Tourism Ecosystem Domains

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Abstract. The study deals with the effects of tourism promoted by European Union public investment policies. Tourism is considered as a cross-cutting area topic that receives strategies and funds aimed at promoting socio-economic development and enhancing resources in marginal areas. While it is true that an increase in attractiveness leads to an increase in tourist flows and demand for goods and services, the actual positive impact in terms of territorial capital growth and increased quality of life for residents remains uncertain. Following significant funding and the implementation of a specialized tourism policy, the current indicators used to monitor investment reconstruct a scenario that is poorly articulated with regard to potential externalities. The paper argues that tourism cannot be evaluated solely from an economic or environmental point of view, but has to be considered as a relational phenomenon involving different actors and disciplines. The use of an integrated and multidisciplinary framework based on the network of relationships between the interested parties allow for a more precise and complete assessment of the impact of tourism on the territory, thus providing a solid basis for the development of tourism policies and strategies based on sustainability principles.

Keywords: Sustainable tourism · rural areas · tourism policies · tourism ecosystem

1 Introduction

The main objective of the Cohesion Policy is to promote greater equity and cohesion among the regions of the European Union through the allocation of funds to balance economic and social differences between these areas. This means that economically less developed regions receive greater financial support to develop and improve their economies, in order to reach a level of development closer to that of the more developed regions of the EU. The regional cohesion policy contributes to promote the economic and social growth of the European Union, by fostering the balanced development of regions and ensuring cohesion among them. It represents a main component in regional development programs and policies [1] and, according to the perspective of the authors, the place-based criteria still remains a major objective in order to improve the effectiveness in local implementation [2–7].

The main financial instruments of the cohesion policy are the European Regional Development Fund (ERDF), the European Social Fund (ESF), and the Cohesion Fund.

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The ERDF provides funding for projects related to research and innovation, competitiveness of enterprises, environment, sustainable mobility, and energy. Tourism as an investment sector represents a potential driver for the integration of funding and local programming to lead the sustainable development of marginalized areas and, sometimes the local implementation experiences not clearly demonstrate the effectiveness of public investments against the general territorial development objectives [8–10].

The benefits generated by tourism in terms of job creation and income generation can also help to preserve and promote local cultural heritage and natural resources [11].

One of the key strategies for rural tourism development is the creation of attractive and high-quality tourism products that are tailored to the needs and interests of different types of tourists. This can be achieved through the development of specialized tourism services and products that are designed to showcase the unique characteristics and resources of the rural area integrating prominent tangible and immaterial tourism assets (natural, cultural, social) [12]. For example, rural areas with rich cultural heritage can develop cultural tourism products [13], while those with natural resources such as forests and lakes can focus on outdoor and nature-based tourism [14].

Another important strategy for tourism development is the establishment of partnerships and networks among local stakeholders, including tourism service providers, local communities, and public authorities. It has to be intended as a network of interrelated and interdependent players, resources, and processes [15]. Collaboration and cooperation can help to ensure that tourism development is sustainable, benefits local communities, and minimizes negative impacts on the environment.

Infrastructure development is also crucial for rural tourism development. This includes not only traditional infrastructure such as transportation and accommodation facilities but also digital infrastructure such as broadband internet access and online marketing platforms. Capacity building and training programs for local residents and tourism service providers can help to enhance the quality of tourism services and products, as well as improve the overall competitiveness of the rural tourism sector.

Tourism can be an effective tool for rural development [14], and the strategic components outlined above can help to ensure that rural tourism development could be characterized by an high sustainability level, benefits local communities, and could effectively contribute to the preservation of local cultural and natural resources. The strategic effort in ensuring that tourism development represent and effective and sustainable development model benefitting local communities, while minimizing negative impacts on the environment, represents the general policy making thinking but more efforts have to be paied in order to design place based strategy integrating local values.

The New 2030 Urban Agenda, supports planning practices addressing effective objectives for the development of rural and marginalized areas aiming to improve the quality of life and to promote sustainable development in rural and marginal areas. The NUA, the agenda aims to protect the environment and ecosystems of rural and marginal territories, promote local culture and heritage and improve the energy efficiency and environmental sustainability of the territories themselves. Those principles fit with the generalized understanding of tourism development in EU Regional development programs. What seems to be weak is the downscaling process of those principles, and according to the evidences of recent researches [16–20], specialized knowledge is

needed to improve the current planning and programming practices in order to manage the local dimension of NUA.

The organization focuses on encouraging responsible resource consumption, conserving cultural and natural heritage, and ensuring respect for local communities and their interests. In addition, the UNWTO emphasizes the use of sustainable tourism indicators and certification schemes to measure and enhance the sustainability performance of tourism businesses and destinations.

