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Residents' Involvement in Urban Tourism Planning: Opportunities from a Smart City Perspective

Lidija Lalicic * and Irem Önder

Department of Tourism and Service Management, MODUL University Vienna, 1190 Vienna, Austria; irem.onder@modul.ac.at

* Correspondence: lidija.lalicic@modul.ac.at; Tel.: +43-(1)-3203555-419

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Abstract: In this paper, we speculate that new advances in technologies will reshape tourism planning and residents engagement in many ways which subsequently will help cities to work towards sustainable urban planning practices. The paper addresses the question how should destinations prepare themselves for being 'smart' and responsive to co-participative tourism planning? The paper reviews the most relevant literature on the topics of resident's attitude towards tourism, residents' involvement and smart cities. Furthermore, examples are provided of cities who through the implementation of smart principles, plan specific domains in their cities with their residents. Important questions related to managerial challenges and residents-related challenges and set a general research avenues are set out. City planners can use this paper to start designing their strategies to effectively involve and collaborate with residents at the intersection of ICT and tourism in their cities.

Keywords: city planning; residents' engagement; smart cities; urban destinations

1. Introduction

> '*Under the right stimulus residents become productive innovators who add value to the city's core values and development. Real smart cities are co-creations with their residents*' (Jean-Paul Close, STIR Foundation & AiREAS in Walker-Love [1])

Cities are becoming highly populated and continuously growing. For example, of the 28 countries in the European Union, two thirds of the population lives in cities and more than half of the world is living in cities [2]. Hence, cities need solutions to ease the strains on energy, transportation, water consumption and public spaces, and smart technologies can help to achieve this goal [2]. Residents are an important factor for improving the quality of life in cities as well as having a sustainable city. These goals can be achieved by including residents in decision making and also using technology (e.g., ICTs).

Residents have been recognized for their experience and knowledge in enhancing planning processes in areas such as forest and urban planning, transport services and building design [3]. There is a significant amount of research that demonstrates that active participation promotes democratic involvement, inclusion, rational decision-making, legitimacy and, subsequently, higher levels of satisfaction among residents in addition to sustainable local communities [4,5]. Portney and Berry [6] show that there is a link between the adoption and implementation of sustainability-based policies in cities and the level of public participation. As community planning and residents' engagement techniques have evolved over the years, information communication technologies (ICT) have become an important factor. The recent integration of ICT tools supports cities by connecting and integrating various stakeholders into their planning processes (i.e., e-governance tools) [7]. Furthermore, by opening-up processes, access to open data and other related systems, cities can work much more

efficiently. This transformation is in keeping with the concept of a 'smart city'. One important dimension of the smart city paradigm highlights the fact that urban spaces need to become more aware of their residents and their wishes [8], thereby implicitly calling for active residents' participation and democratic involvement. Cities have made attempts to involve residents in decision making and policy making process in the past. For example, it is not uncommon that residents act as voluntary sensors to collect information related to noise pollution or bikes systems [9]. Anttiroiko [10] demonstrates that the role of residents, user and stakeholder participation in smart projects enhances productive smartness and, in doing so, contributes to cities' urban economic renewal and in the long run sustainability of the cities. Furthermore, strong collaboration among government, industry and residents can ensure that there is an element of sustainability present in city growth and recourse use as well as support for resident engagement on projects with a sustainability focus. Overall, the success lies in the co-construction of issues and relevant solutions with stakeholders at all levels.

However, if we bring this topic into the domain of tourism, the approaches are limited. According to Mair and Reid [11] these recent developments, both inside and outside of the domain of tourism, have created a vigorous concern regarding the role of community, knowledge, power and control of processes [11]. Also, there is a common agreement that residents' participation in tourism planning can result in a variety of benefits to both residents and governments [11–13]. However, Sigala and Marinidis [14] state that there is hardly any research on e-democracy in tourism and, therefore, they call for more research on how we can use ICT to develop knowledge and disseminate it within destinations. In particular, if we understand the residents' attitudes, policy and destination developers are able to estimate residents' perceptions of tourism in the city, and work towards a common goal. The complexity of urban tourism destinations with social, environmental and economic phenomena is constant at the intersection of other urban activities [15]. Aall and Koens [16] state that it requires cities to re-think their current practices in order to develop lucrative solutions that can handle the issues that urban destinations are currently facing (i.e., 'overtourism', demonstrations from locals) as these affect all stakeholders in a given city.

