

Smart City and Tourism: An Analysis of Development of Bhubaneswar as a Smart City

Dr. Shweta Saibal Samanta Sahoo¹

Mr. Mukunda B G²

Mr. Debasish Kanungo³

^{1,3} Assistant Professor, Department of Business Administration, Ravenshaw University, College Square, Cuttack, Odisha, India

² Assistant Professor, Department of Tourism Studies, Indian Academy Degree College - Autonomous, Hennur Cross, Bengaluru, Karnataka, India.

Abstract

The rapid development of information technology has created numerous opportunities for the tourism sector. Smart tourism is one of the latest trends in tourism based on smart technologies. Smart tourism requires bringing together the various stakeholders in the tourism industry through a common platform of technology. Over the past decade, the advent of new technology has brought about the emergence of smart cities aiming to provide their stakeholders with technology-based solutions that are effective and efficient. Insofar as the objective of smart cities is to improve outcomes that are connected to people, systems and processes of businesses, government and other public- and private-sector entities, its main goal is to improve the quality of life of all residents. Accordingly, smart tourism has emerged over the past few years as a subset of the smart city concept, aiming to provide tourists with solutions that address specific travel related needs. Bhubaneswar is an emerging tourism destination that has implemented smart city platform to engage various stakeholders. The objective of this study is to identify the smart tourism practices of smart city Bhubaneswar that could enhance tourism experience through offering products/services that are more personalised to meet each of visitor's unique needs and preferences.

Keywords: Smart city, Smart tourism, ICTs, Bhubaneswar, Destination

Introduction

These days, it has become easier to book a holiday online. Likewise, it is very convenient for the hotels and airlines to operate their business online as it has a wider approach. Internet has radically changed the conventional business models and people are widely adapting to it. The concept of "Smart tourism" is inherited from "smart city", it is defined as a platform which integrates tourism sources and information technologies, such as Artificial Intelligence, cloud computing and Internet of things to provide explicit information and efficient services to tourists in certain cities based on the development of innovative mobile technology. Smart tourism is based on Internet of Things (IoT) where any device or object can be made smart and identifiable through radio frequency tags. These devices can communicate with many other smart

devices through the network. The communication generates a large amount of data that can be stored and computed on the available Cloud services. Tools of Big Data analysis can be very useful in analyzing the trends and patterns in the data. The use of these technologies will help both the tourism industry as well as the tourists.

Smart city

In recent years, we have witnessed the rapid development of the growing urban areas and the increase of the number of their inhabitants. The process of urbanization has led to the fact that more than half of the world's population lives in cities and this number is continuously increasing. The expansion of cities brings with it numerous challenges and problems such as the greenhouse effect, resource exploitation, congested traffic, waste management problems, political and social complexity and so on. Overcoming these problems is possible with the development of an innovative urban management system, which has led to the development of the so-called smart cities. The basis of the concept of smart cities is smartness as the glue that connects mutually beneficial systems and stakeholders and provides an infrastructure for creating value for everyone. The smart city label indicates the application of smart solutions that enable modern cities to survive through the quantitative and qualitative improvement of their productivity.

When sustainable economic growth of a city is achieved and the citizen experience high quality of life through human capital investment, government and stakeholder's involvement then the city can be categorised as smart city. Three main pillars are considered as base of the smartness of the city such as: human capital, infrastructure and information services. From the three pillars human capital is the central element as they actively participate in day to day activities and have potential to drive the city towards smarter. Infrastructure development is also an important factor in makeover of a smart city as they work as the back bone for the other factors convenient access to information services for city stakeholders is very essentials to stimulate the actions in smart city development, optimising city functions and make it a better place to live in. In smart cities citizens understand the value of the resources and they take better decision for the effective and sustainable use of them, hence in those cities citizen should be involved in the developmental planning and decision making processes along with the government and other stakeholders. The definition of smart city also varies in different sectors. In academic and research, environmental sustainability comes as primary agenda whereas efficiency; management; infrastructure development comes in the agenda of corporate sectors. "The rudiments of what constitutes a Smart Sustainable City which we define as a city in which ICT is merged with traditional infrastructures, coordinated and integrated using new digital technologies." Globally the concept of smart city is not new, but in India the concept started recent back in 2014. The concept of a 'Smart City' is a relatively new phenomenon in the country with rich culture, spiritually renowned across the globe. The mission was started with the vision to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. This is a long term initiative by Government with the aim to develop the urban areas of some selected cities which can further act as a replicable model to other aspiring cities. According to Government of India (2015) smart city guidelines, core infrastructure requires in a smart city would include the basic requirements in day to day life and the adding to that technological necessities such

