

**Authors:**

Nishith JARIWALA (POLITO), s300135@studenti.polito.it  
Polina PAVLOVA (POLITO), s295996@studenti.polito.it  
Muhammet A. KINIKLI (UMERSİN), muhammetkinikli@mersin.edu.tr  
Tadeusz PUPAR (ULODZ), tadeusz.pupar@edu.uni.lodz.pl  
Carolina V. RAMALHETE (IPLEIRIA), carolnavr6372@gmail.com

# Accessibility and Sustainable Transport System

## Case Study Analysis and Policy Recommendations

### Abstract

The present project, created during a study visit under Erasmus+ Project SPOT “Sustainable Spatial Planning of Tourism Destinations” in Peniche, Portugal had as its main objective defining solutions for the transportation and accessibility problems in this. After a study visit to the problem area and the conference with the stakeholders from Baleal and the Peniche municipality it was possible for us to develop some ideas and suggestions on how to improve the transportation system and how to make it more accessible.

To this case study of the municipality of Peniche, including Baleal, were used specific methods in order to do the stakeholder analysis and to create the policy recommendations. Our group has proposed some ideas to try to help with the problem of the lack of public transportation and accessibility. These ideas consist of creating a sustainable and eco-friendly public transportation network, with electric buses, bicycle rentals and private shuttles.

Keywords: Baleal Beach, Portugal, Tourism Destination, Spatial Planning, Policy Recommendations, Sustainability.

### Theoretical and methodological framework

#### Aim of the report

The main aim is to focus on improving the area of accessibility through public transportation to address the issues like connectivity, infrastructures, economy and environmental sustainability through sustainable interventions at the different scale in accordance to different types of accessibilities criteria.

## Literature review

The literature gives us information about how case studies are used in sustainable transportation and accessibility issues. One of the good examples of the article called “Public participation in municipal transport planning processes – the case of the sustainable mobility plan of Ponta Delgada, Azores, Portugal”. In the study, Gil, Caldo & Bentz (2011), in Ponta Delgada (Archipelago of the Azores), for the first time in Portugal, the relevant stakeholders were involved in the development process of a sustainable transportation plan.

In another case study, Cavallaro et al. (2019) designed a tool to assist in transportation decision making in the touristic coastal area. To this aim in study, they identified five categories (Territorial context, Tourist city, Tourist profile, Transport system, Tourist mobility).

Finally, a case study was conducted in Lisbon on car sharing systems as a sustainable transport policy. In this context, car sharing systems carried out by more than 400 cities around the world were examined, and it was seen that this situation reduced energy use by 47% and carbon emissions by 65% (Baptista et al., 2014).

When the literature is examined, it is seen that there are many studies on stakeholder analysis. Among these examples, a study that is similar to our study was written by Elias, Cavana and Jackson (2004). A case study was conducted by them to demonstrate the potential benefit of stakeholder analysis in the study conducted in New Zealand’s transportation system (Elias, Cavana & Jackson, 2004).

The study by Dimitrovski et al. (2021) uses a mixed methods approach to explore stakeholder perceptions of the sustainability of coastal and marine tourism in cross-border regions of the Nordic coastal region.

## Methods

The case study approach becomes a useful tool when there is a problem that requires a deeper understanding. Therefore, case studies are frequently used in disciplines such as anthropology, archaeology, business, education, history, medicine, political science, psychology, social work, and sociology (Gerring, 2007). Case studies have several strengths and weaknesses. One of the great advantages of the case study is that it allows researchers to investigate situations that are impossible to replicate. Some other benefits of a case study (Yin, 2018):

- Allows researchers to collect a much more of information;
- Give researchers the chance to collect information on rare cases;
- Allows researchers to develop hypotheses that can be explored in experimental research.

On the weak side, a case study:

- Hard to be generalized to the larger population;
- Hard to demonstrate cause and effect;
- May not be scientifically rigorous.

The execution of the case study consists of five parts. These are case identification, case selection, collection and analysis of data, interpretation of data and reporting of findings (Crowe et al., 2011). Since the study focuses on sustainable transportation and accessibility the case study approach was used.

When it comes to any project, all of the people and organizations who the project will involve or affect are called its stakeholders. A stakeholder analysis is a process of identifying these people before the project

begins; grouping them according to their levels of participation, interest, and influence in the project; and determining how best to involve and communicate each of these stakeholder groups throughout (Luyet et al., 2012).

