Prospects and Challenges in Smart Tourism in India: Case study of Smart City Bhubaneswar

[1]Rashmi Ranjan Choudhury, [2]Saurabh Kumar Dixit

[1]Research Scholar, [2]Associate Professor

[1,2]Department of Tourism and Hotel Management,

[1,2]North-Eastern Hill University, Shillong, India

Abstract: In the fast moving developmental world the new form 'smart tourism' become more popular globally. The technological advancement and immense use of ICT in tourism directs smart tourism in that direction only, even it has some other dimensions. Although the previous researches defined the term smart tourism, the aspects like destination smartness, tourist and stakeholder's smartness need to be focused for the better achievement of the goal. Smart tourism also directs towards the innovative use of technology in resource optimisation, sustainability, good governance and quality of life in the tourism industry. This paper defines the smart tourism and its practices in Indian context putting light on tourism trends, information services and the other aspects.

Smart tourism is a rapidly growing concept in the developed countries moreover in the developed smart cities. The model of smart city also adopted in India to progress the nation from different aspects. The temple city 'Bhubaneswar' achieved number one rank in the smart city project initiated by Govt. of India, also the fastest growing city in eastern coast of India. From the ancient times the city has significant name tourism and in recent years the potentialities growing enormously. The conceptual study focuses on the smart tourism practices in the smart city and importantly the prospects and challenges come in the way of smart tourism also discussed. This paper extends the previous researches on smart tourism and draws attention for further study on smart tourism development and management.

IndexTerms - **Smart tourism; Smart city; Destination smartness; Technology and tourism; Temple city**

I. INTRODUCTION

In the fast moving developmental world the role of information and communication technology become very essential in all most all industries. The rapid growing tourism industry also experiences the evolution as technology becoming the essential component in services and also for tourism destinations (Kuflik et al. 2015). The development of technology in tourism and the growing concept of smart cities brought the attention of the tourism stake holders about the opportunities of the smart strategy in the tourism destinations to make as a smart tourism destination (Buhalis and Amaranggana 2013). The term smart is added to the cities to describe efforts of using technologies innovatively to achieve goals like resource optimization, effective and fair governance, sustainability and maintain quality of life. Smart tourism concept signifies that the use of technology in the industry to influence tourism experiences, improve the destination competitiveness, sustaining the tourism resources and favour tourism development projects (Presenza et al. 2014). Around the globe smart tourism concept is growing rapidly, many developed as well as in developing nations focusing on the smart tourism initiatives and smart destination projects (Gretzel et al. 2015). In Indian context the concept is in the fledgling state and needing more focus on dimensions of the smart tourism concept.

The smart city project was initiated by Government of India to develop some cities around the country making them citizen friendly and sustainable. The cities will be developed as a model area for the other cities with appropriate developmental projects and planning. In the list of 100 identified cities, Bhubaneswar the capital city of Odisha emerged as the top among all other cities in the smart city mission (Government of India, 2015). As there is a better scope to develop the planned cities to smart tourism destination the Government also focuses on the tourism industry in the smart city mission. In the fast developing economy smart tourism will improve the industry and achieve the developmental goals.

This paper discusses on the smart tourism practices from Indian prospective while focus was given to the prospects in smart tourism and huddles come across the way.

II. LITERATURE REVIEW

Smart tourism

In the technology driven world tourism become the largest industry in terms of economy employment creation and acts as supporting system for other several industries. According to the UNWTO (2015), tourism is a "social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or

business/professional purposes". While information and communication technology become a very essential component in tourism industry, it can be understand that smart tourism is the natural progression of e-tourism. "Statistics on ICT use in Tourism" (2016) statistics data explains tourists prefer online services to book their travel plan than regular offline service. The percent of such tourists increase day by day and in present scenario 60% for air travel, 55% for accommodations and 50% for railway or waterway tickets in European Union. In India also information services growing rapidly in tourism as the online booking of tickets and hotels services experiences a visible growth. In last few years rail ticket bookings grown up to 54.52% in 2014-15 compared to the traditional counter booking which was 38.54% in 2011-12 with a clear increase of 16 percent (Dubbudu, 2016). The online travel sales volume in India increased to 30.61 billion US dollar in 2016 from 5.37 billion US dollar in 2010 with an increase of all most 600 percent ("Online travel sales," 2017).