2 Specialized Tourism in Inland Rural Areas and Assessment

The development of tourism in in-land rural areas is closely related to sustainable development objectives. Sustainable tourism is defined as "*tourism that takes full account of its current and future economic, social, and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities*" [21]. In this context, the development of tourism in in-land rural areas can contribute to the achievement of several sustainable development goals.

Assessing the impact of tourism on the territory is a crucial activity for understanding the effective sustainability of the tourism industry and for adopting the necessary measures to minimize negative impacts and maximize economic, social and environmental benefits.

In this sense, various tools have been developed in recent years to monitor the impact of tourism on the territory and to adopt the necessary countermeasures [22]. Among the main tools for evaluating the impact of tourism on the territory we find indicators of tourism sustainability, which have been developed to evaluate the impact of tourism on various aspects of sustainability, such as the environment, the economy and society. The tourism sustainability indicators are based on quantitative and qualitative data collected through field surveys, public policy analyzes and stakeholder interviews.

However, it is important to underline that the assessment of the impact of tourism on the territory can be influenced by various factors, such as the specific characteristics of tourist destinations, the size of the tourism industry and the public policies adopted by local authorities. Furthermore, data collection can be difficult and costly, necessitating the adoption of innovative methods and advanced technologies for data collection and information analysis. In summary, the evaluation of the impact of tourism on the territory is a complex activity.

The European Commission uses a number of indicators to assess the impact of tourism on sustainability. Among these, there are economic indicators that measure the contribution of tourism to GDP, employment and exports. In addition, social indicators are also used, which evaluate the accessibility of tourism to different social groups, cultural impact and visitor satisfaction. Environmental indicators, on the other hand, measure the impact of tourism on the use of water and energy, on CO2 emissions and on the waste produced. However, these indicators do not yet represent a complete assessment of the impact of tourism on sustainability in a robust framework.

The fragmented disciplinary approach to tourism analysis often leads to an inadequate evaluation of tourism strategies. Tourism is a complex phenomenon that involves different dimensions, such as economic, social, cultural, environmental, and political

aspects. However, the disciplinary approach tends to focus on a single dimension, neglecting the others and failing to capture the complexity of tourism impacts.

For example, an economic analysis of tourism may only consider the financial benefits generated by tourist activities without examining their social and environmental impacts. Similarly, a cultural analysis of tourism may only focus on the preservation of cultural heritage without considering the economic and environmental consequences of tourism development. It is a challenging task to evaluate the effectiveness of tourist public funding, and many approaches have been put out to measure its influence. Utilizing economic metrics like job growth, income generation, and tax receipts is one strategy [22]. Another strategy is to consider social and environmental indicators including participation in the community, preserving the environment and cultural preservation [23, 24] the metrics of visitors and residents satisfaction represent a valuable indicator to inform decision making process in front to the management of current tourism policies and strategic decision making [25].

This fragmented approach can lead to incomplete and biased assessments of tourism impacts and policies, potentially resulting in negative consequences for local communities and the environment. Therefore, a more comprehensive and integrated approach is needed to evaluate the sustainability and effectiveness of tourism strategies. This approach should involve interdisciplinary collaboration and the use of multiple evaluation tools and indicators that capture the various dimensions of tourism impacts.

Thus, more comprehensive and context-specific monitoring frameworks are needed to reflect the multidimensional nature of sustainable tourism, allowing for effective decision-making and policy implementation.

3 Tourism Ecosystem

The tourism industry is often seen as a purely economic activity that revolves around providing services to tourists and generating revenue for the local economy [26]. However, this perspective fails to recognize the relational nature of tourism [27].

Tourism involves the interaction between tourists and the host community, which includes not only businesses but also residents and other stakeholders. Tourists visit a destination to experience its culture, environment, and people. The host community, in turn, provides the necessary infrastructure and services for tourists to enjoy their stay. Thus, tourism is a complex reciprocal relationship that involves the exchange of goods, services, and experiences between tourists and the host community [15].

Furthermore, tourism can have a significant impact on the relationship between tourists and the host community. Tourists can bring new perspectives and ideas to a destination, while the host community can offer unique cultural experiences and traditions. However, if not managed properly, tourism can also lead to conflicts between tourists and locals over issues such as overcrowding, environmental degradation, and cultural exploitation such as over-tourism phenomena.

Therefore, it is important to view tourism as a relational activity and to consider the needs and interests of all stakeholders involved in tourism development. This includes involving the local community in decision-making processes, promoting sustainable tourism practices, and fostering a positive relationship between tourists and the host community.

