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SMART CITIES TO SMART TOURISM DESTINATIONS: A REVIEW PAPER

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Abstract

The terms smart cities and smart tourism destinations have become extremely popular in the last decade. The study explores the buzzwords smart cities and smart tourism destinations and the relationship between them. The purpose of this paper is to review the existing literature on smart cities and smart tourism destinations. The study specially focuses on reviewing concepts of smart cities and smart tourism destinations and also the linkages between them. The author has adopted the literature review approach for the fulfillment of the objective of the study. Various journals, books, research work and reports were studied for reviewing the current research and to also reflect on the future research. The detailed literature discussed in this paper suggests the concept of smart city does not stand on its own and is closely associated with smart tourism. In fact smart cities act as a ladder for the establishment of smart tourism destinations. Smart tourism destinations are smart cities which utilize the information technology and innovations to enable pleasure, and experiences for the tourist.

The findings of the study imply that smart tourism is a fundamental part of the smart cities. This study will help in understanding the present scenario of growing popularity of smart cities in India, as it is the need of the hour to make and execute sustainable plans for the development of smart cities, which will ultimately lead the way to smart tourism destinations.

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1. INTRODUCTION

It is necessary to be smart in order to survive in the tourism industry. Smartness is required at each step, from generation of information to the communication of the information. Smartness facilitates the shaping products, actions, processes and services in real-time, by engaging different stakeholders simultaneously to optimize the collective performance and competitiveness and generate solutions and value for all. Usually the term smart is associated with being fast and giving quick results. The term 'smart' represents the things working on latest technology. Various researchers have been working on how to inculcate smartness to tourism industry by creating a proper framework.

The term "smart city", is gaining popularity, but there is no specific definition which can precisely explain the concept. The involvement of IT in various aspects of the day to day life of cities, has led to the evolution of Smart Cities. It may have its originated from the Smart Growth (Bollier, 1998) movement of the late 1990s. The various obstacles resulting from globalization and population growth are forcing the cities to find smart solutions to manage these problems. These modern cities capable of facing the emerging challenges are termed as the smart city.

Tourism is a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for various purposes (UNWTO, 2015). Given the information-intensive nature of tourism the concept of "smart" is being applied to phenomena that encompass tourism. The Smart City concept covers a variety of industries, including the tourism industry (Guo et al., 2014). The theoretical paper of Buhalis and Amaranggana (2014) has touched the concept of building Smart Tourism Destinations on the concept of Smart Cities. Bringing smartness into tourism destinations requires the destinations to facilitate information exchange amongst the stakeholders, which could enhance their decision making process (Buhalis and Amaranggana, 2014). This will ultimately help the tourism service providers to provide new improved services to tourists (Schaffers et al. 2011).

2. DEFINING SMART CITIES

A smart city is a sustainable and livable city. Harrison (2010) defined it as an instrumented, interconnected, and intelligent city. Lee (2013) indicates that the smart cities utilize the emerging opportunities like growing information and communication technology (ICT) innovations. While, Hollands (2008) called smart city initiatives as a celebratory label.

Moreover, the definitions that are generally accepted by most of the academicians have been as tabulated below.

Table 1. Definitions of "Smart City".

Definition	Source
A city is smart when investments in human and social capital and traditional (transport) and modern (ICT) communication infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance.	Caragliu, A., Del Bo, C., & Nijkamp, P. (2009). Smart Cities in Europe, Series Research Memoranda 0048. VU University Amsterdam, Faculty of Economics, Business Administration and Econometrics.
City well performing in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of endowments and activities of self-decisive, independent and aware citizens.	Rudolf, G., Fertner, C., Kramar, H., Kalasek, R., Pichler-Milanovic, N., & Meijers, E. (2007). Smart cities-ranking of european medium-sized cities. Rapport technique, Vienna Centre of Regional Science.
A city that monitors and integrates conditions of all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens.	Hall, R. E., Bowerman, B., Braverman, J., Taylor, J., Todosow, H., & Von Wimmersperg, U. (2000). The vision of a smart city (No. BNL-67902; 04042). Brookhaven National Lab., Upton, NY (US).
A city connecting the physical infrastructure, the IT infrastructure, the social infrastructure, and the business infrastructure to leverage the collective intelligence of the city.	Harrison, C., Eckman, B., Hamilton, R., Hartswick, P., Kalagnanam, J., Paraszczak, J., & Williams, P. (2010). Foundations for Smarter Cities. IBM Journal of Research and Development, 54(4).
A community of average technology size, interconnected and sustainable, comfortable, attractive and secure.	Lazaroiu, G.C., Roscia, M. (2012) Definition methodology for the smart cities model, Energy, Vol.47, No. 1, pp. 326-332.
"Being a smart city means using all available technology and resources in an intelligent and coordinated manner to develop urban centers that are at once integrated, habitable and sustainable."	Barrionuevo, J.M., Berrone, P. & Ricart, J. E. (2012) Smart Cities, Sustainable Progress. IESE Insight, Vol. 14, pp. 50-57.
"A smart city, according to ICLEI, is a city that is prepared to provide conditions for a healthy and happy community under the challenging conditions that global, environmental, economic and social trends may bring."	Guan, L. (2012) Smart Steps To A Battery City. Government News, Vol. 32, No. 2, 24-27.
The application of information and communications technology (ICT) with on the role of human capital/education, social and relational capital, and environmental issues is often indicated by the notion of smart city.	Lombardi, P., Giordano, S., Farouh, H., Yousef, W. (2012) Modelling the smart city performance, Innovation: The European Journal of Social Science Research, Vol. 25, No. 2, pp. 137-149.
The use of Smart Computing technologies to make the critical infrastructure components and services of city-which include city administration, education, healthcare, public safety, real estate, transportation, and utilities-more intelligent, interconnected, and efficient.	Washburn, D., Sindhu, U., Balaouras, S., Dines, R. A., Hayes, N., & Nelson, L. E. (2009). Helping CIOs understand "smart city" initiatives. Growth, 17(2), 1-17.
Smart cities will take advantage of communications and sensor capabilities sewn into the cities' infrastructures to optimize electrical, transportation, and other logistical operations supporting daily life, thereby improving the quality of life for everyone."	Chen, T. (2010). Smart grids, smart cities need better networks [Editor's Note]. IEEE Network, 24(2), 2-3.