as; (i) adequate water supply, (ii) assured electricity supply, (iii) sanitation, including solid waste management, (iv) efficient urban mobility and public transport, (v) affordable housing, especially for the poor, (vi) robust IT connectivity and digitalization, (vii) good governance, especially e-Governance and citizen participation, (viii). Sustainable environment, (ix). safety and security of citizens, particularly women, children and the elderly, and (x). Health and education. In smart city mission, Government of India initially planned for 100 cities through smart city challenge by defining certain criteria and guidelines. Smart solutions were given importance in the guidelines in selection of the cities, such smart solutions categorised such as: e-governance and citizen service, waste management, water management, energy management, urban mobility etc (GOI, 2015). Bhubaneswar, capital city of Odisha was ranked top in the smart city challenge and received the best smart city award at a three day international conference “Smart City Expo India -2018” held at Jaipur.

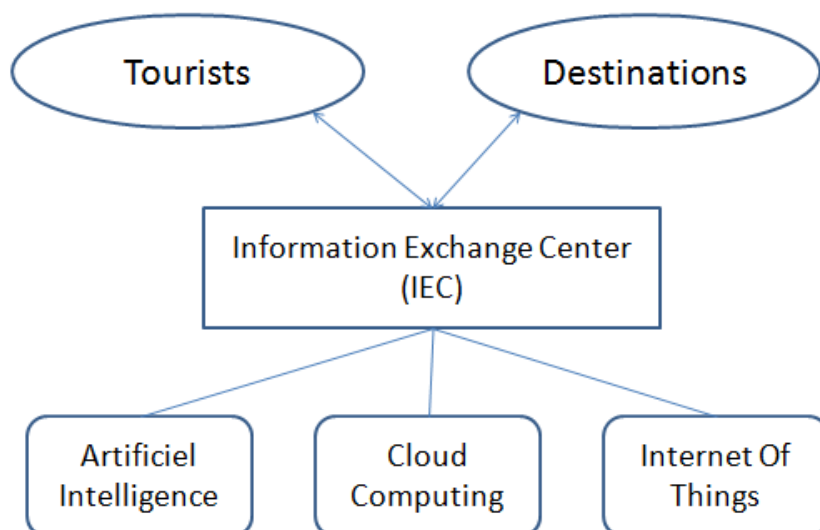
Concept of Smart Tourism

Smart tourism destination can be defined as the following: “a platform, which is implementing information and communication technologies (ICT) such as Artificial Intelligence, Cloud Computing and Internet of Things to offer the tourist personalized information and enhanced services established by mobile end-user devices” The smart tourism experience is rich and efficient in meaning. Visitors are active vigorous participants in the creation of smart tourism by not only consuming the service but also create, annotate or otherwise enhance the information that constitutes the basis of the experiences for instance uploading the pictures taken on social media etc. There are many ways to perform smartness as a tourism destination. Referring to the technological aspect smartness is also shown by the implementation of tourism related applications that can be used within Smart Cities components. The consensus definition of smart tourism does not exist neither in IT industry nor tourism academia. Smart tourism is based on the Internet of things (IoT), cloud computing, mobile communication, artificial intelligence technology. Automatic perception, timely delivery and mining analysis is achieved by embedding sensors in each kind of tourist resources, so various elements involved in tourism get linked, the physical resources and information resources deeply activated and the entire tourism industry chain integrated. Smart tourism and smart city are closely related. Smart Tourism arises out of the concept of smart city, relies on its infrastructure, and in turn strengthens the linkages of every subsystem of a smart city and the linkages of smart cities so enhance them. Smart tourism can be considered as the application of smart city in the field of tourism, the service objects extending from city residents outwards to tourists. As tourists and city dwellers differ in characteristics and demands, and tours occur not only in the cities, the smart tourism has a broader connotation than the smart city, always involving various fields and spanning various places, also presents more problems of smart cities. A huge system of smart tourism covers entire tour industry, the basic features including a center (large database storing vast amounts of tourist information and cloud computing servers with powerful computing capability), network (Internet, IoT, communications network), client-side (people travelling or residing in the tourist site who need the smart tourism services), server-side (units or individuals providing services to tourists directly or indirectly, including travel agencies, tourist bureaus, tour guides, hotels, enterprises of the scenic spots and other service providers, departments of government which guarantee the environment,

