HOSPITALITY & TOURISM
INFORMATION TECHNOLOGY

EDITORS
Cihan Cobanoglu, Seden Dogan,
Katerina Berezina, and Galen Collins
The technology and the rise of Web 2.0 enabled the meteoric rise of P2P platforms facilitating transactions and consequential establishment of the sharing economy concept. This accelerated technological change has led to new dynamics in cities and tourist destinations such as over-tourism with the so-called arise of sharing economy significantly fueling it. The main purpose of our chapter is to systematically review this dual aspect of technological impacts in tourism. On the one hand, we review the technological aspects that underpin the development of sharing economy and consequential over-tourism in destinations. On the other hand, we consider aspects that seem to be promising to provide solutions and make the
currently rather idealistic ideas of smart and socially sustainable destinations also work in practice. As such the chapter critically addresses and connects diverse concepts that are interrelated, but rarely discussed together.


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Learning Objectives

In this chapter you will get to know:

- How technology development impacted the development of tourism
- How technology fueled the rise of sharing and platform economy
- What are the impacts of sharing economy on population in tourist destinations
- How sharing economy contributes to over-tourism
- How the concepts of smart cities and smart destinations were created
- What are the current problems and achievements connected to smart destinations
- How smart tourism is related to social inequalities
- How Europe plans to further develop smart tourism in its leading tourist destinations
Introduction

The advent of the Internet and Information and Communication Technologies (ICT) has triggered a revolution in the tourism industry and defined a new scenario in the relationship between digital technologies and the way we buy and consume tourism goods and how we plan, develop and manage our cities and destinations. In this context, destinations face important challenges. Essentially, it is about the need to understand that the traditional way of offering and designing services and products has changed due to technology and the emergence of Web 2.0. This has enabled the meteoric rise of peer-to-peer (P2P) platforms that facilitate such transactions and the resulting establishment of the concept of the Sharing Economy as we know it today. A concept that analyses how IT facilitated peer-to-peer model for the commercial or non-commercial sharing of unused goods and service capacity by an intermediary without transfer of ownership.

In the same way, the behavior of tourists in the last decade has changed thanks to their empowerment through ICT. Now they have become both producers and consumers of experiences through the use of social networks and the various Web 2.0, 3.0 and other mobile related offerings. All these changes have been accompanied with another emerging tech term: smart tourism.

In accordance with Ulrike Gretzel and others (2015a; 2015b), one of the leading ICT scientists in tourism, this represents another stage in the development of ICTs applied to tourism, characterized by the combination of the physical dimension with governance and the digital environment, which generates new levels of intelligence and changes in the tourist experience. Other important researchers such as Chulmo Koo (Managing Director from Smart Tourism Research Center South Korea) and others (2016) argue that smart tourism is a new concept that essentially implies the application of intelligent technologies at all stages of the journey in order to improve the tourist experience and the competitiveness of the destination thanks to innovative management that supports the decision-making process. In recent years, the scientific production associated with this has increased considerably and has become a hot topic, as the results of some systematic mapping studies confirm. However, although this scenario has various advantages, its results have often been open to criticism. From this point of view Tribe and Mkonob (2017) define the problem of alienation processes that can be caused by the intensive use of ICTs as a buzzword focused on political agendas and business interests.

In order to deal with this situation, both cities and destinations have implemented permeable and modular strategies of action by applying updated management approaches that are in line with the evolution of traditional tourism towards new phases where technology is a dominant factor. We talk about the Smart City and Smart Tourism Destination approach. Among these two words, smart city is one of the most used terms since the mid-2000s until it became a real buzzword, ubiquitous in the global urban agenda and almost instantly adopted by the destination agenda in the form of smart destination. In the same case, platform or shared economy is probably the term most often discussed when it comes to linking technology, tourism and smart cities. But how are these terms related and what is their relationship in practice? This is the purpose of this chapter. The following terms summarize the digital and
intelligent characterization of the city as we see it today, such as cybercities, digital cities, network cities or intelligent cities, to name but a few.

In detail, we want to systematically examine this double aspect of technological impacts in tourism. On the one hand, we will examine the technological aspects underlying the development of the sharing economy and the resulting over-tourism in destinations. On the other hand, we will look at those that seem to offer promising solutions and make the currently idealistic ideas of smart and sustainable destinations work in practice. In addition, we will put special emphasis on providing solutions that also address social exclusion, which is often largely separated in the current smartness discourse.

**Elaborating to the Sharing Economy**

The term "Sharing Economy" can be defined in many ways, although alternative terms such as "Collaborative Consumption Economy", "Gig Economy", "Access Economy" or P2P Economy have been used in recent years. One of the more recent, systemic definitions describes the "Sharing Economy" as an - IT facilitated peer-to-peer model for the commercial or non-commercial sharing of unused goods and service capacity by an intermediary without transfer of ownership.

A related term, which is also used quite frequently, is "Platform Economy". This covers economic and social activities based on platforms and digital technologies and is often used in a certain sense only for online platforms. There seems to be a consensus that the term "platform economy" covers a growing number of digitally enabled activities in business, politics and social interactions. There seems to be a consensus that the term "platform economy" covers a growing number of digitally enabled activities in business, politics and social interaction. However, as platform economies are difficult to define, platforms can be divided into four types based on their use rather than the sectors they serve.