SWOT analysis is generally conducted to analyse a place, product, product, manufacturing, product, or sometimes a brand / person. It studies the internal and external factors, which oppose or favour when the organization attempts to achieve its goals. Strengths show project components, which provide advantages while weaknesses refer to those components, which have disadvantages as compared to others. Moreover, opportunities show certain characteristics, which a project can use to gain advantages while threats show certain aspects of the ongoing situation that might lead to some kind of issue (Goodrich & Ryan, 2015).

The last tool we used was policy recommendations. Policy recommendation is to inform people who are faced with policy choices on particular issues about how research and evidence can help to make the best decisions. It is about using research to solve a public policy problem or to provide evidence about how a policy is working. Getting a recommendation accepted by policymakers depends on many factors but a recommendation which is based on strong evidence, is cost effective to implement and takes account of international best practice has a better chance of being accepted and influencing policy debates (CARDI, 2012).

## Case study analysis

### Case study area

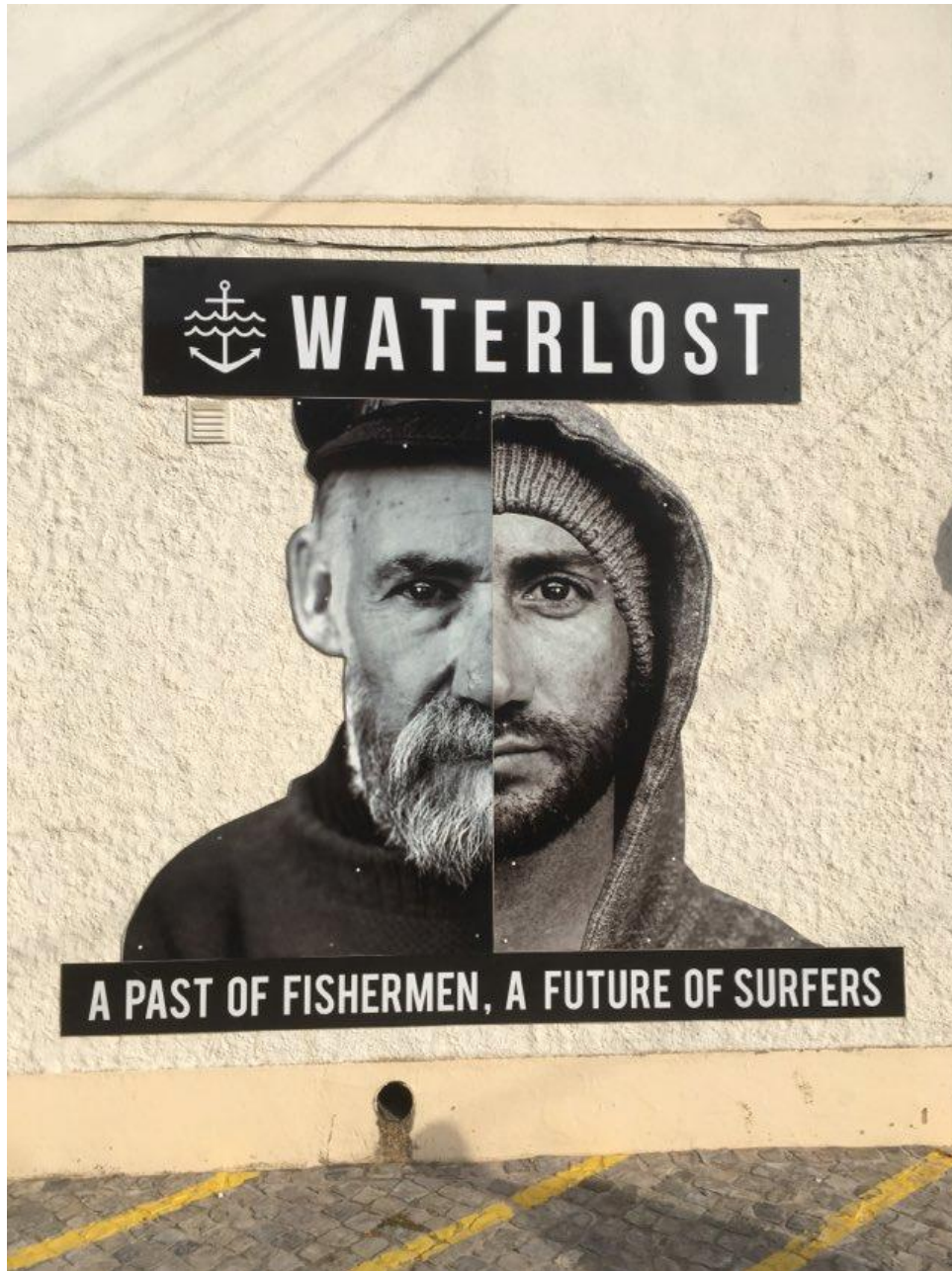


Figure 1: A mural showing the changes taking place in Peniche.

Source: authors.

Represented in the report study area contains Baleal and the Municipality of Peniche in Portugal. This city is a hard-working fishing town that turned into a popular tourist destination due to its outstanding beaches. Most of the visitors that come to Peniche they either come to surf or to learn how to surf. Due to this boom of visitors a number of different problems surfaced (Figure 1).

