

TOURISM, TECHNOLOGY AND MOBILITY

By Go Sump: Improving Sustainable Urban Mobility Plans & Measures in the Med

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This working paper is created to introduce the relationship between the tourism sector, Information and Communications Technologies (ICTs), and mobility. The next pages want to highlight the early relationship between the first two sectors (ICTs and tourism); always taking in consideration that it is usually the initial develop of the private sector that is prevalent, and the public tourist sector tend to incorporate advances on ICT after private agents. Moreover, the relationship of the three aspects is analyzed, revealing the most intensive and optimal use of technology that can be made in private limited spaces such as amusement parks, to subsequently demonstrate the difficulty of using technology, in all its potential, for intelligent mobility management in complex tourist destinations such as cities. Finally, the debate generated by the emergence of new accommodation and mobility agents such as sharing accommodation offert and transport platforms are discussed. These new participants in the development of accommodation and tourism mobility make a challenge of data and information integration in the intelligence of the tourist city management.

1. Tourism and ICTs, the Beginnings

Tourism is an intensive information industry (Poon, 1993), and Information and Communications Technologies (ICTs) have always been a great ally of it. Due to the distance between the potential tourist and the destination, huge amounts of information must be transferred to facilitate tourism activities. At the purchase moment of the tourist products, tourists do not know all the characteristics of the destination to which he wants to move. They do not have details of basic tourism products and their prices. For this and other reasons, tourism and ICTs have always been closely linked. The World Tourism Organization (UNWTO, 1998) made it clear: "Communication and Information Systems are vital because tourism products do not exist when they are acquired."

Before the growth and the extensive use of the internet -a couple of decades ago thanks to the world wide web (www), due to the commercial opportunities around this resource- there were already networks of computers connected with a clear business orientation; and these networks were located in the tourism sector. These were the Computer Reservation Systems (CRS) and subsequent Global Distribution Systems (GDS). The origin of the CRS dates back to the 60s and 70s in the United States. There Airplane Companies began to develop systems capable of controlling the availability of seats on airplanes. Like SABRE for American Airlines (*Table 1*).

The airlines industry were the first to use applied telematics to create management systems, exploiting their great technological capacity and establishing their own systems that were used, initially, to make bookings, calculate fares and assign seats. A CRS, in this original sense, can be defined as a periodically updated database that allows you to organize and manage your inventory, which is accessible to the subscribed computer terminals of your collaborators in the distribution channel, and that facilitates users applications in the control of costs and inventory of resources, the storage and management of data on flights, places, tariffs and reservations of the companies. They are the systems previous to the GDS; GDS is nothing more than the functional development of its predecessors, the CRS. Due to the development and utility of the CRS of the airlines, other companies that provide tourist services, such as the railway and shipping companies, and the large hotel chains, opted for a similar system.



Table 1. American Airlines SABRE (Semi-automated Business Research Environment)

Captured picture from: <https://www.ibm.com/ibm/history/ibm100/us/en/icons/sabre/transform/>

As a results, different computers terminals began to proliferate for each type of service provided. This process, its acceleration and generalization, created great interest in sectors related to tourism. Travel agencies were concerned about the costs of maintaining different computer terminals. The need to create a system that allowed access and use on a single terminal with multipurpose use quickly became a target. For instance, in 1978, in the Federal Republic of Germany, the SMART system began to operate, allowing access, from a single terminal, to the reservations of the Deutsche Bundesbahn railways, the Lufthansa airline and the TUI travel agency.

On the other hand, a couple of decades after, destinations tried to develop their own reservation and management systems of the destinations with very diverse national and regional initiatives. The pioneering initiatives in this regard were TIScover (Austria, 1997) and Gulliver (Ireland, 1998) (Marcussen, 1999); which gave rise to their proliferation in other geographies. In this way, the Destination Management Organizations (DMO) were introduced into e-commerce through what became known as the Destination Management Systems (DMS). Public Administrations incorporated the ICTs in its management processes almost two decades after the introduction in large companies of the tourist sector. At that moment, the distribution system of tourist products and services could be shown as in Table 2.

