“Rovanieni, the Heart of Lapland”: STESY Based Sustainable Tourism Development Strategy Linking Local Traditions and Modernity in Finland

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Abstract. This study explores the multifaceted dimensions of tourism development in Finland, focusing on Rovaniemi, a key destination in the country’s northern Lapland region. Known for its striking natural beauty, vibrant cultural heritage, and unique attractions such as the Northern Lights and Santa Claus Village, Finland welcomed over 6.7 million tourists in 2019. The research adopts a sustainable tourism planning perspective through the application of the STESY model—a methodological framework for identifying and enhancing local tourism Destination Areas (DAj) based on Attractors, Services, and Reachability. Using open data and cluster analysis, the study presents a place-based strategy titled “Rovaniemi: the Earth of Lapland between Tradition and Modernity”, which integrates local identity, indigenous Sami culture, and environmental sustainability. This work contributes to the discourse on tourism as a component of territorial planning, aligning with principles of the New Urban Agenda. It aims to provide a qualified decision support system for policymakers. The findings underscore the importance of balancing tourism flows with conservation efforts and socio-economic benefits, addressing issues like seasonality, infrastructural limitations, and community engagement. The study sets the groundwork for future research involving participatory approaches and advanced spatial analysis tools to refine sustainable tourism strategies in Northern Finland. Discussions and conclusions highlight research insights, limitations, and future directions for sustainable tourism development.

Keywords: New Urban Agenda · Sustainable development · Sustainable tourism ecosystem · STESY

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1 Introduction

Finland, form a tourism point of view, is known for its unique blend of natural beauty, vibrant culture, and outdoor activities. In 2019, Finland welcomed over 6.7 million tourists, with significant growth in recent years driven by interest in nature-based activities and cultural experiences. Among major country's generating tourism flows to Finland: Russia, Germany, Sweden, and the United Kingdom. Tourism growth represents a critical issue in order to foster sustainable development strategies for urban and regional level from an interdisciplinary perspective. From the global perspective [1–3] to the operational level of key essays discussing various aspects of sustainable urban planning, land use, transportation, and ecological design [4]. Challenges and opportunities of sustainable urban development generally are positioned in the conflicts between economic growth, social equity, and environmental preservation in urban planning [5].

Current trends, more than standard rules, in policy recommendations are at the basis of key international institutional references [6, 7] and academic applications [8–11].

Tourism is a key sector for current debate in urban sustainability [12–16] and it represents and horizontal domain of policy making and design implementation in a multiscale [17, 18] and multistakeholder perspective [19].

In this case study we refer to an application of the STESY model in a specific case study: the enhancement of Rovaniemi tourist region in Finland through a "place based" strategy orienting to overcome specific issues in sustainable tourism development perspective.

The norther area or the country is mainly identified as a tourism destination according to relevant highlights:

- Northern Lights: Finland's Lapland region offers excellent opportunities to witness the mesmerizing Northern Lights, especially during the winter months.
- Santa Claus Village: Located near Rovaniemi in Lapland, this attraction draws visitors year-round to meet Santa Claus and experience a winter wonderland.
- Wildlife and Nature: Finland boasts expansive national parks like Nuuksio and Oulanka, offering pristine landscapes for hiking, skiing, and wildlife spotting.

Such features are considered in this paper in order to achieve a comprehensive design for local tourism system on the ground of a robust analytical process oriented to identify local tourism Destination Areas according to STESY methodological framework. Open data and Cluster analysis are applied in order to combine interpretative approach to quantitative design approach during studio lab developed with architectural university students at University of Basilicata.

Tourism as a territorial planning component represents the disciplinary position of this paper, we aim at provide qualified decision support system in defining and support policy making territorial development process referring to the New Urban Agenda as a toolkit for better decision making.

