

Screening the Use of Public Participation Geographic Information Systems (PPGISs) in the Tourism Industry: A Scoping Review

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Abstract: Tourism development should be economically viable, environmentally responsible, and aligned with community goals. Participation in decision-making ensures that community values are reflected in sustainable tourism guidelines. Traditional methods of public engagement in tourism planning include public meetings, focus groups, and interviews, as outlined in the International Association for Public Participation (IAP2) framework, which ranges from education to empowerment. However, the rise of information technology and digital platforms has brought about new participatory channels, such as Public Participation Geographic Information Systems (PPGISs), which use geospatial technologies to improve decision-making. This paper investigates the use of PPGISs in the tourism industry based on a thorough review of peer-reviewed literature from 2000 to 2024. By examining the use of PPGISs in tourism, the study identifies common characteristics and the scope of existing research, emphasizing how PPGISs can be applied across various tourism sectors. The study discovered that PPGIS is a credible alternative to traditional public participation methods and provides useful insights into residents' perspectives on tourism-related issues. This study contributes to the tourism field by thoroughly understanding PPGIS applications, proposing future research strategies, and suggesting how these technologies can enhance public engagement and decision-making in tourism planning.

Keywords: PPGIS; public participation; tourism development; PGIS; tourism planning



Citation: Gheitasi, M.; Salari, N.; Clark, C. Screening the Use of Public Participation Geographic Information Systems (PPGISs) in the Tourism Industry: A Scoping Review. *Tour. Hosp.* **2024**, *5*, 1260–1273. <https://doi.org/10.3390/tourhosp5040070>

Academic Editor: Lewis Ting
On Cheung

Received: 4 October 2024

Revised: 14 November 2024

Accepted: 20 November 2024

Published: 22 November 2024



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1. Introduction

Tourism development is most sustainable when it is economically feasible, ecologically considerate, and aligned with the goals of host communities [1], where resident involvement in the decision-making process ensures that community values are translated into sustainable guidelines [2]. Public engagement in tourism planning can manifest in various ways and fulfill a wide range of objectives. The scale of public participation developed by the International Association of Public Participation (IAP2) in 2012 consists of five levels, which vary in their level of involvement and amount of control given to the public [3]. These levels are as follows: (1) inform, which simply provides information to the public; (2) consult, which solicits public feedback; and (3) involve, which actively considers public input throughout the process. The higher levels include the following: (4) collaborate, which brings the public and decision-makers together; and (5) empower, giving the public complete control over decision-making [3]. The legitimacy of each of these levels is contingent upon the objectives, time constraints, resources, and the magnitude of the problem. Conventional approaches to engage the public in tourism planning include public meetings, focus groups, interviews with important stakeholders, and workshops [3].

Emerging information technology and social media have sparked renewed research interest in community engagement efforts within the tourism industry [4], providing new channels for real-time feedback and amplifying community voices. This interconnectedness enables communities to shape destination images and influence tourism planning actively, fostering alignment between tourism development and local values to promote more sustainable practices.

The emergence of digital platforms that provide novel participatory channels enables the use of innovative approaches such as Public Participation Geographic Information Systems (PPGISs). PPGIS is a subfield of Geographic Information Science that allows managers and planners to use geospatial technologies and generate data with the public's assistance to aid in decision-making [5]. The term PPGIS was first used in 1996 at the National Center for Geographic Information and Analysis conferences in the United States, and its significance has been repeatedly emphasized [6]. Further, previous research emphasizes key issues within PPGIS efforts, such as the diversity of definitions and approaches to participatory mapping, the relationship between participatory mapped attributes and physical places, and the integration of PPGIS data into planning decision support [7]. Importantly, PPGIS is widely recognized as a credible alternative to traditional public participation methods, which have been known to exclude certain local groups' perspectives [8–11].

This participatory data collection and input method is increasingly used in urban planning in developed countries, such as Finland [12,13], Australia, and the United States. However, the usage of PPGISs in tourism, rural, and transportation development planning is relatively underutilized [14–16]. Previous research demonstrates how PPGISs can be used to collect residents' perspectives on land-use preferences and values in a cross-border region involving recreational values, scenic views, and other unique values that can be enhanced from nature, such as health and well-being [17]. Further, tourism planning research has used PPGIS to gather tourist and local perspectives and understand their favorite sites of interest and locations within a destination [18].

Two similar yet different participatory methods require clarification: PGIS and PPGIS. PGIS differs from PPGIS in that it focuses on community empowerment in developing countries through simpler methods, whereas PPGIS was developed in developed countries to improve participation through digital mapping for better planning [7]. Further, PPGISs use probability sampling to achieve broader representation, whereas PGIS uses purposive sampling to involve key stakeholders in the mapping process [7].

This study makes an important contribution to tourism research by demonstrating how the use of PPGISs within the tourism industry can lead to more sustainable outcomes in tourism planning and development across both developed and developing countries. This contribution is accomplished through conducting a systematic review of published research on the subject.

The authors conducted a thorough review of peer-reviewed journals from 2000 to 2024, emphasizing how PPGISs have been applied in the tourism industry.

