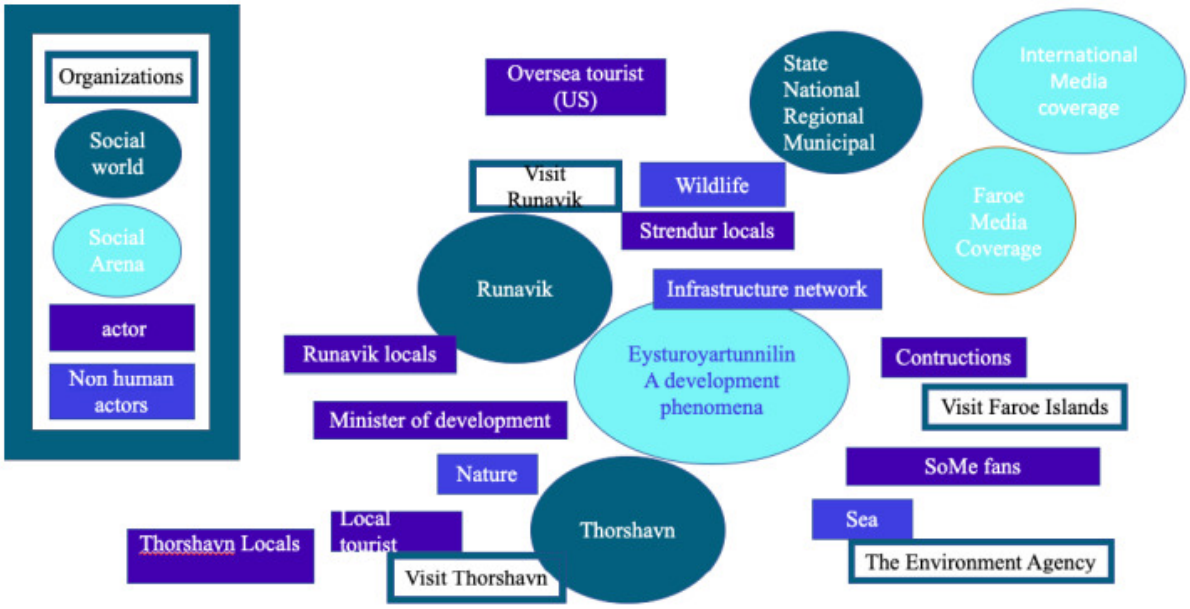

Figure 2. Social arenas map.

Source: Compiled by authors.

social, economic, technological, and environmental. In doing so, it became easier to define the main objective of the field trip before identifying the potential respondents and assessing the dynamics in-destination.

Nowell et al. (2017) state that qualitative studies followed by rigorous methods can ultimately provide meaningful results and add value to the research. On this matter, Ali and Yusof (2011, p. 37) stress that researchers who conduct qualitative multiple methods like "literature analysis and participants' observations" can increase the trustworthiness of their manuscripts and avoid bias risks. During the first days of ethnographic fieldwork, the topics of infrastructure, local benefits, and tourism development became increasingly of interest to the researchers. To augment validity, data were triangulated through mixed methods with qualitative material (Barnum, 2011; Flick, 2011; Peters, 2010). This included online surveys and personal ethnographic observations made in the north-western and north-eastern parts of the Faroe Islands, where subsea tunnels are currently operative.

Ethnographic fieldwork and interviews

The group travelled by car and visited settlements as well as natural tourism destinations to collect data about road flows, understand the commuting time between destinations, and interview local actors and stakeholders. Six semi-structured, participant-tailored interviews were carried out from April 14–19, 2021, to gather the opinions of specialists as well as infrastructure users. Participants included four members of destination management organisations

Table 1. Participant organisations and their function.

Organisation	Function
Visit Faroe Islands *Participant: Brim*	The official tourist board and destination marketing organisation (DMO) of the Faroe Islands. Visit Faroe Islands works hand-in-hand with the Ministry of Trade and Industry. The organisation's primary purpose is to market and develop the country as a sustainable and unique tourism destination.
Visit Torshavn *Participant: Liljan*	Visit Torshavn is a tourist information centre located in the heart of the capital Torshavn. The organisation's primary purpose is to promote local tourist attractions and events.
Visit Runavik *Participant: Marjun*	Visit Runavik is the regional tourist information centre for the Eastern region of the Faroe Islands. The organisation's goal is to offer natural–gastronomical activities and accommodation options in the eastern region.
Visit Norðoy *Participant: Anonymous I*	Visit Norðoy is the local DMO of Klaksvik, the second biggest town in the country. The firm wishes to welcome tourists to the north and offers a selection of accommodations and holiday trips at Fugloy, Svinoy, Viðoy, Borðoy, Kunoy, and Kalsoy.
Landsverk *Participant: Fridrik*	Landsverk is the Faroese primary road authority. The institution manages and maintains public buildings and transportation networks in the country. Landsverk is the most significant public entrepreneur and cooperates closely with the Faroese Government.
Local fisherman *Participant: Anonymous II*	The local fisherman lives in Torshavn and represents the nation's most important industrial cluster. His facility is located near the Eysturoy and Vaga Tunnels. His insights were helpful regarding the Faroese lifestyle and the communities' needs and wants.