These four types are:

1. transaction platforms for online buying and selling,
2. innovation platforms that offer a set of standards on the basis of which products or services are manufactured and sold,
3. integrated platforms that combine the functions of the first two, such as Google and Alibaba,
4. investment platforms.

It is often difficult to determine the difference between "sharing economy" and "platform economy" and especially the terms used as synonyms in commerce and even in academia. However, if a systematic approach is taken, they can be distinguished. The distinguishing criterion is that the "sharing economy" includes activities that involve P2P transactions and that it adheres to the three defining characteristics:

1. consumer-to-consumer interaction (C2C),
2. temporary access and
3. lending of physical goods.
Thus, according to the above classification, the main examples in the world of tourism would be the following OTAs such as Expedia and Booking.com as examples of platform economy, while Airbnb would be an example of economy sharing.

Case: Main examples of sharing in tourism: Airbnb

Traditional organizations are based on a centralized approach, where they own and manage the assets that are later shared with others (e.g. the classic car rental companies such as Zipcar, Hertz, Avis, etc.) In the modern "sharing economy" model (platforms such as Airbnb and Uber), on the other hand, access to assets is based on a decentralized ownership approach within a network of individual participants on a "peer-to-peer" basis. Moreover, these organizations can be either profit or non-profit, public-private partnerships or cooperation models, as the access economy does not prescribe any particular form of governance.

Airbnb, a peer-to-peer platform established on 1 August 2008, comprises a non-formal tourism accommodation sector based on a decentralized, for-profit transaction model and has great worrying potential. It enables individuals to earn extra money and compete with hoteliers by renting out additional rooms without major costs or investment. The Airbnb platform itself earns money by charging commissions to its owners and travelers in return for referrals. In this way, all parties benefit.

People have empty rooms or a holiday property that they do not always use. At the same time, other people often need space for short-term rentals. When these two aspects are combined with the use of today's technology, a great common interest can be found which has brought Airbnb so much success and fame.

The main value propositions of Airbnb are (Airbnb, 2019):

- to allow owners to list their premises on the platform and generate insurance of rental income for listed buildings,
- to provide travelers with cheap options to stay with local hosts,
- to facilitate the process of booking accommodation for travelers,
- evaluation and review system for hosts and guests,
- user-friendly app and web-based structure.

As correctly stated Sundararajan (2016), "the founders of Airbnb had taken the tiny AirBed and Breakfast home to a global platform of hundreds of thousands of hosts and people renting their spare, apartments, houses, tree houses, beach houses, boats and more to millions of paying guests- and over $100 million in venture capital funding.

In 2016, Airbnb expanded its business offering to include the "peer-to-peer" experience feature, which allows hosts to offer unique tours and events and works in the same way as sharing underutilized space.

Despite the growing popularity and enormous success of Airbnb in recent years, the model has been criticized and surrounded by much controversy and speculation. In most cases, various
stakeholders at the destination and national level were confronted with issues such as whether
traditional businesses will survive or go under, how government should control the tax system,
what rights participants should have, how high the level of trust is, whether the hosts really
care about what they do, how the Sharing Economy strives for sustainability, and so on.

It looks as if the initial "good intentions" of the Sharing Economy platforms will tend to fade
over time and economic intentions will come to the fore. More on the specific impacts is
discussed below.

The Role of Technology in Creating the Social Economy

Although we can find and identify the concepts of the sharing economy and the platform
economy throughout history, we will focus on the more recent concept, which has been driven
by technological, economic and social changes. The background of the term "Sharing
Economy" was probably created during the financial crisis of 2007-08. In the years that
followed, several factors led to growth, among which we can highlight the expansion of
Internet access, e-commerce, social media, information technologies and intelligent devices.
The platform economy has been further strengthened by the growth of the Internet, with eBay

Basically, it was the technology and the rise of Web 2.0. that enabled the meteoric rise of P2P
platforms facilitating such transactions and consequential establishment of the sharing
economy concept as we know it today. The progress of ICT is facilitating the sharing of goods
and services – rendering it more frequent, user-friendly and wide-spread (Botsman and Rogers,
2011). All these activities are said to be improving the supply of tourism products and their
integration into mainstream distribution channels, as well as increasing tourist's interest in such
services (Shaheen and Chan, 2016; Hamari et al., 2016). Nowadays, the most common
technology most sharing economy businesses rely on are mobile applications and there is
current a vivid discussion in the academia on how blockchain technology could be the next big
facilitator of sharing of goods between the individuals (Hossain, 2020).

From today's perspective, research on the sharing economy is abundant, diverse and
fragmented. The literature on the sharing economy is dominated by the areas of tourism,
marketing, sustainability and transport, and often uses a variety of theories as well as blanket
statements. In addition, the most recent literature study conducted by Hossain (2020), which
can also be considered the most holistic work on the sharing economy to date, points out that
the current literature highlights the main motivations for consumers, service providers and
businesses. However, it is still based in the Western environment and fails to address the
evidence on the development of regulatory policies to address the challenges faced by the
common economy in different cities around the world.