This research addresses gaps in existing research by critically examining participatory approaches and tools used in tourism to improve public empowerment, categorizing various tourism sectors, and emphasizing the importance of effective survey design. It also provides actionable strategies for improving PPGIS applications by bridging the gap between theoretical frameworks and practical insights for tourism stakeholders. Therefore, one of the primary goals of this paper is to identify the common characteristics of studies that have used PPGISs in a tourism context and some of their weaknesses in fostering empowerment among members of the public. In pursuing this goal, the authors critically analyze the context and scope of how PPGISs have been used within the tourism industry and how it can be improved and optimized. Furthermore, the paper categorizes different types of tourism that have been analyzed using PPGIS methodologies, demonstrating how this tool can be used in a variety of tourism sectors. The authors also look at the types of questions used in public participation surveys, both spatial and non-spatial, for data collection and analysis.

Overall, this paper aims to offer a valuable resource for tourism stakeholders interested in integrating PPGISs into tourism planning and development efforts by providing a comprehensive review of current research discussing the implications of and strategies for utilizing PPGISs in a tourism context.

2. Materials and Methods

This study performed a systematic literature review to critically analyze how and where PPGISs have been used in a tourism context, the tools and approaches utilized, and the level of public engagement offered. A scoping review protocol was created using the PRISMA-SCR checklist (see Supplementary Materials) and an explanation [19]. This method was chosen because scoping reviews are intended to address topics where various study designs may be used, necessitating a thorough systematization of the existing literature.

2.1. Inclusion Criteria

We included peer-reviewed papers published between 2000 and 2024 investigating the links between PPGISs and tourism. The 2000–2024 period was selected to capture key developments in PPGIS applications within tourism, from the rise of accessible GIS technology to recent trends in sustainable and participatory tourism planning. To be included in the review, a paper needed to meet the following criteria:

- It was written in English.
- It implemented a public participatory process (e.g., PPGIS, participatory, PGIS, mapping).
- It focused on tourism or anything synonymous with the tourism industry.

2.2. Search Strategy and Study Selection

The process of identifying papers that met the inclusion criteria involved several key steps. First, a comprehensive literature search was carried out using the Web of Science (WOS) and SCOPUS databases, strategically combining search terms into search sentences (as shown in Table 1). The three primary terms used were “Public Participation Geographic Information System”, “Tourism”, and “PGIS”, with a corresponding set of synonyms chosen for each. Finally, the identified articles were filtered using the established inclusion and exclusion criteria to ensure their relevance to the study. The authors analyzed each article to determine the participatory method, location, type of tourism, tools/approaches used, and level of community participation. The IAP2 Spectrum of Public Participation categorizes the public’s role in decision-making into five levels: inform, consult, involve, collaborate, and empower [17]. In other words, the public has different levels of influence, ranging from receiving information (inform) to making final decisions (empower). Choosing the appropriate level of public participation depends on the project’s objectives and public engagement. This framework is widely used for transparent and inclusive public participation processes. Once the articles were identified, the authors examined each paper to determine the participatory method used, the location, the type of tourism involved, the tools and approaches used, and the level of participation. The appropriate level was determined by the project’s goals and the extent of public engagement [16]. To determine the level of participation, the authors first looked through the methodology section for descriptions of public participation methods and any obvious alignment with IAP2 levels. Next, they assessed the engagement process to determine whether stakeholders were informed, consulted, involved, collaborated with, or empowered. They then evaluated the results and findings to determine how stakeholder feedback affected project outcomes. Finally, the authors summarized key details to classify the articles based on their level of participation. For example, for Paper 2 [20], we identified the IAP2 levels as follows: inform through sharing the study’s objectives with the community, consult by gathering feedback via PPGIS surveys, and involve by analyzing diverse community perspectives to shape spatial metrics for sustainable tourism development. This framework (Figure 1) is commonly used to ensure transparency and inclusion in public participation processes.

Table 1. Search syntax used for literature search.

Database	Search Status	Syntax
SCOPUS	Title Abstract Keywords	TITLE-ABS-KEY (“PPGIS*” OR “PGIS” OR “Participatory GIS” OR “Public GIS”) AND (“Tourism*” OR “Travel*” OR “Hospitality”)
WOS	Topics	TS = (“PPGIS*” OR “PGIS” OR “Participatory GIS” OR “Public GIS”) AND (“Tourism*” OR “Travel*” OR “Hospitality”)