public safety, transportation, disaster protection, health care and quality inspection). Various entities achieve mastery through a comprehensive cooperation to constitute the seamless body of smart tourism. Smart tourism offers to the tourists of personalized travel services, enterprises of complete marketing platforms, administrators of intelligent management platforms, with better tourism order maintaining, traffic controlling, passenger flow estimating, quality detecting, disaster preventing, emergency handling, real-time tourism resources and environment monitoring.

Structure of Smart Tourism

The various technologies which interplay to provide Smart Tourism services will be the web, mobile, cloud computing, Internet of Things (IoT) and Big Data analysis. Simple devices like our mobile phones are equipped with camera, microphone, sensors to detect movements etc. The information collected by such smart phones can be processed on servers and hence used for smart living. Smart living requires smart houses and smart work conditions. That means all the services used for living like healthcare; education, tourism etc should turn smart as well. A smart tourism system includes these elements: information exchange centre (IEC), tourists, Destinations. The following figure shows the structure of smart tourism. In general, tourists send requests such as searching, buying tickets or booking to IEC, IEC then responses with the demanded information or processed results. IEC also has the responsibility to real-time monitor the resources of destination. The statistics of everyday visiting data should be reported to IEC for analysing and archiving management. On the other hand, the statistical data can be returned to government officials in tourism administration as a basis to determine the next-step policy. For business such as: hotel, restaurant and entertainments, they can request IEC to send advertisement or promotions to tourists. Meanwhile, the processing results of tourist requests are also returned to business for further arrangement.



Smart Tourism Destinations

Smart Tourism includes two essential elements: smart technology and smart destination. The term smart tourism destination implies "an innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of tourist areas, accessible to everyone, which

facilitates the visitor's interaction with and integration into his or her surroundings, increases the quality of the experience at the destination, and improves residents' quality of life". The concept of smart destinations is derived from the smart city concept and is still in development. It is about "the modern integrated management of destinations, using technology to optimize resources and develop new strategies based on more bottom-up" approaches". This approach allows destination managers to work together with tourists to jointly create a tourism experience, whereby tourists are allowed to share information and knowledge with each other in order to have more chances to develop new experiences. For this reason, a smart destination offers tourists much more than an ordinary destination.

A smart tourism destination successfully implements smartness, which is stimulated by open innovations, investments in human and social capital and participatory governance, in order to develop the collective competitiveness of tourism destination and thereby enhance social, economic and environmental prosperity for all stakeholders. Its main priorities from the standpoint of demand and supply are: enhancing the tourist's travel experience, providing intelligent platforms for collecting and distribution information among key stakeholders, the efficiency and effectiveness of tourism resources allocation and integration of the tourism suppliers to ensure that the profit from tourism is equally distributed within the local society.