The paper presents the research methodological framework and process. Then, it describes the case study area and the analytical approach based on STESY model. The proposed development strategy "Rovaniemi: the earth of Lapland between tradition and modernity" integrates local characters and sustainable issues related to enhance tourism

eco-system in Northern Finland. Discussions and conclusions section proposes main highlights of the research, limitations and future perspectives.

2 Background and Scope of the Research

The STESY model [20] serves as a conceptual framework for analyzing and organizing knowledge related to specialized tourism phenomena, with a particular focus on spatial and territorial aspects. This taxonomy provides a structured system for classifying and managing information, supporting the analytical process from the initial phase of territorial classification to the development of strategic decision-making frameworks. The hierarchical approach of the model enables the classification of specialized tourism into three distinct levels: Specialized Tourism Ecosystem, Specialized Tourism System, and Specialized Destination Area (DAj). The latter represents the primary unit of analysis for describing the territorial tourism supply. A DAj does not necessarily correspond to traditional administrative boundaries but is instead defined by the spatial and functional organization of the local tourism system. Consequently, a DAj may encompass multiple municipalities or, conversely, multiple DAj may exist within a single municipal boundary. The conceptualization of DAj is formalized as follows:

$$\mathbf{DAj} = \mathbf{f}(\mathbf{Aj}, \mathbf{Sj}, \mathbf{R})$$

where:

- Aj (Attractors) refers to physical points of interest (POIs), including officially recognized national and international tourist attractions (e.g., UNESCO sites, certified historic villages, Blue Flag locations, etc.).
- Sj (Services) includes facilities within the tourism supply chain, such as accommodations and restaurants, each defined by specific locations and attributes.
- R (Reachability) represents the accessibility of the destination, encompassing the infrastructural and organizational system that allows visitors to reach the area via different modes of transportation (e.g., train stations, bus terminals, parking facilities).

A key aspect of the STESY model is the concept of tourism specialization (j), which categorizes a destination based on its predominant tourism type (e.g., cultural, gastronomic, nature-based tourism). This approach enables a detailed understanding of the relationships between functional sub-regions within a territory, facilitating the formulation of data-driven tourism development strategies. By applying this methodology to selected case studies, it is possible to construct a territorial network, enhancing the comprehension of spatial interconnections within the tourism system.

The research approach is based on the following phases (Fig. 1):

1. Analysis: Case study description through main tourism statistics, policies and analytics.
2. Application of STESY model: spatial data selection and classification, stakeholder identification, DA identification and benchmarking
3. Design: objectives identification, territorial scenario and design solutions, NUA compliance assessment.

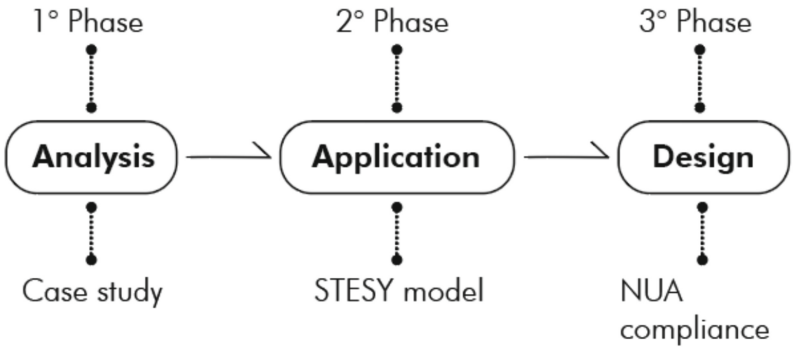

Fig. 1. Description of the methodological framework.

The methodological framework is applied in Finland case study highlighting issues and opportunities in tourism development strategy. The framework is structured in three different phases that start from the evaluation of tourism supply in given territories to support the design proposal in order to consider specific identity values of territories.

