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Sustainable mobility at the interface of transport and tourism, an implementation of a cooperative and suitable model

Case Study Analysis and Policy Recommendations

Abstract

The present report, created during a study visit to Portugal under the project 'SPOT. Sustainable Spatial Planning of Tourism Destinations', had as its main objective defining solutions for the structural problems of spatial planning and tourism issues in Baleal Beach.

Through the study visit to Baleal and the stakeholders conferences, it was possible for us to create an innovative forecast that presents a SWOT analysis and a policy recommendation which helps to solve the problems of seasonality, mass tourism, lack of infrastructures, accessibilities and parking cars.

Our focus has gone to sustainability, proposing a solution for the amount of cars that can be found during the high season, which leads to urban disorder and chaos. The strategic plan would be by taking advantage of the public transportation that is working in Peniche, and extend it through Baleal and Ferrel.

With the proposal we hope to achieve sustainability in the mindset of the locals and foreigners, by using less private cars, giving them more accessibilities so they can reach other parts of Baleal Beach without being in a mass area. These could lead to a more circular economy, offer more jobs for the locals, and give the chance for others to improve and develop their businesses.

Keywords: Baleal Beach, Portugal, Tourism Destination, Spatial Planning, Policy Recommendations, Public Transport, Interface of Transport and Tourism

Theoretical and methodological framework

Aim of the report

Nowadays urban areas characterised by exceptional and unique landscape and environmental areas can face a fork in the road of their contemporary history: they can join an international dialogue taking advantage of the tourism sector, but this fast and complex market leads with itself many knots.

This analysis wants to highlight actual tourism trends and major socio-economic tendencies in Peniche, identifying possible stressing factors to case study area; the ultimate purpose is to determine suitable models related to a comprehensive view for the territory users, enhancing cooperative behaviours up to the preservation of the natural resources available.

In the following paper we will unpack the bonus and malus of Baleal Beach case study in relation to the increase of users in the transport system of the city of Peniche, providing an empirical analysis and possible policies recommendation to decrease the pressure on this unique natural environment.

Literature review

Baleal Beach is a coastal town located in Leiria District, which is part of the centre of Portugal. The target point of this project would be connected to the mass tourism during the high season that leads to the lack of parking cars, traffic and image degradation. The town has major overtourism issues during the summer season, although besides agriculture and local commerce, tourism is one of the most important economic activities. During the high season it is a common place for the domestic visitors and surf tourists to spend their holidays, which results in problems such as overbooking in accommodations and big traffic. Those issues give us a perspective of the non-preparation of Baleal Beach for the amount of visitors. According to Almeida, E. et al., (2013) to change the city it is necessary to change the concept that people have about comfort, well-being and sustainability. Subsequently it is necessary to plan a new city. The changes include the implementation of more bus stops and a frequent public transportation schedule, reaching from Ferrel, through Baleal, to Peniche. As stated by Almeida et al. (2013), little by little, it will get people used to new ways of living, reducing private transport and consequently traffic chaos.

Transport is the most important prerequisite for tourism, because they often need transportation between different attractions on site, between the hotels and to explore. In rural areas, tourist attractions are scattered, and poor transport planning leads to lower accessibility for non-driving visitors (Tomej & Liburd, 2020) and are notoriously locked into private-car dependence (Hopkins, 2020).

Hopkins (2020) says: 'There are many different topics, themes, and contexts that one might propose as ways to galvanise a more extensive and sustained engagement between transport and tourism'. And the national government together with the private sector has the ability and could allocate resources to make the local economy better (Mtapuri, Camilleri & Dluzewska, 2021).

Public transportation has the potential to ease this and can act as a gatekeeper to culture contact and that can enhance the tourists' experiences when visiting different communities (Hopkins, 2020) and to have public transport the businesses activity can increase and will ultimately create jobs and economic growth. The use

of public transportation can also contribute to significant carbon emission reductions as well as aiding the financial sustainability of infrastructures, and potentially future developments (Hopkins, 2020).

Sustainable Public transportation is at the heart of the United Nations 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (SDGs). This report aims at developing an efficient public transportation system that can connect people, communities, and societies, as well as build new markets and enhance the overall quality of life in the case study, Baleal Beach in Peniche, Portugal.

