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Review Research on Application of Information and Communication Technology in Tourism and Hospitality Industry

Priti Ranjan Sahoo^{1*}, Bibhuti Bhusan Pradhan², Sarat Kumar Lenka³ and Soumendra Kumar Patra⁴

¹ Associate Professor, Department of Marketing Management, KIIT School of Management, KIIT University, Bhubaneswar, India

* Corresponding Author: E-mail: prsaboo2@gmail.com

² Professor, Department of Financial Management, Institute of Business and Computer Science, SOA University, Bhubaneswar, India
E-mail: 15bbpradhan@gmail.com

³ Professor, Department of Tourism Management, Indian Institute of Tourism and Travel Management, Bhubaneswar, India
E-mail: saratlenka62@gmail.com

⁴ Senior Assistant Professor, School of Management Studies, Ravenshaw University, Cuttack, India
E-mail: soumendra.patra@gmail.com

Abstract: *Purpose* – The purpose of this study is to recapitulate highly cited recent research articles on information and communication technologies in tourism and hospitality marketing and to propose a conceptual framework for e-tourism marketing. *Design/methodology/approach* – This study analysed 101 highly cited (citation mean 71) research articles from top twenty tourism and hospitality journals published during 2011 to 2015 based on Google Scholar metrics. All these research articles were segregated into six important constituents and to provide a context to interpret the study findings a conceptual framework for e-tourism marketing is proposed. *Findings* – After content analysis six constituents were formed including understanding e-tourism and tourist need, designing tourist driven e-marketing strategy, preparing an integrated e-tourism marketing plan and programme, building tourist relationship, capturing value from tourist, as well as changing e-tourism landscape. *Practical implications* – This structured study will help researchers and practitioners to get comprehensive findings on recent research, which will help them to find future research scope and formulate further strategies for their digital and social media marketing. *Originality/value* - This paper proposed a conceptual framework for e-tourism marketing research.

Keywords: Tourism and hospitality marketing, ICT, Review, Information and communication technology, e-tourism

Paper type: Literature review

1. INTRODUCTION

In the last five years 2011-2015 period many studies were conducted on application and future of information and communication technologies in tourism and hospitality (Chen and Law, 2016). The dynamic changes in information and communication technologies are so rapid, chaotic and erratic that technology disruption has become norm of the industry. Mobile internet technology is the most disruptive technology that is going to transform the way tourist gather touristic information, process, consume and share with others (Pesonen and Horster, 2012). In this era social media communication and networking has become a gigantic technology driven marketing movement.

Among the technological and social changes, social media is one of the most prominent macro changes which have brought new order in tourism and hospitality marketing. Social media has strategic importance for suppliers in de-commoditization, communicate product differentiation, and gain competitiveness in the market (Leung *et al.*, 2013). Information and communication technologies in general and social media in particular has become an important research theme in tourism and hospitality (Zeng and Gerritsen, 2014).

In the e-tourism arena both of user and brand generated contents have become source of information to both the seller and buyer of tourism and hospitality products and services. Although in most of the cases the quality of information is reliable and relevant but in few cases information source is not credible that leads to a state of confusion in the system (Chen and Law, 2016). Travellers' word of mouth on digital platform (e-WOM) has become an important topic for research. Travellers' reviews on destination and hospitality services have increased phenomenally. It has become critical for destination marketing organisation and hospitality service providers to formulate appropriate strategy in responding to those positive and negative reviews.

2. PAST REVIEWED ARTICLES

Reviewing literature is the primary activity of any researcher to gather immediate insight on a theme or area. Reviewing reviewed journal articles published in tourism and hospitality focused journals gave these researchers a comprehensive prospect on what review work has been done in this field. It was found 28 numbers of articles (Table I) between 2004 and 2016 have been published. Reviewing these 28 reviews gave some interesting perceptivity.

(Shen *et al.*, 2014) tabulated research article from 126 countries based on their research focus and journal publication in English language on tourism, leisure and hospitality area. They found that Asia Pacific in general and China in particular is the most discussed country where as few research were found focused based on some leading European countries like France, Germany and Russia may be because of barrier in language and cross country collaborative research. A content analysis of articles (Nunkoo *et al.*, 2013) found that most of the tourism and hospitality researches are focused and based on developed countries where as very few articles are found on developing countries. Research by (Kong and Cheung, 2009) summarised key emerging researched issues pertaining to Chinese tourism development over a period of 1084 to 2007, which are published various refereed journals which were available in three leading academic online database. (Ye *et al.*, 2011) studied research collaborations among tourism and hospitality scholars. (Park *et al.*, 2011) examined articles published in six most commonly cited journals from the area

of Tourism and Hospitality. They identified and presented 100 top authors along with their country of residence and university, who have contributed to these six journals during the period from 2000 to 2009. Earlier research shows that (Cheng *et al.*, 2016) did a quantitative systematic review, content analysis and bibliography analysis on a focused research area on adventure tourism. They reviewed 114 research articles and discussed on three broad areas.