(DMOs), one construction entrepreneur, and one local fisherman. All semi-structured interviews lasted from 30–60 minutes. Participants and their organisation and its function are presented in Table 1.

Researchers adopted an insider-outsider perspective, also called "the space between" (Dwyer & Buckle, 2009). Interviews were conducted as an "interpersonal encounter" (Harvard Department of Sociology, n.d., p. 4) to gain insights from the respondents and find their positioning regarding the increasing development of the road network. This gave the researchers a new perspective as they looked at the destination with new lenses. After conversations took place, researchers acknowledged that investing in underwater tunnels could improve tourism dispersion in the Faroe Islands.

Online surveys

An online survey was designed to gather deeper knowledge related to locals' opinions about the recently inaugurated Eysturoy Tunnel. 114 valid answers were collected from locals spread out on the different islands from the Facebook group *Færinger* ('Faroese people'). Most of the participants declared to be from Torshavn (on Streymoy Island) and Eysturoy Island — the islands that Eysturoy Tunnel connects.

Survey questions were short and simple, in an attempt to avoid time consumption for respondents and, as such, to obtain as many responses as possible. Like in the interview guide, the questions were made open-ended to avoid directing responses or excluding any perspectives of the tunnel (Bernard, 2017). By having open-ended questions, the questionnaire enabled the researchers to get insights of all opinions of the new tunnel, whether positive or negative. Through the questionnaire, researchers found that there

are benefits related to the tunnel, such as making work-life easier, shortening travel times, and increasing safety due to bad weather conditions, especially during winter. The questionnaire also provided researchers with important reflections about the limitations of the tunnel; the high prices to drive through the tunnel made a particular impression on local stakeholders, and many labeled it "luxurious." The questionnaire findings were important for triangulating the data gained through qualitative interviews. Opinions shared by the questionnaire respondents were then used to modify questions and topics for the remaining interviews that took place after returning from the field.

Coding

Once back in Denmark, all collected data were subsequently translated and transcribed with a coding technique using NVivo software. The purpose of this was to explore the qualitative data to see how frequently codes and words were used and, therefore, to give an idea of the data patterns (Foster, 2015). The emerged categories influenced the selection of the theoretical framework used to analyse the data collection. The following patterns were:

- Locals are mainly optimistic about the tunnels;
- Most believe the price is too high and classify the tunnel as a luxury tunnel;
- Locals living on Eysturoy say that the tunnel increases the quality of life;
- The time saved when driving to and from work is seen by locals as the main benefit of the tunnel; and
- Even though locals believe Eysturoy Tunnel is too costly, they support the construction of the network as a whole.

Limitations

Researchers experienced limitations in relation to available participants. Even though the group wished to interview more participants whilst on the Faroe Islands, this was not possible due to local COVID-19 restrictions. The fieldwork was conducted during a period in which the COVID-19 pandemic was hitting the world hard, but did not significantly affect the Faroe Islands. While the group was able to reach the Nordic archipelago thanks to Danish residence permits or Danish citizenships, the number of tourists allowed in was limited at the time (Hagstova Føroya, 2022), and this meant that the sample size of experiences and opinions was not as large as the researchers had hoped (Butina, 2015). As a consequence, the project focused on collecting data to analyse the benefits and limits of infrastructure for tourism development and visitor dispersion in the Faroe Islands.

Ethics and responsibility

Interviews were all conducted with participants giving informed consent to be recorded (American Anthropological Association, 1998, p. 3). All informants were aware of the focus and purpose of the research, and two of them decided to be anonymous.