Methods

Coordinate sustainable transport field is a multispectral process, it refers to a variety of mechanisms related to the spatial connection. The institutional infrastructure of public transport has several sensitive knots; the aim of this section is to unpack the methodological process of this project, listing the tools implemented to define their main utilities according to the topic, unravelling the mechanisms of this complex infrastructural sector, giving highlights of the examination processes with different data acquired, providing at least a coherent empirical model.

Offered the primary objectives of this section, we proceed to mention the data analysis methods used in a chronological order, providing a first empirical way of operation:

- Framework of the literature – Available literature is the starting instrument to approach the topic and to the case study. A framework was given according to the SPOT summaries provided by academics, concerning climate change, coastal tourism, and local planning in the interested site. This meta-analysis is crucial to develop a preliminary definition of the main questions, settings and possible arrangements.
- Experts lectures and seminars – Improving the base knowledge acquired for the development of a project is the further step. Academics as experts of fields related to SPOT workshop unpacked critical passages and topics, concerning: tips for stakeholder analysis, SWOT analysis, overtourism phenomena, policy development. Lectures had been held in a participatory format, guaranteeing a check of the theoretical elements referred to in the literature.
- Site visits – Having an overall view of the case study area is fundamental, site visits provide multiple benefits to a complete landscape assessment. We reached the situ through private transportation, exploring the area within the road connections, the land use and the shore perimeter. During the visit we documented the critical points through georeferencing mobile tools.
- GIS elaboration – Spatial innovation comes from well-planned space solutions. In these terms, georeferencing software plays a key role to provide an integrated vision of the externalities changes implemented in the drawing proposals. QGIS software is a free and open-source cross-platform desktop geographic information system (GIS) application that supports viewing, editing, printing, and analysis of geospatial data. We developed a digital 2D spatial model of the case study area -available in the following chapter – using open source geodata by OpenStreetMap. The elaboration required a second step implemented during the site visit, adding in real time images -photographs- of the weakness identified. This QGIS final project provides a comprehensive vision of situ for the proposal management.
- Local people interview – Interaction with inhabitants contribute to a multiple perspective vision, clarifying the needs, interests and possible conflicts between social and economic groups, especially with the political administration. This qualitative data collection method had a flexible structure:

local people presented their main role in the economic activities of the city and their perspective; the interview followed up with a questions session to clarify missing information from framework analysis and case study visit.

- Stakeholder analysis – Inhabitants that move and act into space play significant changes in the environment. Clarify actors and their role is the further passage after the qualitative data elaboration of the previous methodological passage. This essential tool highlights the role and the agency of the possible actors involved in the project; the definition refers to a matrix that shows their power and interest through a 1-10 points scale. Stakeholders considered for the proposal solution are at various levels of governance, economic sector geographical localization.
- SWOT analysis – Order in mind internal and external processes of a spatial area require a sharp conceptualization of the interested environment. At this stage of the empirical process, the definition of processes as positive and negative according to their location reveals the actual and possible future trends of the case study area. With this tool we determined internal trends as strengths and weaknesses and external ones as opportunities and threats.
- Policy recommendations formulation – This last step of the methodological assessment applies to the implementation of possible innovation according to the previous passages that contribute to determine the project aim definition. Policies provided in this paper have been determined establishing a categorization of the possible problems, as shown in the specific section. Possible solutions presented are successively presented in a chronological order of implementation, defining the most possible short term impact of the proposed recommendations.

Case study analysis

Case study area

The territory corresponding to the current municipality of Peniche has been successively occupied by populations who made fishing and agriculture their main economic activities. Its geomorphologic specificity, oscillating between an insular/peninsular reality seems to have shaped and conditioned, from a socioeconomic and cultural point of view, the populations that have occupied this territory over time, simultaneously allowing the municipality of Peniche to the stage of important historical events of national and international nature. From 16th century onwards, with the gradual formation of the current dune cord that connects Peniche to the mainland and the consequent silting up of Atouguia's harbour, there has been urban growth, resulting from the progressive increase in the number of inhabitants in the town, due to the intense exploration of the economic resources available in Peniche's peninsula, mainly fishing and shipbuilding industry.