Table I
Past Reviewed Articles

<i>Articles</i>	<i>Authors</i>	<i>Year</i>
A Review of Research on Information Technology in the Hospitality Industry	O'Connor, P.	2004
Factors affecting the online travel buying decision: a review	Wen, I.	2009
Hotel development in China: a review of the English language literature	Kong, H. and Cheung, C.	2009
Information Technology Applications in Hospitality and Tourism: a Review of Publications From 2005 To 2007	Law, R., Leung, R. and Buhalis, D.	2009
Hospitality technology: A review and reflection	Muller, C.	2010
Progress in tourism management: A review of website evaluation in tourism research	Law, R., Qi, S. and Buhalis, D.	2010
A coauthorship Network Analysis of Tourism and Hospitality Research collaboration	Ye, Q., Li, T. and Law, R.	2011
A review of website evaluation studies in the tourism and hospitality fields from 1996 to 2009	Ip, C., Law, R. and Lee, H. "Andy".	2011
Hospitality and Tourism Research Rankings by Author, University, and Country Using Six Major Journals: The First Decade of the New Millennium	Park, K., Phillips, W.J., Canter, D.D. and Abbott, J.	2011
Hospitality HRM: Past, Present and The Future	Davidson, M.C.G., McPhail, R., Barry, S., C.G. Davidson, M., McPhail, R. and Barry, S.	2011
Hospitality marketing research from 2000 to 2009: Topics, methods, and trends	Yoo, M., Lee, S. and Bai, B.	2011
Progress and development of information and communication technologies in hospitality	Ip, C., Leung, R. and Law, R.	2011
A Systematic Review, Analysis, and Evaluation of Research Articles in the Cornell Hospitality Quarterly	Law, R., Leung, D. and Cheung, C.	2012
Hospitality marketing research: Recent trends and future directions	ND Line, RC Runyan	2012
Hotel Revenue Management – a Critical Literature Review	Ivanov, S. and Zhechev, V.	2012
Developments in hospitality marketing and management: Social network analysis and research themes	Nunkoo, R., Gursoy, D. and Ramkissoon, H.	2013
Progress and Development of Information Technology in the Hospitality Industry: Evidence from Cornell Hospitality Quarterly	Law, R., Leung, D., Au, N. and Lee, H.A.	2013
Social Media in Tourism and Hospitality: A Literature Review	Leung, D., Law, R., van Hoof, H. and Buhalis, D.	2013

contd. table 1

<i>Articles</i>	<i>Authors</i>	<i>Year</i>
Consumer trust in tourism and hospitality: A review of the literature	Wang, L., Law, R., Hung, K. and Denizci, G.B.	2014
Hospitality Finance and Managerial Accounting Research: Suggesting an Interdisciplinary Research Agenda	Park, K. and Jang, S. (Shawn).	2014
New consumer behavior: A review of research on eWOM and hotels	AS Cantallops, F Salvi	2014
Progress on information and communication technologies in hospitality and tourism	Law, R., Buhalis, D. and Cobanoglu, C.	2014
Tourism marketing research: Past, present and future	Dolnicar, S. and Ring, A.	2014
What do we know about social media in tourism? A review	Zeng, B. and Gerritsen, R.	2014
Where in the World? A Geographic Analysis of a Decade of RESEARCH in Tourism, Hospitality, and Leisure Journals	Shen, Y., Morrison, A.M., Wu, B., Park, J., Li, C. and Li, M.	2014
Hospitality and Tourism Online Reviews: Recent Trends and Future Directions	Schuckert, M., Liu, X. and Law, R.	2015
A Review of Research on Electronic Word-of-Mouth in Hospitality and Tourism Management	Chen, Y.-F. and Law, R.	2016
A Tri-Method Approach to a Review of Adventure Tourism Literature: Bibliometric Analysis, Content Analysis, and a Quantitative Systematic Literature Review	Cheng, M., Edwards, D., Darcy, S. and Redfern, K.	2016

A structure of tourism marketing knowledge grid was suggested by (Dolnicar and Ring, 2014) to review the cause-effect relationships. (Law *et al.*, 2012) did content analysis on 133 research articles published in a span of three years of a solitary journal Cornell Hospitality Quarterly and found that accounting and finance is the most researched area in hospitality field. Literature review on hospitality HRM (Davidson *et al.*, 2011), Finance (Park and Jang, 2014), Marketing (Yoo *et al.*, 2011) & (Line and Runyan, 2012), Technology (Muller, 2010), Revenue Management (Ivanov and Zhechev, 2012), Consumer Trust (Wang *et al.*, 2014), Social Media (Leung *et al.*, 2013), (Zeng and Gerritsen, 2014) & (Schuckert *et al.*, 2015), Online Buying (Wen, 2009), e-WOM (Serra Cantallops and Salvi, 2014) were studied.

A decade ago (O'Connor, 2004) studied how information technology has affected the hospitality industry in three key areas: distribution, pricing and consumer interaction. (Law *et al.*, 2013) (Ip, Leung, *et al.*, 2011) studied periodic development of ICT research in hospitality and tourism. (Law *et al.*, 2009) (Law *et al.*, 2014) reviewed the progress of ICT from Supplier, technology and customer prospective. (Ip, Law, *et al.*, 2011) reviewed research on website evaluation on tourism and hospitality field in leading journal publication from 1996 to 2009 and website assessment structure based on quality and performance was designed.

(Law *et al.*, 2010) reviewed the research work pertinent to evaluation of tourism related websites for a decade and half. Publication on social media in the field of tourism has been reviewed extensively by (Zeng and Gerritsen, 2014). They have investigated economic impact assessment. Research publication from 2008 to 2013 on eWOM were review (Chen and Law, 2016) and it was found that most of the studies are based on influence of eWOM from consumer's prospective. (Leung *et al.*, 2013) reviewed six leading tourism journals' research articles on the theme electronic word of mouth.

3. METHODOLOGY

Top twenty journals were identified from the subcategory of Tourism & Hospitality in the Business, Economics & Management category listed under English publication of Google Scholar Metrics. From this twenty top listed Tourism & Hospitality journal 641 articles were considered for review at the preliminary stage (Table II). These 641 articles were identified based on their h-5 index of each of these top twenty journals. H 5-index is the most promiscuous means to identify the most cited research article in scholarly publication in the recent past five years. It is calculated based on the highest numbers of cited articles having at least the same numbers of citations each in just concluded past five years. For this study Google Scholar h-5 index has been taken for all articles published from 2011 to 2015. The numbers of citations were counted as it was in June 2016.