Literature review

Developing the Faroe Islands through tourism

Countries around the world are increasingly diversifying their economic growth by using different types of development, and the Faroe Islands is among them. According to Telfer and Sharpley (2016, p. 462), innovative projects have been at the forefront of developed and developing countries' strategies to tackle societal challenges that include inequality, healthcare, and education. Most recently, the Faroe Islands are trying to differentiate their economy with tourism, which currently represents 6% of the national GDP (Royal Danish Embassy Japan, 2021). Even though the real impacts of tourism related to community development are still not clear, academics such as Higgins-Desbiolles (2006) and Weaver (2010) criticise the naivety of governments to adopt an orthodox view of the relation between tourism, community, and development. Another aspect that has been traditionally discussed in sustainable global development is the relevance of local stakeholders' participation in the different stages of the tourism policy planning and implementation, as Singh (2010) and Weaver (2010) criticise the role of communities and their participation in tourism development. Discussions about tourism development are becoming key topics at a global level, allowing societies to argue to what extent tourism is a source of benefits. Jamieson (1997) highlights the importance of conducting assessments that evaluate community readiness, and Choi and Sirakaya (2005) add that evaluations should include the communities' desire to participate in tourism development.

The survey could prove challenging, as several stakeholders need to be taken into consideration. Jamal and Dredge (2014) underline that authorities can be involved in disparate operations, however their role should be identified in order to accomplish a more holistic community vision connected to sustainable tourism development. In the context of the Faroe Islands, Bertolucci et al.'s (2021) study reinforces the need to privilege inclusive community strategies, since stakeholders' cooperation is projected to enhance local tourism development in a responsible and sustainable manner.

The role of non-living actors in destination tourism analysis

Destination tourism analyses are conducted in order to give practitioners and policymakers good spatial understanding of the local context and dynamics among actors and stakeholders. Gillespie (2012) conveys that applying this method eases problem-solving, meanwhile Murphy (1985) and Michaelidou et al. (2002) suggest that destinations policy planners should

equally consider human and non-living actors when conducting tourism analyses, as both terms are interconnected. On this matter, Dwiartama and Rosin (2014) consider non-living actors, like technology and nature, as active objects that contribute to the destinations' resilience and success. Kabil and colleagues (2021) highlight the importance of preserving nature for enhancing tourism experiences, and Ren (2011) ascertains the central role of natural and authentic destinations in the marketing and management of a territory. In the tourism context, the extreme authentic and pristine Faroese landscapes are at the helm of global attractions (Plieninger et al., 2018). Lately, however, the Faroe Islands have also impressed the world with their striking, innovative subsea tunnels (Ecott, 2020; Street, 2020). By connecting the archipelago under 'one main network', which becomes part of tourists' and inhabitants' experiences, the subsea tunnels are, thus, actively contributing as a non-living actor (Dwiartama & Rosin, 2014).

Transport infrastructure an asset for tourism development

Roads are conceived as transport infrastructures that unite two or more destinations; Grydehøj and Casagrande (2019, p. 56) and Baldacchino (2014) highlight that transport links reduce remoteness, decrease communities' disconnection, and restructure the geography of a country in ways in which "a place's islandness is practiced." As mentioned above, infrastructures in the Faroe Islands have many shapes and forms, and the Faroese government has always supported connectivity investments and tunneling (Johannesen, 2020; Samuelsen & Grøv, 2018). COWI Executive Director Andy Sloan (in an interview for *New Civil Engineer* [Kennedy, 2021]) and Mainwaring and Olsen (2018, p. 249) convey that long undersea tunnels are rare but "form important fixed links once in operation," but Baldacchino and Wivel (2020) and Grydehøj and Zhang (2020, p. 52) also stress that such fixed transport systems are "indicative of a mainland policy and economic orientation." Several academics argue that cross-sea transport links have the potential to make remote island destinations like the Faroe Islands more accessible and desirable, with direct socio-economic impacts on the population (Chen et al., 2014; Grydehøj & Zhang, 2020; Mainwaring & Olsen, 2018). Indeed, "transportation systems play a key role in daily operations by providing a network for the transit of people and goods" (Zhou & Wang, 2018, p. 402), and the existing subsea tunnels are enabling "improvements of the road network, reducing the number of ferry connections and vitalising local businesses" (Blindheim et al., 2005, p. 570).

Yu et al. (2014) state that these infrastructures could assume the role of critical links. On one hand, academic authors say that critical links can be considered robust, reliable, innovative, and appealing infrastructures, since they cut travel times and efficiently connect several destinations (Knoop et al., 2007; Yu et al., 2014). On the other hand, such efficient connections become the most-used transport routes and are, therefore, vulnerable to traffic or environmental issues that can lead destinations to sudden isolation if backed by mismanagement (Oliveira et al., 2014). Zhou and Wang (2018) stress that

critical links are vulnerable but, at the same time, enshrine the destination with potentially useful infrastructure. Regarding usefulness, Mante and colleagues (2021) underline that subsea road systems are expensive and time-consuming, and can only be cost-effective if authorities balance, monitor, and manage traffic flows before obtaining enough revenues to recover from the costly infrastructure investment.