Baleal Beach has been discovered in the last years due to the surf activity and the good weather conditions that the place offers for the sports practices. A lot of surf schools can be found along the coastline, which contributes to the development of tourism in the area. Regarding trade, it is visible a strong weight of commercial activity, especially local production, as well as the sale of vegetables and fruits. It is also important not to forget the importance of fishing activity, which gives a strong dynamism to the accommodation and restaurants due to the sale of fish in these establishments.

In the tourism activity, Baleal has always offered a Sand, Sun and Sea tourism experience, where it makes bathing activities possible, in a natural environment, which happens in seasonal periods, with greater

incidence in the months of June, July, August, and September. This leads to a mass tourism that involves thousands of people going to the same destination at the same time, bringing problems such as the shortage of accommodation, lack of parking cars and can lead to disagreements with the locals.

Parallel to the evolution of tourism, a growing interest of people in sports and health lifestyles has been developing worldwide. Because it is currently one of the most popular sports in the world, the surf enjoys at the moment a strong brand image in Baleal, which constitutes a recent business opportunity through their natural potential. Surf Tourism has been associated with the social, economic and environmental phenomena in Baleal Beach, that implies receiving tourists in a non-seasonal time period.

Stakeholder analysis

To build and sustain a successful plan we need to pay attention to the stakeholders, and how to manage them. Defining the stakeholders of the case study area was one of the important parts of this project. Because they are the ones who can influence, and are getting influenced by the plan. Well-balanced and sustainability new solutions have to be related to their needs and expectations. Stakeholder analysis aims to understand stakeholders from the perspective of an organization, or like in this case to determine their relevance to a project.

To make more clearly who the stakeholders are we decided to prepare the table with a precise description of them. We were also able to take part in a meeting with local people called “Locals talking”, so it was a great opportunity to recognize the main problems which they had to face in the Baleal Beach area. Below we present the table with all collected information.

Table 1: Stakeholder analysis.

Stakeholders	Characteristics and role	Impact on stakeholders (low/ medium/ high)	Influence on project (low/ medium/ high)	Interest and expectation	Strength and weaknesses
Consumers, Tourists (surfers, families), Local people	The biggest group of stakeholders. Socially diverse (different age, origin, salary, interests). Tourist – short term visitors. Local people – permanent citizens.	HIGH – Impacts the everyday life. Increase the road “flow” and encourage to use public transport instead of private cars.	HIGH – Their needs and opinions are really important and must be included. They are directly related to the project set up.	Tourists would like to enjoy their time during holiday and be able to use all the facilities around the beach and in the city centre. Local people have a lot of different expectations. The main ideas, expectations they mentioned: 1) future develop should be based on the surfing, 2) they do not believe in the idea of mass	Strengths: 1) better access to the every part of the Peniche, Baleal, 2) in summer less traffic jams, 3) represent a hire numbers of potential user. Weaknesses: 1) not every one of local could be pleased because of new municipality investments in the Baleal, Peniche, 2)

Stakeholders	Characteristics and role	Impact on stakeholders (low/ medium/ high)	Influence on project (low/ medium/ high)	Interest and expectation	Strength and weaknesses
				tourism and related infrastructural development, they want to save the raw landscape and protect the environment (example from car pollutions), 3) they are interested in preserving fishing activities (important tradition of the area).	protest against new investments.
Hospitality owners (hotels, restaurants, markets, bars, surf schools, cafeteria)	The owners of a local services. Their businesses are closely related by the amount of tourists.	MEDIUM – Increase the facility and the road “flow”. Increase the market. Impacts the everyday life.	HIGH – Locals and places are directly related to the project set up.	Better public transport means better place availability. Easier way to get to Baleal Beach means more tourists and more opportunities to raise business income.	Strength: 1) involved in the project, 2) ready to cooperate with each other, 3) lot of place in Baleal, Peniche to develop their business. Weaknesses: 1) competition and rivalry between two similar services.
Government (rules, tax, laws), State and land of Portugal	People responsible for the actual rules and documents like strategies and concepts. On every level of country management.	HIGH – Impact on economic and environment. Nearly related to sustainability development.	HIGH – The implementation and realisation of the project depends on their decisions and on the law they create.	Development of the region will attract more tourists and may have a positive impact on the general country overview.	Strength: 1) high decision-making, 2) authority. Weaknesses: 1) approval of documents that will consolidate changes in transport.
Financial suppliers (government, European funds, partners)	Group related to the funds and money. The most important part of stakeholders.	HIGH – Related to society and economics.	HIGH – The implementation and realisation of the project depends on the amount of	New investments may be the driving force of economic development. It leads to the improvement of	Strength: 1) the driving force of the entire project. Weaknesses: 1) the amount of money and