During the preliminary stage each of these 641 articles were reviewed to identify research article having any relevance to the research topic on information and communication technologies in tourism & hospitality area in general. Detailed content analysis was done on all of these relevant articles. A total of 101 numbers of articles were shortlisted for review. All these 101 articles are having 7182 numbers of

Table II
Leading Tourism and Hospitality Journals Reviewed

<i>Rank</i>	<i>Journal</i>	<i>h5-indexed Articles</i>	<i>Number of Articles Shortlisted and Reviewed</i>	<i>Percent</i>
1	Tourism Management	79	12	15.19
2	Annals of Tourism Research	60	1	1.67
3	International Journal of Hospitality Management	57	7	12.28
4	Journal of Travel Research	44	10	22.73
5	Journal of Sustainable Tourism	42	0	0.00
6	International Journal of Contemporary Hospitality Management	35	6	17.14
7	International Journal of Tourism Research	30	6	20.00
8	Current Issues in Tourism	29	4	13.79
9	Journal of Travel & Tourism Marketing	28	12	42.86
10	Cornell Hospitality Quarterly	27	14	51.85
11	Journal of Hospitality & Tourism Research	27	3	11.11
12	Tourism Management Perspectives	25	3	12.00
13	Tourism Geographies	24	0	0.00
14	Journal of Hospitality Marketing & Management	23	3	13.04
15	Journal of Vacation Marketing	21	8	38.10
16	Asia Pacific Journal of Tourism Research	19	4	21.05
17	Tourism Economics	19	1	5.26
18	Journal of Destination Marketing & Management	18	5	27.78
19	Advances in Environmental Biology	17	0	0.00
20	Scandinavian Journal of Hospitality and Tourism	17	2	11.76
	Total	641	101	15.76

Based on Google Scholar Metrics top twenty Tourism & Hospitality journals (article published between 2011 to 2015)

citations. Among these articles the citation mean is 71, median is 56. The highest number of citation received by an article is 338 and the lowest is 20. Among these articles (Appendix I) seven were literature reviews and the rest ninety four articles were research articles.

4. FINDINGS AND DISCUSSION

Research in information and communication technology in tourism and has received fair amount of attention in last five years. Most of these studies were undertaken on global context and findings that may be considered as universal. A large number of scholars particularly from China, North America and United Kingdom have researched and contributed varied of quality research articles to these top twenty journals. Earlier articles generally focused on prospect and growth of electronic distribution, where as recent articles are more focused on impact and outcome of the changes.

The status of highly indexed research publications in last five years is given in (Figure I). It is found that hotels in Hong Kong and Mainland China as a destination were the most discussed studies. Most of the studies were based on travel related user generated content in social media in cities of USA such as Las Vegas, Washington D.C., Seattle, and New York. Travels agents' and hotels' social media strategies of Taiwan were studied in several literatures. Few studies on ICT in tourism and hospitality are based on Europe particularly United Kingdom, Spain, Sweden, Switzerland, Greece, Denmark, Norway, Finland, Iceland, Portugal and Italy were found. Sole study on ICT in tourism and hospitality focused on countries such as South Korea, Palestine, Egypt, Taiwan, Fiji, Uganda, Iran, and India were found.

Information and communication technologies in general and consumer engagement in social media in particular are the most discussed topic throughout the review period. Use of social media in attracting, maintaining and retaining potential consumer has become a cost effective marketing strategy. Rapid changes in the ICT environment of the tourism and hospitality business are forcing marketer to understand the changes and tourist need; formulate strategy; implement well laid plan and programme; build ever lasting

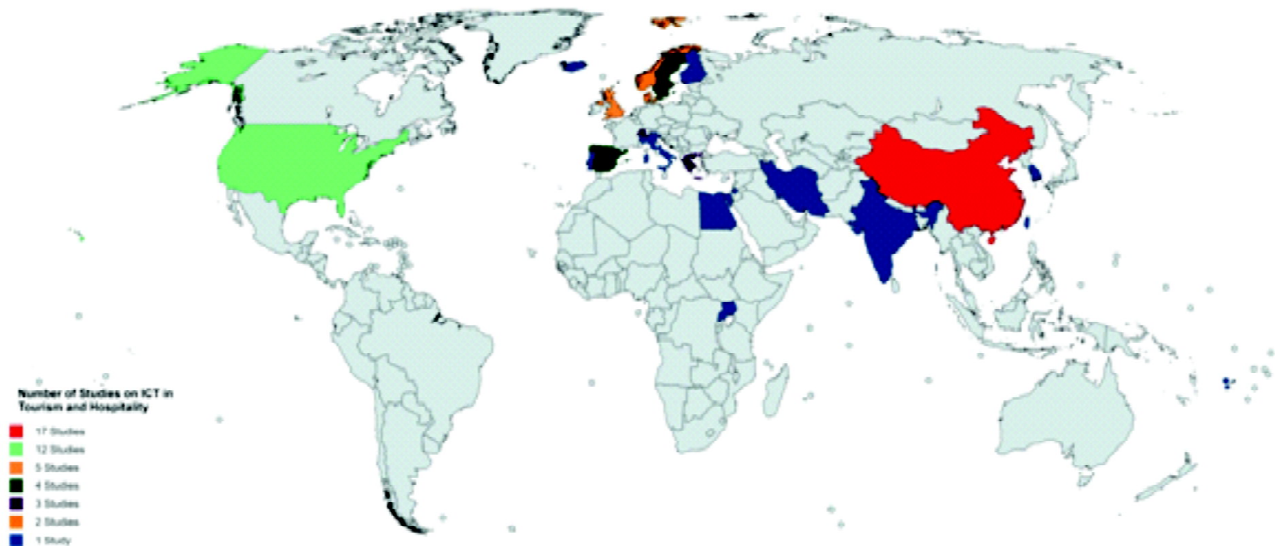


Figure 1

relationship; and captivate value. Ninety six research articles were categorised and grouped under six key components of discussion. The associated issues related to each of these important constituents of marketing environment of e-tourism are placed in a framework and a model (Figure II) is proposed.