Table 1. Main Motivations in the Success of Sharing Economy Initiatives

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Motivations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumers</td>
<td>Convenience, community, economic benefit, environmental factors, flexibility, hedonic motivation, home benefits, interaction, local authenticity, perceived trust, SE ethos, etc.</td>
</tr>
</tbody>
</table>
 Overall, sharing has many positive effects on the community, such as economic opportunities, renewed social interactions, and environmental aspects, etc. However, their technology and approaches leave behind many disadvantages and weaknesses that we must take into account. On the basis of previous studies of the most prominent market makers in this field (such as Airbnb, Uber, NeighborGoods, Zopa, etc.), we provide some useful insights in the following section.

**The Role of Technology in Generating Problems Related to Sharing Economy**

As far as technology and interpersonal trust in the sharing economy is concerned, trust between two people is not just about "you" and "me", but it is influenced and shaped by the intermediary who simplifies it (platforms). All this makes these systems controllable only by a handful of experts, the online platform as a system has a different way of functioning. The problem is that the people who use these platforms are also not really aware of how they work and what impact they have on data protection policy (Keymolen, 2013). Indeed, many users complain about trust in the network and privacy concerns. The latter has been demonstrated by security threats posed by such platforms, which is not unusual in today's world. For example, there have been notable cases of rape, theft and vandalism as a result of participating in shared flat services via a popular platform, Airbnb, although the platform has paid a lot of attention to providing P2P feedback, thereby increasing trust among members (Lee et al., 2016).

Ultimately, the focus was on the scams that occur on the Airbnb platform; landlords (scammers) are trying to circumvent a newly enacted government law (such as in London - blocking hosts who exceed the 90-day rent limit) by introducing short-term rental hotels. These scammers also regularly change their Airbnb profiles, impersonate someone else (usually with stock photos), create fake networks of positive reviews and outsource services to call centers in third world countries. In this way they submit fake reviews, publish the same pictures for different hotels, etc. Despite the fact that such manipulation is prohibited by Airbnb's business policy, fraudsters often go through verification and security processes where everyone provides government identification, leading to a scenario where the technology is exploited (Temperton, 2020) for semi-legal business purposes.

In addition, users of NeighborGoods, an online community for exchanging personal goods and chattels among neighbors, indicated that they would be more willing to participate in such activities if the platforms provided a safe place for exchange and sharing, such as local police and fire stations (Malone & Dillahunt, 2015). It is often a problem of legality, as this new technology often goes beyond the relevant legislation. There are allegations that Airbnb avoids full tax liability, which is also one of the reasons for its enormous growth in recent years. Often such services and platforms are not regulated by the authorities, resulting in a lack of access
requirements, services and operations. Airbnb shifts responsibility and insists that the hosts are the ones responsible for understanding and complying with all applicable local controls or taxes that apply to short-term tourist accommodation. Some states in the US have already taken measures regarding Airbnb, such as banning rentals for less than 30 days and passing a law that allows rentals only when the host is present (Guttentag, 2013). The letter is closely related to the fact that many locals are moving and leaving their homes to rent their apartments, houses, etc. In addition, landlords are selling permanent tenants in order to conclude an Airbnb rental agreement. Houses, flats and permanent rentals are thus transformed into tourist accommodation and of course more expensive. Examples in the literature suggest that in Los Angeles cases such as this, 7,316 dwellings have been removed from the city's rental market and converted into tourist accommodation (Gurrán & Phibbs, 2017).

**Case: The Spanish experience with Airbnb**

In the Spanish case, it is worrying to see how the short-term rentals offered by Airbnb are concentrated in the most tourist areas and cities such as Madrid, Barcelona, Valencia and Seville. Gutiérrez and Domènech describe this situation (2020), pointing out that, far from establishing itself as a complementary activity, Airbnb has favored the re-concentration of the tourist accommodation offer in the most crowded Spanish destinations. The central districts in particular have suffered most from this transformation into tourist accommodation. This process has had two consequences: (1) more tourists and (2) additional pressures that have intensified processes leading to the displacement and/or expulsion of the resident population.

Another problem associated with Airbnb is that temporary tourists can often be uncomfortable for other neighbors or tenants (noise, disregard for rules, etc.), which distracts them from the community and encourages conflict in residential buildings (Gottlieb, 2013).

Similarly, in the case of Uber, a further technological aspect must be taken into account: The development of the technology developed by Uber for self-propelled (autonomous vehicles) seems to endanger existing drivers - participants in peer-to-peer platforms - who could lose their jobs in the near future, thus causing social unrest (Chou, 2017).

**Elaborating About the Smart City and Smart Destination Agenda**

Although the term "smart city" is subject to different interpretations and definitions (Willis & Aurigi, 2018), smart cities are usually identified with knowledge centers that manage information, technology and innovation, thereby promoting more efficient management, sustainable development and a better quality of life for citizens (Giffinger et al., 2007; Caragliu, Del Bo & Nijkamp, 2011). Moreover, Komninos (2015) considers smart cities as a new paradigm of city planning and development.