However, there is a lack of knowledge about possible innovative solutions or mechanisms to effectively engage all stakeholders and, in particular, those most affected by it: the residents. Furthermore, we can also see that cities have limited knowledge about their residents, which hinders cities from planning transformative approaches and working towards a common goal. Cities are thus advised to increase their residents' participation in tourism planning projects with the hope that this engagement will lead to a change of attitude towards the subject, while at the same, identifying timely expectations and opportunities that can be fed into future plans. With ICT and linked smart tools, these processes are easier and provide chances to work on pilot projects that can enhance both networks in the city and residents' participation. Therefore, in this paper, we speculate that new advances in technology will reshape tourism planning and residents' engagement in many ways, which will subsequently help cities to work towards sustainable urban planning. The paper addresses the question of how destinations should prepare themselves to become 'smart' and responsive to co-participative tourism planning. In this paper, we focus on three concepts: residents' attitude towards tourism, residents' involvement and smart cities. We review the most relevant literature on these topics. We also provide examples of cities who, through the implementation of smart principles, plan specific domains that involve their residents as well as use their help for improving the sustainability of the destination. Subsequently, we will provide a set of suggestions on how destinations can efficiently integrate smart city principles in order to enhance residents' engagement in tourism planning practices. Thus, the contribution of this study is the set of strategic challenges and the future research agenda regarding resident involvement in tourism urban development, which needs to be further investigated. City planners can use this paper to start designing their city-specific strategies to effectively involve and collaborate with residents at the intersection of ICT tourism, and sustainable destinations. Lastly, the paper examines important questions related to managerial and resident-related challenges and sets out general research avenues for further analysis.

2. Literature Review

2.1. Tourists' Attitudes towards Tourism Development and Engagement

For tourism planners, data about the impact of tourism on the destination from a resident's perspective is crucial [17–19]. As a result, there is a vast amount of research dedicated to this topic. Nunkoo et al. [19] investigated 140 papers that have been published between 1984 and 2010 on the topic of residents' attitudes towards tourism. The majority of papers analyzed the topic by integrating the social exchange theory followed by models such as 'the tourist area life cycle' and 'the irridex model'. The majority of these studies (101) employed quantitative approaches including multi-variance analysis (i.e., multiple regression, CFA) [19]. One explanation for this, as Nunkoo et al. [19] postulate, is the number of aspects that need to be understood as influencing factors for residents' perceptions of tourism impacts. Even though Davies [4] called for mixed-method approaches to investigate this 'complex and multidimensional reality' of tourism planning and residents attitudes, Nunkoo et al. [19] have demonstrated that the research done so far has been rather area-specific and often relied on case studies. In general, research in this field has dealt with questions related, on the one hand, with how residents perceive tourism activity in their cities and, on the other hand, how important these specific tourism impacts are for residents for future tourism destinations [20]. Despite the popularity of papers published in the last decades, Nunkoo et al. [19] show a decrease in output from 2009–2010.

Since 2010, we have identified only a handful of research papers published on this topic. However, these papers tend to focus on specific topics as Nunkoo et al. [19] previously called for. For example, Lundberg [21] recently investigated the role of various residents groups (second home owners and permanent residents) and their concerns related to tourism development in their destination. He demonstrates that economic and environmental impacts are perceived as equally important for tourism planning for both resident groups. Interestingly, we can also see that social integration and involvement also has an effect on residents' perceived importance of sociocultural impacts. Local involvement appears to have an influence on the perceived importance of economic impacts and enhanced understanding [20,21]. He also suggests that research needs to investigate the local community according to specific groups, which can also reveal conflicting perceptions [21,22]. Many authors have found common factors that influence residents' attitudes about tourism in their destination. Firstly, the perceived negative and positive impacts of tourism depend on a number of factors including whether residents are employed directly in the sector or by the state of the local economy, the knowledge about tourism in the destination and the regular interaction with tourists [22–24] Lundberg [20] shows how the type of tourism development (sustainable vs. unsustainable tourism) and the level of tourism development in the destination has an impact on residents' perceptions. Interestingly, he finds that higher perceptions of community pride are found in destinations with high levels of tourism development. As such, he states that higher levels of tourism development brings higher social carrying capacity. Some authors refer to the concept of 'interfirm linkages' which refers to a community that is 'locking-in' to the development of tourism in their destination and residents are often ignorant to negative impacts of tourism [24]. Vargas-Sanchez et al. [23,24] also state that the respectful behavior and density of tourists influences residents' perceptions.

Moghavvemi et al. [25] recently investigated how residents' personality has an impact on attitude. For example, residents with higher levels of a welcoming nature and emotional closeness experience more positive feelings. As they explain, agreeable residents are likey to connect with tourists more often and, in doing so, are able to experience the benefits of these kinds of relationships and thus develop a favorable attitude towards tourism development in general. Furthermore, the study shows how gender also plays a role. For example, women tend to have a more welcoming nature and positive attitude towards tourism than men do [25].