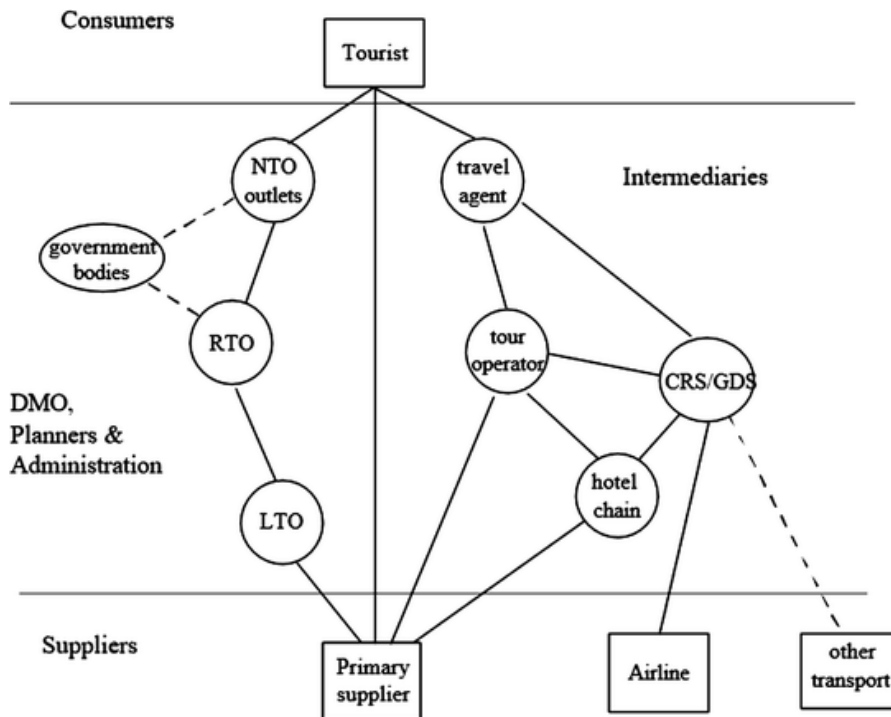


Table 2. Information flows in tourism sector.
 Werthner y Klein, 1999

2. Technology, Tourism and Mobility

Makimoto and Manners (1997) have already written that technological development is allowing people to live "geographically independent" lifestyles, thus allowing more and more people to have "freedom to live wherever they want and travel as much as they want." In this sense, tourism can be seen as a complex "set" of portable technologies, infrastructure, virtual and network spaces, and bodies that flow through various mobilities (Hannam, Butler and Paris 2014). The emergence of cyberspace has reconfigured the concept of space itself, where virtual spaces are configured according to human interest rather than physical proximity. As tourists assimilate mobile technologies in their daily practices and expand these practices in digital spaces, they often replicate and reconfigure their performances, their movements and sociabilities (Hannam, Butler and Paris 2014). However, it is also necessary to emphasize that the convergence of tourism and technology, and the hybridization of virtual and physical spaces have further exacerbated the exclusion of a large number of people. Due to the lack of access to technology, designated as the "digital division", these individuals are also excluded from the fundamental new ways of understanding and experiencing the places they inhabit (Frith, 2012). This results in new inequalities that are important to understand within the context of tourism and mobility.

2.1. Theme Parks and the Tourist City, Different Approach to the Use of ICTs in Mobility

The theme parks are the right examples of tourist destinations in themselves with a high use of ICTs in all phases of the vacation experience. It is again private activity that shows the path to public administrations about the all potential factors of using technology for planning and mobility control. From the social media marketing actions that "give birth" to the desire to travel and travel to their location, to the technology to follow the visitors' steps around their facilities, as well as the intensive use of applications for the planning of the stay, control and enjoy transport within the park and to get there. All these technologies generate enormous and useful information for decision-making in terms of mobility; and it facilitates an optimal management of the resources of the tourist micro-destination that is a theme park (*Table 3*).