This perspective has generated a new wave of urban initiatives under the smart umbrella, from experimental projects to strategic plans for smart urban development, which is not without criticism, such as Hollands (2008) warning about the "self-congratulatory" nature of many smart city initiatives and that ICT itself cannot automatically change cities and claims a greater
role for human capital. Vanolo (2014) identified Smart Cities with an urban imaginary that offers a techno-centric vision of the city. A new imaginary that benefits large technology companies and could have several implications:

1. Underestimating the possible negative effects;
2. Thoughtlessness of alternative ways of city administration;
3. Overestimation of the role of technology in solving complex urban problems;
4. Privatization of public services; technological dependence;
5. Loss of citizens' privacy; or depolarization of urban management.

Undoubtedly, the smart city is the origin of the smart destination concept (Boes, Buhalis & Inversini, 2015; Buhalis & Amaranggana, 2015). However, the development of the smart city is not the only driver that explains the smart destination. The changes in the technological and social macro environment cause changes in the functioning of the destinations and pose the need to adapt to the new dynamics (Ivars-Baidal et al., 2017; Jovicic, 2016). These interdependencies give rise to the concept of the smart tourism ecosystem, which is defined by Gretzel and others (2015a; 2015b) as "a tourism system that takes advantage of smart technology in the creation, management and delivery of smart tourism services/experiences, characterized by intensive information exchange and shared value creation". This definition ties in with the digital ecosystem of the economy, but is not an ecosystem geared to the tourism industry, but comprises several components:

1. tourist and private consumers, tourism providers and intermediaries,
2. support services,
3. platforms and media,
4. regulatory authorities and NGOs,
5. transport companies,
6. travel technology and data companies,
7. consulting services,
8. tourism and private infrastructure and companies in other sectors related to tourism.

Measuring the Benefits of Smart Cities and Destinations

The concept of smart ecosystem can be assimilated to that of smart destination in a local scale as a complex system whose main goal is to increase competitiveness and enhance quality of life of all stakeholders, including residents and tourists (Buhalis & Amaranggana, 2015). Based on this approach, public programs for the promotion of smart destinations have been proposed in China, South Korea or Spain (Gretzel et al. 2015b). Moreover, the process of tourism digitization is being incorporated into international political agendas. In the case of Europe, the European Commission has developed different programs and grants that are directly or indirectly promoting the implementation of actions related to the Smart approach. These programs are placing special emphasis on the application of technology and the importance of data to improve urban management processes (European Commission, 2020).
Spain has been recognized by the OECD (2018) as one of the most advanced countries in the development of initiatives to digitize tourism. Smart destinations have been included as a strategic priority in the 2012-2015 program National Tourism Plan, which defined a series of actions coordinated by SEGITTUR (the public agency for tourism technologies and innovation attached to the Ministry of Industry, Energy and Tourism).

This institution defines a smart tourist destination as "an innovative space, accessible to all, consolidated on a state-of-the-art technological infrastructure that guarantees the sustainable development of the territories, facilitates the integration and interaction of visitors with the environment and enhances the quality of their experience at the destination and the quality of life of its inhabitants" (SEGITTUR, 2015, p. 104).

Spanish initiatives include the creation of two standards for smart destinations: UNE 178501:2016 (Management Systems of Smart Tourist Destinations. requirements), revised in 2018, and UNE 178502:2018 (indicators and tools of Smart Tourist Destinations), developed by AENOR (the National Standardization Agency) in collaboration with SEGITTUR (SEGITTUR, 2015, p. 57-59).

The application of smart destinations standards in Spain is too recent to draw conclusions. However, the standardization of smart cities started in 2014 by the International Organization of Standardization (ISO), trying to provide more leadership guides and management frameworks than a technical specification (White, 2019). A similar approach has been followed by the Spanish destination program.

Case: Spanish smart destination Benidorm

The Benidorm case is significant. Benidorm is a sunny and sandy destination on the south-eastern Mediterranean coast of Spain, which is considered an essential reference in measuring
the benefits for the development and success of the strategy for smart destinations in Spain. Benidorm is the fourth Spanish destination with annual hotel nights after Barcelona, Madrid and San Bartolomé de Tirajana (INE, 2019) and has been classified as the first smart destination in Spain. The DMO Destination, known as Visit Benidorm, is a public-private administrative entity that is constantly committed to innovation and the development of smart destination projects, which has made this city a reference for smart destinations. To experts Femenía-Serra and Ivars-Baidal (2020) it seems clear, that smart destination strategies bring benefits to destinations in their management and marketing in areas such as decision-making, knowledge, innovation or public image. They also point out that the perspective offered by tourists requires a more user-centered intelligent solution design that takes into account their perception and real attitude towards these technologies, but also their use.

The potential benefits have been formulated by Kitchin and others (2019) as a promise for smart cities:

- Greater efficiency and improvement of services.
- Smart economy by promoting entrepreneurship, innovation and competitiveness.
- Smart government through new forms of governance that make government more transparent, participatory and accountable.
- Smart mobility by creating intelligent transport systems.
- Smart environments by promoting sustainability and resilience.
- Smart living by improving the quality of life.
- Smart people by creating a better-informed citizenship and promoting creativity, inclusiveness, etc.

However, the ambiguous use of the term smart city and the different scope of smart city initiatives make difficult the measurement of its real impact. As the report Mapping Smart Cities in Europe (Manville et al. 2014) highlights, smart cities are more processes than outcomes and comprise a portfolio of initiatives with different goals and levels of maturity. The scope of smart cities initiatives is diverse and comprise projects at an experimental stage or confined to "smart districts" or city centers rather than benefit the entire urban area (Kitchin, 2019).