Community satisfaction has also been investigated as an important factor in understanding residents' perceptions [26–28]. Nunkoo and Ramkisson [18] focused on neighborhood conditions and

show how they positively influence the perception of benefits and overall community satisfaction. Moghavvemi et al. [25] show a similar effect on residents' commitment levels. Gursoy et al. [29] also refer to community concern, the use of a tourism resource base and eco-centric attitudes that play a role in image perceptions. For example, residents with high levels of eco-centric attitudes are likely to support alternative tourism rather than mass tourism [29], whereas tourism costs are perceived higher by those who use resources heavily. We can also see that residents of urban and matured tourism destinations have a greater awareness of the impact of tourism development [29–33]. Stylidis et al. [34] prove that the role of place image and attachment influence residents to support tourism and new plans. Furthermore, Woo, Kim and Uysal [33] recently found that if residents are happier with their life in general, they are also more willing to interact with tourists. Therefore, various studies recommend that cities inform their residents about the positive aspects of their city and the contribution of tourism to the city's image, for example, via effective internal marketing activities [35,36]. In particular, cities need to focus on non-economic benefits (social and cultural offers) when communicating their city image, as this can help to enhance residents' quality of life and happiness [28–33].

In a similar vein, a recent set of studies looks into how the perceived level of power in tourism planning processes influences residents' favorable perceptions [35–39]. Hung et al. [37] refer to the MOA model which includes variables of ability to participate, motivation and opportunity given. As their study shows, often residents do not participate because the perceived costs of tourism appear to outweigh the benefits [37]. The lack of opportunity is often due to a top-down governing structure. Hung et al. [37] show that awareness and knowledge positively increase residents' intentions to participate in tourism planning activities. Therefore, Nunkoo [38] stresses that local governments need to increase their efforts to inform residents about issues and plans related to tourism planning in their destination as well possibilities to participate. Segota et al. [39] categorized residents according to the level of informedness and involvement ranging from 'unaware residents', 'passive observers', 'uninformed activists' and 'responsible residents'. Their study demonstrates that highly informed and involved residents have positive feelings about tourism. However, the majority of respondents in their city did not feel included in the tourism planning and had little knowledge about the subject [39]. Various studies discuss that if residents are well-informed, they not only perceive the costs of tourism to be lower, but can also make meaningful decisions and effectively participate in any phase of tourism planning [40–44]. Stylidis et al. [31] recommend that cities constantly monitor and manage their residents' perception of their city and tourism planning practices. Furthermore, continuous engagement is necessary. Destinations have various options on how to best inform their residents such as media campaigns, newspapers, residents' survey's and also public meetings [45].

As Moscardo [40] states, where cities are concerned, a general lack of knowledge compounded by locals' inadequate knowledge of tourism hinders good governance and planning in the destination. Clear leadership and mandates for tourism development in the region help to create trust among residents and enables them to deal with challenges in tourism planning [44–46]. Nunkoo [38] holds that residents only feel empowered to support tourism development processes if the destination has tourism policies in place that create opportunities for inclusive approaches that embrace the whole community. Khazaei et al. [42] state that significant stakeholders in a destination, such as politicians, are advised to engage in collaborative approaches with all community members in order to empower them and support them in active engagement practices in the destination and tourism planning. Various studies visualize how diversity and heterogeneity among residents calls for more engagement efforts. Examples of this include marginal and less powerful residents such as first-generation immigrants [42] and also younger residents [43] who need to be included. However, the inclusion of such engagement is often dependent on the level of knowledge residents have about tourism in their destination. Furthermore, the role of knowledge residents have about tourism development mediates their level of trust in their local government [38]. Effective long-term planning strategies need to be developed to overcome these hurdles such as customized approaches for each segment [38]. Jordan et al. [45] state that where city tourism planners opt for collaborative tourism, they can, for example, make use of

participatory planning processes, information meetings, roundtable discussions and committees [46]. However, Jordan et al. [45] state that the structure of the government under which a tourism plan is formed has a significant impact on the design of processes and the forms they can possibly take not to mention the content of the plans itself. In addition Koutsouris [47] highlights the importance of interactive and participative actions that allows all stakeholders to successfully co-construct an issue and its solution. The next section will explain how residents have been invited to plan projects and the various dimensions of their participation.

2.2. Residents' Participation

Residents are known to help decision-makers in making better decisions, solutions and design services as a result of their own experiences and knowledge [48] Various studies show that if cities listened to residents' voices in the early stages of planning, problems could be addressed in time and failures could be prevented. As a result, there is a vast amount of research dedicated to involving residents in planning projects. The majority of research is built upon Arnstein's [49] pioneering work on increasing residents' participation. The spectrum of public participation ranges from non-participatory forms that include manipulation and therapy to 'consultative participation' or Arnstein's 'tokensim' where residents can act in an advisory manner [50,51]. The third dimension takes a deliberate form in which residents control stages of decision-making processes as well as collaborative participation. There are three broad approaches to include stakeholders and the residents: (i) education (informing), (ii) dialogue (consultation) and (iii) co-production of knowledge between experts and residents [51]. Paivarinta and Saebo [52] refer to agenda-setting done by residents and governments as well as decision-making in which both parties have a final say.