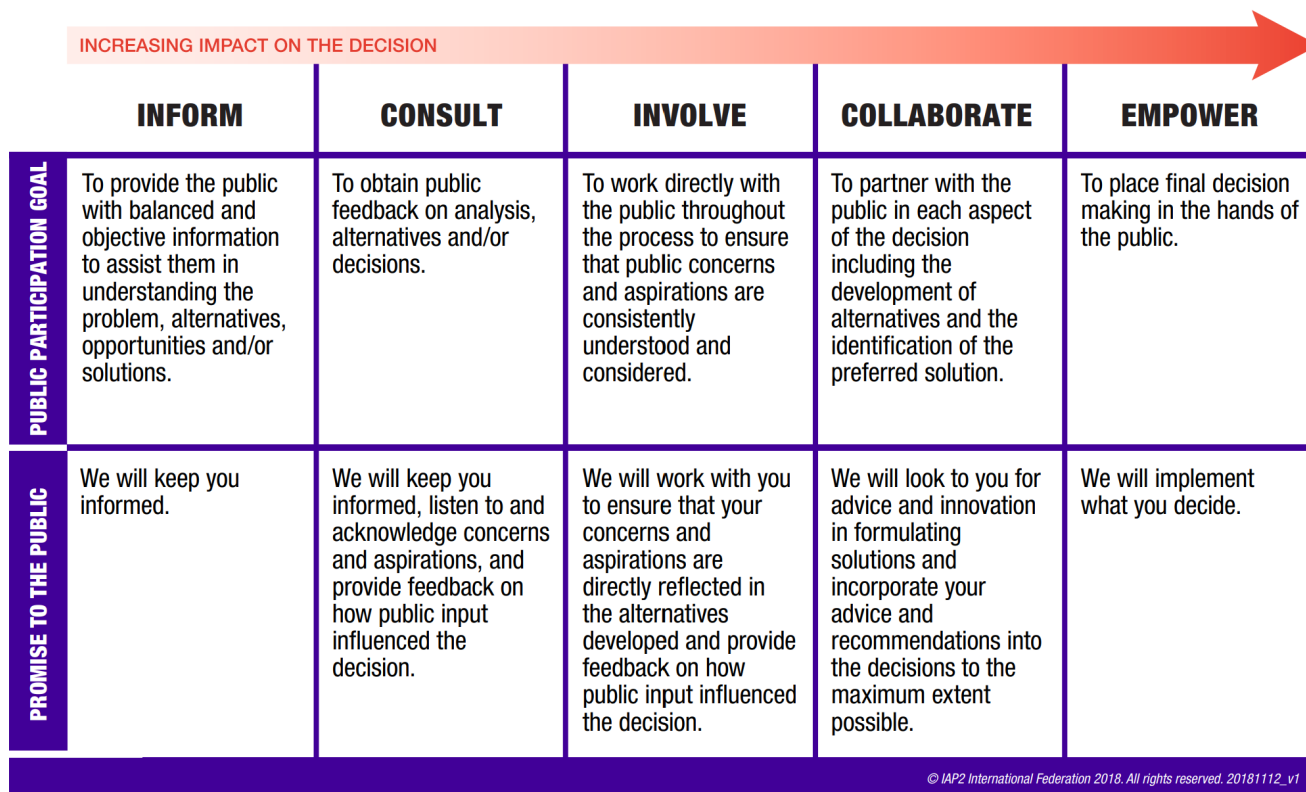


Figure 1. IAP2 Spectrum of Public Participation framework. Reprint from Ref [21].

3. Results

3.1. Charting Data Overview of the Reviewed Literature

The initial search across the WOS and SCOPUS databases resulted in 516 articles. These were imported into Zotero, a reference management tool, where duplicate entries were removed, leaving 420 unique articles. After screening the abstracts, 58 articles were shortlisted for further evaluation. A detailed full-text review identified 23 articles that met the inclusion criteria (Figure 2).