According to Gretzel, U. et. al. (2015) 'smart' become the buzzword to describe technological, social and economic developments propelled by new technology by using sensors, connectivity, big data, information exchange between industry and end users. Combining tourism to the term, it can be understand as it directs towards smart destination development, smart experience and smart business systems.

Smart destination, smart business system and smart expression of experience and information or data are considered as components of smart tourism (Vasavada & Padhiyar. 2016). Data is connected with the other three and they are inter-connected with each other through collection, exchange and processing of information.

Though ICT plays an important role but smart tourism is not all about technology, it is about agility. The dimension of smartness like human capital, social capital, governance and innovation also puts effect in smart tourism. "Smartness is fostered by open innovation, supported by investments in human and social capital, and sustained by participatory governance, in order to develop the collective competitiveness of tourism destinations to enhance social, economic and environmental prosperity for all stakeholders and generate value for visitors." (Buhalis, 2013).

Fig 1: Structure of Smart Tourism
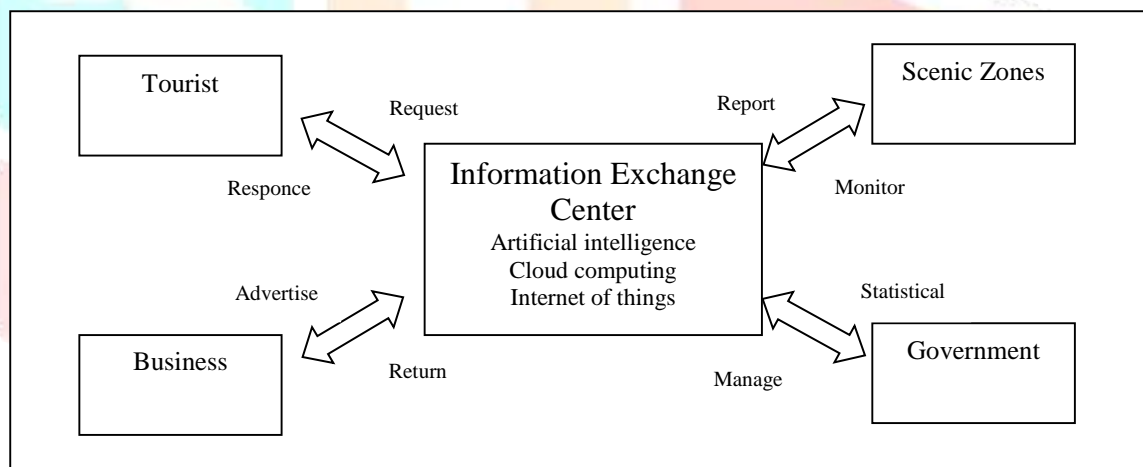
Source: Zhu, Zhang & Li (2014)

"Smart tourism system includes five elements such as Information Exchange Center (IEC), tourists, government, scenic zones and business". (Zhu, Zhang & Li, 2014). IEC is related to other elements and information exchanges from both the way through IEC. Tourists in present days search information using ICT through different search requests and gets appropriate information as response from IEC. Business entities showcase their products through advertisements in different medium like social media, electronic media and print media to get better return from the other end. The important role of IEC in tourism is to sustain the scenic zones hence report are prepared using IEC using statistical data to monitor the activities at the destinations time to time. Finally IEC helps government to manages the stakeholders and in policy planning for tourism development.