A simplified version is illustrated in Figure 1 in which the flow of information changes according to the level of residents' engagement. In the first dimension, residents are informed to potentially increase their sympathy for an issue (i.e., format like an academy). Alternatively, in the consultation dimension, residents deliver information to the decision-makers (e.g., surveys, open house events, gaming and role-playing).

Type of citizen engagement	Flow of information
Information/Communication	Organiser → Public
Consultation	Organiser ← Public
Participation	Organiser ↔ Public

Figure 1. Type of residents' engagement and flow of information [51].

Participation, which is based on deliberative qualities, requires a dialogue between the residents and the decision-makers (e.g., a public dashboards). Through the emergence of ICT tools, cities have even more opportunities to engage residents in their decision-making processes. Examples include online voting, online debates, decision-making, activism, consultation, campaigning and petitioning [5]. Michels [5] distinguishes between deliberative forums and participatory governance. Participatory governance is based upon the principle that residents are asked for their advice or to cooperate with decision-makers. Deliberative forms are different, as design relies upon the principle of opinion formation and exchange of arguments rather than decision-making [5]. Therefore, deliberative forums are referred to as 'mini-publics' in which various residents are brought together through conferences, dialogues, surveys and random sampling. Both forms aim to increase democratic legitimacy but are mainly instrumental when considered from a government perspective [5]. Michels [5] demonstrates

that different designs produce different democratic effects. For example, participatory governance projects tend to impact policy design more, whereas deliberative forums tend to shift residents' viewpoints. Thus, cities have to be clear about the goal of residents' participation.

Furthermore, we have to pose the question of whether engagement can impact the community. In doing so, we need to take into account certain factors, including who is invited and who is not, power dynamics, the issues at hand and also at what stage in the planning phase engagement takes place. Another issue discussed in research deals with the rationale for engaging. Generally speaking, residents engage in planning to achieve awareness, mobilize their viewpoints and also voice their opinions and concerns as the people who are affected by these processes and decisions. Cities needs to be aware of why residents choose to engage in planning processes. There are two types of residents: those who are willing to engage but are unable to and those who are able to engage but unwilling to do so [53]. One can also refer to four categories: (i) 'uninterested' unmotivated persons (i.e., socially or financially out of the loop; (ii) 'consumers' who are residents that are extrinsically motivated (i.e., open to information and ideas and can develop awareness for the project); (iii) 'contributors' who are extrinsically motivated (i.e., have an opinion and are prepared to participate) and (iv) 'commenter/leaders' who are intrinsically motivated (i.e., may wish to see initiative and be a potential leader). Furthermore, residents tend to continue to participate if they have had a good experience and use of resources [53]. Residents tends to stop participating due to poor experiences or life experiences that prevent them from doing so. Cities are advised to lower their barriers for all kinds of residents and also make participation more attractive, which can be achieved through a greater mix of methods [53].

However, often there is a lot of uncertainty on how to engage residents in a successful and useful manner, and cities lack effective communication approaches towards their residents. In addition, residents' limited knowledge about the subject (in this case tourism) can hinder effective engagement initiatives [14]. According to Davies and Ribiero [53] one way of approaching this challenge is to develop exercises that allows residents to develop an understanding of the subject and to incorporate a feedback mechanism as well as an incentive system. Examples of ICT-enhanced tools that can be leveraged to increase residents' engagement by connecting with the community include crowdsource initiatives (share my ideas), competitions with incentives and gamification to change behavior. In order to measure engagement, cities need to develop a set of indicators that measure the success of engagement. In order to plan the process accordingly, cities can take different elements into account by determining the following: (i) administration; (ii) objectives; (iii) stage of development of the subject of engagement; (iv) targeting process; (v) techniques and (vi) information dissemination [53].

Various authors discuss the principles that underline the effective engagement of residents [54,55]. The first principle refers to the careful design and preparation of engagement activities. In this case, issues such as timing, conditions, fixed budget and representatives of residents are determined. The second principle refers to transparency, integrity and respect for all perspectives. Stakeholders need to be provided with clear information throughout the process, transparency with regards to the scope of the undertaking and also a certain level of sincerity for integrating new ideas into the planning processes in which the views of the participants are valued and prioritized [54,55]. The third principle refers to making sure that the engagement will result in making a difference. This can be accomplished by facilitating participation in an educative manner and also by engaging in a meaningful way. Johannessen and Berntzen [56] state that if residents feel that they are engaged in a meaningful way and can learn about the topic, it will increase their levels of engagement. Principle four refers to actively reviewing and evaluating the quality of engagement to improve future practices. Principle five relates to tailoring engagement to the subject in question, by, for example, involving the key actors, building on existing frameworks, considering which forms of engagement are appropriate in the field of tourism and taking into account the stage of tourism in the destination. Principle six refers to listening and engaging people on interest, issues and concerns that matter to them [56] lastly, principle seven refers to learning from other examples, sectors and geographical areas [57,58].