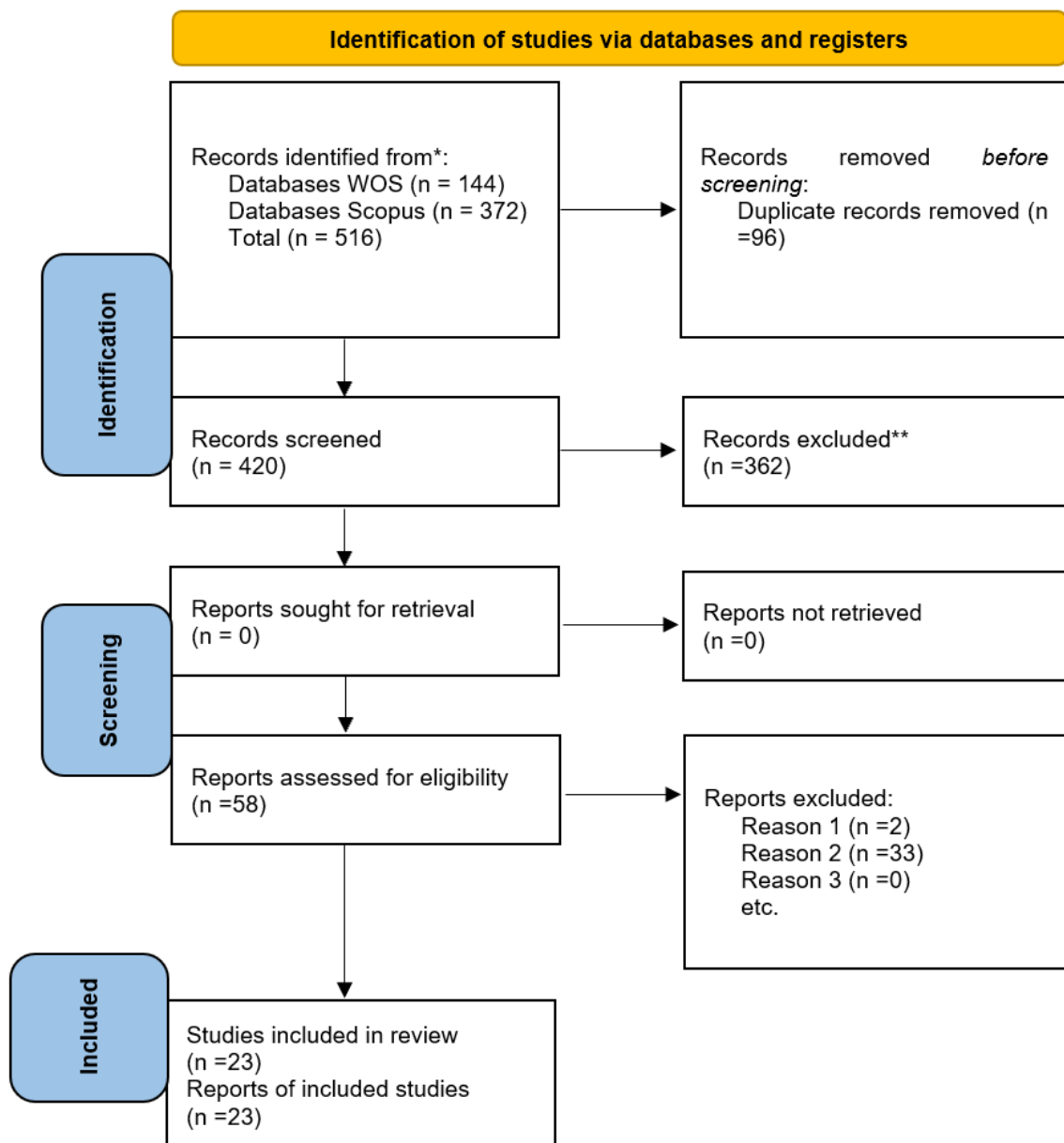


Figure 2. PRISMA 2020 flow diagram for new systematic reviews, which included searches of databases, registers, and other resources.

3.2. Study Characteristics

Table 2 presents an overview of tourism-related research across countries and years, focusing on various types of tourism, such as nature-based tourism, eco-tourism, and tourism development. Australia is the most frequently mentioned country, appearing seven times, particularly in the areas of nature-based tourism and tourism development, likely indicating that the region places a high value on sustainable tourism practices [14,16,22–26]. Finland also appears several times (4 mentions), contributing to topics such as eco-tourism and tourism development [18,27–29]. Other countries mentioned include the United States, Japan, Vietnam, Italy, Malaysia, Indonesia, Sweden, Botswana, Kurdistan and Pakistan, which cover a wide range of tourism forms, including tourism development [4,20,30], eco-tourism [31–33], regional and coastal tourism planning [34], nature-based tourism [35–38] and specialized forms of tourism, such as marine-based adventure tourism [39] and mountain tourism [40].

Table 2. General information of each study.

ID	References	Country	Year of Study	Type of Tourism
1	[23]	Australia	2015	Nature-Based Tourism
2	[20]	Malaysia	2018	Tourism Development
3	[18]	Finland	2015	Tourism Development
4	[31]	Vietnam	2018	Eco-Tourism
5	[35]	Japan	2019	Nature-Based Tourism
6	[27]	Finland	2020	Nature-Based Tourism
7	[36]	Italy	2011	Nature-Based Tourism
8	[32]	Kurdistan	2012	Eco-Tourism
9	[28]	Finland	2017	Eco-Tourism
10	[16]	Australia	2004	Tourism Development
11	[14]	Australia	2015	Tourism Development
12	[24]	Australia	2007	Regional and Coastal Tourism Planning
13	[29]	Finland	2014	Tourism Development
14	[25]	Australia	2013	Nature-Based Tourism
15	[39]	Indonesia	2019	Specialized Tourism
16	[4]	Sweden	2020	Tourism Development
17	[37]	Botswana	2017	Nature-Based Tourism
18	[33]	Vietnam	2020	Eco-Tourism
19	[26]	Australia	2013	Tourism Development
20	[34]	USA	2010	Regional and Coastal Tourism Planning
21	[22]	Australia	2016	Tourism Development
22	[38]	USA	2019	Nature-Based Tourism
23	[40]	Italy	2022	Specialized Tourism

The year 2019 appears most frequently, with significant contributions from Japan, Indonesia, Pakistan, and the United States, indicating a peak in tourism research during that period. Other notable years include 2015, 2020, and 2013, demonstrating a consistent interest in tourism development across timeframes. Overall, the table highlights global contributions to tourism research and development, focusing on nature-based and sustainable tourism initiatives.