The above discussion emphasises the need to design and implement more holistic destination development policies. According to the aforementioned academics, this should be done by identifying the collateral effects and impacts that actors such as transport infrastructures have on the whole tourism destination.

Analysis

The following section centers its discussions on the Faroese government's infrastructural development policy. The researchers' aim is to enlighten the literature related to public management by identifying the benefits and impacts that undersea tunnels have in the Faroe Islands. These benefits must be seen through the lenses and voices of the interviewees. Infrastructure is eventually taken into account in order to fully grasp its impact, its role, and its potential as a vehicle for developing emerging tourism destinations.

Transport infrastructure policies for development

Grydehøj and Zhang (2020) argue that politics play a key role in proposing, promoting, and implementing infrastructural policies, and Gillespie (2012) underlines that policymakers need to understand locals' priorities and adapt to the dynamics and the context of a destination in order to be efficient. In the case of the Faroe Islands, policies regarding transport development have historically taken a stand against peripherality and remoteness in order to diminish disconnectivity issues. Inhabitants used to open breaches by slashing mountains (Bennett, 2018), meanwhile nowadays' road constructions are all made by international firms which are innovatively contributing to tie the archipelago under one main network (Samuelsen & Grøv, 2018). As the road extends in length and merges new islands, cross-sea ferry routes between these islands cease (Blindheim et al., 2005).

Data collected through interviews and ethnographic fieldwork observations show that Eysturoy Tunnel, the most recently completed construction, is strategically positioned between the two major cities of Torshavn and Klaksvik by passing through Runavik, "the third Municipality of the country," where the nation's most important fish factories are located. As one participant, Fridrik from Ladsverk, shared:

> Fish companies can now cut travel times by 50%... The starting point for the tunnel is that you tie the largest areas together in the Faroe Islands and the areas that have the most industry...

> so it becomes easier to drive from Klaksvik to Torshavn and from Runavik and such. An axis from where you have the most industry.

Fridrik's statement about infrastructure serving as an "axis" can be seen as an example of what Chen et al. (2014, p. 1) describe as a "fully connected network which has the advantage of short transport distance and fast speed," which can be understood as an indicator of development in the Faroe Islands. Based on Fridrik's opinion, Eysturoy Tunnel has undoubtedly become the most effective transport link, enshrining the consolidation of the industry. However, according to Cooke and Petersen (2019), being too dependent on the fishing industry could bring financial challenges. Another respondent, Liljan from Visit Torshavn, explains that tunnels can also enhance tourism:

> Fishing is the biggest economy... it is difficult for new players to enter the fishing industry... these professions, which secure the basis of the Faroese economy, have a very limited crowd of actors and it is very difficult for others to get in, it is almost impossible... In tourism, there is no limited resource; actors are not limited in being locked in, one does not need billions... Therefore, it is a much more open industry. The only limitation is one's ideas and one's industriousness. Tourism is an incredibly embraced industry without restrictions.

Imminent tourist development in the Faroe Islands

According to an analysis of statistics from Hagstova Føroya (2022), tourism activities are increasing across the country, and the prediction of the emerging tourism trend is becoming a reality. In the Faroe Islands, tourism can create jobs with less limited resources and higher equal access than what the fishing industry provides. Even though transport infrastructure is said not to have been developed for tourism purposes, Liljan (Visit Torshavn) stresses that it still facilitates its development. Another respondent believes that new tunnels will provide visitors with an increasing number of destinations at hand:

> Then they can see on the map there is a tunnel there. Then they can see "Oh, it is 20min there, then we can just stay there." That will definitely be something tourists will think about because at the high season of the hotels, especially in July, the hotels and everything is fully booked [in Torshavn], so tourists always find places outside of Torshavn. Perhaps before the tunnel, people stayed at Vestmanna and now they will go to Runavik and Klaksvik because they are closer now. (Brim, Visit Faroe Islands)

Even though these quotes from research participants could lead to claims that link the construction of transport infrastructures for the sake of optimising the fishing industry's logistics, one should not underestimate that the fishing industry is no longer the unique source of economic growth in the Faroe Islands.