2.1 Case Study Analysis: Finland

Finland, located in Northern Europe, is renowned for its extensive forested landscapes and abundant waterways. With approximately 75% of its territory covered by forests, it ranks among the greenest nations in Europe. The country is also home to more than 188,000 lakes, forming a vast and intricate network of freshwater bodies. Data from official sources (www.visitfinland.it) provide valuable insights into quarterly travel trends and demographic information on Finnish travelers, segmented by age and gender. The analysis explores travel preferences, distinguishing between solo and family trips, as well as the types of accommodation chosen, along with their respective percentages. The survey also highlights the country's main tourist attractions, identifying Helsinki and Rovaniemi as the most visited destinations. Lastly, the data traces the evolution of tourism in Finland from 2019 to 2023, with a particular focus on overnight stays.

As shown in Fig. 2**,** the analysis of the tourist visits trends from 2019 to 2023 reveals a sharp decline in 2020, reaching the lowest point of the entire period due to the restrictions imposed during the COVID-19 pandemic. Starting in 2021, a slow recovery begins, followed by a steep increase in 2023. This upward trend peaks in the final month of 2023, with visitor numbers returning to pre-COVID levels—an encouraging sign of a growing and recovering tourism sector.

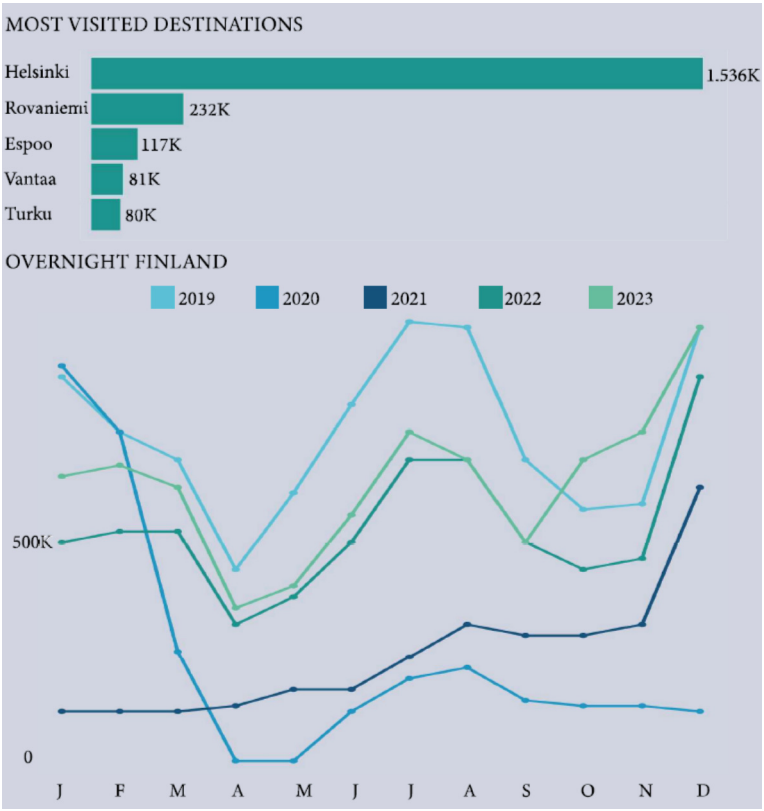

Fig. 2. Personal elaboration of Tourism trends. Source: www.visitfinland.it

2.2 Application of STESY Model

The analysis of the territorial system and tourism offer in the study area was carried out following the STESY model, which categorizes key elements into three main components: Attractors, Services, and Reachability.

Using the GEODA software[21], a cluster analysis was conducted to identify the Destination Areas, supporting data-driven territorial planning. These clusters—referred to as Destination Areas (DA_)—were then analyzed in detail.

As shown in Fig. 3, fifteen clusters were identified, revealing a significant presence of trails as key attractions across the country, particularly when compared to cultural tourism. A higher concentration of services, attractions, and accessibility is evident in the southern part of the country, especially around the city of Helsinki. However, in the northern regions—despite high tourist presence—these elements are less prevalent. Three key issues emerge from the analysis: the disparity between urban and rural areas, the lower level of infrastructure in less densely populated zones, and the growing tourist demand in these underdeveloped areas.