According with those considerations the proposed definition of "tourism ecosystem" is: *A tourist ecosystem is defined as a network of interrelated and interdependent nodes that characterize a tourist destination area providing benefits in a territorial development scenario* (ref. [20]).

The tourism ecosystem is made up of multiple actors and disciplines that interact with each other to create a satisfying travel experience for tourists and to support the development of the local tourism sector. In this ecosystem, there are many interdisciplinary functions that allow the creation and optimization of the tourist offer. For example, marketing activities require close collaboration between marketing experts, tourism professionals, social scientists and hotel industry specialists, in order to identify the needs of tourists and promote the territory effectively.

Furthermore, tourism destination management requires collaboration between urban planners, architects, landscapers and local authorities in order to create quality and sustainable tourism infrastructures that considers the needs of tourists and local residents. Environmental management of the tourism ecosystem requires cooperation between experts in biology, ecology and environmental sciences, to ensure that the tourism activity does not damage local ecosystems and that sustainable management practices are adopted. Finally, staff training and management requires collaboration between training experts, tourism professionals and local authority representatives, in order to ensure that tourism staff have the necessary skills and knowledge to deliver a quality service to tourists. In summary, the interdisciplinary function (Fig. 1) of the tourist ecosystem is essential to guarantee a quality and sustainable tourist offer, which satisfies the needs of tourists and supports the development of the territory.

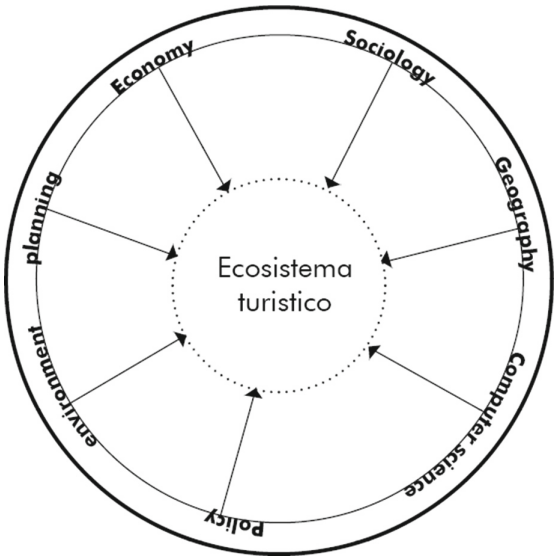


Fig. 1. Interdisciplinary tourism function

4 Final Remarks

According to the concept of "tourism ecosystem", the emerging approach in tourism development based represents a promising prospect for enhancing local approaches and applications within the paradigms of the NUA 2030 agenda. Compatibly with the objectives of the PNRR - tourism transition 4.0 - the outcome of the evaluation structures the network relationship between the actors of the tourism chain involved. The general issues in planning for tourism development: anticipating and monitoring the results of governance choices through measuring the impact on the social, environmental and economic components; could be organized in an operative dimension and supported by effective information tools. In particular, this research is grounded in the wider research project called "Tech4You" and will benefit of an extensive effort in developing spatial knowledge infrastructure for tourism development strategies for rebalancing the growth of Southern areas of Italy.

The "tourist ecosystem" approach remakes the fundamental characteristics of tourism as a complex relational phenomena. In this view, the research perspective adopts an operative approach based on data driven model for territorial tourism stock assessment defining minimum requirement for a "tourism ecosystem" according to a comparative analysis benchmarking minor and major tourist destinations. Implications regards several territorial planning domains [28–34] directly and indirectly connected with tourism sector.

Future implications include:

- the development of territorial models in order to provide decision support systems (DSS) useful for implementing investment plans, programs and projects in the medium-long term in line with the objectives of sustainable local development. The design of data-driven models is based on different levels capable of identifying the alternative that best suits the specific territorial needs for both the public sector and private operators [9];
- analysis and implementation of spatial data infrastructures essential for the evaluation of tourist services and the monitoring of territorial processes [35];
- the collection of information to reconstruct an exhaustive dataset represents a first phase to guide future developments effectively. In accordance with the envisaged models, it is necessary to characterize an integrated survey methodology aimed at illustrating the impact that tourist services have on the territory [36, 37].

Finally, this approach offers a systemic and multidisciplinary perspective that considers the multiple factors that influence tourism, such as the management of natural resources, the well-being of local communities and the quality of the tourism experience. This approach meets the criteria of sustainability and the new urban agenda 2030, as it encourages the development of responsible tourism, respectful of the environment and local cultures, and promotes a better integration of tourism into the life of the host communities. The tourism ecosystem approach represents an innovative and promising way to manage tourism in a sustainable and responsible way, improving the quality of tourism experiences and contributing to the sustainable development of local communities and their territories.