Smart city

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 (Caragliu et al. 2009). Three main pillars are considered as base of the smartness of the city such as: human capital, infrastructure and information services (Komninos et al. 2013). 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 (Bakici et al. 2013). Infrastructure development is also an important factor in makeover of a smart city as they work as the back bone for the other factors (Komninos et al. 2013). 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 (Bakici et al. 2013). 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 (Bakici et al. 2013; Schaffers et al. 2011). 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." (Batty, et.al, 2012).

Smart city mission in India

Globally the concept of smart city in 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). Cities were selected based on their profiles awarded with mark for different dimensions and selection of the cities was based on the ranking in smart city challenge.

As of June 2017, four round of challenges organized by government and 90 cities have been selected for upgrade as part of smart city mission after they overcome other cities in the challenge. Bhubaneswar, capital city of Odisha ranked top in the smart city challenge in the first round of selection followed by Pune and Jaipur.

III. STUDY AREA

About Bhubaneswar

With integration of rich culture, heritage, modern architecture and economic base Bhubaneswar is the capital city of state Odisha: the soul of incredible India. Though the modern city was designed in 1946 by German architect 'Otto Konigsberger', in history the foundation of the city can traced long back in second century B.C during the Chedi dynasty. The city is also known as 'Temple city' as all most 500 temples found in the area including the famous Lingaraj temple, Rajarani temple and Mukteswar temple.

From the tourism point of view Bhubaneswar 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 Dhauli 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 part of Golden Triangle circuit in eastern India along with Puri and Konark, and the last one is the UNESCO world heritage site.

Apart from tourism Bhubaneswar is an emerging hub for education, health and information technology. The city holds the fame of one of the four planned "Information Technology Investment Regions" in India and hosts the top five Indian companies in its region. World Bank also certifies as third best place to 'do business in India' ("Bhubaneswar smart city", 2015).

In demographics, according to 2011 census the population of Bhubaneswar increased all most 160% in 30 years span from 1981 to 2011. In the year 2015 when Bhubaneswar was proposed for smart city the population was 9.74 lakhs from which 52.9 percent male and rest 47.1 percent were female. The population density in the city is very low as compared to the large city which is 67 per hector and a large number of population live in slums counts as 36 percent of city population spreading over five percent of area.

SWOT Analysis of Bhubaneswar:

SWOT analysis tool used to identify the strength, weaknesses, opportunities and threats of the temple city for the study of smart tourism. The swot analysis is done keeping view on the internal and external factors of the city those related to tourism.

Strengths:	Weaknesses:
• Geographical position. • Financial assistance provided • Domestic market • Existing networks • High growth rate • Diversified tourism resources	• Pollution • Productivity • Small business units • Less available rooms • Human resources • Limitation in tourism time frame
Opportunities:	Threats:
• New products and services • New markets. • Growing demand. • Starting of international air services. • Needs development to attract off season visitors.	• Increasing traffic • Cash out flow • External risks • Increasing rates of interest • Tax structure and variations

IV. OBJECTIVES OF THE STUDY

The proposed study has been conceptualized with the following objectives:

i) To study the smart tourism concept in Indian context with special reference with smart city Bhubaneswar.

ii) To study the prospects and challenges of smart tourism in Bhubaneswar.

V. METHODOLOGY

The exploratory study is based on qualitative research approach. The data for this study were gathered from different secondary sources like archives of journals, magazines, media contents, official reports of Government, periodicals and from different web sources. Content analysis and personal observation in the study area is carried out for the research work.

VI. FINDINGS AND DISCUSSION

The temple city is the most developed city in the state and gateway for tourism. In recent years the tourism industry developed with evolution of information and communication technology. Development in infrastructure, services quality improvement and new initiations from stakeholders brings attention of not only tourists but also different event organizers to the city. Infrastructure requirements in accommodation sector going to have massive investments in recent future which will open employment opportunity for many and number of foreign tourist will increase in the state ("Establishment of hotel", 2017).