In the rural area of Rovaniemi, distinct local identity values emerge, closely tied to the region's cultural and natural heritage. One of the most significant aspects is the

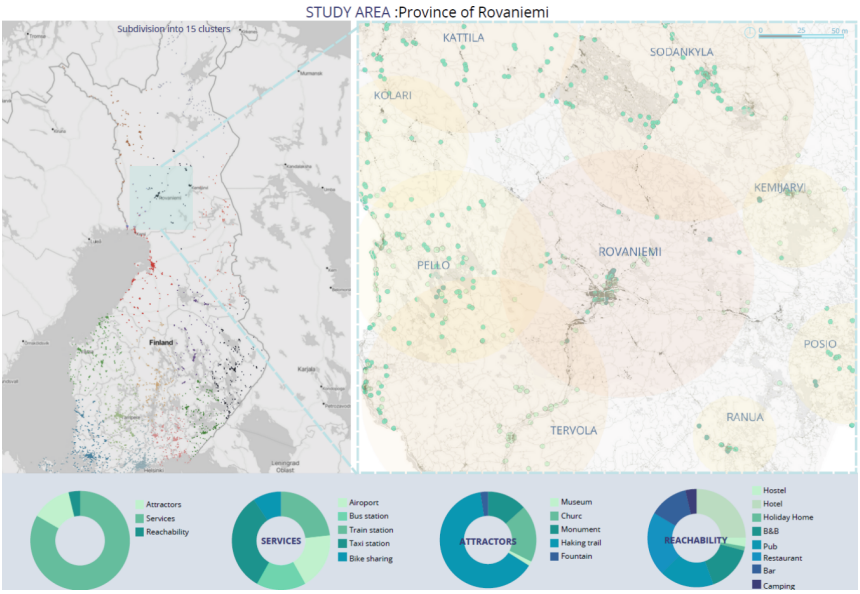

Fig. 3. Study area with Destination areas identification and evaluation.

Sámi culture, belonging to the indigenous Arctic people who inhabit the region known as Sápmi. As one of the oldest indigenous cultures in Europe, it is deeply rooted in a strong spiritual connection to nature, rich artisanal traditions, and a unique way of life. A notable example is the use of reindeer for transport—a traditional practice of the Sámi people that, over time, has been gradually replaced by faster and more efficient methods such as electric snowmobiles.

2.3 The Heart of Lapland Between Tradition and Modernity

Guided by the STESY model and the New Urban Agenda [22] principles, the intervention includes the creation, job opportunities, infrastructure for biodiversity protection, and the promotion of local culture and mobility. Cluster analysis identified Das in Rovaniemi area as the most in need of investment.

In order to enhance local identity while preserving the authenticity of the area from the impact of mass tourism, the proposed project aims to improve the supply system by promoting the traditional Sámi mode of transport using sleds and reindeer. To support this, the included map illustrates historical routes that, even in ancient times, connected various destination areas. Eight main routes have been identified and represented (Fig. 4). The analysis highlighted the need for frequent rest breaks required by reindeer during transport. Two main scenarios emerged:

- For light loads, a reindeer pulling a sleigh requires a break every 10–15 km, lasting between 10 and 25 min.
- For heavier loads (every 40–50 km), reindeer need an overnight break or a significantly longer rest period.

The project idea (Fig. 5) for rest breaks stems from an analysis of the concept of the *bivouac*, historically used in harsh environmental conditions or during long journeys. This concept has been reinterpreted as a rest area for both travelers and reindeer. During the study, a historical bivouac was identified along the first route, confirming its past significance as a strategic stopping point. The project envisions the creation of 12 route stars—wooden structures equipped with grazing areas—which would also generate new employment opportunities. This solution not only ensures sustainable transportation that respects local traditions but also contributes to the economic development of the area by enhancing the Sámi cultural heritage.