Stakeholders	Characteristics and role	Impact on stakeholders (low/ medium/ high)	Influence on project (low/ medium/ high)	Interest and expectation	Strength and weaknesses
			money they can spend on the project.	the value of life for everyone in the study area.	donation depends on taxes and inflation.
Transport institution	All of the carriers, both private and public.	HIGH – Possibility to improve and develop the whole system of transport, both private and public.	HIGH – The main aim of the project is related to public transport.	Possibility to develop the local means of transport (like buses or bikes for example). Reduce negative impact on the environment.	Strength: 1) better transport infrastructures, 2) more and well-designed parking spaces.
University and experts	Academic community from Polytechnic of Leiria (students and teachers). Experts: urban planners, transport planners, tourism destination management.	MEDIUM – Opportunity to gain practical experience. Possibility to use professors and experts knowledge.	MEDIUM – Important but less than the other one.	Opportunity to use the knowledge in practice.	Strength: 1) Source of knowledge.
Competitors (other beaches, lands, regions, cars, activities)	Areas similar to Baleal Beach (like Nazaré in Portugal, Biarritz in France or Tenerife Island). The other ways of spending free time in Portugal (like sightseeing or diving for example).	MEDIUM – More competitors means higher competitiveness. Opportunity to develop the region of Peniche, Baleal.	MEDIUM – Good research similar places may be useful to check the tourist market in the neighbourhood.	The greater competitiveness of the region attracts more tourists.	Strength: 1) higher competitiveness, 2) mobility to be better and better. Weaknesses: 1) unhealthy.
Local businesses	Group of people who have their company and businesses located near	HIGH – Increase the facility and the road “flow”. Increase the market. Impacts the everyday life	HIGH – They are members of the local community. Their opinion is also important. Their business	Higher income, easier way to find new employees.	Strength: 1) involved in the project, 2) ready to cooperate with each other, 3) lot of place in

Stakeholders	Characteristics and role	Impact on stakeholders (low/ medium/ high)	Influence on project (low/ medium/ high)	Interest and expectation	Strength and weaknesses
	the area of study.		interacted and created the local economy and industry.		Peniche, Baleal to develop their business. Weaknesses: 1) competition and rivalry between two similar services.

Source: own elaboration.

The first step in stakeholder analysis was to identify who our stakeholders are. We decided to stand out 9 groups of them. The table below contains all of them. Next we worked out their power and interests. Every single type of stakeholder had been rated from 1 to 10, where 1 is the lowest rating and 10 is the highest one.

Table 2: The power and interest of the stakeholders.

No.	Name of Stakeholder	Power (1-10)	Interest (1-10)
1	Consumers	6	8
2	Hospitality owners	6	10
3	Government	10	5
4	Financial Suppliers	10	10
5	Transport institutions	7	10
6	University and experts	3	7
7	Competitors	7	2
8	Local businesses	6	6
9	Local administrations	10	10

Source: own elaboration.

After that based on the above table we construct a matrix of our stakeholders. Many of them are located in one part of this diagram. The highest power and impact on our project may have first of all financial suppliers and government. Suppliers are responsible for funds and money essential to beginning changes in the case study area. Also local businesses, local administrations, consumers, hospitality owners, transport institutions we really need to take into consideration and account during creating the project. Furthermore, the

government and their decisions related to the law, documents and strategy of the special planning system are the key in this project.