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References

1. Brandano, M.G., Crociata, A.: Cohesion policy, tourism and culture in Italy: a regional policy evaluation (2022). https://doi.org/10.1080/00343404.2022.2106365
2. Barca, F.: An agenda for a reformed cohesion policy (2009)
3. Casas, G.L., Scorza, F.: From the UN new urban agenda to the local experiences of urban development: the case of Potenza. In: Gervasi, O., et al. (eds.) ICCSA 2018. LNCS, vol. 10964, pp. 734–743. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-95174-4_56
4. Las Casas, G., Scorza, F.: Comprehensive evaluation and context based approach for the future of European regional operative programming. In: ERSA 48th European Regional Science Association Congress, Liverpool, pp. 1–17 (2008)
5. Scorza, F., Casas, G.L.: Territorial specialization in attracting local development funds: an assessment procedure based on open data and open tools. In: Murgante, B., et al. (eds.) ICCSA 2014. LNCS, vol. 8580, pp. 750–757. Springer, Cham (2014). https://doi.org/10.1007/978-3-319-09129-7_54
6. Las Casas, G., Scorza, F.: A renewed rational approach from liquid society towards anti-fragile planning. In: Gervasi, O., et al. (eds.) ICCSA 2017. LNCS, vol. 10409, pp. 517–526. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-62407-5_36
7. Casas, G.L., Scorza, F.: Sustainable planning: a methodological toolkit. In: Gervasi, O., et al. (eds.) ICCSA 2016. LNCS, vol. 9786, pp. 627–635. Springer, Cham (2016). https://doi.org/10.1007/978-3-319-42085-1_53
8. Gatto, R., Santopietro, L., Scorza, F.: Tourism and abandoned inland areas development demand: a critical appraisal. In: Gervasi, O., Murgante, B., Misra, S., Rocha, A.M.A.C., Garau, C. (eds.) ICCSA 2022. LNCS, vol. 13382, pp. 40–47. Springer, Cham (2022). https://doi.org/10.1007/978-3-031-10592-0_4
9. Corrado, S., Gatto, R.V., Scorza, F.: The European digital decade and the tourism ecosystem: a methodological approach to improve tourism analytics. In: 18th International Forum on Knowledge Asset Dynamics (IFKAD) - Managing Knowledge For Sustainability, Matera (2023)
10. Scorza, F., Gatto, R.V.: Identifying territorial values for tourism development: the case study of Calabrian Greek area. Sustainability **15**, 5501 (2023). https://doi.org/10.3390/SU15065501
11. Croes, R., Ridderstaat, J., Bąk, M., Zientara, P.: Tourism specialization, economic growth, human development and transition economies: the case of Poland. Tour. Manag. **82** (2021). https://doi.org/10.1016/j.tourman.2020.104181
12. Andreoli, A., Silvestri, F.: Tourism as a driver of development in the inner areas. Italian J. Plan. Pract. **7**, 80–99 (2017)
13. Carneiro, M.J., Lima, J., Silva, A.L.: Landscape and the rural tourism experience: identifying key elements, addressing potential, and implications for the future. J. Sustain. Tour. **23**, 1217–1235 (2015). https://doi.org/10.1080/09669582.2015.1037840
14. Sharpley, R.: Rural tourism and the challenge of tourism diversification: the case of cyprus. Tour Manag. **23**, 233–244 (2002). https://doi.org/10.1016/S0261-5177(01)00078-4
15. Hillebrand, B.: An ecosystem perspective on tourism: the implications for tourism organizations. Int. J. Tour. Res. **24**, 517–524 (2022). https://doi.org/10.1002/jtr.2518