Mainwaring and Olsen (2018, p. 249) convey that long undersea tunnels are rare but "form important fixed links once in operation." If we relate this statement to the above quote from Brim (Visit Faroe Islands), tunnels are a vehicle of access to remote destinations that were before hardly accessible and far from the main developed areas such as the capital Torshavn. Hence, tunnels can facilitate the development of new Faroese tourism destinations. One should keep in mind that overnight stays in the Faroe Islands grew more than 60% in 10 years (Hagstova Føroya, 2022). Therefore, the argument about peripherality is directly related to the inauguration of tunnels, since they connect sister islands (Agius et al., 2021) and overcome insular seclusion which, according to Grydehøj and Casagrande (2019), entails the birth of new suburban areas. According to the Minister of Environment, Industry and Trade, Helgi Abrahamsen, Faroese tourism has only recently become in vogue (Bertolucci et al., 2021). This means that when the development of the Eysturoy Tunnel started, the tourism industry was much less developed than it is currently. According to Bujosa Bestard and Nadal (2007), growing pressure from tourism may have damaging consequences for a destination in terms of congestion and pollution. In the Faroese context, which foresees a well-connected archipelago, road infrastructure can be a tool "to spread tourists everywhere in the Faroe Islands" (Brim, Visit Faroe Islands) and to overcome pollution and congestion issues. However, the participant from Visit Faroe Islands also points out that there may not be a direct correlation between increased accessibility and tourism attractiveness for more remote settlements. According to Brim, a critical driver for tourists' preferences during their decision-making process is represented by the presence of primary commodities close to the facility where they spend their stay. Chen et al. (2014) underline that an efficient and well-connected infrastructure entails the creation of a hub-and-spoke network, with easier access between the hub (the capital) and its spokes (other settlements). Brim, however, emphasised that roads are not the only characteristic a destination needs in order to attract tourists, but rather, "Having both overnights, attractions, and restaurants that can give the whole package [to customers] without having to go to Torshavn."

Murphy (1985) and Michaelidou et al. (2002) suggest that tourism authorities should equally consider human and non-living actors in destination planning and organisation. This directly relates to Brim's suggestion, since such amenities in place — non-living actors — are the most crucial tool to attract clients — living actors — and generate tourism development.

Tourism development and management

Kabil et al. (2021) highlight the importance of preserving the natural assets of a destination for enhancing tourism experiences. Indeed, Visit Faroe Islands' (2021, p. 1) strategies aspire to "preserve and evolve the nation's distinct nature and culture" and put "preservation and evolution at its core." Researchers' ethnographic observations along the archipelago reveal that there are no infrastructural developments above sea level. The road extensions were almost imperceptible until researchers drove underwater, where modern avant-garde constructions allowed them to quickly drive around the archipelago. Hence, infrastructure seems to be an active part of the Faroese landscape (Dwiartama & Rosin, 2014) and becomes a mediator between the environmental, social, and economic systems of the destination (Dalimunthe et al., 2020), giving credit to the "preservolution" (Visit Faroe Islands, 2019) strategy set by the national DMO. However, Brim explains that Visit Faroe Islands does not currently have a transport infrastructure strategy that focuses specifically on tourism development. According to Liljan from Visit Torshavn, the lack of plans may be due to an uncertain tourism potential attributed to the tunnel. Fridrik from Ladsverk adds that this is a "tunnel that has been on the rise since around the beginning of 2000, so for almost 20 years there has been talking about it." Marjun (Visit Runavik) and Fridrik (Ladsverk) agree on tourism having vacant relevance when it comes to the Eysturoy tunnel: "It is for the citizens and the industry, but not for tourists" (Marjun); "The tunnel is not built for tourism" (Fridrik).

Dalimunthe and colleagues (2020, p. 220) underline that networks that are directly linked with tourism, since "the development of the hospitality sector depends on the available infrastructure." In fact, despite Visit Faroe Islands' lack of strategy, interviewees agreed on the potential of tunnels for increased connectivity, tourism dispersion, and social well-being. Considering that Faroese tourism has only boomed relatively recently, the lack of specific tourism policies related to infrastructure might be due to the circumstances noted above, as well as the marginal economic influence that the tourism sector still has in the Faroese economy.

Emerging remote tourism destinations

According to Grydehøj and Casagrande (2019), infrastructure contributes to tourism by creating suburban areas and more job opportunities for locals. Researchers do not encourage the destination to become solely dependent on the tourism sector, since overdependence and mismanagement can threaten cultural identity, nature, and wellbeing (Grilli et al., 2021; Sharpley, 2001), and the Faroe Islands are shown to be vulnerable to social and environmental changes (Plieninger et al., 2018). Jamieson (1997) highlights the importance of conducting assessments that evaluate community readiness, and Choi and Sirakaya (2005) add that these evaluations should include the communities' desire to take part in tourism development. Higgins-Desbiolles (2006) and Weaver (2010) underline the need for governmental entities to develop a more

holistic strategy that incorporates tourism, community, and development, and our interviewees clearly identified impacts and benefits for Faroese local communities. In this context, transport infrastructure appears to enable additional job opportunities across the country and can consequently become a crucial asset for economic diversification. Brim (Visit Faroe Islands) and Marjun (Visit Runavik) reveal that infrastructure implies the same benefits to tourism, the fishing industry, and locals overall:

> It is very important to understand that to go to the tunnel... it saves them [locals] a lot [of time]. (Brim, Visit Faroe Islands)
>
> I live in Torshavn municipality, in Hoyvik, so I drive daily through the tunnel [...] in terms of my job, the tunnel has provided me with two extra hours outside my car a day. Now I have a 12-minute commute, where before I had an hour. (Marjun, Visit Runavik)

Even though the real impact of tourism in community development is still not clear, transport infrastructure development in the Faroe Islands is indicative of positive changes for the different actors and stakeholders living in smaller towns and villages: "The settlements located at the edge of the tunnel have experienced explosive development" (Liljan, Visit Torshavn).

During the field trip, researchers spent their overnight stays in Selatrað, a village that has been strongly influenced by the construction of the Eysturoy Tunnel. With the tunnel's completion, citizens of Runavik and the surrounding settlements can now reach the capital in less than 30 minutes. It is expected that similar travel time data will emerge after the completion of the planned tunnel between Torshavn and Sandoy, from the capital's southern side. This gives validity to Grydehøj and Casagrande's (2019) and Baldacchino's (2014) arguments that transport links reduce remoteness and restructure the geography of a country. As a matter of fact, as soon as tunnels reach Suðuroy, the revolutionary infrastructure will allow 99% of the Faroese population to be tied under one main network (Samuelsen & Grøv, 2018).

Tolls vs investment recovery: A critical path towards development

Mante et al. (2021) point out that tunnels can only be cost-effective if authorities balance, monitor, and manage traffic flows before obtaining enough revenues to recover from the costly infrastructure investment. As discussed above, subsea tunnels enable shorter and faster trips, but there are several factors that need to be taken into consideration.

Overall, the questionnaire in the current study shows that locals are positive about the national infrastructure, and Samuelsen and Grøv (2018) convey that locals are supportive of the 'one main network' project. However, although the Eysturoy Tunnel currently provides a shorter option for travel, it is expensive, and interviewees argue that locals prefer passing through the old route instead of choosing this new connection:

> We can only see that there is a less-than-expected use of the [Eysturoy] tunnel. (Liljan, Visit Torshavn)
>
> I am not using the tunnel every day because it is too expensive. It is costly. That is the negative part of it because it is actually excellent. It is fantastic, but 75 kroner every time you drive through it. (Anonymous I, Visit Norðoy)

According to the questionnaire findings, the Eysturoy Tunnel has been described as extraordinary and many inhabitants are proud of it, but the toll burdens too many individuals' budgets. Samuelsen and Grøv (2018, p. 27) note that the Eysturoy and Sandoy tunnels were expected to reduce travel time, improve infrastructure for the fishing industry, and reduce individual travel costs by 50–75%. Unlike shortened travel times and the industry benefits, however, the present results indicate that this third target seems not to have been met. Fridrik (Landsverk) adds that the repayment of the tunnel should come from the movement of freight and people between Runavik, Strendur, and Hvivik — the edges of the tunnel. Fridrik explicitly covers the same topic addressed by Mante et al. (2021) regarding the fact that lacking revenues from poor transit flows could highly impact the projected turnover and might extend the return-on-investment period: "Many have initially chosen not to use the tunnel... So if the traffic is lower than necessary, then the debt will fall to the country collectively, which then must pay."

The questionnaire made on the Faroese Facebook group *Færinger* shows that the most redundant word related to the Eysturoy Tunnel is "luxury." Fridrik (Landsverk) explains that money is not the only reason for the lower-than-expected traffic:

> The problem with it is that it is an alternative route – because you can drive the other way around. This is why it is a bit of a luxury tunnel. Many think it is a luxury tunnel because you can drive the other way.

Even though "improvements of the road network" (Blindheim et al., 2005, p. 570) are clear indicators of development for local communities, the toll for the Eysturoy Tunnel is considered expensive, which discourages Faroese citizens from traveling through it. Given that Mante et al. (2021) state that managing traffic flows could imply cost-effectiveness and, since the country is an emerging tourism destination (Jensen, 2017), the Nordic archipelago might recover its investment thanks to the flourishing tourism flows. However, the researchers discovered that the tourists' fee for the new tunnel was an astonishing 175kr each way, which also might impact visitors' decision-making with regards to traveling through the tunnel.