Transportation services experience a visible revolution with integration of ICT. Prepaid taxi service, common fare and emergency response system are such initiatives taken in the city. The smart city challenge proposal included sensor-based traffic lights and transport systems, installation of GPS, CCTVs and on-board announcements in buses, establishing a central control room and video analysis for traffic management. ("Bhubaneswar tops smart list", 2016). The grand success of the mega event Hockey league and Asian Athletics Championships 2017 showcase the effectiveness of the city to organize international events. Smart arrangements were provided by the state government and other stakeholders in short period of time, as the hosting stadium as well as the city was made prepare and ready for the event in a challenging period of 90days. The championship not only made a golden mark on efficiency of the state but also it showcased the rich culture, splendid heritage and scenic tourism to the world (Pattajoshi & Bisoyi, 2017).

The best situation that describes the smartness of the city is demonetization. In such an intricate period availability of cash, coordination between citizens and adaptation of digital payment by street vendors made the fame of the city throughout the nation (Express News Service, 2016).

To bring uniformity and proper management, uniform is designed for the registered street vendors to provide them an opportunity to participate in the smart city development process. The printed uniform will spread information about different tourist destinations of Odisha and make the city colourful (Ramanath, 2017; Mishra, 2017).
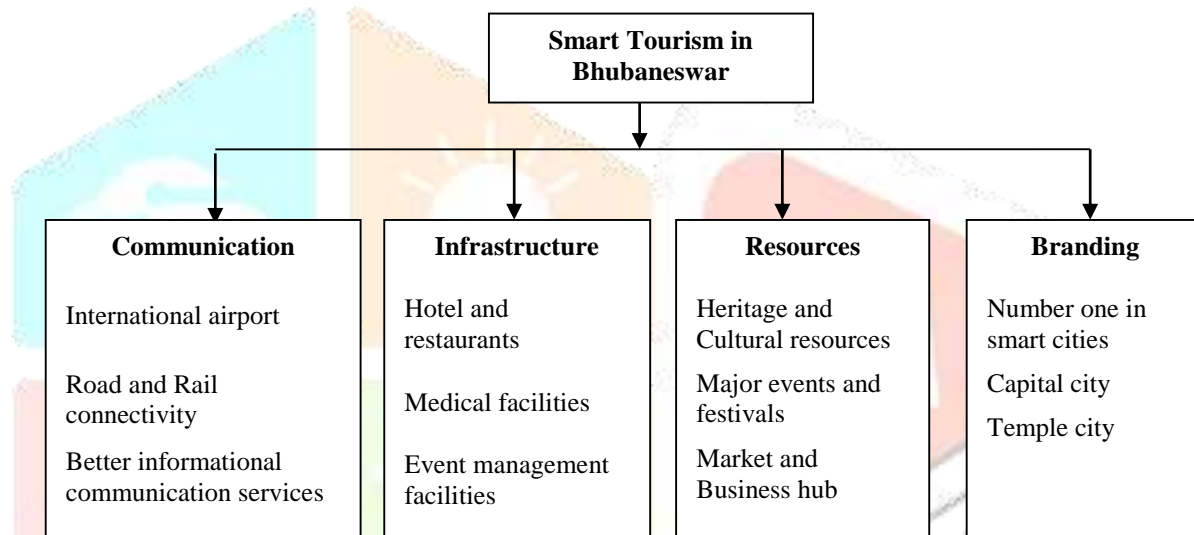
A step forward Bhubaneswar Municipality Corporation (BMC) has lunched mobile application to resolve basic requirements of its citizen like sanitation, lightning and waste management etc.

Though many developmental initiatives has undertaken for develop the smart city, but still some embarrassing situations stand as huddles on the way. In monsoon rain water blockage leads to water logging and artificial flood situation creating traffic congestion in the smart city (Odishatv Bureau, 2017; "Heavy rain hits", 2016).

Prospects of Smart Tourism in Bhubaneswar:

- Nearby tourism destinations like Puri, Konark provides a greater advantage to develop the smart city as smart tourism destination.
- Medical tourism and event tourism potentials growing day by day in the smart city.
- Twin-city development plan is the biggest prospect for the smart tourism development in Bhubaneswar along with Cuttack.