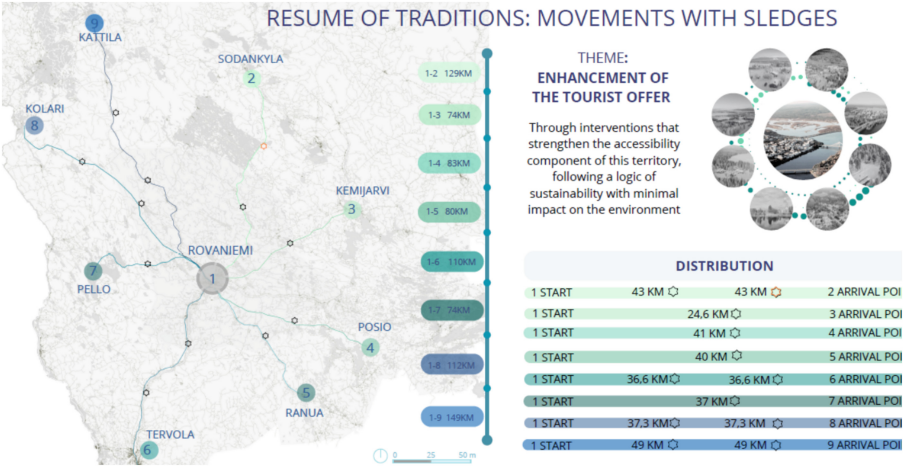

Fig. 4. Routes system and bivouac distribution in Rovaniemi area



Fig. 5. Design render

3 Discussion e Conclusions

This research discussed a procedural approach based on the STESY model to develop a territorial sustainable tourism development strategy for Norther Finland. In particular the study area is centered on "ROVANIEMI" well known as Santa Claus Village, the second tourism destination of the Country. In order to support evidence-based decision-making, by applying the STESY model, we have identified key tourism Destination Areas (DAj) and analyzed their components: Attractors, Services, and Reachability. Our findings underscore the need for a balanced tourism strategy that integrates natural and traditional cultural heritage linked with indigenous Artic people (Sami culture) oriented to exploit in a sustainable way local territorial characteristics promoting diagonalization in tourism and additional socio-economic benefits fro the region [23–25].

The proposed development strategy, "Rovaniemi: the earth of Lapland between tradition and modernity", aligns with the New Urban Agenda by enhancing accessibility, fostering environmental conservation and promoting responsible tourism practices balancing soft actions oriented to organize traditional travel experience in the Wild Northern Finland, and localized investments delivering accommodation and tourism facilities along the design routes. The result is more structured and resilient tourism system that benefits both form the international brand of Santa Claus Village and a process oriented to deliver work opportunities for local groups of people rediscovering ancient traditions. On one side it represents a strategy to overcome the under-exploitation of local characterized natural values, on the other it fosters a process of rebalancing tourism supply chain in natural sites where ordinary accessibility generates conflicts with climate and environmental features [26–29].

The limitations of the study derive from data source and data availability (mainly based on open data [30] - Open Street Map - implemented in the STESY model) and the need to share proposed solution with local operators and stakeholders in order to achieve the local validation of the proposals.

This study was conducted on the basis of a University Class Studio conducted with Architectural students at the Basilicata University. Therefore, the character of the application is an academic application more than a real case study test. It reinforces a teaching objective oriented to test downscaling of the New Urban Agenda Principles on different topics and thematic area [31–35].

Future research should explore advanced spatial analysis techniques and participatory approaches to refine the STESY model [36–39] implementation placing results in the framework of real decisions making processes for tourism policymaking [40–44]. Enhancing tourism governance, by continuing to integrate sustainability principles [45] into urban and regional tourism planning, Rovaniemi area can further solidify its position as a leading destination while preserving its unique cultural and natural assets.

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