- 1- **Mobile planification.** My Disney Experience is accessible through Mobile Applications and Website for this purpose and allows the planning of all activities during the days of stay in the theme park. This facilitates advance planning of the demands of each attraction and the movements that will take part between them.
- 2- **Mobile ordering.** Applications for issuing orders in restoration to avoid queues in them. These allow the optimization of waiting and consumption times in the theme park restoration spaces.
- 3- **Mobile tracking and payments.** The Magic Bands are colorful wristbands equipped with RFID radio systems that allow guests to enter the park, attractions or hotel rooms, and buy products at merchandise and food stores just by touching the wristband on the sensors located to that effect This allows visitors to be monitored at all times when the bracelet is used as it is an all-in-one device, which is used together with the My Disney Experience online planner.
- 4- **Mobile mobility.** The mobile applications are connected to the means of transport that run through the park and connect to the hotels where visitors are staying or to the nearby car parks where they leave their vehicles parked
- 5- **Foot tracking.** Disney World Company has even patented technologies for tracking its visitors by recognizing and tracking their shoes. Through cameras and sensors they will be able to follow the visitor flows at all times and make decisions in this regard.

Table 3. Examples of ICT related with Mobility from Walt Disney Company
 Diaz-Luque (2019)

This high intensity in the use of ICTs translates into a highly planned and controlled theme park mobility management; Thus, ultimately, the optimal use of the facilities is achieved without having a negative perception of the experience from the visitors.

However, cities (which today are beginning to being know as theme parks because of the large number of tourists who visit it, which modify the ways of inhabiting it and moving inside), do not have that capacity for planning, execution and control that amusement parks have. Thus, they try to optimize their mobility with a multitude of systems often disconnected one from each other, which moves them away from the concept of intelligent tourist destinations.

Cities have a large number of technological resources for mobility management. From the intelligent control of road traffic through cameras and sensors connected to traffic lights, to access systems to available parking slots (also through sensors connected to mobile applications). Wherever the budget arrives, they also equipped public transport with GPS devices to know its location at all times and provide updated information and waiting times. Many technology companies offer diverse solutions using smart mobile phones in many cases. Through applications to be installed, tourists facilitate their location during their stays and DMO can track them. In this sense, very useful information about their mobility and routines is provided, this can greatly help in making tourist mobility decisions to the managers of tourist cities.

The most advanced destinations in these aspects are close to what is known as intelligent tourist destinations. Intelligent tourist destination means those innovative destinations, consolidated on a cutting-edge technological infrastructure, which guarantee the sustainable development of the tourist territory, accessible to all, that facilitates the interaction and integration of the visitor with the environment and increases the quality of their experience in the destination, while improving the resident's quality of life. These destinations incorporate the technology to improve the visitor experience as well as the control of this activity with a view to its sustainability. However, often the benefits of these technological solutions are lost if there is no planning, continuity and centralization of the data. The technological solutions promoted by their suppliers often involve significant investments that do not mean a good cost-benefit analysis of them.

In addition, one aspect to consider is the format and accessibility of the data obtained through all these technological solutions. Open data is an opportunity for successful companies in the ICT sector to use them and make them available to their users. For example, the schedules and even location of public transport of a tourist destination in Open Source format will facilitate the mobility of users of Google Maps and other similar applications.

2.2. The Sharing Economy is not Sharing their Data for Managing Mobility

A remarkable aspect on the development of tourism and mobility is the growth of the initially called sharing economy. What is now better known as platform economy brings together a set of initiatives that create a digital space with well-defined standards to help the connection between users or consumers and services or products, to share or facilitate consumption with maximum clarity and transparency.