- Fund flow through foreign direct investment and Government funding as number one smart city in the country.
- Government initiatives in entrepreneurship development in tourism and allied sectors.

Fig 2: Smart tourism prospects in Bhubaneswar

```
                    ┌─────────────────────┐
                    │  Smart Tourism in   │
                    │    Bhubaneswar      │
                    └─────────────────────┘
```

Communication	**Infrastructure**	**Resources**	**Branding**
International airport	Hotel and restaurants	Heritage and Cultural resources	Number one in smart cities
Road and Rail connectivity	Medical facilities	Major events and festivals	Capital city
Better informational communication services	Event management facilities	Market and Business hub	Temple city

Challenges in Smart Tourism in Bhubaneswar

- Destination smartness depends on the community residing there; hence it's very important to involve them in the development plans. But in smart city Bhubaneswar the slum area grows day by day which stands as a threat for smart developments.
- Number of hotels rooms and luxury category of hotels in the city are not sufficient to cater the tourists in the peak tourism season.
- In every monsoon water management and drainage system comes as a major challenge throughout the city.
- Inexperienced human resource also a major huddles in the smart tourism development.
- An unregistered web portal, hotels which provides wrong information and awful experience to the tourists creates a bad experience leads to negative word of mouth.

VII. CONCLUSION

Smart tourism has a greater potential in the fast developing country like India. It can be estimated that, technological evolutions on tourism industry in forthcoming years will configure a new developmental scenario for tourism destinations in India that could favor in progression of smart tourism. Unlike developed countries smart tourism in India is in the nascent stage and need collaborative efforts from the government and the tourism stakeholders for development. Moreover all smart cities identified under smart city mission have tourism potentials and need to be promoted through smart approaches. Smart city standing committees should come up with needful strategies and proper planning and monitoring should be followed to achieve those. As tourism needs long term development, policies should be framed which includes development of overall road infrastructure for better accessibility, affordable accommodation and restaurants, accessibility to airports, uninterrupted access to basic amenities like water and electricity and

tourism information centre for tourist guidance. Citizen views are important in decision making process and while implementation community participation should be encouraged. Smart tourism projects need to be marketed through smart mediums like advertising in TV and social medias for wide spread and better responses. The number one smart city of India needs to focus on the infrastructure developments in accommodation, water and waste management. As the Temple city becomes preferred city for many national and international events those requirements need to be acknowledged time to time. Finally, it is not important to be declared as number one but the significant thing is to maintain that.

REFERENCES

1. Accenture. (2011). Smart mobile cities: opportunities for mobile operators to deliver intelligent cities. Accenture.

2. Bakıcı, T., Almirall, E., & Wareham, J. (2013). A smart city initiative: The case of Barcelona. *Journal of the Knowledge Economy*, *4*(2), 135–148.

3. Batty, M., Axhausen, K. W., Giannotti, F., Pozdnoukhov, A., Bazzani, A., Wachowicz, M.,Portugali, Y. (2012). Smart cities of the future. *The European Physical Journal*, 481–518.

4. Bhubaneswar smart city. (2015). Retrieved from http://www.smartcitybhubaneswar.gov. in/aboutbbsr

5. Bhubaneswar tops smart list. (2016, January 29). *The Telegraph.* Retrieved from https://www.telegraphindia.com/1160129/jsp/frontpage/story_66359.jsp

6. Bisoyi S. K. (2017), Asian Athletics Championships in Bhubaneswar to be biggest ever. *The Indian Express*. Bhubaneswar. Retrieved from http://indianexpress.com/article/sports/sport-others/asian-athletics-championships-in-bhubaneswar-to-be-biggest-ever-4694917/

