

PREMISES FOR TOURISM DEVELOPMENT IN URBAN AREAS USING PPGIS TECHNIQUES

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Abstract

Public Participation Geographic Information Systems (PPGIS) practices have become a widely debated research topic in recent years, with clear practical implications and outcomes. Numerous studies and research platforms share experiences and best practices related to software resources capable of supporting participatory governance and enhancing sustainable resource management and accessibility. Understanding the different perspectives of stakeholders on tourism resources, and using their input to generate integrative planning for recreational activities, is essential for the successful and sustainable development of urban leisure activities in major capital cities such as Bucharest. Methodological approaches to this topic are diverse and depend on selecting the most appropriate methods for each specific context. Producing knowledge through stakeholder participation in the communication of tourism resources and events can help build communicative planning mechanisms and foster convergent social and institutional policy-making structures. PPGIS techniques can therefore generate more equitable and resilient mechanisms for various objectives, including the planning of leisure and recreational spaces and activities, as regions and cities increasingly compete for top positions in tourists' preferences as visible, creative, and community-oriented international leisure destinations worldwide.

Key words: stakeholders, tourism industry, social involvement, GIS databases

Introduction

Public Participation Geographic Information Systems (PPGIS) practices have become a widely debated research topic in recent years, with clear practical implications and outcomes for a wide range of users and domains.

Tourism is one domain that considers place-based information from people and uses mapping techniques to explore and leverage both quantitative and qualitative knowledge. This approach provides deeper analyses of the relationship between spatial studies and human perceptions and/or experiences on the one hand, and offers valuable input for participatory, sustainable, and integrative planning processes on the other.

Taking this context into account, this paper examines and analyses—while drawing on existing scientific literature—the opportunities and methods related to the use of PPGIS practices for leisure planning purposes and tourism outcomes. It focuses on their general application, which may support the development of community-oriented and community-owned participatory products, as well as the sustainability of the existing, limited pool of tourism valued natural and cultural resources.

Theoretical background and methods

Advantages for using PPGIS methods

Numerous studies and research platforms present methods, experiences, and best practices related to software resources (e.g., Maptionnaire, Debatomap, Esri ArcGIS Survey123) (Ramírez Juárez et al., 2023; Salminen et al., 2025) that are capable of supporting participatory governance and enhancing sustainable resource management and accessibility.

Understanding the different perspectives of stakeholders on tourism resources, and using their input to inform integrative planning for recreational activities, is an essential aspect of the successful and sustainable development of urban leisure activities in major capital cities such as Bucharest. PPGIS methods used to collect data from different stakeholder groups (international and domestic tourists, visitors, local residents, etc.) can be of crucial importance for understanding travel behaviour (Ramezani et al., 2020), as well as for visualization, mapping, and, subsequently, smart spatial planning of tourism development projects and community-oriented, visitor-friendly planning.

The interactive map principles allow to surpass both a dynamic and a continuously evolving landscape as well as a very diverse real-time perception perspective through individual input generated by survey methods (Kantola et al., 2023).

Therefore the methodological approaches to this topic are diverse and depend on selecting the most appropriate methods for each specific context.

Constraints for using PPGIS methods

Data quality is often an important barrier for using PPGIS method in scientific studies and/or for planning purposes in real administrative projects (Fagerholm et al., 2021). Survey design, participant recruitment and data collection may be biased and influenced to a great extent by convenient or purposive and volunteer sampling methods (Garcia-Martin et al., 2017; Rall et al., 2017; Fagerholm et al., 2021) as methodological framework adapted for PPGIS are quite innovative and demand also a high potential of involvement from the interviewed stakeholders. The type of place-related data to be collected, such as the individuals map spatial attributes and data gathering without external assistance are also important features that may represent constraints for PPGIS methods (Brown, 2017; Fagerholm et al., 2021).

In this context the present study performs a desk research, a common method used for gathering information and insights by analysing and synthesizing data and sources so as to depict main elements on the topic of PPGIS technics usage as support for urban tourism development.

Results

A main topic addressed in the reference studies, as noted above, concerns the types of data collected in PPGIS research. The distinction and overlap between non-spatial and spatial PPGIS data, as well as other forms of spatial data, remain a focal point of the method across various types of PPGIS studies (exploratory, explanatory, or predictive/model-based studies) (Fagerholm et al., 2021).