The first relative academic mention that approaches the concept of sharing economy or consumption is based on shared transport and is assigned to Felson and Speath (1978), who emphasized the coordination of consumption between a group when users coincide in space and weather. However, the definition most cited comes from Bostman and Rogers (2010) on their work "What's Mine Is Yours; The Rise of Collaborative Consumption". These authors understand the sharing economy as that built on networks that connect individuals and communities in a decentralized manner, as opposed to established economic institutions, thereby transforming the way we produce, consume, finance and learn. Belk (2014) was the first who introduced the distinction between pseudo and true sharing economy; first, he defined collaborative consumption as the activity of coordinating the acquisition and distribution of a resource among people for a fee or other compensation; on the other hand, he spoke about true sharing, that is, when it implies temporary access instead of property, without fees

or compensation. Finally, in recent years, discordant voices begin to be heard regarding the initial positive messages of the collaborative economy; voices as Slee (2016) on his work "What's Yours is Mine. Against the Sharing Economy", which plays with the aforementioned title of Bostman and Rogers.

They are platforms of true sharing economy such as couchsurfing (free accommodation between travelers), other platforms facilitate shared transport -in space and time- between individuals such as blablacar; there are also websites that began facilitating accommodation under payment in private homes and now they are companies with a higher value than any hotel chain (the case of airbnb) (Ting, 2016); or applications for sharing - in different space and time - of various resources of transport (bicycles, motorcycles, cars and even scooters). The fact is that these platforms are modifying the way in which thousands of citizens and visitors move through the tourist cities. At the same time, these companies store huge information about the places of accommodation (and characteristics of them and those hosted) and the movements of their users. Let's not forget that most of these mobility resources are always geolocated using GPS devices.

However, these platforms are reluctant to share their data with the authorities of the destination cities where they operate their business. Usually, they have millions of data that would be of great use for local planning and academic research. In this way, a huge amount of information is lost, which if it would be centralized will serve to make appropriate decisions and mobility planning.

To overcome this lack of cooperation by (supposedly collaborative) platforms, there are also information technologies to facilitate the collection of useful data. Near a hacker culture there is software and even websites that facilitate the extraction of data from platforms such as airbnb. This type of software known as Web Scraping or tracks websites of all kinds to extract data from them in a structured way. For instance, the work done by the insideairbnb.com website, that provides data on accommodations on the airbnb platform of more than 80 cities in the world, is well known (it is in the process of incorporating more cities). According to the Inside Airbnb, it allows authorities and researchers to explore how Airbnb is actually being used in cities around the world. By analyzing publicly available information about a city's Airbnb listings, Inside Airbnb provides key filters and metrics so you can see how Airbnb is being used to compete with the residential housing market.

With Inside Airbnb, you can ask fundamental questions about Airbnb in any neighborhood or through the city. Questions like: "How many accommodations are in my neighborhood and where are they?", "How many houses and apartments are frequently rented to tourists?", "At what price do the hosts rent to tourists (allowing comparisons with long-term rentals)?", or "What hosts are running a business with multiple accommodations and where are they?".

3. Conclusions

Cities face the challenge of managing a new mobility scenario in which tourists will have an increasingly significant role. If tourism activities continue to grow, and cities receive more and more tourists every year, a mobility policy should be designed and it should include them with a prominent role. In this sense, ICTs, which have always been closely linked to the tourism sector, have an important key as they will help to optimize the efforts and investments in mobility from public administrations budget.

Moreover, rational planning of efforts must be made to find the most suitable and enduring technological solutions that bring urban destinations closer to the concept of intelligence in tourism and mobility management. Cooperation with private sector is a *sine qua non* condition, necessary (not enough), to achieve that intelligence. This will require the cooperation of all agents, including the new platforms of sharing economies in accommodation and transport, to integrate the maximum possible information available to the authorities responsible in order to make mobility right decisions.

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