Review of Literature

Smart Tourism Destination in the age of Big Data Smart Tourism Destination today is the frontier of studies in the tourism field and is a promising area from various research perspectives in terms of models, tools and strategies to sustain the process of intelligent configuration of destinations (Buhalis & Law, 2008; Law, Buhalis, & Cobanoglu, 2014; Sigala et al., 2012; Xiang, Schwartz, Gerdes, & Uysal, 2015, Neirotti, Raguseo, & Paolucci, 2016). A Smart Tourism Destination is characterized by advanced services, a high degree of innovation and the presence of open, integrated and shared processes for enhancing the quality of life for both residents and tourists (Caragliu, Del Bo, & Nijkamp, 2009, Wang & Xiang, 2012, Micera, Presenza, Splendiani, & Del Chiappa, 2013; Komninos, 2002; Shapiro, 2006). A Smart Tourism Destination encompasses technology, people and institutions (Nam & Pardo, 2011). The creation of a Smart Tourism Destination requires integrating technologies, systems, services, and capabilities into an organic network that is sufficiently multi-sectorial and flexible for future developments, as well as being open-access (Albino, Berardi, & Dangelico, 2015). According to Buhalis and Amaranggana (2014; 2015), a Smart Tourism Destination is the result of the interconnection of a tourism destination with multiple community stakeholders through dynamic platforms and knowledge intensive communication flows and enhanced decision support systems. The final objective of a Smart Tourism Destination is to enhance tourism experience maximizing both destination competitiveness and consumers' satisfaction with attention to sustainability over an extended period. It is worth noting that in Smart Tourism Destination, the available technology is used to enable co-creation of value and experiences for tourists and create wealth, profit, and benefits for the organisations and destinations (Boes, Buhalis, & Inversini, 2015). In fact, different authors consider smart experience as an output of Smart Tourism. It derives from a social phenomenon arising from the convergence of Big Data with the tourism experience and its enhancement through personalization,

context-awareness and realtime monitoring (Buhalis & Amaranggana, 2015; Hunter, Chung, Gretzel, & Koo, 2015).

IBM (2008) defines a smart city as “one that makes optimal use of all the interconnected information available today to better understand and control its operations and optimize the use of limited resources”. Smart Cities Council (2015) defined the Smart City as "A smart city is one that has digital technology embedded across all city functions." Indian Government (2014) defines that "Smart City offers sustainability in terms of economic activities and employment opportunities to a wide section of its residents, regardless of their level of education, skills or income levels." therefore from the above it is clear that ICT is the key for developing smart cities.

Objectives

- To understand the concept of tourism and smart city
- To identify the smart tourism practices relating to smart city Bhubaneswar that could enhance tourism experience for the tourists.

Research Methodology

A Qualitative Research approach was used to examine the study. The study is basically Descriptive and Exploratory in nature. The Research Methodology adopted is based on the secondary data from the reliable sources along with primary data were collected in form of interviews with local people, industry experts who comprised Ministry of Tourism, Orissa Tourism Development Corporation and established Travel Agencies and Tour Operators in Odisha. Extensive secondary data was collected through books, related articles in journals, newspapers and electronic sources relating to study area.

Bhubaneswar as a Smart City

Bhubaneswar is one of the planned new towns in the post-Independence period. World renowned German architect and urban planner Dr Otto Koenigsberger prepared the city's first master plan in 1948, drawn on neighbourhood principles, for a population of 40,000. The city remains a notable paradigm of modern town planning and architecture in India. Bhubaneswar before becoming the capital of Odisha in 1948 had been a temple town with series of ancient sandstone temples, heritage ponds and water tanks. Koenigsberger wanted Bhubaneswar to be a modern city. In his introductory notes; he said the plans of very few towns in India were laid out by experts. Odisha was fortunate to be able to build a new town specifically designed for the purpose of a capital to be equally convenient for functioning of the Government and everyday life of its inhabitants. Architect Julius Vaz played an important role in shaping the skyline of Bhubaneswar. He designed most of the Government buildings. Vaz adopted the Hindu style of architecture with some modifications to take advantage of modern methods of construction and to meet new social needs of the people. None of his works in Bhubaneswar is a copy of buildings from other area. It is original and unique. Bhubaneswar has also been a citadel of classical art forms, such as the famous lyrical Odissi dance, music, and Chhau art. Though the state government has founded an Odissi Research Centre, much of the learning takes place in the age old Guru-Sishya tradition in the residence of the Guru. Many foreigners throng to the city to become trained in these arts. Some, including Ileana Citaristi and Masako Ono, have made the city

their home while running their own dance schools. With its sketchy business history and laidback culture, Bhubaneswar at first seems an unlikely birthplace for new-age start ups. The city is well laid out but retains its rural charm, being on the edge of an elephant trail and a large forest. A general look of lazy nihilistic resignation hangs over as people gather around shanty tea shops, sipping milk tea and discussing everything from politics to cricket. Yet there are signs of the city emerging as a techno-commercial capital, driven by enterprising youth, an acceptance of entrepreneurship as a mainstream career and incentives from the state and local governments. Glass and steel buildings are mushrooming across the city to accommodate their new-look offices. In DNA, Tatwa Technologies, Robotics wares and Muvi.com are some of the leading start-ups based here.