4.1. Understanding e-tourism and tourist need

Tourism destination marketing organisations and hospitality suppliers are striving hard to understand the travellers' behaviour in the ever changing environment influenced by information and communication technologies. Researcher tried to find the consumer's motivation and rationale behind communication in internet media (Bronner and de Hoog, 2011). (Tussyadiah, 2012) studied on location based social networking marketing. (Kumar and Kumar, 2012) studied the linkage between ICT and tourism to the economic growth of a country. In an experimental research (Wen, 2012) studied consumer's online purchase intention. Most of the social media research are based on consumer's use of social media during their tour planning phase and supplier's promotion phase (Leung *et al.*, 2013). Social media communication by tourist and hotel user is a good source of information to understand tourist behaviour. (Jalilvand *et al.*, 2012) (Jalilvand *et al.*, 2013) studied how eWOM shape tourist attitude, travel intension, and destination. (Wilson *et al.*, 2012) found in their research that the motive and channel of sharing travel related information is very different among different ethnic group. (Kang and Schuett, 2013) studied the impact of social influence theory on consumer's motivation to share their travel experience. (Papathanassis and Knolle, 2011) viewed that in tourist's buying process, online reviews are secondary and only complementary to selection of holiday destination.

From search of information to buying of hotel rooms to share their experience, different set of consumer use different sources and channels. Online sharing of travel experience has become very popular now. Studying blogging pattern and bloggers will help tourism and hospitality marketer to effectively make best use of their presence in social media and draw attention to their destination or services (Tse and Zhang, 2012) (Banyai and Glover, 2012). Broadly business traveller and holidaying tourist buying phases are very different (Verma *et al.*, 2012). Online travel shopper's past experience influence their buying (Jensen, 2012). Word of mouth spread electronically through social media, popularly called as e-WOM has unique distinction in comparison to conventional word of mouth. (Tham *et al.*, 2013) identified five distinctive attribute in e-WOM. User Generated Content (UGC) has influenced all the three phase of buying stages namely pre, during and post buying behaviour of consumer of tourist products. (Chiappa, 2013) found that all the demographic criterions bring variety and distinction among the buying behaviour of online tourism consumer. (Li *et al.*, 2013) with text mining and content analysis studied online hotel review and identified determinants for customer satisfaction both for budget and luxury hotel properties. (Leung *et al.*, 2011) assessed blog entries on a popular travel blog on destination likeness. Reviewing travel blog is a good source to gather immediate information about perception of travellers. The attractiveness of a online review is higher when the reviewer's identity is disclosed (Kusumasondjaja *et al.*, 2012) and a negative online review has more convincing power to be believed than a positive review. Assistance is extended by other group members to an online social networking member when the member is travelling. (Kim and Tussyadiah, 2013) found that the extension of support depend on how the member present self in the online social network site.

In their experimental research (Mauri and Minazzi, 2013) found that while gathering reviewed information from review website, prospective buyer's purchasing intention get negatively affected when

they find reviews are being responded by hotel operators. Travel planning in certain cases are not influenced by online consumer generated media (Ayeh *et al.*, 2013a). The propensity to share travel experience decreases with higher education and age was found by (Ip *et al.*, 2012) while they studied experience sharing behaviour of online travel users. (Zehrer *et al.*, 2011) reviewed traveller blogs and found that the damaging impact of negative blog post get mitigated and marginalised if it is followed by positive post. Before booking a hotel room online these days most of the consumer prefers to read online review about the hotel property. With the changes in demography different set of consumer process and assimilate the same review differently. (Kim, Mattila, *et al.*, 2011) found that even men and women of same socio, cultural and economic background comprehend online reviews differently. When a large number of both positive and negative review and rating posted for a hotel property in the hotel review platforms such as Trip Advisor, it is obvious that consumer get confused. At time eWOM provides inconclusive information to the online hotel room shopper (Jimmy Xie *et al.*, 2011). In Indian context the consumer buying behaviour shows that (Beldona *et al.*, 2011) the factors such as age, education, internet accessibility are the major distinction between online and offline buying of airline tickets.

In social media it is found that traveller tend to upload more of personal photos, video and information and very little information about the tourist site they have visited. Traveller with higher education and income tends to share more of their travel photographs in social media platforms (Lo *et al.*, 2011). It was found that consumer perceive differently the photographs and content placed by user and seller. Consumer generated videos in social media substantiate the destination marketing organisation's video but it was found (Lim *et al.*, 2012) that consumer generated videos have insignificant good influence and cannot create the same destination brand identity and image as destination brand creates. (Pan *et al.*, 2013) studied that for conversion of online viewing to buying, hotel's photograph quality could be a major contributing factor other than the hotel position viewed at the top of a searched online travel agent's website. (Kwok and Yu, 2012) found that photos and status get more positive response than the embedded video and web link.

4.2. Designing tourist driven e-marketing strategy

Travel website create a very positive impact on the destination image (Jeong *et al.*, 2012). Positive assuring communication reduces the perceived risk of a destination. (Lepp *et al.*, 2011) studied that tourist perception changes after visiting the destination website. Cost of marketing could be substantially reduced with the right use of social media marketing by destination marketing organisations (DMO) and national tourism apex body (Hays *et al.*, 2012). While marketing a well known international destination, (Jacobsen and Munar, 2012) found that traditional web 1.0 and word-of-mouth are buoyant above the web 2.0 and electronic social media such as blogs, Facebook etc. Destination marketers must appreciate critical comments and opinion in the online publishing by visitors. They need to understand and accept their unique challenges and accordingly formulate marketing strategy (Çakmak and Isaac, 2012). Tourism organisation may strategically focus on deeper engagement in social media, link industry partner and on the above create opportunities for past visitors to share their momentous observations. Destination branding has the gigantic challenge from the consumer generated content. (Oliveira and Panyik, 2014) found that if strategically managed well then CGC could contribute positively to the brand equity of a destination. Destination marketing organisations need to treat the entire stakeholders as their co-creator for the branding effort of

their destination. Researcher and practitioners need to evaluate reliability of the consumer generated content is social media before formulating any marketing strategy (Dickinger, 2011).