7. Buhalis, D. Amaranggana, A. (2013). Smart Tourism Destinations. In: Xiang Z, Tussyadiah I (eds) Information and communication technologies in tourism 2014. Springer International Publishing, Switzerland, pp 553–556

8. Caragliu, A., Bo, C. F., & Nijkamp, P. (2009). Smart Cities in Europe. Serie Research Memoranda 0048.

9. Dubbudu Rakesh (2016) From *29 tickets booked in a day to 13 lakh tickets a day, IRCTC has come a long way*. Retrieved from https://factly.in/irctc-improvements-from-9-tickets-booked-in-a-day-to-13-lakh-tickets-irctc-has-come-a-long-way

10. Establishment of hotel rooms in state to boost up tourism. (2017, February 16). *The Dharitri,* p.10

11. 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

12. Government of India, Ministry of Urban Development. (2015). Mission Statement and Guidelines. Retrieved from http://164.100.161.224/upload/uploadfiles/files/SmartCity Guidelines(1).pdf

13. Gretzel U, Sigala M, Xiang Z & Koo C (2015) Smart tourism: foundations and developments. *Electron Markets* 25(3) 179-188. DOI 10.1007/s12525-015-0196-8

14. Heavy rain hits traffic in Bhubaneswar. (04th June 2016). *The Hindu.* Retrieved from http://www.thehindu.com/news/national/other-states/Heavy-rain-hits-traffic-in-Bhubaneswar/article14383599.ece

15. Komninos, N., Pallot, M., & Schaffers, H. (2013). Special issue on smart cities and the future Internet in Europe. *Journal of the Knowledge Economy*, 4(2), 119–134

16. Kuflik T, Wecker AJ, Lanir J, Stock O (2015) An integrative framework for extending the boundaries of the museum visit experience: linking the pre, during and post visit phases. *Inf Technol Tour* 15:17–47

17. Mishra, S. (2017). Uniforms for street vendors. *The Telegraph.* Retrieved from https://www.telegraphindia.com/1170726/jsp/odisha/story_163792.jsp

18. Odishatv Bureau. (2017). Retrieved from http://odishatv.in/odisha/body-slider/rain-leaves-several-areas-in-cuttack-bhubaneswar-waterlogged-228222/

19. Online travel sales volume in India from 2010 to 2016. (2017). Retrieved from https://www.statista.com/statistics/249705/forecast-of-online-travel-sales-volume-in-india/

20. Pattajoshi Lalit. (2017). Preparations done; Bhubaneswar ready for Asian Athletics Championships. *The Week.* Retrieved from *http://www.theweek.in/news/sports/ bhubaneswar-asian-athletics-championships-odisha.html*

21. Presenza A, Micera R, Splendiani S, Del Chiappa G (2014) Stakeholder e-involvement and participatory tourism planning: analysis of an Italian case study. *Int J Knowle-Based Dev* 5(3):311–328

22. Ramanath, R. (2017). Capital city vendors to get smart new uniforms. *The Times of India. Bhubaneswar.* Retrieved from http://timesofindia.indiatimes.com/city/bhubaneswar/capital-city-vendors-to-get-smart-new-uniforms/articleshow/ 59768262.cms

23. Schaffers, H., Sällström, A., Pallot, M., Hernández-Muñoz, J. M., Santoro, R., & Trousse, B. (2011). Integrating living labs with future internet experimental platforms for co-creating services within smart cities. In *International Conference on Concurrent Enterprising (ICE)*, Aachen

24. Statistics on ICT use in tourism. (2016). Retrieved from http://ec.europa.eu/eurostat/ statistics-explained/index.php/Statistics_on_ICT_use_in_tourism#Majority_of_tourist_ accommodation_is_booked_online

25. UNWTO (2015). Glossary of tourism terms. Retrieved from http://cf.cdn.unwto.org/sites/all/files/Glossary-of-terms.pdf

26. Vasavada, M. & Padhiyar, Y.J. (2016). "Smart Tourism": Growth for Tomorrow. Journal for Research. 1(2). 55-61