However, it should be noted that the term "smartness" is also widely misused. Obviously, there are lists of best practice examples of smart destinations and numerous smart city rankings. There are numerous awards for smart city services, but the term seems to be little more than a buzzword. Ongoing research at the University of Primorska shows that it is extremely rare for smart technologies to be properly used in projects and initiatives that are described as smart. Even the cities that top the various smart city rankings publish information on their official websites about projects that are branded as smart but do not use any smart technologies. In particular, everything that has to do with sustainability, recycling, greener construction methods or even improving social cohesion seems to be branded as smart at the moment.
Smart Cities, Smart Destinations and Social Exclusion Issues

Smart cities and destinations concepts are very ambitious and cover nearly all aspects of city/destination planning and management: innovation, sustainability, social cohesion, competitiveness, etc. For instance, in spite of the fact smartness provides new possibilities to improve sustainability (Perles & Ivars, 2018), it cannot be assumed that the development of a smart city/destination strategy automatically transforms a city/destination into a sustainable place (Ahvenniemi et al., 2017). On the other hand, from a social point of view, smart city visions are largely disconnected from social needs and aspirations (Vanolo, 2016). In this sense, the social indicators associated with Smart Cities are clearly inadequate, as those referring to Smart People and Smart Living Domains or the corresponding the areas of life or the corresponding areas of health, housing, population and social conditions (ISO 37122:2019 - Sustainable Cities and Communities: indicators for Smart Cities) (Özdemir, A., Kourtit, K., & Nijkamp, 2019).

Cardullo and Kitchin (2018) combined the Smart Cities with neoliberal ideals and their dogmas (efficiency, sustainability and freedom of choice) to call for a model of the Smart City that focuses on citizens who are conventionally occupied by capital and the market. These authors refer to the example of the necessary reform of the Barcelona Smart City model initiated by the progressive government in 2015. Until 2015, Barcelona was the perfect scenario for a neoliberal smart urbanism that joined forces with multinational companies and implemented various technology-driven smart city initiatives. Since May 2015 there has been a transformative change, led by Ada Colau a Spanish activist and politician, the current mayor of Barcelona. A new political and organizational approach to the Smart City dreams that has given rise to the term "technological sovereignty". In other words, the idea that technology should be oriented towards and serve residents and belong to them as a common good.

Pushing Forward the Sharing Economy, Smart Destinations and the Technology Discourse

The Dual Impact of ICT in Tourism: Providing Intelligent Solutions and Creating New Problems.

According to the OECD (2018), "technological progress has made travel more affordable, accessible and easier for many people, and in the future technology has the potential to completely change what is understood as tourism". The disruptive role of technology has been demonstrated in changes in tourism delivery, the empowerment of consumers through the use of social media, or the emergence of new business models such as low-cost airlines or platform accommodation. This accelerated change has led to new dynamics in cities and destinations, such as over-tourism, which has been greatly fueled by so-called economic sharing. Paradoxically, technological development has contributed to causing these problems and smart city/destination projects are trying to solve them. In the case of over-tourism, however, smart solutions are not yet producing the expected results (García-Hernández et al., 2019; Koens et al., 2018).
When we are trying to understand the influences of the Smart scenario on the processes of social inequality, it is particularly interesting to mention the work carried out by Tribe and Mkono (2017). According to them, the ICTs underpinning the Smart tourism scenario could be negatively influencing the tourism experience. Although it is clear that their use is allowing the creation of new opportunities in the improvement of management processes and the tourism experience, it is also true that their use can lead to situations of social alienation, such as isolation and addiction to these technologies. Furthermore, it should be borne in mind that the intensive use of ICTs favors the loss of authenticity of the tourism experience. According to the authors, these aspects confirm the need to increase critical studies on the use of ICTs in tourism and its derivatives on social inequalities and social alienation.

The New Role of DMOs and the Revision of the Main Objectives of Tourism Policy

The evolution of ICTs generates a new scenario for destinations management (Ivars et al. 2017). Firstly, some functions of DMOs are so affected by ICTs evolution that DMOs seem to be in a path to redundancy (Dredge, 2016). For example, tourists collect information about the destination in travel websites such as the TripAdvisor or use social media, where user-generated content becomes a key factor in building the image of the destination. Secondly, new problems such as overtourism challenge neoliberal approaches to tourism policy based on public-private cooperation to capture demand and call for stronger public governance with emphasis on its regulatory role, a process that has been analyzed in in Barcelona by Russo and Scarnato (2017). The authors highlight the damage caused by the excessive growth of tourism in the city of Barcelona. Especially those that lead to the loss of quality of life in local communities and the related social polarization processes. They believe that Barcelona has crossed the thresholds of social tolerance, which paralyzes the support of local society for this type of tourism development model. They point out that the sharing economy has advocated the seizure of the property market, which imposes mobility patterns that cause great dissatisfaction in local communities.

