

SOCIAL INCLUSION AND COMPETITIVENESS IN SMART TOURISM DESTINATIONS: A SYSTEMIC PERSPECTIVE

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ABSTRACT

The development of smart cities is considered an alternative to face urban problems; one of them is the growth of population with disabilities and senior citizens, which will lead to sustainability issues particularly those dealing with services and infrastructure. The purpose of this paper is to highlight the need of innovation in the tourism sector, considering the Triple Helix model to achieve competitiveness in urban tourism destinations.

This research presents a literature review of the smart cities characteristics, challenges and opportunities that bring technological development in social inclusion. The Soft Systems Methodology is applied to show how the smart tourism destination can be modeled. This review shows that smart cities can make more competitive and inclusive the tourism destinations, considering the cultural, economic, politic and social context and how the Triple Helix model of innovation is capable of building strategies and public politics that bring social inclusion for people with disabilities and senior citizens, making the city a more competitive destination.

Keywords: Smart Cities; Innovation, Triple Helix, Soft System Methodology, Tourism, People with disabilities, Senior Citizens.

Introduction

Innovation and development of accessible tourism in Mexico is an opportunity to satisfy a sector of almost 6 million people with disabilities (INEGI, 2010) in the country and a population of older adults that according to the National Population Council (Villagómez Ornelas, 2009) will reach 30% of the country's total in 2050, with a population pyramid invested where populations with specific mobility, service and care needs will be the priority.

The World Tourism Organization (World Tourism Organization, 2013) through its recommendations on accessible tourism proposes concrete actions for the generation and adaptation of tourist destinations to have an inclusive and suitable offer for people with disabilities and senior citizens. Demographic changes are elements to be considered in the

generation of public policies for sustainability, since they are accompanied by the specific use of natural, physical, economic and cultural resources (Verstappen, 2009).

Sustainability is on the international agenda and the travel and tourism industry is close to it, the impacts of this activity depend on economic, ecological, natural, cultural and environmental factors (Edgell, 2015). Industrialization and globalization have become two elements of research from different perspectives (Hayat, 2016) due to the impacts they have had around the world, mainly in urban areas where population growth has increased in recent years and is considered that by the year 2025 the urban population will be 81% of the total (Glasmeier & Christopherson, 2015).

In this scenario, it is necessary to redesign and build cities to meet the challenges of urbanization (Hayat, 2016) without leaving peripheral regions aside (Nordberg, 2015). Urban tourism, linked to metropolitan regions emerges as an opportunity for economic development (Brouder & Ioannides, 2014) where the flow of tourists represents an input of economic resources, however, there must be adequate conditions for these visitors to have a satisfactory stay, that could lead to consider as a competitive destination.

Tourism activity is complex and heterogeneous as it has a diverse number of activities that complement each other to satisfy tourists (Aldebert, Dang & Longhi, 2011). Whether through retail service providers or wholesalers the tourist looks for service complements that make their trip as satisfying as possible. This competition and changes in the market in the sector has led to the emergence of new players, such as mobile telephony operators, generating new forms of communication between the tourist and contracted services (Aldebert et al., 2011).

In sum, changes in competition between service providers and technological innovation have led the tourism industry to acquire different characteristics in its different services where knowledge and technology converge, generating innovation processes that have an impact on tourism (Hjalager, 2002) promoting competitiveness and sustainability. The multiple challenges in urban tourist destinations can be approached from a systemic perspective considering the complexity of them and the multiple actors involved in the management and the decision-making process.

Literature review

The importance of urban areas as global phenomena lies in the increase in population (Glasmeier & Christopherson, 2015), which requires the entry of resources and the expulsion of harmful waste that amplifies economic and social problems (Albino, Berardi & Dangelico, 2015).

This scenario requires cities to find new ways to address these challenges, where urban services are adequate, such as transportation, waste management, water, communications and links with society (Albino et al., 2015), one of the alternatives to generate actions in favour of urban processes and to promote sustainability is the design of "Smart cities", a concept coined in the last decade that promotes new forms of applying public policies around the technologies of the information, communications, efficiency, competitiveness,

contributing to new ways of addressing problems of poverty, social and environmental inequality (Batty et al., 2012).

One of the innovation proposals is the Triple Helix for Smart cities (Deakin, 2014), which is based on the generation of knowledge applied to cultural and environmental development in innovation processes. To generate a Triple Helix process, three dynamic systems must be considered (Deakin, 2014):

- Intellectual capital of universities
- Industries
- Participation of a democratic government

This spiral model of innovation that expresses the relationship between university, industry and government (Loet Leydesdorff & Park, 2014) involves three dimensions. First, the internal transformation of each propeller, the second dimension is from the influence of one propeller on another, and third is the creation of a network between the three propellers formulating new ideas and formats for the development of high technology.