Social media has become one of the major marketing tool in the hands of companies to interact with consumers (Hvass and Munar, 2012) but there are deficiencies in strategic planning and inconsistency in implementation in airlines marketing. As a value addition and differentiation strategy many travel service providers have created popular travels blog websites. (Huang, 2011) has suggested innovative ways to gain web users attention. Especially during post consumption stage tourist share their experience through travel blog (Bosangit *et al.*, 2012) and destination marketers need to carefully analyse those posts to formulate appropriate marketing strategy. To get good numbers of positive review and like click on Facebook, marketer need to have a definite strategy to see that what is working and what is not. When marketing events in online social media such as Facebook the gratification aspect mainly influences the browser to convert to buyer. (Lee *et al.*, 2012) proposed an extended TAM which explains the means to influence Facebook event page.

To attract, maintain and retain quality customer hotel marketer need to have different online marketing strategy in compare to traditional marketing strategy. Interestingly (Leung and Bai, 2013) found that hotel marketer can apply same media strategy both in Facebook and Tweeter channels. Surprisingly consumer who do not use online channels for any of their hotel use still have a very favourable attitude towards online selling (Toh, DeKay, *et al.*, 2011). Several strategies were suggested (Toh, Raven, *et al.*, 2011) to hotel operators to optimise their net room sale revenue though online channels. The correlation between online travel agents and social media and how do they influence hotel sales was studied by (Inversini and Masiero, 2014). It was found that both the social media and OTA contribute to increase hotel sales and some hotel staff must be trained exclusively to handle these two channels. Hotel employees need to be taken care of as they are the internal customer to the hotel organisation and they interface between the management and external guest. In the hotel's website clear communication about the hotel's diversity policy benefit the thee organisation in attracting right prospective employees (Gröschl, 2011).

4.3. Preparing an integrated e-tourism marketing plan and programme

The electronic distribution of tourism and hospitality services could be divided into four phase (Thakran and Verma, 2013). At present the wave of intermediation and disintermediation has gone into a new phase and it could be termed as hybrid phase in which both the supplier and intermediaries coexist. Destination websites are found to be ranged from simple and informational to complex and commercial. In their study (Luna-Nevarez and Hyman, 2012) suggested appropriate measures to be taken by destination marketing organisation to target potential tourist. (Munar, 2012)(Munar and Jacobsen, 2013) analysed the challenges faced by destination management organisations while planning for technological mediation through electronic word-of-mouth and involvement factors related to virtual dissemination of travel narratives. Browser use social media sources for the insightful information, functional worth and sensual angle about a holiday destination. (Sigala, 2013) studied factors that influence different stages of consumer behaviour with online coupon as a promotional tool in tourism industry and how best industry practitioner could have befitting strategy at each of these stages of consumer behaviour. (Ong, 2012) & (Zhang and Mao, 2012) discussed influences of user generated opinions on prospective customers and strategies to handle user generated opinions on tourism and hospitality review sites. (Melian-Gonzalez *et al.*, 2013) suggested best way to rip

benefits from eWOM. (Munar and Jacobsen, 2014) gave few tips how to update suitable tourist information in social media.

Social media marketing by hotels have to be efficiently multilingual particularly in English language to communicate well and attract international customers. (Hsu, 2012) did a study on English language compatibility on Facebook of six leading hotels in Taiwan and found deficiencies in the status. Employees' attitudes, behavioural intentions, and usage with respect to the adoption of ICT in the tourism industry were studied (Cheng and Cho, 2011) and research findings have prescribed various innovative ways to motivate employees to adopt technology. It is evident from many cases that hotel operators feel OTA as their competitor while acquiring guests. (Lee *et al.*, 2013) have suggested that hotels need to treat OTAs as their partners and make best use of technology in their favour. (Yacouel and Fleischer, 2012) discussed about the interdependence between hotel operator and online travel agent.