Residents' engagement comes with various advantages and disadvantages. Advantages include: (i) bi-directional learning between residents and other stakeholders; (ii) enlightenment of the government; (iii) active resident participation (iv) higher levels of responsibility and (v) building alliances between cities [57,58]. DeGraaf and Michiels [57] refer to participatory policy-making as a way for residents to provide information and suggestions. As demonstrated by DeGraaf and Michiels [57] residents are more interested in public matters and increasing their understanding of how decisions are made as well as cultivating higher levels of mutual understanding and greater levels of legitimacy of decisions.

However, residents' engagement is also perceived to be time consuming and resource intensive. Where input or decisions empowered by residents are ignored, it might backfire on the government. The loss of decision-making is also coupled with risk as it might leave a smaller budget for the implementation of other relevant projects. DeGraaf and Michiels [57] also point to the challenge of involving residents from underrepresented groups that are hard to reach or residents who have high expectations that cannot be met and give up during the process.

Cities have the chance to work towards improving their information-sharing systems and building new forms of consensus between various stakeholder groups. The availability of ICT tools gives cities the chance to manage proprietary platforms or social media platforms [9,59]. The proprietary platforms are hosted and owned by the government and help cities manage voting processes and information dissemination. For example, Norway has developed a digital planning dialogue that facilitates digital communication among municipalities with stakeholders affected by municipal zoning plans [9]. Through geographical information systems (GIS) integrated into the document handling system, residents can access information and also submit their own comments. Social media platforms rely more on an open collaborative paradigm, whereas in this system there are multiple inputters and hosts [9]. Examples also exist across the globe that attest to the use of social media for several integrative purposes. For example, the US has used social media to engage low-income neighborhoods in planning after-school programs, while in Italy social media has been used to engage entrepreneurs in less developed areas [9,59]. Social media can be seen as an effective tool for stimulating crowdsourcing and co-creation particularly where smart city innovation strategies are concerned as they can offer an inclusive approach to residents' engagement [41,60]. However, Johansssen and Brentzen [56] recommend a combination of proprietary software and social media in addition to a balanced combination of on-and offline communication channels. For example, they suggest that social media platforms can be used to mobilize residents, while the proprietary technology enables active resident involvement.

Bugs et al. [41] who prototyped a Web 2.0 PPGIS application, state that combining new tools with traditional tools enhances participatory urban planning and eventually empowers residents. Their study shows that residents perceived these Web 2.0 tools as easy-to-use, convenient for communication and supportive of participatory urban planning [41]. Gagliardi et al. [8] demonstrate the mediating use of ICT-based tools between the city government, administration and residents. They suggest that such platforms help governments to provide their residents with value-added public services while also enabling residents to voice concerns about services. The transparency creates higher levels of trust and also allows decision-makers to monitor the evolution and evaluate development over a longer period of time. In particular, different formats can be used to highlight not only arguments for specific developments as Davies and Ribiero [53] state but also to help residents develop affective connections and experiences with specific problems.

Even though we have the possibility to integrate innovative tools such as multimedia into participatory processes, we are not sure how these tools will and can enhance residents' participation. Relying on public choice theory (in which residents are known to be rational ignorant), innovative play manners need to be designed to integrate residents into planning [61]. Poplin [61,62] demonstrates that serious games are one way of approaching this challenge, since the focus is on the processes and the performance with the feedback provided by the game. In doing so, the gamified and

ICT-enhanced residents' experiences offer new ways to motivate people to participate and learn about their environment and city. However, as many authors agree, residents' engagement needs to evolve from one-off occasional engagement to substantial sharing, co-design and co-creation, thus, calling for a transformation of city governance to include residents [61,62]. The paradigm shift of 'smart cities' has forced many city governances to rethink their resources, networks and stakeholders and how to integrate ICT into this constellation. The next section will explain this in more detail.

2.3. Smart city

The topic of so-called 'smart cities' or 'smart destinations' has been of increasing interest to researchers in the last years. Based on their impact on cities and businesses, Porter and Happelmann [63] categorize IT advancements into three waves over the last decades. The first wave was in the 1960s–1970s, in which automated individual activities, from paying the bills to order processing, impacted value chains are created. The second wave was in 1980s–1990s and is characterized by the rise of the Internet and ubiquitous connectivity, which has resulted in connectivity between suppliers, channels and customers. In the third and current wave, IT is a crucial part of any business model [63]. This integration of IT has also led to connected products and smart technologies that allow for a significant change of operations. Examples include sensor technology, ubiquitous Wi-Fi, near field communication (NFC), smart phone connectivity, radio-frequency-identification (RFID), data warehouses and data mining algorithms [63]. Porter and Happelman [63] refer to four main capabilities of smart and connected products: (1) monitoring (e.g., using sensors and external data sources); (2) controlling (e.g., using embedded software in the product to control the functions); (3) optimization (e.g., optimization algorithms based on the data from monitoring and controlling) and (4) autonomy is the combination of monitoring, controlling, and optimization and as a result of having autonomous product operation and self-diagnosis. The authors indicate that in the end, smart and connected products can function with complete autonomy without the need of human operators.