The consensus area is the place designed for academics, creatives, entrepreneurs and government actors to come together to exchange knowledge where the university has a leading role in these processes of technological innovation. Competitiveness is addressed in the current research from the proposal of Altenburg, Hillebrand, & Meyer-Stamer (1998) who raised the competitiveness from a systemic perspective, considering different levels:

- Meta level: Orientation of society towards development, ability to formulate strategies and policies, social cohesion.
- Macro level: Legal, economic and political framework, this includes tax, tax and trade policies.
- Meso level: Industrial structure, imports and exports, regional infrastructure, environment, technology, education and work.
- Micro level: Organizational factors, technological, collective efficiency and innovation networks.

The Global Innovation Index (Cvetanović & Sredojević, 2012) was designed by the Indian Industry Confederation (INSEAD, The Business School for The World) and presents the indicators related to innovation. There are 5 groups that are classified in inputs, among which are institutions, human capital and research, infrastructure, market and business sophistication. These inputs determine the benefit of the same to stimulate innovation. The Global Competitiveness Index presents clear elements to measure each country and considers comparable variables that are linked to macro and micro aspects of competitiveness and are grouped into twelve pillars:

- Institutions
- Infrastructure
- Macroeconomic environment
- Health and primary education
- Higher education and training

- Efficiency in the goods market
- Efficiency in the labour market
- Development of the financial market
- Technology readiness
- Size of the market
- Sophistication of business
- Innovation

Each of these elements can be measured quantitatively, through indicators such as gross domestic product, statistics, etc. and with qualitative variables. Each one of the countries can consider these variables to evaluate their competitiveness, for developing countries the most important factors to consider are institutions, infrastructure, macroeconomic environment, health and primary education.

For others with higher education, training, efficiency in the market of goods, labour and financial market and technological development will be priority and finally those countries with greater competitiveness the development and sophistication of business and innovation will be the main axis. Countries with well-articulated national innovation systems between public and private organizations have the highest levels of competitiveness, which implies a direct relationship between innovation and competitiveness. The countries that hold high the 5 innovation indicators previously explained are those that also present a high competitiveness index (Cvetanović & Sredojević, 2012).

Key elements in the competitiveness of a city or country are science and technology, tools for the generation of economic development, in a capitalist context research becomes a powerful way to generate changes in society from new forms of production. Latin American countries in this sense have years of delay compared to the United States, Europe and some Asian countries (Sábato & Botana, 2000), suggesting to increase the production of scientific and technological research in order to contribute to regional and local development, boosting these economies on a global scale.

The Triple Helix model for smart cities (Nordberg, 2015) promotes the increase in research to generate knowledge capable of translating into investment projects where the government will act as a regulator of laws and regulations that favour productive relations. Moving from a spectator figure to a protagonist in technological development implies generating mechanisms that have not previously been applied in Latin American countries, this new development implies changes in the scientific-technological infrastructure, where the educational system, laboratories, institutions, economic and financial resources and everything that is part of the structure apply to innovation processes (Aldebert et al., 2011). Challenges faced by these innovation processes are diverse, mainly of a cultural nature such as the fear of companies for investment, the fight against monopolies, legislation that does not facilitate processes and the registration of patents, among others. Generating these processes results from three different orders, the government, the productive structure and the scientific-technological infrastructure. Each one of the helix has a series of own dynamics, institutions, production units, activities (Sábato & Botana, 2000) in order to

achieve its goal as model of innovation it is necessary to create a new system for the creation of new processes.

Considering the development of Smart Cities as a means of social inclusion for people with disabilities and older adults is linked to the characteristics raised by various authors who have studied the conditions and benefits of them (Albino et al., 2015; Bakici, Almirall, & Wareham, 2013), which emphasize the importance of social benefits combined with technological innovations applied to these ends. According to (Giffinger, 2007; Van Soom, 2008) there are six components in smart cities and their aspects related to urban life and are based on regional theories of competitiveness, information and communication technologies, natural resources, human and social capital, quality of life and citizen participation in city governance (Lombardi, Giordano, Farouh, & Yousef, 2012):