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As the term "smart city" is gaining popularity, there is still confusion about what are the dimensions of the smart cities.

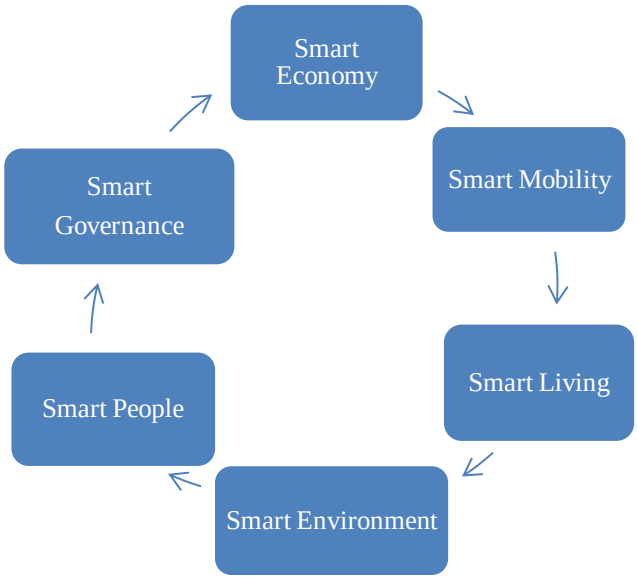

Figure 1. Dimensions of smart city
Source: Rudolf, G., Fertner, C., Kramar, H., Kalasek, R., Pichler-Milanovic, N., & Meijers, E. (2007). Smart cities-ranking of european medium-sized cities. Rapport technique, Vienna Centre of Regional Science.

As shown in Fig 1. the various dimensions of smart city are Smart Economy (Public expenditure on Research & Development), Expenditure on education, GDP, Unemployment rate), Smart Mobility (Sustainable and safe transportation, Pedestrian lanes, Walkways, Cycle lanes Innovative transportation, Efficient traffic control systems), Smart Living (Availability of recreational and leisure areas, Public libraries, Entertainment centers, Sustainable resource management, Education and Health facilities, Green areas, Availability of ICT), Smart Environment (CO2 reduction strategies, Efficient use of water and electricity, Availability of green space, Policies to handle urban development, Recycling of waste), Smart People (Education level of citizens, Language skills, Learning programs, Technical skills) and Smart Governance (Number of educational institutes, e-Governance facility, Internet access for citizens, Easy access basic to facilities). All of these dimensions act as pillars which constitute the foundation of smart cities. Hence, it can be said that a smart city is a sustainable, livable, interconnected and intelligent city.

3. DEFINING SMART TOURISM DESTINATIONS

The literature on smart tourism destinations shows that these tourism destinations use ICT to enhance the development and production of tourism processes (Wang, 2013). Buhalis

and Amaranggana (2014) in paper "Smart tourism destinations" specified that in order to bring smartness into tourism destination it's important to interconnect the stakeholders through a common platform. Guo (2014), Wang (2013) and Zhu (2014) explained that the smart tourism destinations can be defined as the destinations utilizing the available technological to co-create value, pleasure and experiences for the tourist. Therefore, smart tourism destinations need to constructively engage with local stakeholders to ensure community engagement. Smart tourism destinations are beneficial for the tourism industry as they facilitate information exchange between tourism organizations and tourists through a centralized platform. Smart Tourism Destinations could gain insights about customers' actual needs and preferences. Effective engagement among tourists and the service providers is important to provide products to meet the needs of the tourists successfully. This will ultimately assist the service providers to understand the needs of the tourists and provide innovative and improved services (Schaffers et al. 2011).