Bhubaneswar was selected in the first 20 Smart City List declared by Government of India in the year 2015 and was ranked number one in the context for planning and preparing the proposal. It was envisioned to make Bhubaneswar a 24/7 activity based, thriving and energetic place where people will live work and play. Bhubaneswar received an award for the Best Smart City at a three-day international conference, 'Smart City Expo India 2018' which was conducted at Jaipur Exhibition and Convention Centre (JECC) in Sitapura. Bhubaneswar has received this award for its community mobilisation and community development, which forms a part of the Socially Smart programme.

The Socially Smart programme was a joint collaboration of Bhubaneswar Smart City Limited and United Nations Population Fund (UNFPA), which has a vision of Bhubaneswar as a smart city where there will be a special focus on the needs of young people, security of girls and women, especially in slum areas.

Soon after Bhubaneswar received this award, there was a tweet from the official Twitter account of Smart City Expo India, Jaipur 2018, which mentioned, "Our first Smart City Award category is the 'Best City' Award. Ranked first in the Government of India's Smart City Challenge by making it to the final list for the World Smart City Awards in 2016 held at Barcelona, Bhubaneswar has been playing a pivotal role in redefining and demystifying the concept of the smart cities movement in developing countries. Besides this award, Bhubaneswar's holistic and socially smart strategy has been a recipient of several other accolades for its implementation, including the award for securing the 32nd rank among the top 50 best Smart Cities of the world in July 2018, the 2016 Award of Merit in the international development category by the Canadian Institute of Planners and then Pierre L'enfant International Planning Excellence Award 2017 by the American Planning Association.

Tourism in Bhubaneswar

Bhubaneswar is one of India's most famous destinations. Although it's dubbed as 'Temple City', Bhubaneswar is much more than that, boasting everything from architectural marvels to natural beauties. It is the lead tourism destination in the state and it acts as regional gateway for tourism in Odisha. Kalinga style architecture in temples spans all over the city with many Buddhist and Jain religions destinations adds glory to the city. Santistupa in Dhauri stands as act of peace of the great king Ashok as the important Buddhist destination and archaeological remains at Khandagiri and Udayagiri tells about the Jain religion

from the second century. The city is one of the parts of Golden Triangle circuit in eastern India along with Puri and Konark, and the last one is the UNESCO world heritage site. Bhubaneswar has an array of recreational destinations like Zoological parks, Botanical Gardens, Planetarium, Museums, etc. to offer something to everybody. From temples to stupas, cave to wildlife sanctuaries, the place leaves the visitors amused like never before.

Findings and Discussions

Everything seems to be labeled smart today: smart cars, smartphones, smart TV, smartwatch, smart hotels. In order to pull much of this smartness together, a global movement of smart cities is helping to connect the dots of seemingly everything within a city or community to make it more liveable, workable and sustainable. Given the cross-cutting nature of travel and tourism, a smart city can help create and sustain smart tourism, but so far this connection is not quite visible yet. Bhubaneswar did not secure a spot in the India Smart Cities Award by the Ministry of Housing and Urban Development announced in June 2018. It was a cumulative Innovative Idea Award, City Award and Project Award that lauded nine other smart cities, but not the global topper, Bhubaneswar. A month later, in July, rains ravaged the Odisha capital and submerged it, exposing the raw underbelly of weak urbanisation and a faulty drainage system. The irony, though oft-seen, is stark and raises the inevitable question: Is Bhubaneswar really a smart urban model or is it just a smart and ambitious idea? Has urbanisation pulled the city down, instead of giving it a boost? The truth, as always, lies in between. Smart cities are a smart idea, but both planning and implementation have been sporadic. The various issues and challenges of Bhubaneswar as a smart city are:

Safety: Bhubaneswar is ranked 13 on Safety. Yet, the crime rate has shown a rate of increase in the past three years. A recent study by Action Aid titled ‘City Makers in Bhubaneswar: A Study on the living conditions of Homeless in Bhubaneswar City’, showed that there are 6,559 homeless people, which is certainly not conducive for safe living.