On the other hand, an interesting case related to this new role of DMOs is the Valencia Region one that has traditionally been one of the most appreciated destinations in Spain. Ivars-Baidal and others (2018) analyzed the opinion of destination managers in the Valencia Region third tourist region in Spain in terms of number of tourists. Most managers pointed out that the current scenario has changed the way a destination is managed and brings new risks to which it is not always possible to adapt due to a lack of skills and resources. In terms of technology, managers doubted that the current scenario had improved collaboration processes and agreed that they were now actually more dependent on technology providers.
Smart Mobility as a New Field of Research

Smart mobility is an essential component of smart cities and is also used very ambiguously. Technologies embedded in mobility systems open up business opportunities for traditional players (e.g. bus/taxi operators) and new players (car/bike/ride sharing operators), fostering the emergence of mobility as a service (MaaS). Mobility is linked to data infrastructures.

The knowledge gained from monitoring and analysis of urban traffic flows is essential for smart mobility and could be seen as a means of monitoring and control (Willis & Aurigi, 2018). On the other hand, shared mobility seems to benefit beneficiary groups and increase gentrification and social exclusion (Prieto et al., 2017; Schwanen, 2019). Shared mobility could be developed as part of Smart Mobility...

Technology as a Potential Solution Provider in the Broader Agenda of Sharing Economy and Smart City

In general, effective sustainable development solutions and their enablers can thrive on distinctive measures, restrictions, adaptations and innovations existing businesses are adopting; albeit even more intensive, long-term sustainability can be achieved through the reasonable business model innovation (Kennedy et al., 2017; Moyano-Fuentes, 2018; Bellucci et al., 2020). Only recently, Laukkanene and Tura (2020) proposed three such business model directions that correspond to the three pillars of sustainability: Environmental, social and economic (Table 2). In the environmental field, business models are primarily concerned with resources that can be better conserved through greater efficiency and responsibility without harming the environment or even improving its well-being. Similarly, in the social sphere, all human interests are at the center of the business model, together with their health, safety, regulations, rights, mutual respect and ethics - all of which can potentially be improved rather than just kept at the same level. In the economic sphere, of course, the focus is on business, with the emphasis on cost-effectiveness, profits, opportunities, stability, risk reduction, attractiveness and socio-economic well-being of all stakeholders.
Table 2. Conceptual Framework for Analyzing Sustainable Value Creation

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Social</th>
<th>Economic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increasing resource efficiency</strong></td>
<td><strong>Safeguarding health and safety</strong></td>
<td><strong>Increasing cost-efficiency</strong></td>
</tr>
<tr>
<td>Reuse of products, by-products and materials. Elimination/reduction of waste. Use of renewables (e.g. energy, raw-materials).</td>
<td>The health and safety of employees/customers/communities are ensured.</td>
<td>Increases in efficiency and reduced costs compared to alternatives.</td>
</tr>
<tr>
<td><strong>Responsible use of resources</strong></td>
<td><strong>Respecting laws, regulations and rights</strong></td>
<td><strong>Increasing profits and business opportunities</strong></td>
</tr>
<tr>
<td>Responsible use of natural resources (e.g. water, raw-materials), respecting welfare of ecosystems, people and animals. No creation of rebound effects.</td>
<td>Laws, standards and regulations (e.g. taxes, terms of use) and individuals’ rights (e.g. privacy) are respected.</td>
<td>Increases in profits and/or creation of new business opportunities and markets.</td>
</tr>
<tr>
<td><strong>No harmful environmental impacts and emissions</strong></td>
<td><strong>Respecting employee, stakeholder and individual rights</strong></td>
<td><strong>Operational stability and risk reduction</strong></td>
</tr>
<tr>
<td>No emissions (e.g. greenhouse gases) harming people or the environment. No harm to ecosystems or the environment.</td>
<td>Employees ‘and stakeholders ‘terms are handled fairly (e.g. via paying living wages and non-discrimination). Equal treatment of employees/stakeholders/individuals.</td>
<td>Increases in long-term stability and risk reductions.</td>
</tr>
<tr>
<td><strong>Increasing environmental well-being</strong></td>
<td><strong>Ethical principles and no harmful social impacts</strong></td>
<td><strong>Increasing attractiveness</strong></td>
</tr>
<tr>
<td>Increases in biodiversity and environmental wellbeing by repairing previous damage and solving environmental problems (e.g. reducing ozone depletion).</td>
<td>Operations, products and services do not harm people or communities. Human rights are respected (e.g. no child labor). Ethical principles are followed (e.g. caring use of resources, honest competition).</td>
<td>Increases in reputation and brand value (e.g. attractiveness as an employee/collaborative partner).</td>
</tr>
<tr>
<td><strong>Increasing social well-being</strong></td>
<td><strong>Increasing social well-being</strong></td>
<td><strong>Increasing economic well-being</strong></td>
</tr>
<tr>
<td>Increases in socio-psychological welfare (e.g. happiness, social cohesion).</td>
<td>Increases in socio-economic welfare (e.g. employment).</td>
<td></td>
</tr>
</tbody>
</table>

Source. Laukkanene & Tura (2020)

Some of the actions may be mutually exclusive within or between the pillars to which they belong. Ultimately, the solutions depend on the context of each situation. Business models are also at the heart of the Smart City context, which seeks solutions for a more sustainable development of the social economy through new combinations of business elements and the tailor-made use of basic technologies:

1. transparency,
2. transactions,
3. punctuality,
4. trust, and
5. traceability.