Different methodological approaches were used to engage the public at each level. Qualitative methods, such as interviews, surveys, and participatory workshops, provide deeper insights into public opinion. More technical approaches, such as participatory mapping and spatial analysis, use geographic data to engage the public in decision-making by visualizing issues on maps. These methods may also include PPGISs (Public Participatory GISs), which enable communities to contribute data to decision-making processes via spatial input.

Table 3 compares public participation methodologies and tools from several countries. In Australia, qualitative methods, participatory mapping, and online surveys are widely used, with participation levels ranging from “inform” to “collaborate”, and tools such as digital maps, Google Maps, GIS applications, and PPGIS surveys are used [14,16,22–26]. Malaysia primarily conducts PPGIS surveys, with participation levels of “inform”, “consult”, and “involve”, with PPGISs as the primary tool [20]. In Finland, map questionnaires, web-based PPGISs, and spatial analysis are common, with similar participation rates, and tools such as Harava software and ESRI Arc Map are used [18,27–29]. Research in Vietnam uses interviews, purposive sampling, and participatory GISs to achieve all participation levels from “inform” to “empower”, using tools such as ESRI Arc Map, Factomine R, and PPGISs [31,33]. Japan uses questionnaires and spatial/statistical analysis, with participation up to “involve”, as well as tools such as ESRI Arc Map and Microsoft Excel [35]. In other countries, including Sweden, Botswana, Indonesia, the United States, Italy, and Iraq, research uses participatory GISs and mixed methods, with participation levels ranging from “inform” to “empower”, as well as a variety of software such as ArcGIS, OpenStreetMap, Maptionnaire, and Excel [4,32,34,36,38–40].

Table 3. Methodological approaches and tools.

	Country	Methodological Approaches		
		Approaches	Level of Participation Process	Tools
1	Australia	<ul style="list-style-type: none"> • Qualitative method • Participatory mapping 	<ul style="list-style-type: none"> • Inform • Consult • Involve 	<ul style="list-style-type: none"> • Digital maps
2	Malaysia	<ul style="list-style-type: none"> • PPGIS survey 	<ul style="list-style-type: none"> • Inform • Consult • Involve 	<ul style="list-style-type: none"> • PPGIS
3	Finland	<ul style="list-style-type: none"> • Map questionnaire • Spatial analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve 	<ul style="list-style-type: none"> • Harava software • ESRI Arc map
4	Vietnam	<ul style="list-style-type: none"> • Interview • Purposive sampling for PPGIS 	<ul style="list-style-type: none"> • Involve • Consult 	<ul style="list-style-type: none"> • Factomine R • PPGIS • ESRI Arc map
5	Japan	<ul style="list-style-type: none"> • Questionnaire • Spatial analysis • Statistical analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve 	<ul style="list-style-type: none"> • ESRI Arc map • Microsoft Excel • MP® Pro-15
6	Finland	<ul style="list-style-type: none"> • Questionnaire • Statistical analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve 	<ul style="list-style-type: none"> • PPGIS survey
7	Italy	<ul style="list-style-type: none"> • PPGIS survey • Interview 	<ul style="list-style-type: none"> • Involve • Consult 	<ul style="list-style-type: none"> • ESRI Arc map
8	Iraq	<ul style="list-style-type: none"> • Participatory workshop • Interview • Spatial analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve 	<ul style="list-style-type: none"> • ESRI Arc map • OpenStreetMap
9	Finland	<ul style="list-style-type: none"> • PPGIS survey • Interview • Spatial analysis 	<ul style="list-style-type: none"> • Consult • Involve 	<ul style="list-style-type: none"> • ESRI Arc map • PPGIS survey
10	Australia	<ul style="list-style-type: none"> • Online survey 	<ul style="list-style-type: none"> • Consult • Involve 	<ul style="list-style-type: none"> • Invitation Letter • Google Maps
11	Australia	<ul style="list-style-type: none"> • Participatory mapping • Spatial analysis 	<ul style="list-style-type: none"> • Consult • Involve 	<ul style="list-style-type: none"> • Paper maps
12	Australia	<ul style="list-style-type: none"> • Participatory mapping • Spatial analysis 	<ul style="list-style-type: none"> • Inform • Involve • collaborate 	<ul style="list-style-type: none"> • Participatory GIS applications

Table 3. Cont.