Mobility: Some positive steps have been taken to implement an integrated and sustainable urban transport system, including a low-carbon mobility plan and e-rickshaws. However, these are still at the planning stage, and Bhubaneswar continues to be called the city of bad transport by a number of commuters.

Accommodation: Number of hotels rooms and luxury category of hotels in the city are not sufficient to cater the tourists in the peak tourism season.

Health: It is said that the main focus of Smart City is to be “more children-and-elderly-friendly”. However, most of the homeless sleep and defecate in the open. Even though, Chief Minister announced a number of health schemes, but still it is not implemented properly. The hospitals are running without “adequate doctors, diagnosis centres, infrastructure and adequate supply of free medicines”.

Sanitation: State government also seemed to have not ensured efficient sanitation, garbage collection and establishment of solid waste treatment plants.

Environment: Both cities and tourism produce a huge amount of waste. Recycling this waste is essential in order to be a sustainable smart city.

Productivity: Bhubaneswar is thought to be among India's first planned cities and the only Tier-2 town to host the top five IT companies of the country, Infosys, Wipro, Tata Consultancy Services, Tech Mahindra and Mindtree. World Bank calls it the third best place to do business in India. Some high-investment projects have been taken up. A few skills development centres and micro-business incubators have also been set up. However, many of these projects are limited. Last year, 85 lakh are jobless and the unemployment rate increased to 6.77 per cent against 4.7 per cent as compare to its previous year.

Digital Technology: A smart city embedded digital technology focuses on new opportunities and seeking into better way to manage the cities with digital technology. However, the problem is that there are still many people who do not see strong potential in these technologies and hesitate to start adapting them to their life.

Recommendations

- Crime rate greatly affects the image of the city. Tourists can easily be victims of the crime whereas local citizens are afraid of poor public security by allowing strangers in to their city. To protect both tourists and local citizens, Bhubaneswar city must use AI (Artificial Intelligence) technology to detect, reduce and prevent crime. Tourism police must be appointed to ensure the safety.
- Transportation system should be improved with low carbon vehicles and vehicles such as car and buses must be equipped with GPS and Wi-Fi facilities to provide a better experience for the tourists. The issue of traffic congestion due to the increasing number of tourists is needed to be solved. In order to tackle this problem, AI technologies need to be applied to analyze transportation applications such as "traffic signal control, network design, pedestrian crossing detection, travel time prediction, short term traffic volume prediction, and car ownership determinants.
- There must be an efficient waste management system in the city for the treatment of waste generated by local residents as well as tourist.
- The local people and entrepreneurs must be made aware of the benefits of implementation of digital technology in the smart city.
- Communication between tourists and host communities is important not only for offering tourists a better experience but also for the social environment of the city, but it can be sometimes difficult due to the language barrier, special gadgets must be developed which can catch and convert the spoken words into a different language.

- Tourist attraction and the service delivery points can be equipped with sensors, cameras and other smart devices like Touch screens which can provide the tourist a virtual experience and to collect data about tourists visiting those places. Virtual tours can also be provided to the tourists on their mobile phones through mobile apps.
- A large amount of data can then be stored on Cloud servers using the wireless or wired network. This data can then be analyzed and put to efficient use by the various stakeholders in the tourism sector.
- Public-private partnerships, the inclusion of local communities and the creation of smart destinations are crucial for development of the smart city as smart tourism destination.
- The city must change their models of tourism development to respond not only the most demanding tourists, but also to the rise of the digital and knowledge economy. “Being a smart destination is not just a label, but a process towards the comprehensive transformation as a destination, while always aiming at the achievement of the Sustainable Development”.

Conclusion

Tourism industry is of the characteristics of information resource-intensive and communication- technology-dependent so has higher requirements and has been walking in front of other industries in these respects, which is a direct beneficiary meanwhile a strong promoter of the application of information and communication technology. Smart tourism is the second revolution in the tourism industry (the first revolution comes from the Internet). It is bound to bring profound changes in the entire tourism industry in that application, integration and innovation of the new generation of information and communication technology conducts in all sectors of the industry. The systematic and intensive revolution will realize effective resources sharing and using, which will change the regulation mode of tourism administration departments, travel behavior and payment mode of the tourists, business mode of tourism enterprises. It will change the organizational models, marketing models, financing models and the structure of the tourism market. Smart tourism in turn promotes the development of the IoT, cloud computing and other emerging information and wireless communications industry.