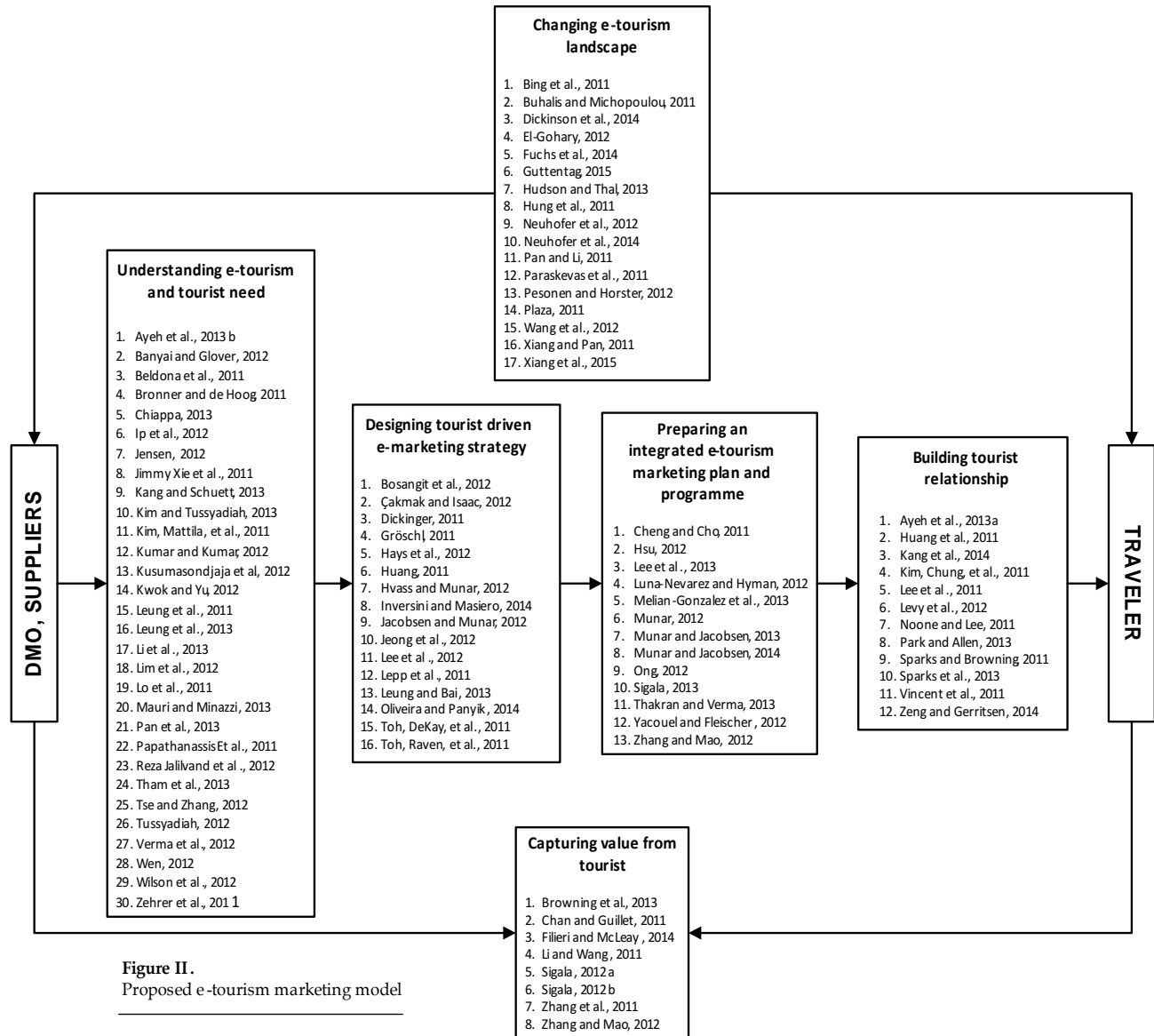


Figure II.
Proposed e-tourism marketing model

4.4. Building tourist relationship

Delighting customer ensures repeat business and loyalty. Analysing travel blog, hotel operator could find the services delight their valued customers (Vincent P. Magnini, John C. Crotts, 2011). In e-commerce satisfaction leads to trust and which in turn leads to long term sustainable loyalty. Website navigation functionality and perceived security are two major contributing factor on which online shopper's trust is built on (Kim, Chung, *et al.*, 2011). In online review certification, logo, numeric rating positively influence and build trust in the mind of prospective buyer. Social media has leveraging impact marketing tourism product (Zeng and Gerritsen, 2014). Slowly travel blogging is gaining popularity as an effective marketing strategy among travel service providers (Huang *et al.*, 2011), at the moment it act as a differentiator and in its tacit way convert information seekers consumers to information propagator consumer which at the end lead to sales.

In leading travel review website such as TripAdvisor there is few regular helpful reviewers whom TripAdvisor recognise as star reviewers. Online travel consumers look for those helpful honest reviewers' review comment (Lee *et al.*, 2011) to reduce their search cost. (Sparks and Browning, 2011) & (Sparks *et al.*, 2013) studied online review characteristics. (Ayeh *et al.*, 2013b) reviewed user-generated content in social media. Consumer loyalty increases when consumer is actively involved with a brand's Facebook page. Trust and commitment increases when restaurant consumer opt to like option of the restaurant brand's Facebook page (Kang *et al.*, 2014). Hospitality service providers are finding new ways to attract and motivation by offering incentives to web users to respond positively and opt to like the Facebook page of their brand.

Hotels operators responding promptly to negatively reviewed comment is a good online marketing strategy. (Levy *et al.*, 2012) found that leading chain hotels' response time lag is low compare to stand alone hotels. Some hotels as a policy respond to most guest review regularly and some hotels consider responding to few selectively. (Park and Allen, 2013) studied management style and operational procedure of these two set of hotels and compared them. (Noone and Lee, 2011) found that monetary compensation offered to consumer has the greatest positive impact on service recovery in case of service failure due to overbooking in hotels.

4.5. Capturing value from tourist

In service industry customers are treated as co-creators, customers have a definite role in the process of new service development. Web 2.0 influence costumers level and role of involvement in NSD. Similar to traditional ethnography (Sigala, 2012a) did netnography study on online consumer and (Sigala, 2012b) studied the management, risk & benefit issues related to social media influenced customers involvement in new service development process. Evaluation of services quality could be done from the content analysis of online review post by users. In case of service failure, service recovery has to be undertaken immediately to gain the confidence of the consumer (Browning *et al.*, 2013). Using qualitative data analysis software Atlas.ti (Li and Wang, 2011) did content analysis of trip related entries related to China as a destination in travel blog websites. Both product ranking and associated completeness of information quality are important to convert an information seeker consumer to buyer (Filieri and McLeay, 2014).

The quality of hotel (Zhang *et al.*, 2011) is substantiated through customer reviews on a travel advice website. Online user review impact the perception of user, (Zhang and Mao, 2012) identified that among

others location, room condition and staff are the three most important factors while influencing a new prospect to book a hotel. To their advantages hotels are yet to rip full benefit of use of social media in their marketing promotion (Chan and Guillet, 2011).