If considering *data collection* for spatial analyses Brown et al. (2014) support both workshops, as common group focused data collecting methods, but also surveys as usefull tools which could and should rather be complementary and support different perspectives and different scales of spatial analyses. According to the same authors (Brown et al., 2014) complementary methods are useful to obtain and process both deductive mapping methods (predefined landscape/object values) as well as inductive mapping methods (values generated by qualitative data, consequently from values coded from participant text). These perspectives could perfectly be adapted and correspond to tourist perception studies concerning landscape evaluation with respect to visitor experience and satisfaction as demonstrated in other mixed methods analysis studies focusing on valuing qualitative PPGIS data (Garcia et al., 2018). PPGIS perception studies are useful especially in case of urban tourism, as proven through complex evolving methods for outdoor recreation (Skriver Hansen et al., 2021).

Urban tourism and its associated / overlapping leisure segments (e.g. cultural tourism, leisure outdoor urban activities, etc.) is by excellence a domain which could take advantage of the usage of PPGIS techniques in order to improve its products as related to main types of consumers and their characteristics (e.g. age, profession, cultural background etc) by using both spatial and non-spatial data and appealing to participatory input resulted from top-down approaches and sub-sampled survey data. The complementary botom-up approach connected to workshop or focus group data generative processes as well as hotspot approaches based on clustering methods (Brown et al., 2014) are also appropriate to urban environment research and could match tourism development studies with respect to tourist behavior and preferences in light of further improvements of existing conditions and attributes of main tourism resources (attractions).

Spatializing urban perception by referring to tourist satisfaction is by far a topic which can value subjective input translated in participatory GIS metadata and indicators (Delpino-Chamy & Pérez Albert, 2026).

Discussion and Conclusion

Producing knowledge through stakeholder participation in the communication of tourism resources and events can help build communicative planning mechanisms and foster convergent social and institutional policy-making structures especially in fragmented and increasingly problematic urban contexts (Delpino-Chamy & Pérez Albert, 2026). PPGIS is engaging public decision-making by integrating local knowledge and complex information that allow active interaction and dynamic analyses that empower citizens for both tourism attractions usage and valorization (Kantola et al., 2023).

PPGIS techniques can therefore generate more equitable and resilient mechanisms for various objectives, including the planning of leisure and recreational spaces and activities, as regions and cities increasingly compete for top positions in tourists' preferences as visible, creative, and community-oriented international leisure destinations worldwide.

As related to planning goals participation and collaboration processes taking place among different stakeholder groups suppose four types of communicative actions namely (<https://participatory.tools/before-you-start/fourfold-model/>):

- The one in which the broad public produce diverse information or ideas for planning (I)
- The one in which the knowledge (existing information) is structured and organized with broad public (II)
- The one in which common work and results make an input to the process (III)
- The one in which informational content (Knowledge) is converged in a smaller group – possibly expert group (IV)

Bucharest can be a perfect illustrative example and a real scale laboratory for demonstrating PPGIS techniques and further applicative research studies on the topic in the light of its competing interests at regional and national level for developing tourist attractiveness and adapted tailor-made leisure products which better respond and adapt consumer needs and expectations. Both urban tourism resilience and visibility, as well as planning strategies for leisure and recreational activities in major cities of Romania, could benefit from PPGIS techniques and methods, which can provide dynamic and accurate representations of reality to further support adaptive planning policies.

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Souhrn

Postupy v oblasti geografických informačních systémů pro zapojení veřejnosti (PPGIS) se v posledních letech staly široce diskutovaným tématem výzkumu s jasnými praktickými dopady a

výsledky. Cestovní ruch je jednou z oblastí, která zohledňuje informace o konkrétních místech poskytované lidmi a využívá mapovací techniky k prozkoumání a využití jak kvantitativních, tak kvalitativních poznatků. Tento přístup umožňuje na jedné straně hlubší analýzu vztahu mezi prostorovými studii a lidským vnímáním a/nebo zkušenostmi a na straně druhé nabízí cenný podklad pro participativní, udržitelné a integrativní procesy plánování.

Četné studie a výzkumné platformy sdílejí zkušenosti a osvědčené postupy týkající se softwarových zdrojů, které jsou schopny podporovat participativní správu a zlepšovat udržitelné řízení zdrojů a jejich dostupnost. Porozumění různým pohledům zainteresovaných stran na turistické zdroje a využití jejich podnětů k vytvoření integrativního plánování rekreačních aktivit je zásadní pro úspěšný a udržitelný rozvoj městských volnočasových aktivit ve velkých hlavních městech, jako je Bukurešť. Metodické přístupy k tomuto tématu jsou rozmanité a závisí na výběru nejvhodnějších metod pro každý konkrétní kontext. Získávání poznatků prostřednictvím zapojení zainteresovaných stran do komunikace o turistických zdrojích a akcích může pomoci vybudovat komunikační plánovací mechanismy a podpořit konvergentní sociální a institucionální struktury tvorby politik.

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