About Peniche, until the 15th century, was an island, almost circular, which was about 6 km away from the rest of the continent. The former place of Ribeira d'Atouguia, at the mouth of this river, was one of the most important Portuguese ports of the Middle Ages, a privileged access point to localities in the centre of the country (Lisbon, Óbidos, Torres Vedras, Santarém and Leiria).

The action of the sea currents and the winds, over the centuries, led to the silting up of this watercourse, the sands gradually forming a string of dunes that, consolidating, united the island of Peniche to the mainland, making the port of Atouguia.

Nowadays, Peniche lives mainly from the tourist activity carried out by beaches with perfect natural conditions for surfing and bodyboarding, which attract hundreds of lovers and professionals of wave sports (Turismo Centro Portugal, n.d.).

Taking into account the given factors, it was decided to create a solution that would meet the needs of the stakeholders. The aforementioned proposal is intended to expand the city's transport accessibility. As it is shown in the picture (Figure 2), red dots represent today bus stops, and greens are future bus stops for electro transport, the orange line represents the suggested cycle path that may arise in the future, as well as blue-privet shuttles system as proposed in this report.

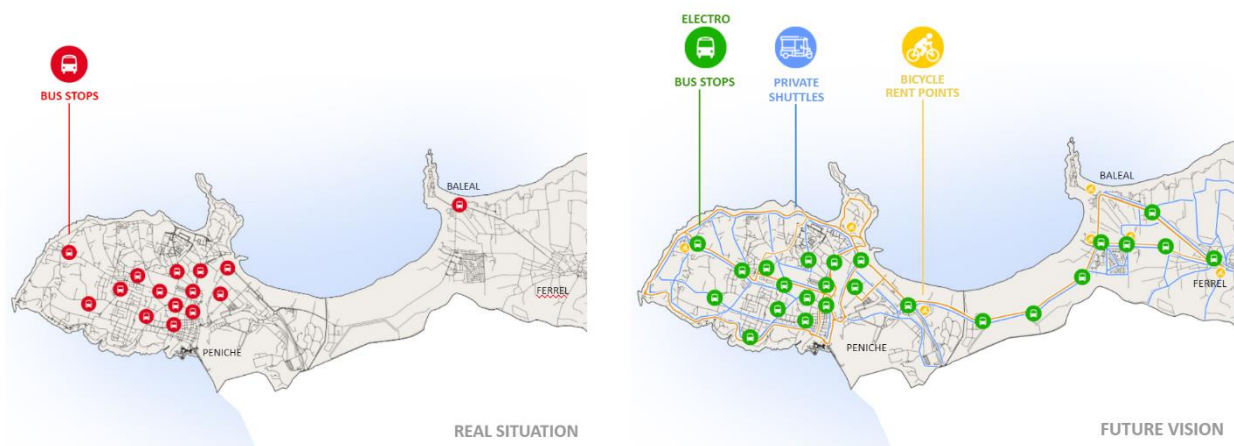


Figure 2: Comparing the real situation with poor bus connection and future vision with suggested cycle path with bus stops, and shuttle system.

Source: unknown.

## Stakeholder analysis

The stakeholders of the case study area that have been identified are Câmara Municipal de Peniche, residents, tourists, tourist agencies, local business owners, private investors, private sector, NGOs / local associations, transportation agency, construction companies, environment agency, emergency operators. It is noteworthy that among local entrepreneurs there are shop owners and hotel owners.