4.6. Changing e-tourism landscape

The destination management information system is becoming robust day by day. With the help of new technology adoption such as real time business intelligence and big data analytics the destination management is able to reduce the response time and communication gap between the service provider and consumer (Fuchs *et al.*, 2014). Information communication technology has a significant role in communicating information regarding accessible friendly provision at a destination site (Buhalis and Michopoulou, 2011). Both internal and external factors are crucial in adoption of electronic marketing technology (El-Gohary, 2012). Necessary top management intervention is highly required to upgrade the existing system. A web browser may visit a tourism website directly, through search engine or through hyperlink of other websites. The time spent by the browser on a particular tourism website and the active time spent on each webpage is important for a web marketer. The browsing (Plaza, 2011) used Google analytics tool to measure functional quality of tourism websites and suggested strategies to make best use of them.

In the competitive set, communication regarding good accessibility may bring differentiation among competing destinations. Consumer engagements with various brands of tourism products and services have changed drastically after influx of online social media communications through electronic channel. (Hudson and Thal, 2013) detailed how technology updated tourism and hospitality marketer can make best out of the changed scenario. Apart from attraction of a destination, technology enhances the experience of a destination. (Neuhofer *et al.*, 2012) suggested that technology as a source of innovation and customer engagement are two major differentiating factors for a destination.

With the surge of consumer generated content in social media a lot of data pertaining to various hospitality services and destinations are being generated. Structurally analysing those large amounts of data and deriving inferences have become a herculean task otherwise. Big data analysis is a way out to understand consumer perception, expectation, and satisfaction. (Paraskevas *et al.*, 2011) studied the SEM and optimization techniques for hotel operators and suggested search engine marketing strategy to optimise their webpage listing. In social media communication consumer use certain common key words while describing a destination. (Pan and Li, 2011) studied how to find those keywords and make best use of it. A pattern could be established using transaction log file (Xiang and Pan, 2011) how tourist destinations are searched online.

Tourist use Smartphone to store search, share and store information. (Wang *et al.*, 2012) studied smart utility of Smartphone by tourist. Smartphone apps have changed the horizon of tourism travel (Dickinson *et al.*, 2014), travel planner must integrate smart apps in their service features. Technology disruption brings new order in marketing strategy (Guttentag, 2015). Airbnb is a case in hand how technology disruption has brought several unexplored potential of alternate tourist accommodation to the market place. Some tourist are not limiting them just to search for superficial tourist information rather as a new trend they are researching deeper for non-traditional and unexplored tourist destination (Xiang *et al.*, 2015). In their study (Pesonen and Horster, 2012) reviewed on four key areas of short range wireless technology which is known as Near-Field Communication (NFC) and its adoption status among various key stakeholders of

tourism. (Hung *et al.*, 2011) studied the acceptance status of online trading systems in e-commerce among travel agencies. (Bing *et al.*, 2011) studied problem and prospects of search engine marketing (SEM) for tourist destination. (Neuhofer *et al.*, 2014) studied how ICT enhance consumer experience.

5. CONCLUSIONS AND FUTURE RESEARCH

There is a forceful argument that information and communication technologies are the greatest force driving change and complexity in the tourism and hospitality marketing. Now social media has gained momentum and the tourism and hospitality industry in focusing to gain the maximum from it. Organisations have started studying on their own or have hired consultants to find how best they could rip maximum benefit from social media marketing. Handful researches on social media's direct impact in absolute quantitative term on tourism and hospitality product and services distribution were found. Very few research were found on relation among online travel agents, central reservation systems, global distribution system, switching companies, payment gateways, service provider vendors, technology consultants, tourism research agencies, and tourism and hospitality marketing associations.

It is observed that the term information technology (IT), information and communication(s) technology/technologies (ICT/ICTs) were being used interchangeably without any difference as such. For ease of understanding a common nomenclature "information and communication technologies" would be most apt for the study of application of technologies in information rich communication. User of services of a hotel or destination share their experiences, reviews, upload photos, podcasts and videos of their travel, stay and visit in various online review platforms and social media sites. The term consumer generated media (CGM) and user generated content (UGC) are being used interchangeably. Some researcher mean CGM is online media created by general consumer who might have or have not experienced the destination or services in reality, where as UGC is content created by real users. It is good time for researcher and industry practitioners to bring clarity in their use of the two. Most of the researchers have advised destination marketing organisations (DMO) and hotel operators to respond to tourist online reviews particularly negative reviews but few researchers have found that in some cases responding to negative reviews further adversely affect the prospective buyer. Further researches in this regard need to be undertaken.

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APPENDIX - I

Reviewed Articles on ICT in Hospitality & Tourism

Articles	Authors	Year	Citations
The impact of online reviews on hotel booking intentions and perception of trust	BA Sparks, V Browning	2011	338
The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea	MJ Kim, N Chung	2011	264
Vacationers and eWOM: Who Posts, and Why, Where, and What?	F Bronner, R de Hoog	2011	213
Social Media in Tourism and Hospitality: A Literature Review	D Leung, R Law, H van Hoof, D Buhalis	2013	212
The Role of Smartphones in Mediating the Touristic Experience	D Wang, S Park, DR Fesenmaier	2012	190
Social media as a destination marketing tool: its use by national tourism organisations	S Hays, SJ Page, D Buhalis	2013	173
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Exploring the adoption and processing of online holiday reviews: A grounded theory approach	A Papathanassis, F Knolle	2011	124
“Do We Believe in TripAdvisor?” Examining Credibility Perceptions and Online Travelers’ Attitude toward Using User-Generated Content	JK Ayeh, N Au, R Law	2013	120
The perceived usefulness of blog postings: An extension of the expectancy-disconfirmation paradigm	A Zehrer, JC Crotts, VP Magnini	2011	119
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The long tail of destination image and online marketing	B Pan, XR Li	2011	111
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Consumers’ responses to ambivalent online hotel reviews: The role of perceived source credibility and pre-decisional disposition	HJ Xie, L Miao, PJ Kuo, BY Lee	2011	108
Online travel reviews as persuasive communication: The effects of content type, source, and certification logos on consumer behavior	BA Sparks, HE Perkins, R Buckley	2013	106
The effect of Facebook users’ arousal and valence on intention to go to the festival: Applying an extension of the technology acceptance model	W Lee, L Xiong, C Hu	2012	106
E-WOM and Accommodation An Analysis of the Factors That Influence Travelers’ Adoption of Information from Online Reviews	R Filieri, F McLeay	2014	105
Evaluating Research Methods on Travel Blogs	M Banyai, TD Glover	2012	102