	Country	Methodological Approaches		
		Approaches	Level of Participation Process	Tools
13	Finland	<ul style="list-style-type: none"> • Web-based PPGIS • On-site visitor survey • Spatial analysis 	<ul style="list-style-type: none"> • Consult • Involve 	<ul style="list-style-type: none"> • Paikka application, • Multi-criteria evaluation (MCE) tools • ESRI Arc map • Printed questionnaires
14	Australia	<ul style="list-style-type: none"> • Web-based PPGIS survey • Spatial analysis 	<ul style="list-style-type: none"> • Consult • Involve 	<ul style="list-style-type: none"> • PPGIS survey • Google Maps • IBM SPSS • ESRI Arc map
15	Indonesia	<ul style="list-style-type: none"> • Qualitative methods • Spatial analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve • collaborate 	<ul style="list-style-type: none"> • Google Maps • ESRI Arc map • PPGIS survey
16	Sweden	<ul style="list-style-type: none"> • Participatory GIS (PGIS) • Mixed-methods data collection • Field sampling 	<ul style="list-style-type: none"> • Inform • Consult • Involve • Collaborate • Empower 	<ul style="list-style-type: none"> • Maptionnaire • QGIS • IBM SPSS • paper survey
17	Botswana	<ul style="list-style-type: none"> • Participatory GIS (PGIS) • Spatial analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve • Collaborate • Empower 	<ul style="list-style-type: none"> • ESRI Arc map • Aerial images
18	Vietnam	<ul style="list-style-type: none"> • Participatory GIS (PGIS) • Spatial analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve • Collaborate • Empower 	<ul style="list-style-type: none"> • ESRI Arc map • PPGIS survey
19	Australia	<ul style="list-style-type: none"> • PPGIS mapping • Spatial analysis • Statistical analysis 	<ul style="list-style-type: none"> • Involve • Consult 	<ul style="list-style-type: none"> • GPS tracking applications • PPGIS survey • ESRI Arc map • IBM SPSS • Hardcopy maps
20	USA	<ul style="list-style-type: none"> • Web-based PPGIS • Coastal spatial analysis 	<ul style="list-style-type: none"> • Inform • Consult • Involve 	<ul style="list-style-type: none"> • PPGIS survey • ESRI Arc map

Table 3. Cont.

	Country	Methodological Approaches		
		Approaches	Level of Participation Process	Tools
21	Australia	<ul style="list-style-type: none"> • Online PPGIS • Sampling design • Spatial analysis 	<ul style="list-style-type: none"> • Consult 	<ul style="list-style-type: none"> • Google Maps • PPGIS survey • ESRI Arc map
22	USA	<ul style="list-style-type: none"> • PPGIS • Spatial analysis 	<ul style="list-style-type: none"> • Consult • Involve 	<ul style="list-style-type: none"> • ArcGIS online • eBeam edge receiver
23	Italy	<ul style="list-style-type: none"> • Quantitative methods • Qualitative methods • Statistical analysis 	<ul style="list-style-type: none"> • Inform 	<ul style="list-style-type: none"> • Open data kit (ODK) collect • GPS • ESRI Arc map • Microsoft Excel

Figure 3 depicts the distribution of methodological approaches used in public participation processes, with a focus on geographical and participatory tools. Spatial analysis is the most popular approach, accounting for 37% of all methods used. PPGISs follow, accounting for 25% of the approaches. PGIS (Participatory GIS) is used in 18% of cases, with statistical analysis and interviews accounting for 10% each. This breakdown demonstrates a clear preference for spatial methodologies in public participation, with GIS-based tools being heavily used.

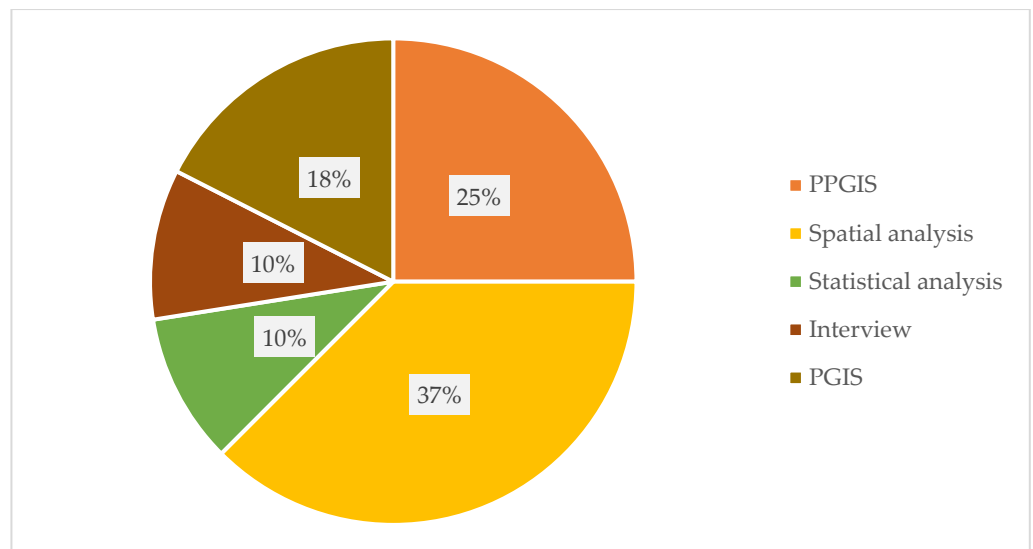


Figure 3. Distribution of methodological approaches used in public participation processes.

Figure 4 depicts a breakdown of tools used in public participation processes, including geographic and statistical analysis. The most frequently used tool is the ESRI Arc map, with 15 instances (37.5% of the total). PPGIS applications are the second most popular, being used ten times (25%). Google Maps was used four times (10%), and IBM SPSS and paper maps three times each (7.5%). Open street maps, aerial images, and GPS tracking applications were used less frequently, accounting for only one instance (2.5%) each. Other tools, such as QGIS and ODK, account for six (15%) uses. This breakdown demonstrates a strong reliance on GIS-based tools, such as ESRI Arc map and PPGIS applications for

public participation, with Google Maps and statistical software such as IBM SPSS playing supporting roles.