The two main approaches on which we believe we should focus our attention in the future are the following:

- Opportunities for the development of new business models of the Sharing Economy or its technology-enhanced upgrades,
- a greater emphasis on the mere exchange of human services, which is behind every platform of the common economy brought to us by the current wave of new technologies permeating all imaginable areas of human existence.
A current “usual suspect” example of the first (A) approach is the developing Fairbnb project, which many see as a possible next step conception of the hospitality sharing economy evolution currently mastered by Airbnb (Acquier et al., 2017; Farmaki et al., 2020; Maclaran & Chatzidakis, 2019). To the extent that Airbnb harnessed the immense power that technology has offered to connect between accommodation hosts and guests, Fairbnb and alike focus on what the first generation of sharing economy solutions "forgot" in its business models in all three pillars of sustainability, stated above by Bellucci et al. (2020).

A promising example of the mentioned second (B) approach is the O2O, i.e. online2offline, paradigm (Pei et al., 2019), which progressively moves its focus down from the level of integral business models to individual business functions and physical interactions with customers. In future SMARTDEST “B type” of research, we will focus on the potentials of re-eminphasizing the steps that follow the platformization of planet Earth and focusing on (or returning to) optimizing technological and non-technological interactions between all human stakeholders in the sharing economy: providers, guests, locals, governments, municipalities, academia, NGOs, etc.

Case: How smart tourism of the future should look like: The idea of Tourism 4.0.

Around the Slovenian high-tech company Artcur and three Slovenian universities (Primorska, Ljubljana, Maribor), a series of so-called Tourism 4.0 projects will run from 2018. The initiative focuses on cooperation "between the players in the smart tourism ecosystem to create enriched experiences using the key technologies of Industry 4.0" (https://tourism4.0.org/about/). The term "Industry 4.0" refers to the fourth industrial revolution, which introduced advanced industrial automation with modern intelligent technologies. In short, it is largely based on the Internet of Things (IoT) and the underlying machine-to-machine communication protocols (M2M). The aim of this development period is to intensify automation, self-monitoring and operation without (or with minimal) human intervention.

The most frequently addressed technologies in the above mentioned Tourism 4.0 projects are AI, Big Data, IoT, VR, AR, Blockchain, Cloud & High Performance Computing and other new technologies. Special emphasis is placed on local communities, which - according to Arctur - are at the center and surrounded by other layers: tourists, tourism providers, and local and other levels of government.

Figure 3.
Source: Adobe Stock.
Using systems such as tokens, secure digital IDs and other similar tools, they are pursuing R&D goals where at least part of the data and profits are shared with local communities. The main projects currently underway are the development of a core back-office software framework, an impact modelling tool, a tourism flow analysis environment, an impact token for collaboration, a personal digital passport, 3D digitization of local heritage, living laboratories and various mobile applications (Tourism 4.0, 2020).

Conclusions

Driving Technology - Sharing the Economy - Smart Destination Nexus Forward

There is a clear need to make smart targets work in practice and to move the debate away from the current level of politics, PR and advertising. The effects of over tourism on urban societies represent new fields of (re)production of social exclusion that do not find structural solutions in current urban planning and management models. The "smart city" solutions of destinations still need to be demonstrated on a larger scale as a general improvement for local communities.

Since the beginning of 2020 SMARTDEST, a large EU-funded project, has been running in various European countries. It aims to develop innovative solutions to the conflicts and externalities caused by tourism-related mobility in cities by providing information on how to design alternative policy options for more socially inclusive places in the age of mobility.

Figure 4.
Source: Adobe Stock.

Case: SMARTDEST Cities as mobility hubs: Fighting social exclusion through 'intelligent' civic engagement

A new research project funded by the Horizon 2020 program looks at the production of social exclusion in tourist cities and seeks solutions. In recent years, the increasing penetration of tourism into the daily life of cities has begun to generate all kinds of conflicts, tensions and paradoxes, such as rising costs of living and housing shortages, the congestion of public services and spaces, the increasing relocation of work, the transformation of local identities.

What the inhabitants of Europe's most visited cities once considered a welcome source of wealth and employment and a point of pride is now considered a threat. SMARTDEST aims to contribute to the definition of a policy agenda for cities that takes tourism mobility seriously at all levels of government and that highlights the potential of social innovation from citizens'
commitment to more resilient communities. The aim is therefore to examine how urban inequalities and exclusion are produced, lived and managed in cities that are the hub of tourism and other related mobility. The current COVID-19 crisis, which has "immobilized" societies and cities around the world and is causing great concern about the future of tourism, is another intellectual challenge for this project: Is the "slower" and more regulated world of mobility we are heading towards a more inclusive place? Or a more democratic one? Our researchers will be at the forefront of this debate and will be able to follow, inform and guide the process of recovery. Our research will start at the European level, looking for patterns of places facing similar problems in a wide range of different geopolitical and socio-cultural contexts; up to the finer level of eight case study cities, where it will look at local communities as informants, and at political and industrial stakeholders as participants in shaping intelligent solutions. The results will be shared through an ambitious program of knowledge transfer events and constructive dialogues with European stakeholders and will involve communities. The project - with a duration from January 2020 to December 2022 - will be implemented by a consortium of 12 academic partners from 7 EU countries and 1 associated country, led by Rovira i Virgili University, and has a total budget of €3.1 million.