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Image and perceived risk: A study of Uganda and its official tourism website	A Lepp, H Gibson, C Lane	2011	99
Hospitality marketing research: Recent trends and future directions	ND Line, RC Runyan	2012	99
Helpful Reviewers in TripAdvisor, an Online Travel Community	HA Lee, R Law, J Murphy	2011	96
Web reviews influence on expectations and purchasing intentions of hotel potential customers	AG Mauri, R Minazzi	2013	91
Effects of Gender and Expertise on Consumers' Motivation to Read Online Hotel Reviews	EEK Kim, AS Mattila, S Baloglu	2011	85
Travel queries on cities in the United States: Implications for search engine marketing for tourist destinations	Z Xiang, B Pan	2011	84
Google Analytics for measuring website performance	B Plaza	2011	84
Conceptualising technology enhanced destination experiences	B Neuhofer, D Buhalis, A Ladkin	2012	84
New consumer behavior: A review of research on eWOM and hotels	AS Cantalops, F Salvi	2014	83
Understanding Customer Delight An Application of Travel Blog Analysis	VP Magnini, JC Crotts, A Zehrer	2011	83
Progress and development of information and communication technologies in hospitality	C Ip, R Leung, R Law	2011	82
The takeoff of social media in tourism	KA Hvass, AM Munar	2012	80
The Trustworthiness of Online Channels for Experience-and Goal-Directed Search Tasks	A Dickinger	2011	79
What do we know about social media in tourism? A review	B Zeng, R Gerritsen	2014	79
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Selling Rooms: Hotels vs. Third-Party Websites	RS Toh, P Raven, F DeKay	2011	70
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Examining the structural relationships of electronic word of mouth, destination image, tourist attitude toward destination and travel intention: An integrated approach	MR Jalilvand, N Samiei, B Dini, PY Manzari	2012	62
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The Role of Cybermediaries in Reputation Building and Price Premiums in the Online Hotel Market	N Yacouel, A Fleischer	2012	57
Social Media in Destination Choice: Distinctive Electronic Word-of-Mouth Dimensions	A Tham, G Croy, J Mair	2013	56
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Trust and Involvement in Tourism Social Media and Web-Based Travel Information Sources	AM Munar, JKS Jacobsen	2013	53
Social networks and customer involvement in new service development (NSD) The case of www.mystarbucksidea.com	M Sigala	2012	52
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An Analysis of One-Star Online Reviews and Responses in the Washington, DC, Lodging Market	SE Levy, W Duan, S Boo	2013	52
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Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector	D Guttentag	2015	47
Customer Preferences for Online, Social Media, and Mobile Innovations in the Hospitality Industry	R Verma, D Stock, L McCarthy	2012	47
Travel Planning: Searching for and Booking Hotels on the Internet	RS Toh, CF DeKay, P Raven	2011	46
Adapting to the Internet: Trends in Travelers' Use of the Web for Trip Planning	Z Xiang, D Wang, JT O'Leary, DR Fesenmaier	2014	45
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Shopping orientation and online travel shopping: The role of travel experience	JM Jensen	2012	43
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Internet versus travel agencies The perception of different groups of Italian online buyers	G Del Chiappa	2013	41
Enhancing destination image through travel website information	C Jeong, S Holland, SH Jun, H Gibson	2012	40
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Determinants of Sharing Travel Experiences in Social Media	M Kang, MA Schuett	2013	37
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Selling rooms online: the use of social media and online travel agents	A Inversini, L Masiero	2014	36
The Influence of Online Reviews on Consumers' Attributions of Service Quality and Control for Service Standards in Hotels	V Browning, KKF So, B Sparks	2013	34
Progress and Development of Information Technology in the Hospitality Industry Evidence from Cornell Hospitality Quarterly	R Law, D Leung, N Au	2013	33
The Perceived Influence of User Reviews in the Hospitality Industry	BS Ong	2012	33
Using travel blogs to examine the postconsumption behavior of tourists	C Bosangit, J Dulnuan, M Mena	2012	33
The Emergence of Hybrid Online Distribution Channels in Travel, Tourism and Hospitality	K Thakran, R Verma	2013	32
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How Motivation, Opportunity, and Ability Impact Travelers' Social Media Involvement and Revisit Intention	XY Leung, B Bai	2013	29
The Complex Matter of Online Hotel Choice	B Pan, L Zhang, R Law	2013	29
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How do travel agencies obtain a competitive advantage?: Through a travel blog marketing channel	L Huang, CY Yung, E Yang	2011	29
An Integrated Model of Employees' Behavioral Intention Toward Innovative Information and Communication Technologies in Travel Agencies	S Cheng, V Cho	2011	28
Analysis of Blogs and Microblogs: A Case Study of Chinese Bloggers Sharing their Hong Kong Travel Experiences	TSM Tse, EY Zhang	2013	27
A framework for designing and implementing effective online coupons in tourism and hospitality	M Sigala	2013	24
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Content, context and co-creation Digital challenges in destination branding with references to Portugal as a tourist destination	E Oliveira, E Panyik	2015	23
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Exploring the nexus between information and communications technology, tourism and growth in Fiji	RR Kumar, R Kumar	2012	21
Factors Affecting the Adoption of E-commerce for the Tourism Industry in Taiwan	YC Hung, YL Yang, HE Yang, YH Chuang	2011	20