Table 1: Stakeholder analysis.

Name of Stakeholder	Power (1-10)	Interest (1-10)
Municipality of Peniche	10	10
Residents	7	10
Tourists	1	6
Local Business	7	8
Transportation Agency	8	10
Environmental Agencies	10	5
Private Sectors	6	6
Construction Companies	6	8
Private Investors	5	7
Tourism Agencies	2	8
NGOs / Local Organizations	7	9
Security, Emergency & Health Operators	4	3

Source: authors.



Figure 3: Matrix of stakeholder analysis.

Source: authors.

## SWOT analysis

Public transport, which will contribute to reducing carbon emissions, has been singled out as a strong point. Moreover, increasing the importance of public transport will contribute to preserving the natural values of Peniche. The construction of cycle paths and the possibility of creating an environmentally friendly city in Peniche can be treated as a result and an opportunity for the implemented policy. However, the weakness of the implemented solutions is the need for land dedicated to investment and the growing importance of car use. As a threat to the proposed solution the increase in the number of tourists visiting, due to the increased transport accessibility, can be considered. It will also contribute to the creation of new investments that will have a direct impact on the natural environment (Figure 4).

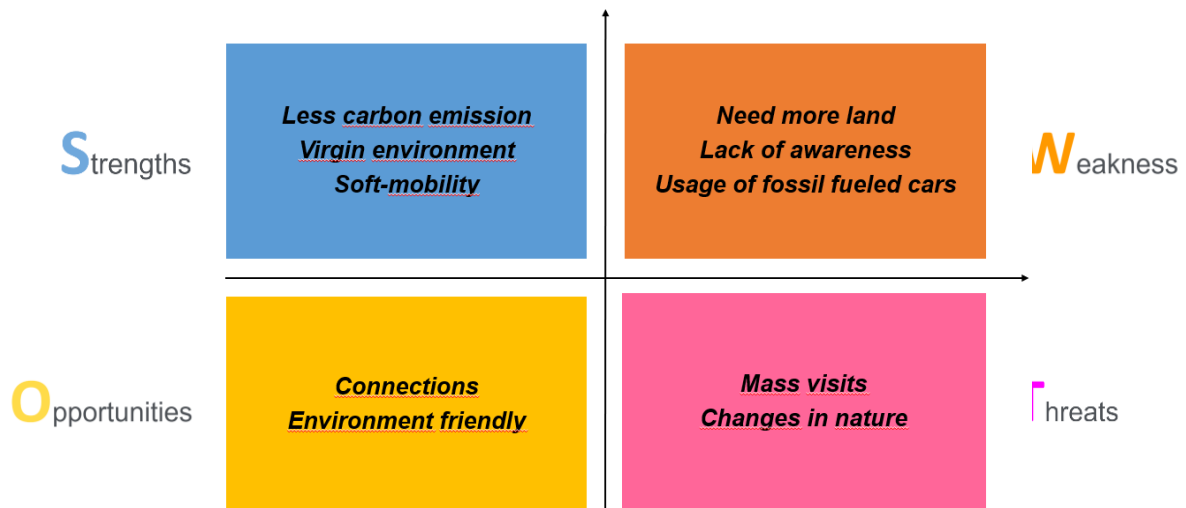


Figure 4: SWOT analysis.

Source: authors.

## Policy recommendations

For the given case in Municipality of Peniche some policy recommendations are as below:

- Improve the connectivity through sustainable public transport and enhance the accessibilities by introducing the environmentally friendly transport network through the means of electric buses, cycles, shuttle services etc.
- Adopt innovation and technology in transport in order to enhance accessibility and safety to further reduce the emissions and environmental impact, increase social progress and benefitting the overall economy.

The given actions are specifically focused in the area of the Municipality of Peniche in order to improve the connections and accessibilities in between Peniche, Baleal and Ferrel. After achieving internal connections, the further goal is to introduce the similar sustainable transport system on inter-municipal level to connect other neighbouring municipalities and at the regional level to improve the connectivity with other regions by keeping the environment as key consideration.