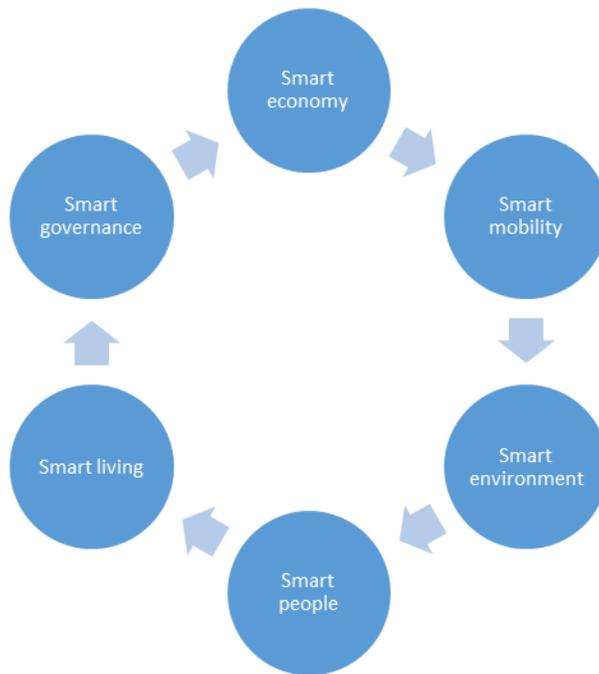


Figure 1. Components of Smart Cities. Source: (Lombardi et al., 2012).

As seen in figure 1 each of the components is interrelated and linked to other areas such as education, industry, participation, technical infrastructure and other soft factors (Giffinger, 2007) where smart governance is linked to the participation of society, smart human capital with people, smart environment with natural resources, smart living with quality of life and smart economy with competitiveness.

The needs of populations with disabilities and older adults in access to tourism spaces and services (Portales, 2015) are mainly linked to the components of smart mobility and smart

living, because the welfare of the person is linked to the infrastructure in the public, private, residential and other specific spaces (Bakici et al., 2013).

According to Dameri and Ricciardi (2015), smart cities have a series of goals pursued such as value creation, competitiveness, resilience, sustainability and quality of life, where competitiveness is the central axis, surrounded by value creation, originated by intellectual capital, and from the smart city's point of view is found resilience, sustainability and quality of life.

Studying the relationship between social inclusion, competitiveness and tourism innovation implies a systemic approach, so it is necessary to be based on Systems Theory, which at first was used mainly to deal with biological problems, with closed structures and with processes that could be structurally delimited (Monroy, 1997); with the theory evolution and research there were developed several proposals to apply the methodologies of systems in social studies.

In this methodological development, two types of systems study emerged: the hard and the soft, the first being those where the relationship is between men and machines, with closed systems, the other ones are those with a social component (Checkland, 1981; Lewin, 1947). Lewin (1947) was a pioneer in social studies with his intervention of the organizations and his studies in social psychology. Checkland (1981) also made studies on soft systems and proposed its methodology, based on making the difference and interrelations between systemic thinking, reality and practice.

Research approach

Tourism, due to its characteristics, requires quantitative and qualitative study and it must be analyzed as a system, considering social, economic and physical variables and their interrelation with urban development. In order to determine which methodology could be used to do research in this field it was used the Total System Intervention (TSI) (Flood & Jackson, 1991) in which two dimensions are related, types of systems and types of participants in which the last one refers to the relationship between the individuals or involved parts in the system and the type of system refers to the complexity of the problematic situation as seen in table 1.

Table 1. Systems Methodologies based on the assumptions they make about problem contexts Source: (Flood & Jackson, 1991).

| | UNITARY | Pluralist | Coercive |
|---------|---|--|-----------------------------------|
| SIMPLE | Operations research Systems analysis Systems engineering System dynamics | Social systems design Strategic assumption surfacing and testing | Critical systems heuristics |
| COMPLEX | Viable System diagnosis General systems theory | Interactive planning Soft systems methodology | ? |

| | | | |
|--|---|--|--|
| | Socio-technical systems Contingency theory | | |
|--|---|--|--|

Starting from (TSI) it was determined that the tourism is complex and with plural relations, so this conducts the research to use the Checkland (1981) Soft Systems Methodology, described in the following phases:

1. Starting from an unstructured situation with uncertain boundaries.
Tourism as a complex activity does not admit present linear relations or structured boundaries, so each variable considered in the system must be considered in the model.
2. Analyse the situation to begin to structure it without compromising in solutions.

Each one of the variables, social, economic, political and social inclusion will be considered in the construction of the model.