The definition of smartness has ICTs at its core, wherein interconnection, synchronization and concerted use different technologies [64]. For cities, this refers to efforts to use technology in an innovative manner in order to achieve resource optimization, effective and fair governance, sustainability and quality of life [21]. Furthermore, the authors agree that the concept of a smart city should revolve around inclusion, education, innovation, energy, poverty, social cohesion, enhanced participation and quality of public spaces.

In 2013, Cohen [65] visualized a smart city via the smart city wheel, which identifies six dimensions of smartness in cities: (1) Smart Governance is about having ICTs supporting eGovernance, having open data and transparency and enabling demand and supply side policy; (2) Smart Environment is related to energy use and the sustainability of resources including green buildings and green energy; (3) Smart Mobility is about mixed model access, such as using public trains and renting an e-bike at the train station after you arrive, which combines ICTs and transport systems; (4) Smart Economy is related to the implementation of ICTs in economic strategies; (5) Smart People is about the qualification of the residents (human capital) and (6) Smart Living is about the quality of life in terms of health, safety, cultural vibrancy and happiness [64–68].

However, Caragliu et al. [69] claim that the success of 'smart cities' relies on more than ICTs. For example, 'smart cities' also rely on leadership, innovation, creativity and human and social capital. In this case, leadership can follow either the bottom up or the top down approach, at the very least offering a centralized office that helps with the coordination of new projects in the city. Often, entrepreneurship and innovation is fostered via Living Labs or designated areas, such as @22 in Barcelona, where new ideas are born and implemented. For the social capital dimension, it is important that there is a solid collaboration and cooperation between public and private agencies, academics and residents. The dimension of human capital is closely related, as for a smart city, the quality of life and education of the residents are at the core of this construct [66] and are enhanced on an ongoing basis.

The prevailing factor in the smart city paradigm are the people, whose participation in the developments is a success measure of implementing any initiative related to the smart dimensions. In smart cities, residents' participation includes engaging in open data initiatives, crowdsourcing and co-creation platforms [62]. Open data is data that can be accessed and used freely by anyone and is provided by the municipality or the government. The goal of open data initiatives focuses mainly on the co-creation of new resident-produced digital services (apps) to improve residents' quality of life, but also to encourage residents' engagement in the developmental phase of making their city a better place [63]. Open data helps cities to monitor current indicators in the city, inform residents and enhance their satisfaction with the city. An outstanding example in this case is the city of Copenhagen. The capital city of Denmark introduced the 'Bicycle Account', a biannual evaluation of bicycle systems, where users are asked for specific areas of improvement. In addition, the city of Copenhagen encouraged residents' engagement in a project called 'The Copenhagen Wheel'. In this case, sensors were integrated into the wheels of bicycles in order to retrieve data about noise pollution, congestions and road conditions. In Amsterdam, a smart city platform was created to bring together different stakeholders such as residents, businesses, authorities and research institutions, who created projects together for their city. Some examples of these projects are: (i) "Climate Street" in which the objective was to reduce CO_2 emissions and energy consumption; (ii) "Ship-to-grid" which allows ships in Amsterdam harbor to use green energy from the grid instead of their own diesel generators; and (iii) "Health Lab" in which health care practitioners, researchers, the government and residents came together to find ICT-enabled innovative healthcare solutions. In Helsinki, the 'Open data platform Helsinki Region Infoshare' was created to make regional information open to the public. The website covers information about the city's living conditions, employment, transportation, economics and well-being [64]. In Vienna, residents were involved in campaigns such as "Basics of Social Awareness", "Platform Smart Residents in a Smart City" and "Public residents partnership for municipal functions", which enables residents to work on projects related to making their city more smart and accessible. The city of London also used the crowdsourcing approach to gather data related to air pollution and air quality, which is shown in real time [69]. These examples show how cities are successfully engaging their residents in data collection and the development of new projects as well as monitoring their residents' opinions.

However, in addition to residents, visitors, seen as temporary residents, also need to be included in this new paradigm of governance. Visitors often interact with similar smart systems offered for locals. For example, tourists can make use of the available mobile applications for the local public transport system to purchase tickets. Furthermore, visitors benefit from the city by using traffic information from sensors on the road to reduce traffic. Also, if hotels use smart meters to measure their energy use in order to reduce air pollution, tourists as well as residents profit. Boes et al. [67] were among the first to introduce a definition of smart tourism destinations, explaining it as "... places utilizing the available technological tools and techniques to enable demand and supply to co-create value, pleasure, and experiences for the tourist and wealth, profit, and benefits for the organizations and the destination" [67] (p. 394). Lopez de Avila [69] adds that smart destinations also work towards increasing residents' quality of life and the development of sustainable tourist areas. Therefore, many authors agree that smart tourism destinations should connect different tourism stakeholders via technological platforms on which information can be exchanged instantly [7–21] in order to build on the existing smart city constructs [66]. Similar to Caragliu et al. [69], Boes et al. [67] refer to the fundamental constructs of smart tourism cities (leadership, entrepreneurship and innovation, social capital and human capital).