Fieldtrip observations also revealed that the cost of the tunnel is not presented on signs along the route. This is indicative of a lack of tourism management strategy related to a crucial actor like transport infrastructures (2011). Even though Brim (Visit Faroe Islands) and Liljan (Visit Torshavn)

both suggest that the availability of necessary amenities and attractions can improve the touristic appeal of smaller communities, the Eysturoy Tunnel's high tolls — and the connection being an alternative route — could pull tourists' demand towards sojourning in Torshavn and, consequently, impact tourism dispersion across peripheral areas.

Advantages and disadvantages of subsea tunnels for islands' socio-economic development

Zhou and Wang (2018), Oliveira et al. (2014), and Knoop et al. (2007) argue that fixed transport infrastructures like the Faroese road systems discussed here are critical links and, as such, represent both advantages and disadvantages for the development of destinations. Firstly, both questionnaire participants and interviewees believe that roads ease access to remote parts of the country that were previously connected by ferry. Faroese constructions are mentioned as revolutionary and have become state-of-the-art benchmarks for further international projects (Kennedy, 2021). However, relying on a unique transport system can be a disadvantage (Oliveira et al., 2014), as ferries risk disappearing in favor of exclusive on-track movement of freight and people (Blindheim et al., 2005). Johannesen's (2020) interview with the Minister of Transport, Jørgen Niclasen, underlines that the government has the prerogative to invest in underground infrastructure and save "at least DKK 90mln per year on the ferry service to and from Suðuroy." In fact, fieldtrip observations verified that ferry services between islands are only currently available to connect communities which do not have access to underground transport routes. In a 2021 interview, COWI Executive Director Andy Sloan advised that governmental entities to adopt a more holistic approach, arguing that subsea tunnels would not be needed to replace ferries, but would rather be part of the "mix" of islands' transport (Kennedy, 2021). In other words, Sloan stresses that policymakers should consider viable alternatives of collateral transport options that do not solely rely on road infrastructures.

Overall, Figure 3 demonstrates that tunnels have the advantage of uniting the country and granting a continuous urban space (Baldacchino, 2014) where residents from different islands can easily commute to and from the capital (Samuelsen & Grøv, 2018). This generates the "idea that the Faroes is one city and no-one should be disadvantaged by where they live" (Kennedy, 2021). Primary data show that the country has undergone social and economic developments as a result of the construction of transport infrastructure, providing inhabitants with improved working conditions and welfare. Dalimunthe et al. (2020) explain that tourism depends on the available infrastructure and, in this sense, the underground systems provided the researchers with better, easier access to services as well as tourism attractions located off the beaten track. In short, the data consolidate the usefulness of the Faroese subsea constructions, though the fact that

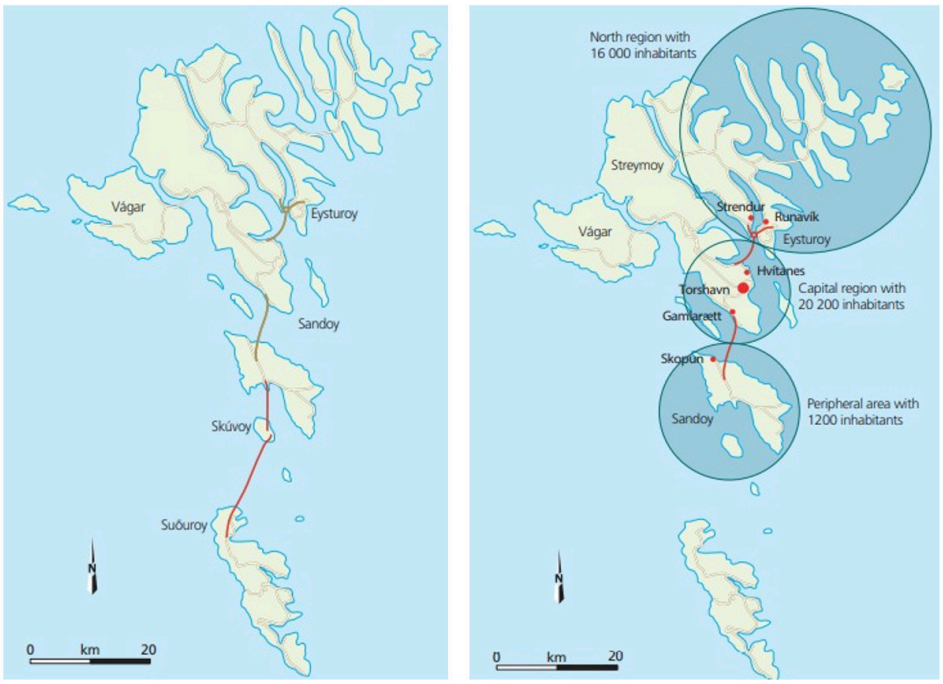

Figure 3. Current and future subsea links in the Faroe Islands as at 2018 (left); location of the Eysturoy and Sandoy subsea tunnels (right).