3. Select the relevant system and elaborate its root, basic definition.
Once the variables are defined, analysed and synthesized, the relevant system is chosen, the definition of its basic definition and the main elements.
4. Construct conceptual models of the relevant system that satisfies the root definition, model of what should be, in systemic terms.
In this step, conceptual models will be constructed considering the relevant system, approaching a model that considers what should be social inclusion in the tourism industry.
5. Compare the product of 4 with 2 as elements to discuss possible changes with the actors. It is necessary to compare the ideal model (established in phase 4) with possible solutions to the problems found in phase 2.
6. Define the changes agreed upon by the actors as desirable and feasible, through a debate. Once the interpretation is done, it is necessary to discuss them with the actors involved in the model, to achieve a real scenario, with clear and achievable objectives.
7. Implement the agreed action to improve the situation.

The changes and improvement of the situation will be the last stage of the model, considering the interpretation made from the systemic concepts and the discussion between actors involved, approaching a social inclusion tourist model. Checkland states that phases 1,2,5 and 6 are carried out in the real world and 3 and 4 in systemic thinking. The methodology aims to establish the difference and the interrelation between the systems of thought, reality and practice (Checkland, 1981). Social structures, understood as a system involve a political-structural study should be able to propose appropriate solutions to their problems, in the case of the tourism system there must be considered qualitative and quantitative elements. Undoubtedly, the aspects of power and the uncertainty of users with disabilities and older adults increase as there is an ignorance of their basic rights as mobility and access to public spaces.

Achieving the goals in the development of an accessible tourism system (World Tourism Organization, 2013) is important to consider governmental, private and civil society actors; an effective approximation could be due to the study of the relations between these sectors and to structure diverse scenarios where their relations are narrow without having a preferential inclination towards some of them.

Findings and discussion

The triple helix applied in smart cities fosters an environment of technological and social development based on knowledge (Leydesdorff & Deakin, 2011) and the soft system methodology allows to elaborate models (Kish, Bunch, & Xu, 2016) that link the different variables to develop policies and specific actions in the development of smart cities and activities developed in urban tourism (Brouder & Ioannides, 2014).

The competitiveness of tourism destinations is largely determined by the ability to generate satisfactory interrelations between the different actors (Edgell, 2015) and their impacts in economic, ecological, natural, cultural and built environment factors. The main objective of smart destinations is to increase competitiveness and raise the quality of life of all stakeholders (Caragliu, Del Bo, & Nijkamp, 2011) and technology plays a determining role in this process (Boes *et al.*, 2016) where four components can be identified: innovation, social capital, human capital and leadership.

From these four components, it can be emphasized that considering people with disabilities and older adults in the planning, designing and development of tourist urban policies can increase the social capital of cities as well as human capital (Kastenholz, Eusébio & Figueiredo, 2015), since adaptations in smart cities will lead to new job scenarios for people with disabilities and older adults (Nam & Pardo, 2011), which will allow them to generate income that can later be used for tourism and recreational activities (Darcy & Buhalis, 2010; Darcy, Cameron, & Pegg, 2010; Darcy & Taylor, 2009; Portales, 2015).

The development of smart cities in this technological era should focus on sustainability in its three domains, social, environmental and economic (Gretzel *et al.*, 2015; Lombardi *et al.*, 2012; Ulrike *et al.*, 2016). Demographic changes are leading to the growth of population with particular mobility needs (Darcy *et al.*, 2010) and it is necessary to generate the changes in the tourism sector to meet these needs (Aitchison, 2003).

Conclusions

An inclusive city has advantages over those that have not generated urban policies for people with disabilities and older adults (Kastenholz et al., 2015) and this is reflected mainly in the active participation of its population, generating social and economic benefits (Domínguez, Fraiz, & Alén, 2013). The change in the paradigm of disability (Zajadacz, 2015) has driven to changes in the attention of people in social areas such as tourism.

The Soft Systems Methodology allows the effective study of problems posed from a social level (Hardjosoekarto, 2012; Kish, Bunch, & Xu, 2016) generating viable models that allow the social inclusion of people with disabilities and older adults and the articulation of technological tools in the urban space. As indicated in several studies, it is not only technological development but also processes that benefit people's quality of life and their active participation in decision-making in the public sector (Dameri & Ricciardi, 2015). Smart cities will become a reality as private industry, government and universities and research centres generate synergy and actively participate in research and policy development focused on technological, social and economic development (Leydesdorff & Park, 2014) where generation of knowledge, research and projects are managed through private investment and articulated with government public policy.

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