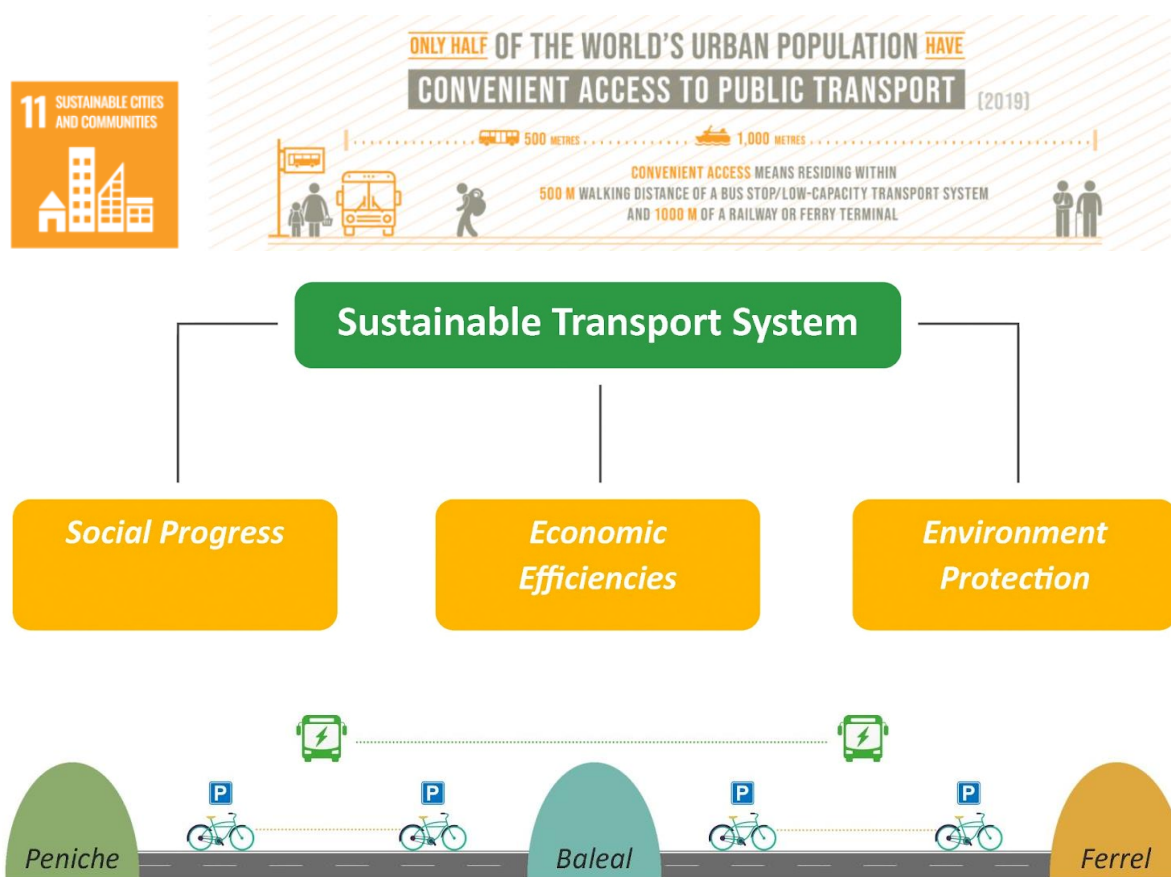


Figure 5: Sustainable transport system of Baleal Beach.

Source: authors.

The main stakeholder responsible for the planning, regulating, managing and maintaining is the Municipality of Peniche as they are the main authority to make the decision related to any development. To ensure the sustainability of the project and ensure the environmental quality, the Environmental Agency of Portugal is responsible. The transport agencies are the supporting stakeholder who make sure of the planning, evaluating, implementing and operating sustainable transport facilities.

Through these actions the direct consumers will benefit the most which includes residents, tourists and local businesses. It will affect all these groups in multiple ways. The municipality also has the benefit in terms of economy. After implementation there will be specific regulations related to the pricing, usage and maintenance of the transport system through which municipalities get funds which will improve economic efficiency. Further, this will be used to enhance the public facilities in the municipality. Hence, it will complete the circle of the flow of the money in a positive way. Additionally, the private sectors will have the opportunities to collaborate in the green system along with the municipality which will directly affect the overall economy of the nation and there will be more possibilities of sustainable development in the municipality. With the improvements in transport many sectors will see the positive changes in the municipality.