Given the objectives, it would be interesting to consider digital data sets related to mobility and city tourism, especially data sets from digital operators (e.g. Airdna), data related to the digital footprint of tourists (social media) or information originating from city management platforms and dashboards.

Strengthening the social inclusion dimension in smart cities/destinations initiatives to contribute to new forms of urban tourism management. This requires a revision of traditional tourism policies and a functional redesign of DMOs' strategies. In addition, the scope of application of Smart Cities programs for urban management and smart initiatives in tourism needs to be clarified. Far from being synergistic, both processes show problems of coordination and misunderstandings about the impact of tourism in the city. Novel approaches, from which we expect significant progress, are the following:

- Identify new regulatory solutions to combat and limit the growth of rental property used within the social economy.
- Identify to what extent "new forms of governance" promoted by smart cities/locations to promote social inclusion.
- The mapping of intelligent destination ecosystems at local level in pilot cities to test their impact on social exclusion processes and their capacity to prevent and manage these types of processes. This analysis requires an integral perspective in which tourism and mobility are only one part of a multi-causal dynamic.
- To clarify the role of sharing and platform economies as components of the intelligent tourism ecosystem, which require new forms of understanding and management in the context of the smart cities approach.
- Analysis of urban mobility under the smart mobility approach to identify its potential and limitations for improving urban planning and management. The impact of urban tourism in smart mobility requires a deeper analysis from a theoretical and applied point of view.
• Analysis of the impact of technology adoption in smart city/destination initiatives in social exclusion/inclusion processes, as a complement to the most widespread vision of the impact of ICT on tourism demand and industry.
• Application of new data sources derived from Smart Cities/Destinations initiatives to the analysis of urban tourism and "touristification" processes.
Key Terms

Smart tourism

Smart tourism (ST) refers to a new tourism scenario based on technology-intensive application (smart technologies) in all stages of the trip. A key aspect of ST is the connection between the physical and the digital environment thanks to intelligent solutions that are improving tourist experiences and better management and planning processes thanks to the use of data.

Smart cities

The term is closely linked to the use of ICTs within a new approach to manage and planning urban areas. One key point is that smart city approach is emphasizing environmental and social capital (citizens) and not only technology. ICTs are tools in order to tackle new challenges that are facing cities (environment, sustainability, climate change, urban growth, etc.)

Smart destination

This term can be considered as the result of implementing smart city approaches in tourist destinations. It may therefore be concluded that the smart destination concept is a new planning and management approach derived from the smart city concept. It implies the intensive use of smart technologies with the aim of improving tourism management and planning.

Social exclusion

Social exclusion describes dynamics of exclusion and social segregation that are resulting from an unequal access to social systems and relationships. It can generally be described as a multi-dimensional process driven by unequal power relationships interacting across four main dimensions: economic, political, social and cultural.

Platform economy

Platform economy concept makes explicit reference to the digitalization of commerce by using new digital platform business models. Basically, three major types of platforms are found: transaction platforms (e.g. Amazon); innovation platforms (e.g. Microsoft); and integration platforms (e.g. Google Play).

Sharing economy

“Sharing economy (SE)”, “collaborative consumption”, “peer to peer economy” are among the most popular terms used to describe a new business model that has changed the traditional way to purchase goods and services. This new economic model is based on acquire, provide or share goods and services often facilitated by a community-based on-line platform. Therefore, SE underlies a series of principles and values whose central axis is made up of cooperation, sustainable economic development and social responsibility.
Discussion Questions

1. What is the role of ICTs in the formation of smart tourism?
2. How are ICTs and smart tourism initiatives related to governance and potential alienation processes?
3. Is smart tourism a buzzword? Argument your answer.
4. Which are alternative names for the sharing economy?
5. How do the terms sharing and platform economy differentiate?
6. Which platforms represent the different types of platform economy?
7. Which criterion can help you distinguish between the sharing and the platform economy?
8. What are the main value propositions of Airbnb?
9. What is the role of mobile technologies in P2P platform functioning?
10. What are the main motivators for consumers and service providers in the sharing economy?
11. What are the main technology-caused problems in the sharing economy?
12. How did short-term rentals affect major Spanish cities?
13. What is the smart tourism ecosystem composed of?
14. What role plays Spain in the development of smart destinations?
15. What is the relation between smart cities and smart destinations?
16. What are the main benefits of smart cities?
17. What is the problem of the terms “smartness” and how it relates to sustainability?
18. How has the Barcelona smart city model been changing in recent years?
19. How should the role of DMO change?
20. What is the idea of Tourism 4.0.?
21. How should business models contribute to better progress in the sharing economy?
22. What is the idea of SMARTDEST project?
23. How can local communities’ benefit from smart city initiatives?
24. What needs to be done in order for smart destination initiatives to be really contribute to new forms of urban tourism management?
25. Which are novel approaches that offer better realization of smart city initiatives?
References


Tourism 4.0. (2020). *About us*. Retrieved from https://tourism4-0.org/about/