Source: Samuelsen & Grøv, 2018, pp. 27–29.

policymakers have underestimated the tourism role of these transport systems constitutes a disadvantage, per se, and might lead to critical mismanagement issues (Bujosa Bestard & Nadal, 2007; Grilli et al., 2021; Mante et al., 2021).

As discussed by Higgins-Desbiolles (2006) and Weaver (2010), governmental entities need to develop a more holistic strategy that incorporates tourism, community, and development. On this matter, studies in the Faroe Islands stress that co-creation and stakeholder inclusion need to be considered for tourism and community readiness of the destinations (Bertolucci et al., 2021). Interviewees give validity to the previous statements, as locals have clearly identified impacts and benefits of tunnels for Faroese local communities. Ultimately, transport infrastructure should certainly be considered a valuable tool for interregional movement and national unity, but political entities and Visit Faroe Islands must also recognise its potential as a modern and avant-garde tourism attraction in contrast with the pristine landscape above sea level, which could in turn reinforce tourism dispersion in the country.

Conclusion

The Faroe Islands is a unique but vulnerable archipelagic nation that is at risk of suffering from an increased human footprint. Its nature is the main tourism attraction and motivates growing numbers of visitors to reach the archipelago year over year and, as a result, tourism has become the country's second economic source of revenue. The research findings show that subsea links have become a tourism attraction for locals and visitors

alike thanks to their unique and innovative function. Indeed, the avant-garde road system is defined by users as an efficient mode of transport which unifies remote locations and diminishes commuting times. Despite this, Visit Faroe Islands and the government have not yet promulgated any road infrastructure policy targeting tourism. Accordingly, this research sheds light on the socio-economic advantages and disadvantages provided by the implementation of transport infrastructure policies. The analysis shows several aspects that identify benefits and challenges related to community and tourism development which have not been considered by authorities when planning and implementing such transport infrastructures.

Underground road systems are a seed for national economic development thanks to their disruptive role as flow conductors of freight and people. In the case of the Faroe Islands, such systems also lead drivers to pristine and vulnerable natural attractions, as well as remote communities. The lack of strategies related to crucial assets like underground infrastructures lead to the conclusion that policymakers should adopt a more holistic approach about the destination, understanding the context in which these infrastructures will be embedded. By doing so, they will be able to evaluate the communities' readiness, which is a crucial asset for monitoring the imminent challenges that tourism threatens to spark in emerging destinations. Accordingly, this study encourages Faroese policymakers to enact tailored infrastructure policies in order to understand the local dynamics and balance traffic flows, with a positive impact on the traditional Faroese lifestyle and direct socio-economic benefits to the country. For example, the research shows an imbalance in the use of the Eysturoy Tunnel: the expensive fee to pass through the underground link burdens individuals' finances, with direct impacts on traffic flows and national return on infrastructural investments. Additionally, the reduction of cross-sea ferry services could force drivers to unconditionally use subsea tunnels. Since operational mismanagement of transport infrastructures and environmental disasters can threaten the urbanisation and development of a country, counting on secondary transport modes can be a game changer. Alternative means of transport prove to tackle peripherality and sudden seclusion issues in case of such calamities, and can constitute an additional form of tourism attraction as well.

This manuscript remarks that these transport links are ultimately contributing to the creation of a continuous and unified urban space, with positive as well as negative impacts for the nation. On one hand, tourists can easily access a wider variety of settlements or natural attractions; on the other, their action can harm communities which might not be ready to welcome them yet, damaging remote 'unexplored' areas which were previously relatively inaccessible. While the research stresses that subsea links can easily and evenly spread tourists across the country, the lack of amenities in remote areas might actually pull tourism demand towards the capital, with consequent negative socio-economic impacts and uneven benefits for Faroese communities. Based on the current national situation, tourists typically

return to the capital after a daytrip, since the majority of smaller communities do not have the facilities that they desire or require for overnight stays. Tourism is an inevitable phenomenon for this Nordic archipelago, and policymakers are visibly underestimating the role of infrastructure in the tourism development of the country.

This paper highlights a novel approach to academic policymaking studies, and calls for further research in which infrastructure is embedded in the development of insular, remote destinations. Such studies can contribute to the academic discourse as well as allow authorities to monitor and delineate the role, impact, and contribution of transport networks for community and tourism development.

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