Applying GIS methods to assess the attractiveness of a tourist destination: the case of railways tourism

Udrius Armalis, Laura Valatkaitė
Klaipėda university, Vilnius university (Lithuania)
udrius@superkeliones.lt , laura.valatkaite@gmail.com

INTRODUCTION

Introduction Railway tourism dates back to 1840 when rail excursions began in England. Throughout time, expanding railway networks and cheap train fares led to the development of rail excursions, whose purpose was to visit new tourist destinations (cities, the seaside, or exhibitions). Later on, other types of rail tourism were also developed, such as scenic train journeys, journeys by luxury trains, and using heritage railways, etc. However, the discontinuation of regular rail services and the dismantling of railway lines has reduced the interest in rail tourism. According to the National Lithuanian State Database, in 2019, the majority of foreigners came to Lithuania by flying (46.1%) and driving (40.7%), whereas most Lithuanian citizens traveled by car (89%). Therefore, the European Union has developed several measures to encourage rail travel and one of them is Rail Baltica. This railway will connect the Baltic states with the European rail network. Henceforth, this development will boost the interest in rail tourism in the region. It also has to be noted that this type of tourism contributes to the sustainable development of the region, and the more tourist stops there are, the higher the increase in the tourist attractiveness of the area. However, when new stops are built and old ones are restored, questions arise as to whether the chosen location has a sufficient number of tourist attractions to stimulate tourism development in the region. How the tourism destination attractiveness should be assesed?

The aim of research To assess the attractiveness of tourist destinations on the railway line in Western Lithuania (Klaipėda - Šiauliai - Pagėgiai - Klaipėda) using GIS methods

Objectives To identify former and current train stops on the railway line in Western Lithuania (Klaipėda - Šiauliai - Pagėgiai - Klaipėda), to determine the boundaries of the tourist sight in the case of railway tourism, to assess tourist attractiveness of the train stops while using GIS methods.

The methods of the research analysis of scientific literature, analysis of historical cartographic material, quantitative research by online survey, spatial analysis

Theoretical background

In the case of rail tourism, it is crucial to identify the boundaries of the tourist destination. Most researchers refer to the boundaries of a tourist destination as national, regional, or municipal boundaries. Other researchers point out that the boundaries of a tourist destination cannot be determined by municipal, national, or DMO (destination management organization) boundaries, yet defined by the tourists themselves, based on their destinations, aimed tourism services, and other factors. In the case of rail tourism, these boundaries can be defined by the tourist resources and services available in the area during dwell time.

For rail tourism, the boundaries of the tourist destination are created based on the assumption that tourists visit these destinations on foot during the train's dwell time. Therefore, it is essential to determine the walking distance beyond which a traveler will choose another means of traveling. This distance is widely used in urban planning but is little considered in tourism. In urban planning, it is generally accepted that the optimal distance from homes to restaurants or shops on foot is ¼ mile. Other authors indicate that the average walking distance to reach a destination is up to 511 m, 670 m, 882 m, or only 337 m. It has to be added that this distance depends on the chosen tourist activity and other factors. Thus, there is no consensus on what the acceptable walking distance is.

The Travel and Tourism Competitiveness Index is the most commonly used index to assess the attractiveness of a tourist destination. This index includes factors such as the environment, travel, and tourism policy and its enabling conditions, infrastructure, and natural and cultural resources. This assessment is suitable for assessing the competitiveness of countries, but not for assessing the attractiveness of smaller tourist destinations. Other authors have therefore used other evaluation criteria to assess the attractiveness of a destination, such as natural, historical, and cultural resources, security, accommodation, recreational activities, accessibility, dining, shopping, events, etc. Thus, there is no single method for assessing the attractiveness of a tourist destination.

GIS methods are already used in tourism research. They have already been applied to the study of accessibility, the development of tourist routes, the identification of the most visited tourist destinations and their preferred activities, and other tourism planning problems. Therefore, GIS methods can also be applied to assess the attractiveness of tourist destinations.