To implement these actions, one of the key necessities is the funds. The external source will be required to initially finance the different action for the related project. The collaboration with transport facilities related companies will help in implementing sustainable transport in a much shorter period of time. For example,



collaborating with a specific bicycle manufacturing company will benefit both the municipality as well as the company.

## What will be the timeline for different goals to be achieved?

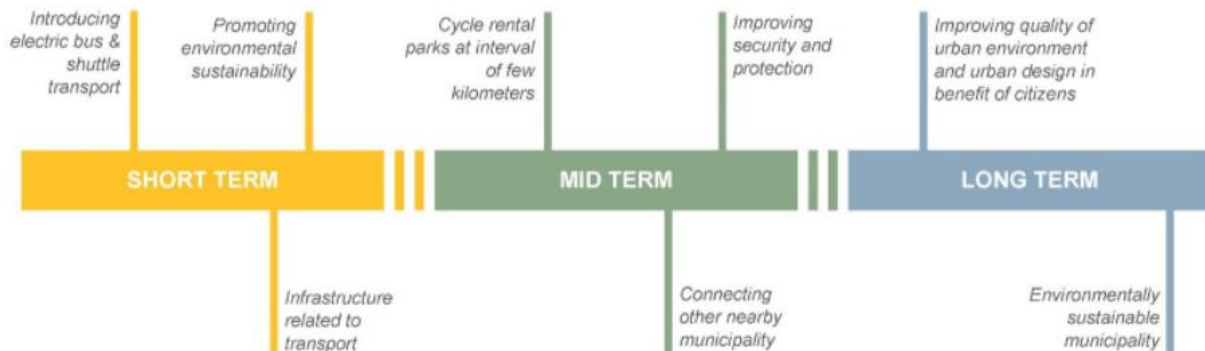


Figure 6: Timeline for development of sustainable transport system of Baleal Beach.

Source: authors.

The overall project will be divided in the different phases according to the feasibility of implementation of different goals. It will be divided in the short, mid to long term which help in defining the timeline for different actions and their specific order. Through this it will be easier to ensure social progress, environmental protection as well as economic efficiency.

## References

- Gerring, J. (2007). The case study: what it is and what it does. In *The Oxford handbook of comparative politics*.
- Cavallaro, F., Galati, O. I. & Nocera, S. (2019). A tool to support transport decision making in tourist coastal areas. *Case Studies on Transport Policy*, 7(3), 540-553.
- Gil, A., Calado, H. & Bentz, J. (2011). Public participation in municipal transport planning processes—the case of the sustainable mobility plan of Ponta Delgada, Azores, Portugal. *Journal of Transport Geography*, 19(6), 1309-1319.
- Yin, R. K. (2018). Case study research: Design and methods. In *Applied Social Research Methods Series (Vol. 6)*. Sage Publications
- Luyet, V., Schlaepfer, R., Parlange, M. B. & Buttler, A. (2012). A framework to implement stakeholder participation in environmental projects. *Journal of environmental management*, 111, 213-219.
- Turismo Centro Portugal. (n.d.). Peniche. Retrieved May 12, 2022, from <https://turismodocentro.pt/concelho/peniche/>
- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A. & Sheikh, A. (2011). The case study approach. *BMC medical research methodology*, 11(1), 1-9.
- Baptista, P., Melo, S. & Rolim, C. (2014). Energy, environmental and mobility impacts of car-sharing systems. Empirical results from Lisbon, Portugal. *Procedia-Social and Behavioral Sciences*, 111, 28-37.

- Dimitrovski, D., Lemmetyinen, A., Nieminen, L. & Pohjola, T. (2021). Understanding coastal and marine tourism sustainability-A multi-stakeholder analysis. *Journal of Destination Marketing & Management*, 19, 100554.
- Elias, A. A., Jackson, L. S. & Cavana, R. Y. (2004). Changing positions and interests of stakeholders in environmental conflict: A New Zealand transport infrastructure case. *Asia Pacific Viewpoint*, 45(1), 87-104.
- Goodrich, R. (2015). *Business News Daily*. SWOT Analysis: Examples, Templates & Definition.
- CARDI (2012). 10 guidelines for writing policy recommendations. Retrieved May 12, 2022, <https://www.lenus.ie/bitstream/handle/10147/221377/Factsheet.pdf?sequence=1&isAllowed=y#:~:text=Policy%20recommendations%20serve%20to%20inform,how%20a%20policy%20is%20working>.