Buhalis (2000) defined that smart tourism destinations are combination of tourism products and are initiated out of smart cities. Huang (2012) mentioned that the real meaning of smart tourism destinations is to focus and take care of the personal needs of the tourist by combining the ICT with casual culture. This ultimately enhances the service quality in destination and improves tourism management in the destination. Buhalis (2015) gave a model which shows that how a smart tourism can contribute to tourist experience.

Figure 2. Enhancing tourism experience personalization of services.
Source: Buhalis, D., & Amaranggana, A. (2015). Smart tourism destinations enhancing tourism experience through personalisation of services. In Information and communication technologies in tourism 2015 (pp. 377-389).

Ritchie and Crouch (2005) mentioned that both smart cities and smart tourism destinations can gain competitiveness by implementing innovative technologies in order to enhance its tourism experiences. According to Zygiaris (2013) in order to attain wide access to information, destinations need to provide unrestricted access to data to all citizens through a public-controlled platform. It is also necessary to acknowledge there are technologically illiterate people living within tourism destinations. Normally citizens and tourists are left on their own ability to learn and adapt according to the rapidly changing technology (Komninos, 2013). It is necessary that the destinations should focus on educating the citizens and tourists regarding how to efficiently utilize the new technology. Hence, it's clear that that smart tourism destinations need to establish smartness by installing suitable tourism applications within the components smart cities (Cohen, 2012).

4. SMART CITIES TO SMART TOURISM DESTINATIONS

Smart cities entails the application of sustainable solutions to overcome difficult problems and involves the use of sophisticated and expensive technology developed by the private sector (Jasrotia, 2018). Even though the aim of a smart city is to increase the quality of life for its citizens, there is a need to focus on tourism as, it is a source of income for many cities (Taaffe, 2014).

Table 2. Tourism applications in Smart Tourism Destinations

Tourism Applications	**Utility function**	**Destination components (Buhalis 2000)**	**Smart tourism destinations (Cohen 2012)**
Virtual reality (VR) and Augmented reality (AR) helps to experience digital environment of tourism sites.	Interpretation	Attractions	Smart people, smart mobility
Vehicle tracking and montioring system for getting real-time information and location of vehicles.	Planning	Accessibility	Smart living, smart mobility
Energy efficient green hotels for reducing consumption of electricity and pollution.	Sustainability	Amenities	Smart environment
Applications for showing available tour packages, translation of languages and providing guidance to the tourists on the visit.	Guiding	Available packages	Smart people, smart mobility
Access to information about nearby attractions to visit, visiting hours through mobile devices.	Marketing	Activities	Smart mobility
Generating direct and quick feedback from tourists through ICTs regarding service quality and required demands.	Generating Feedback	Ancillary Services	Smart living

Source: Buhalis, D., & Amaranggana, A. (2014) Smart tourism destinations. In Z. Xiang & I. Tussyadiah (Eds.), Information and communication technologies in tourism 2014 (pp. 553–564). Dublin:Springer.

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In order to ensure the success of a tourism destination its importance to ensure that human resources and innovation are collaborating at all the levels (Ritchie and Crouch, 2005). It's important to facilitate the six A's in tourism destinations (attractions, accessibility, amenities, available packages, activities, ancillary services). These A's add value to the touristic experience (Buhalis, 2000).

Therefore, it's clear that enhancing the A's will lead to profit generation and prosperity of a destinations. If, a smart city uses the information technology and innovations to enhance the six A's of tourism then it ultimately becomes a smart tourism destination. In other words, Smart Tourism Destinations are the cities or places which harness the available technological tools, innovations and techniques to enable pleasure, and experiences for the tourist and profit for the organizations and the destinations. According to Cohen (2011), Smart Tourism Destinations should utilize appropriate tourism applications within smart cities. Hence, when the destination pursues a smart-city approach new business opportunities emerge in travel and tourism industry also.

5. CONCLUSION

Different cities and countries, depending on the level of development, policies, and resources have different way of looking at the concepts of smart city and smart tourism destinations. Tourism destinations are the amalgams of tourism products and services and these systems are difficult to understand and manage. Therefore, some definitional boundaries are important to guide cities in this direction.

Smart tourism destinations can be perceived as cities or places which utilize the available technological tools, innovations and techniques to enable pleasure, and experiences for the tourist and profit for the organizations and the destinations. In fact, smart cities act as a ladder for the establishment of smart tourism destinations. Smart tourism destinations are smart cities which utilize the information technology and innovations to enable pleasure, and experiences for the tourist. Hence, it's clear that smart tourism is a fundamental part of the smart cities. In the 21st century there is growth in popularity of smart cities and smart tourism destinations. Therefore, it is the need of the hour today is to understand these concepts and make and execute sustainable plans for the development of smart cities which will ultimately lead the way to smart tourism destinations in future.

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