16. Capodiferro, M., et al.: "University equity": students' facilities in major tourism destination towns. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023 (2023)
17. Lagonigro, D., et al.: Downscaling NUA: matera new urban structure. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023. LNCS, pp. 14–24. Springer, Heidelberg (2023)
18. Florio, E., et al.: SuperABLE: matera accessible for all. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023. LNCS, pp. 152–161. Springer, Heidelberg (2023)
19. Esposito Loscavo, B., et al.: Innovation ecosystem: the added value in a unique UNESCO city. In: Gervasi, O. (ed.) Computational Science and Its Applications - ICCSA 2023. LNCS, pp. 129–137. Springer, Heidelberg (2023)
20. Gatto, R.V., Corrado, S., Scorza, F.: Towards a definition of tourism ecosystem. In: 18th International Forum on Knowledge Asset Dynamics (IFKAD) - Managing Knowledge For Sustainability (2023)
21. Romão, J., Neuts, B.: Territorial capital, smart tourism specialization and sustainable regional development: experiences from Europe. Habitat Int. **68**, 64–74 (2017). https://doi.org/10.1016/J.HABITATINT.2017.04.006
22. Plzakova, L.: Evaluation of investments in the tourism sector with a local focus. Eval. Program. Plan. **94**, 102151 (2022). https://doi.org/10.1016/J.EVALPROGPLAN.2022.102151
23. Andereck, K.L., Nyaupane, G.P.: Exploring the nature of tourism and quality of life perceptions among residents. J. Travel Res. **50**, 248–260 (2011). https://doi.org/10.1177/0047287510362918
24. Jepson, D., Sharpley, R.: More than sense of place? Exploring the emotional dimension of rural tourism experiences. J. Sustain. Tour. **23**, 1157–1178 (2015). https://doi.org/10.1080/09669582.2014.953543
25. Buhalis, D.: Tourism and information technologies: past, present and future. Tour. Recreat. Res. **25**, 41–58 (2000). https://doi.org/10.1080/02508281.2000.11014899
26. Merinero-Rodríguez, R., Pulido-Fernández, J.I.: Analysing relationships in tourism: a review. Tour Manag. **54**, 122–135 (2016). https://doi.org/10.1016/j.tourman.2015.10.010
27. Picaud-bello, K., Stevens, E., Cloutier, L.M., Renard, L.: Coordinating service ecosystems for innovation : the case of tourism destination innovation projects. Ind. Mark. Manag. **106**, 444–460 (2022). https://doi.org/10.1016/j.indmarman.2022.08.013
28. Scorza, F., Santopietro, L.: A systemic perspective for the sustainable energy and climate action plan (SECAP). Eur. Plan. Stud., 1–21 (2021). https://doi.org/10.1080/09654313.2021.1954603
29. Santopietro, L., Scorza, F.: The Italian experience of the covenant of mayors: a territorial evaluation. Sustainability **13**, 1289 (2021). https://doi.org/10.3390/su13031289
30. Scorza, F., Fortunato, G.: Cyclable cities: building feasible scenario through urban space morphology assessment. J. Urban Plan. Dev. **147**, 05021039 (2021). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000713
31. Scorza, F., Fortunato, G.: Active mobility-oriented urban development: a morpho-syntactic scenario for a mid-sized town. Eur. Plan. Stud., 1–25 (2022). https://doi.org/10.1080/09654313.2022.2077094
32. Scorza, F., Saganeiti, L., Pilogallo, A., Murgante, B.: Ghost planning: the inefficiency of energy sector policies in a low population density region1. Archivio di Studi Urbani e Regionali, 34–55 (2020). https://doi.org/10.3280/ASUR2020-127-S1003
33. Pilogallo, A., Scorza, F.: Mapping regulation ecosystem services specialization in Italy. J. Urban Plan. Dev. **148** (2022). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000801
34. Scorza, F., Pilogallo, A., Saganeiti, L., Murgante, B., Pontrandolfi, P.: Comparing the territorial performances of renewable energy sources' plants with an integrated ecosystem services loss assessment: a case study from the Basilicata region (Italy). Sustain. Cities Soc. **56**, 102082 (2020). https://doi.org/10.1016/j.scs.2020.102082

35. Scorza, F., Casas, G.L., Murgante, B.: Overcoming interoperability weaknesses in e-government processes: organizing and sharing knowledge in regional development programs using ontologies. In: Lytras, M.D., Ordonez de Pablos, P., Ziderman, A., Roulstone, A., Maurer, H., Imber, J.B. (eds.) WSKS 2010. CCIS, vol. 112, pp. 243–253. Springer, Heidelberg (2010). https://doi.org/10.1007/978-3-642-16324-1_26
36. Scorza, F., Pilogallo, A., Las Casas, G.: Investigating tourism attractiveness in inland areas: ecosystem services, open data and smart specializations. In: Calabrò, F., Della Spina, L., Bevilacqua, C. (eds.) ISHT 2018. SIST, vol. 100, pp. 30–38. Springer, Cham (2019). https://doi.org/10.1007/978-3-319-92099-3_4
37. Bachtler, J., McMaster, I.: EU cohesion policy and the role of the regions: investigating the influence of Structural Funds in the new member states. Environ. Plan. C Gov. Policy **26**, 398–427 (2008). https://doi.org/10.1068/c0662