Moreover, we need to pay attention to the group of stakeholders in the left top part of the matrix. Competitors like the other similar places or activity could pose a threat to successfully implement our project.

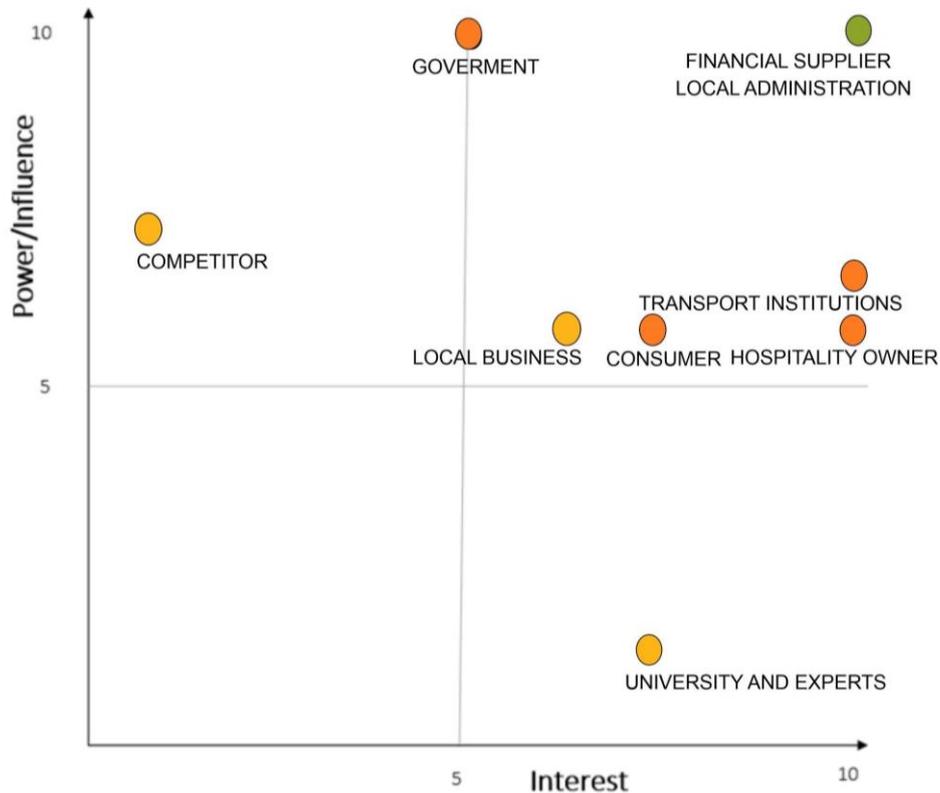


Figure 1: The map of the stakeholders influence and interest.

Source: own elaboration.

In the next step we divided the stakeholders to find out how to communicate with them. This division also helps to know how to engage our stakeholders in our project. Figure 2 presents the result.