Gretzel et al. [64] state that in Europe, many smart tourism initiatives were born of smart city projects with a strong focus on innovation and competiveness and the development of smart end-user applications to enrich the tourist experience. Since smart in the field of tourism is complex, it remains rather unclear how to describe it. It has mainly focused on open data initiatives, promotion of free Fi-Wi or developments of new applications. Thus, even though there is a recent increase in research

on smart tourism the majority of these studies approaches this topic from a tourist's perspective or an understanding of how destinations work as technology-supported ecosystems [69,70]. However, the question of how ICT systems can help cities to offer advanced and innovative services to their residents in order to improve their quality of life remains unanswered. Furthermore, the effects of using such tools to enhance tourism planning while integrating residents' voices also remain relatively unexamined as are many important questions, such as 'What are the best ways for destinations to engage residents in tourism planning?', 'What strategies would work to engage various stakeholders? 'or 'How should residents be rewarded or engaged in city planning?'

Based on the preceding discussion, a summary of some of the key issues, current insights and future research avenues are represented in Table 1.

Table 1. Key questions on residents' engagement in smart tourism planning approaches.

Strategic Questions	Current Insights	Questions for Future Work
Which residents are involved in participatory projects?	'Mini-publics'; residents with a high level of knowledge and involvement	• How can we ensure an inclusive approach to engaging residents? • How can we increase the capacity of residents to not only participate but to contribute in a meaningful manner?
How engaged are residents in tourism planning?	Residents are hardly involved or informed, surveys meetings, newspapers, platforms, open data projects	• How can cities motivate their residents to join projects related to tourism? Why are residents engaging in projects?
What are the success factors to engage residents in adopting smart tools and engage in tourism projects?	If the benefits outweigh their costs of tourism in their city, meaningful outcomes, clear information	• Which tools of the smart city paradigm supports residents' engagement and which one is used for tourism planning already?
What are the barriers that prevent residents from engaging in city/tourism projects?	Time, knowledge, costs versus benefits, trust in local government, power relations, top-down governance structures, opportunities to share information	• Why are there inhibitors and how can cities reduce them? Which kinds of tools are the most effective in overcoming these inhibitors?
What are the effects of residents' engagement in tourism planning and the city?	Higher levels of democracy, satisfaction, higher levels of engagement and sustainable communities.	• How can we measure the effects of engagement? • What are the benefits for cities who integrate residents into their planning practices in the short and long-term?
What are successfully strategies for engaging residents in general and in tourism planning practices?	Democratic and participatory projects. Exercises, education-driven approaches, mix of online and offline methods, awards given.	• What kind of participation is the most effective (democratize versus participatory platforms for tourism and why?)

3. Strategic challenges

In this section, we look into (i) resident-related challenges and (ii) managerial challenges that cities might face when they want to integrate smart tools to enhance participatory approaches.

3.1. Resident-Related Challenges

The fundamentals of smart tourism destinations are human capital [70]. As a stakeholder of the tourism industry, residents also need to be engaged in decisions regarding the future of their destination. Smart tools can provide cities with opportunities to increase their residents' familiarity among residents with tourism planning and also increase their acceptance of new processes and overall enable a dialogue that facilitates changes in the residents' behavior. However, it is not always easy to motivate residents to participate in decision-making regarding the destination. At first, destinations need to learn continuously about the behavior and attitudes of their residents. The valuable knowledge and experience of residents is crucial to planning for sustainable destinations. Additionally, residents

can help cities collect data through sensors in smartphones or other tools. Cities should value the engagement of their residents in what Johannessen and Berntzen [56] refer to as form of democratic thinking and building that helps to sustain local communities.

Thus, when implementing a resident-centered approach into tourism planning, additional questions about residents' behavior related to tourism include, 'How much do residents known about tourism in their city? How and in which capacity would they like to be involved in tourism planning? More importantly, how can cities ensure that every resident has the opportunity to engage?' [42–57]. We also need to understand what kind of effects engagement has on residents' behavior and attitudes. Thus, we have to explore questions such as, 'What are the expectations of residents and how do are perceived to be a part of these new initiatives? Are we able to observe attitude changes towards the subject (tourism) democratic processes and policy-making in general?'. In case of cities successfully co-create processes and outcomes the question of ownership might arise.