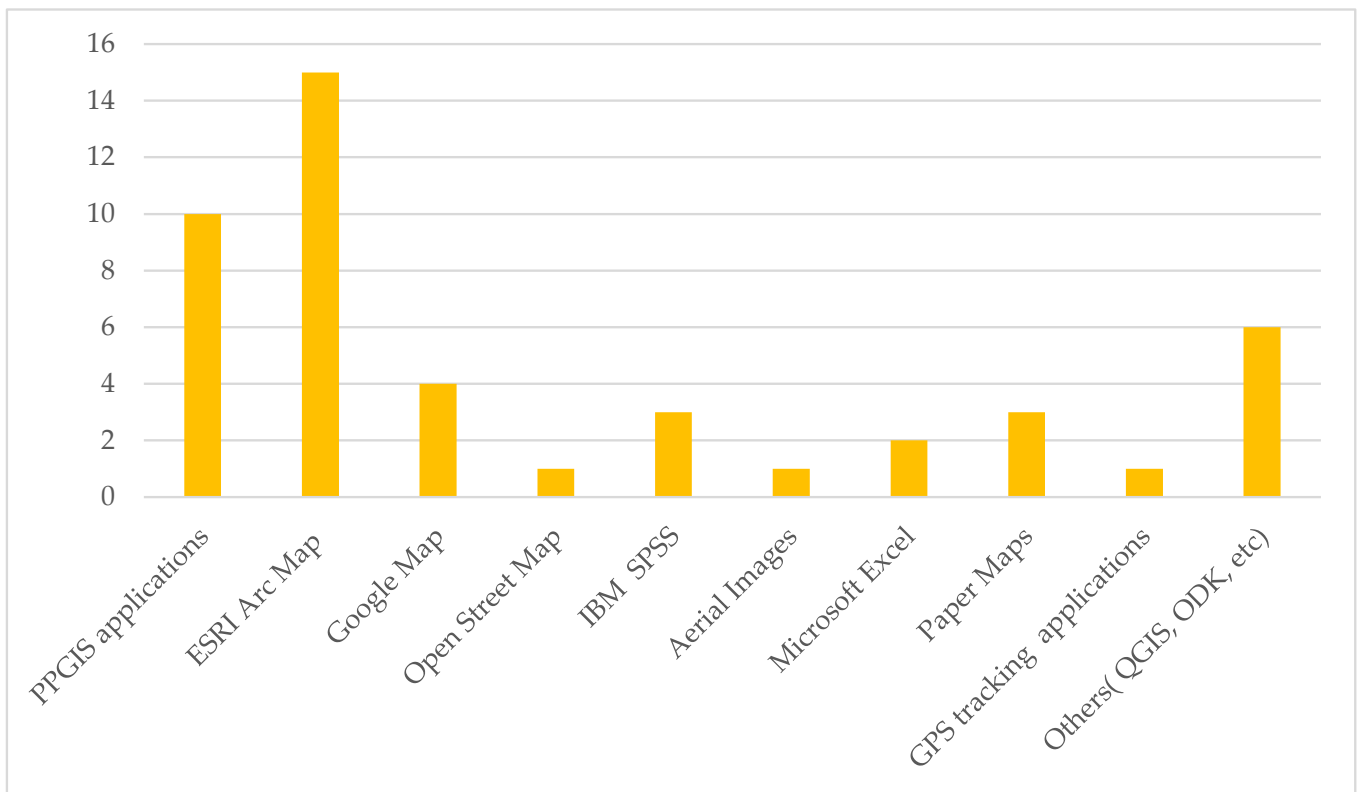


Figure 4. Breakdown of tools used in public participation processes.

4. Discussion and Conclusions

The findings highlight the global scope of tourism research and the growing use of public participation methodologies in various contexts. These findings also demonstrate the importance of engaging the public to participate in GIS mapping and planning to ensure that tourism development is sustainable and in alignment with community goals [1,2]. Further, this research illustrates how various participatory methods allow for all five levels of public participation to be utilized in tourism planning and development when the proper suite of tools and approaches are utilized [3]. This research is also concerned with where such research methods are being used and how practical their engagement approaches are. In terms of frequency of PPGIS usage, countries such as Australia and Finland are at the forefront of nature-based and eco-tourism research, demonstrating a strong commitment to sustainable tourism practices through public participation processes [23,25,27,28]. The findings illustrate that PPGIS is essential in nature-based and eco-tourism as it allows stakeholders to visually express their preferences and concerns about local environments, an essential component of sustainable tourism in a nature-based context [1]. This approach enhances representation, promotes sustainable practices, and aligns tourism development with conservation goals. Additionally, it shapes perceptions of tourism's benefits for sustainable development by highlighting the interconnectedness of community values, conservation efforts, and tourism outcomes [33,41].