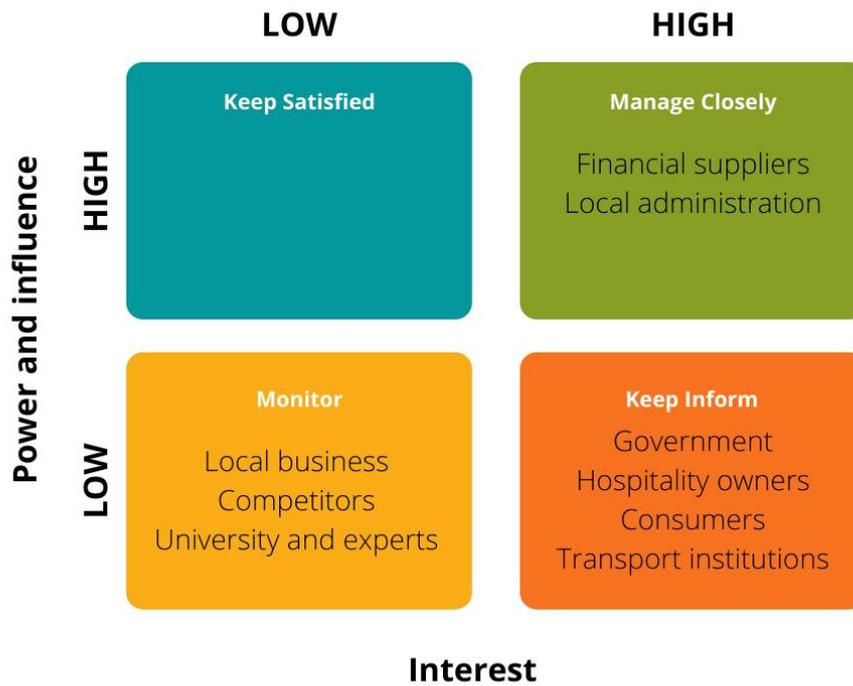


Figure 2: The highs and lows of the interest and influence.

Source: own elaboration.

SWOT analysis

The evaluation of the SWOT analysis is necessary, in order to be able to identify present and future risks and opportunities that may influence the company or location. The objective of this analysis is to strengthen the knowledge of managers in decision making, and thus facilitate strategic decision making in view of the internal and external environments.

Table 3: SWOT analysis.

Internal	
Strength	Weaknesses
Localization – close to Lisbon Surfing capacity in sea Good weather conditions Lots of natural resources and viewpoints	Lack of accessibilities Lack of roads infrastructure Lack of car parking areas Lack of collaboration Urban disorder Stealing the private cars

	Pollution of private cars Lack of information for the tourists
External	
Opportunities	Threats
Public transport in Peniche to connect the different areas One thousand tourists in the summer Increase of the surf interest Involve the “low” season Increase of the facilities (store, activity) World surfing championship in Peniche Develop ways to integrate sea related activities (fishing, tourism, energy biotechnology, environmental education, environmental nautical sports) Requalification of the preserving the coast with sustainable transportation Increasing the job opportunities Attract more national and international events Implement a circular economy	Increasing of prices for the locals Mass tourism, overtourism Destruction of the environment Decrease of local traditions

Source: own elaboration.

Policy recommendations

Here we have represented a limited set of recommendations on which the seminar participants reached a general consensus for solving the proposed problem. Representing the starting point for further discussion.

As a starting point, the group thought of sustainability as the main goal, and so the decision-making processes would be by increasing the awareness of institutions and persons about ecological sustainability. These could be reached by promoting long-term thinking, the use of a more responsible way of transport and accessibilities. We recognize that these policies will be difficult at first, however, there is a need for the location to operationalize the goal of sustainability due to the tourism impacts.

A minimum necessary condition for sustainability is the maintenance of the total natural coastal area or above the current level. Given our uncertainty and the dire consequences of guessing wrong, it is best to at least provisionally assume that we are giving a possible solution that will sustain and not decline the natural place.

Related to the policy instruments, we need to use a wide variety of them including regulation, permits, fees, and bonds to assure sustainability. We may use the municipal council and transport services incentives to

appropriate in the allocation decisions. In decisions of scale, must yield to democratic collective decision making by the relevant local community.

Following, the policy recommendations arranged to provide a temporal priority actuation – 1 year term:

- Labour organisation – It helps to overcome the perceptual separation between citizens and institutions, providing habitual feedback in relation to the economic and social dimension.
- Visitor tax – This measure can contribute to underpin municipal investment for the selected study area.
- Blue parking lots close to Baleal Beach – This measure can contribute to underpin municipal investment for the selected study area and establishes a fair land management through the beach users.
- Transportation system stock – Acquire electric buses and cycle rent system to guaranteeing a environmental efficient service.
- Seasonal strategic mobility assessment – It can lay the short term processes of mobility actors.
- European and governmental funds – Amount of economic resources available by supranational and national institution.

And 5 year term:

- Cultural path application – Development of an informative service to city users to make them aware of cultural activities, main infrastructure services and news.
- Improve cycle paths – Providing a safe network for cycles mobility.
- Pedestrian safety – Improve the quality and safety of pedestrian network.
- Walkable areas – Improving actual and increment the kilometres of space useful to pedestrians.
- Strategic mobility assessment – It can lay the medium term processes of mobility actors.
- European and governmental funds – Amount of economic resources available by supranational and national institution.

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