Furthermore, we need to include concepts such as trust and how to facilitate power to enhance residents' engagement [23]. This might leads to questions such as, 'How can we deal with issues related to privacy and security and how to residents perceive those to be influencing their engagement? Thus, how and in which way can cities create trust, thus, which platforms or forms of participatory process can enhance this?'. Destinations need to carefully design these approaches and experiments and use these insights to create trusted platforms for their residents.

Another important challenge is the continuous engagement of residents. Destination needs to better understand how residents engage in social networking and what motivates them to do so. Furthermore, they have to understand how this information can be used to enhance their participation in the projects on a consistent basis. Issues such as privacy and security are also a challenge when dealing with open data and user-driven input. Destinations must ensure that residents' privacy and security is integrated into their approach. Destinations are advised to identify the most critical issues and solutions and execute them accordingly.

Another critical issue destinations need to understand is how to balance factors involved in engaging residents, questions such as, 'How much marketing activities should a destination undertake to engage residents in their projects?'. This of course implies a better understanding of general residents' preferences, behavior and involvement in planning projects related to tourism. This kind of understanding is needed to make strategic decisions about how, where and in which way to launch resident-centered planning projects, services or tools (i.e., applications).

3.2. Managerial Challenges

In addition to resident-related issues, destinations also face several managerial challenges in managing residents' participation and tourism planning in their cities. The level of hesitancy of tourism developers to share information or include residents in the planning processes [46–60] needs to be addressed. These challenges are primarily related to the destination' planning culture and how it facilitates structures that can manage open data structures. Thus, a key question with regards to a destination culture is, 'How should destinations create and foster a culture where residents participation plays an important role in tourism planning?'. A particular elements of consideration is the power dynamics that shape relationships between stakeholders and possible barriers to social learning and engagement. Another set of questions could also include: 'What competencies and tools do destination planners need to develop to fully facilitate residents' participation and input into their planning processes?'. Furthermore, from a planning perspective we have to entertain questions such as: 'How can destination planners create a tourist destination that responds to residents' ideas and needs?'. Creating a sound smart culture destination can enable tourism planners to leverage opportunities in a timely fashion. Destinations also have to consider which categories of residents' participation they can employ through technology, given the required facilities and expected outcomes. Medaglia [54] refers to proprietary platforms and social media, where the level of control differs as does the achievable outcomes. Thus, the questions related to what kind of facilities destinations have

to manage, how time and cost intensive these processes are and, lastly, if the outcomes outweigh these needs is of great importance. The set up pilot projects are thus critical in order to gain insight into the above-mentioned questions.

4. A Future Research Agenda

Overall, we foresee a few feasible strategies for destinations. Destinations should embrace and anticipate these ICT and urban changes and better understand how to integrate the different functions of the smart city paradigm and co-participatory structures into tourism planning in order to leverage their strategies to exploit on the advances. An on-going resident education is a key component for successful future tourism planning processes. This also points to the critical role of an active flow of information and ideas in cities in order to ensure that all stakeholders feel involved and knowledgeable about tourism developments in their city. Cities should take advantage of technologies that optimize these informing and engaging processes and optimally work towards co-creation and co-production of planning processes. In addition to these various challenges and related questions, we also present some areas of research that merit future attention.

Firstly, we need to reflect on best practices in destinations. Studies need to conduct an investigation into current projects by tourist planners that engage residents. What are the lessons learned and what are the success factors? Which factors depend on context? Can we compare and benchmark destinations? Secondly, strategic and operational considerations designed to encourage residents' engagement in tourism planning require a closer look. We need a classification of public participation methods suitable for tourism planning. Such a classification could support a systematic evaluation of current practices and, in so doing, we can provide evidence-based insight and advice into choosing the most adequate methods for destinations. Thirdly, we also need to critically examine the question of whether tourism research meets the needs of practitioners in light of this subject. Thus, which questions are they seeking answers for and how can research support this. Next, we need new insight into the economic performance of involving residents in tourism planning as well as the cost of designing, developing, maintaining, controlling and updating the systems and the return on investments (ROI) of such projects. More critically, what kind of key performance indicators (KPIs) and ROIs are we using to measure success? Lastly, we need an investigation related to the larger impact of residents' engagement in tourism planning projects. For example, the ecosystems of tourism companies and other stakeholders in addition to the possible creation of new business models may work well with new practices. Moreover, the complexity of tourism policy design needs to be addressed in the light of this participatory approaches. For example interviews and cognitive maps can be applied [71].

This paper has identified various strategic challenges that urban destinations face when creating a holistic smart city strategy featuring a resident-centric approach. The contribution of this study is the future research agenda regarding resident involvement in urban development. Furthermore, this paper highlights that cities can, together with residents, find lucrative solutions that can deal with pressing current issues and work towards sustainable strategies and outcomes. This also implies that for research we are only at the beginning of understanding these transformations in our research. Future research needs to focus on answering the aforementioned issues.

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