This research also sought to critically examine the participatory approaches and tools used to engage stakeholders in tourism planning and development worldwide. As seen in the findings, a PGIS approach was more often associated with stakeholder empowerment, indicating that simpler participatory methods can yield positive community involvement results [7]. However, PPGIS surveys were shown to be an important tool for generating higher levels of engagement. Despite their historic uses, these findings suggest that PGIS

and PPGIS approaches and tools can be used in both developed and developing countries to promote high levels of community involvement and empowerment in tourism planning and development (see [7]).

Australia's frequent appearance in the research demonstrates its leadership role in addressing tourism development using sustainable methods, particularly in a nature-based context. Similarly, Finland's numerous contributions to eco-tourism and tourism development demonstrate the country's commitment to environmentally responsible tourism practices. Other countries, such as the United States, Vietnam, and Japan, make significant contributions to the larger landscape of tourism research, spanning a wide range of tourism types, from mountain and marine tourism to regional planning [31,33–35,38]. However, only Botswana, Sweden, and Vietnam have conducted research where all five levels of public participation were documented.

The surge in tourism research in 2019, particularly from Japan, Indonesia, and USA, indicates a greater awareness and interest in the effects and opportunities of tourism in the pre-pandemic era. The consistent focus on tourism development over the years demonstrates global recognition of the industry's role in economic development and the importance of sustainable practices to ensure its longevity.

In terms of public participation, the IAP2 framework offers a structured method for involving the public in decision-making processes [3]. The project's objectives typically determine the level of engagement, participant needs and capacities, and the level of influence stakeholders should have [16]. For example, projects that inform or gather feedback may employ tools such as surveys or online maps, which encourage low to moderate engagement. Conversely, projects that aim to involve or empower communities often incorporate tools like participatory GISs (PPGISs) or interactive workshops, which support active participation and decision-making. Empowerment should be the goal in situations where community members have a direct stake in the outcome and the ability to influence decisions, such as local planning or environmental management. However, empowerment is not always feasible or necessary; in some cases, lower levels of engagement are preferable, particularly when broad data collection or information dissemination is the goal. In this research, the variation in methodologies used across countries demonstrates a diverse but consistent effort to engage communities. Australia, for example, displays a diverse range of tools, from qualitative interviews to GIS applications, allowing for participation at nearly all levels, including collaboration [14,23–26]. Malaysia and Finland's use of PPGISs and spatial tools is consistent with global trends emphasizing data-driven and geographically focused participation methods. These diverse participatory methods and tools allow for tourism communities to not only have a voice in tourism planning and development but also be empowered in the process [7–10].

The widespread use of GIS-based tools such as ESRI Arc Map and PPGIS applications demonstrate a strong preference for spatial methodologies in public participation [4,14,18,20,22,24–29,31–40].

These different public engagement tools visually represent issues, allowing decision-makers and the general public to better understand and interact with spatial data. The widespread use of these tools emphasizes the importance of technology in facilitating public participation, especially when dealing with complex issues like tourism development, land-use planning, and environmental conservation [4].

Global tourism research highlights the importance of sustainable [42] and nature-based tourism for promoting community development and resource protection efforts [14,16,18,21–28] with Australia and Finland at the forefront of these efforts. The consistency of research over time demonstrates tourism's continued importance to global economies. The use of the IAP2 framework in public participation highlights the importance of involving a diverse range of stakeholders in tourism planning [3]. The prevalence of GIS-based tools, such as spatial analysis and PPGIS, demonstrates how technological advancements can improve community engagement and inform decision-making. These trends reflect a growing global recognition of the importance of sustainable, community-driven tourism and development planning approaches.

This study has limitations, including data consistency issues and geographical biases, as a concentration of studies from a few countries may overlook global diversity in tourism practices and public participation. Furthermore, data collected at a single point in time may not reflect recent developments or emerging trends. Future research should address these limitations by standardizing methodologies, including a broader range of regions, and accounting for contextual factors to produce more comprehensive and equitable research results. Furthermore, researchers should examine how emerging technologies like artificial intelligence and augmented reality can improve participatory tools and methodologies. Comparative research in different cultural and socioeconomic contexts could aid in identifying the best practices and tailoring approaches to specific local needs. Longitudinal studies would be useful for monitoring changes over time and comparing the effectiveness of different strategies for adapting to new trends.

Future research can develop innovative frameworks that better engage communities and improve decision-making processes by incorporating diverse perspectives and leveraging technological advancements. Finally, this research aims to inform policy and practice, promoting sustainable tourism that meets the needs and values of diverse populations while adapting to industry changes.

Supplementary Materials: The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/tourhosp5040070/s1>. Reference [43] is cited in the Supplementary Materials.

Author Contributions: Conceptualization, M.G. and N.S.; methodology, M.G.; software, M.G.; formal analysis, M.G.; investigation, M.G. and N.S.; resources, M.G.; writing—original draft preparation, M.G., N.S. and C.C.; writing—review and editing, M.G., N.S. and C.C.; visualization, M.G.; supervision, M.G. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflicts of interest.

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