Main findings

The historical cartographic material of the railway line Klaipėda - Šiauliai - Pagėgiai - Klaipėda has been analyzed. Consequently, 122 former and existing railway stops have been identified (Figure 1). To define the boundaries of the tourist destination in 2024, an online survey on rail tourism was carried out with 484 respondents (the survey sample was determined based on the Paniotto formula, the general population size: 1 million local tourists, the margin of error is 5 %, the sample size is 399 respondents).
To the question "If you had to walk from the train station to a tourist attraction during a tourist journey by train, how far would you be willing to walk, in meters one way?" 32% of the respondents would agree to walk 1 km, 23% would agree to walk 2 km or more, 12% would agree to walk 1.6-2 km and 8% would agree to walk 1.5 km. Thus, it can be concluded that for rail tourism, the optimum boundary for a tourist destination is a 1 km radius from the stopping point and the maximum radius is 2 km. This distance is larger than the walking distance found in the urban survey, suggesting that people choose to walk longer distances during journeys. To assess the attractiveness of tourist destinations, a map was created.

Publicly available GIS-based databases were used, including the following tourism resources and tourism service providers: accommodation and catering establishments, cultural attractions, protected areas, attractions collected by TIC (Tourism Information Center), recreational facilities, natural heritage sites, museums, and sites of religious heritage. Subsequently, an assessment of the attractiveness of tourist destinations was executed (Figure 2), defining boundaries within a radius of 1 km (optimum size) and 2 km (maximum size) from the train stops. Based on the data collected, the following 10 most valuable tourist sites were identified: Klaipėda, Šiauliai, Šilutė, Priekulė, Telšiai, Kretinga, Leuchttum, Plungė, Rūkai, Pabaliai.

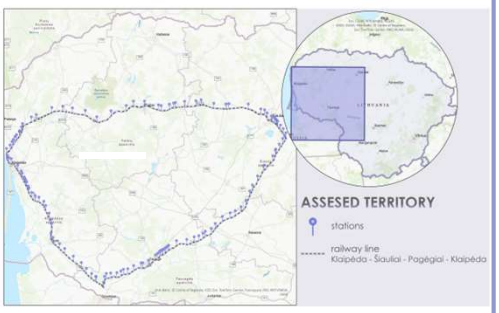

Figure 1: Assessed territory

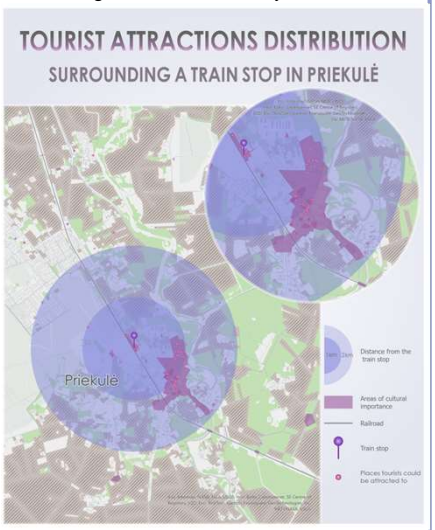

Figure 2: Tourist attractions distribution

MAIN RESULTS AND CONCLUSIONS

1. There is no single methodology for assessing the attractiveness of a tourist destination. However, the most commonly used criteria for assessing attractiveness are natural, historical, cultural resources, safety, accommodation, recreational activities, accessibility, dining, shopping, events, etc.
2. For rail tourism, the boundaries of the tourist destination have been defined as a radius of 1 km from the stopping point (optimum boundary) and 2 km (maximum boundary). This distance is larger than the walking distance in the case of urban planning, explained by the fact that for different activities the walking acceptable distance may be different.
3. GIS methods are applied to assess the attractiveness of tourist destinations. In the case of rail tourism, these methods make it possible to predict tourist-worthy stopping points, which makes rail travel more valuable and attractive to tourists.