Smart tourism is a part of smart city Bhubaneswar. Analysis of data reveals the smart technology is considered as a key factor representing the core of smart destination competitiveness, and its central role across all destination management activities is recognized. Bhubaneswar as a smart tourism destination has not fully implemented the smart technology. Though the city has enough tourism potential, it needs to be promoted through a smart approach. This requires integration of the tourism subsystem to the overall smart system of the city. The city needs to adopt a sustainable tourism development approach focussing on development of overall road infrastructure for better accessibility, affordable and adequate accommodation and restaurants, uninterrupted access to basic amenities like water and electricity and other tourism services. Citizen views are also important in decision making process and while implementation community participation should be encouraged digital technology must be implemented by the city to produce, manage and deliver tourism services to provide a better experience for tourist and achieve destination competitiveness.

References

- Albino, V., Berardi, U., & Dangelico, M. R. (2015). Smart cities: Definitions, dimensions, performance and initiatives. *Journal of Urban Technology*, 22(1), 3–21. <http://dx.doi.org/10.1080/10630732.2014.942092>.
- Boes, K., Buhalis, D., & Inversini, A. (2015). Conceptualising smart tourism destination dimensions. *Information and communication technologies in tourism 2015*. Springer International Publishing, 391–403.
- Buhalis, D., & Law, R. (2008). Progress in tourism management: Twenty years on and 10 years after the internet: The state of eTourism research. *Tourism Management*, 29(4), 609–663.
- Buhalis, D., & Amaranggana, A. (2014). Smart tourism destinations. In Z. Xiang, & I. Tussyadiah (Eds.). *Information and communication technologies in tourism* (pp. 553–564). Dublin: Springer.
- Buhalis, D., Amaranggana, A., Tussyadiah, I., & Inversini, A. (2015). Smart tourism destinations enhancing tourism experience through personalisation of services. *ENTER 2015 proceedings*. Lugano: Springer-Verlag, Wien.
- Buhalis, D., & Foerste, M. (2015). SoCoMo marketing for travel and tourism: Empowering co-creation of value. *Journal of Destination Marketing & Management*, 4(3), 151–161.
- Brown, B., Chui, M., & Manyika, J. (2011). Are you ready for the era of ‘Big Data’? In McKinsey, & Company (Eds.). *McKinsey Global Institute*
- Caragliu, A., Del Bo, C., Nijkamp, P. (2009) *Smart Cities in Europe*, *Journal of Urban Technology*, Vol. 18, No. 2, pp. 65-82.
- Express News Service. (2016). Bhubaneswar: Best place to be during demonetisation. *The New Indian Express*. Retrieved from <http://www.newindianexpress.com/nation/2016/dec/1/bhubaneswar-best-place-to-be-during-demonetisation-1547599--1.html>
- Government of India, Ministry of Urban Development. (2015). *Mission Statement and Guidelines*. Retrieved from [http://164.100.161.224/upload/uploadfiles/files/SmartCityGuidelines\(1\).pdf](http://164.100.161.224/upload/uploadfiles/files/SmartCityGuidelines(1).pdf)
- IBM (2008), *A vision of smarter cities*, Retrived on 31- jan - 2016, http://www-03.ibm.com/press/attachments/IBV_Smarter_Cities_-_Final.pdf
- Indian government (2014), *Smart City Guidelines*, Retrived on 7- feb - 2016, <http://smartcities.gov.in/writereaddata/SmartCityGuidelines.pdf>
- Komninos, P. (2002). *Intelligent Cities: Innovation, knowledge systems and digital spaces*. London and New York: Taylor and Francis, Spon Press.
- Micera, R., Presenza, A., Splendiani, S., & Del Chiappa, G. (2013). SMART destinations: New strategies to manage tourism industry. *Proceedings of “international forum on knowledge asset dynamics”* June.
- Smart Cities Council (2013) "Definitions and overviews" Retrived on 7- feb - 2016, <http://www.rinnovabili.it/wp-content/uploads/2013/12/SmartCitiesCouncil-ReadinessGuide.pdf>