

The Strategic Role of ICTs in Tourism in Developing Countries

Najeeb Gambo Abdulhamid Dienagha Nicholas Ordmiru Rexins Imonih
Department of Computer Science, Brunel University London

Abstract
Information and Communication Technologies (ICTs) have become pervasive in all industries contributing substantially to the growth of businesses. In developed contexts, the pervasive and transformational power of ICTs has been leveraged to the benefit of Hospitality and tourism sectors. Despite the remarkable social impact and business offerings made possible by ICTs, limited research exists regarding the influence of ICT on tourism especially in the context of developing countries. In this study, we explore the impact of ICT on tourism from the customers' perspective, employee productivity and services offered by hotels in a developing country. Using a quantitative case study, we examined ICT intensity of use, availability and incidence of use index across model hotels that leveraged ICTs. The findings revealed that ICT incidence of use had a significant positive impact on tourism as well as a strong positive relationship with both customer satisfaction and operational productivity in the hotels. Our study provides insight for researchers and practitioners to consider further investigations into the impacts of service quality and innovation, as well as the effect of discount pricing, innovative products and services.
Keywords: ICT, Hospitality, Tourism, Developing Countries, Innovation, Service Quality

1.0 Introduction

The hotel and tourism sector are known to be one of the largest and enduring sectors. Its revenues support a large proportion of the economies of many nations, and it is one of the most significant employers of labour worldwide. Its contribution to the gross national domestic product, employment, state and regional/local government development are well documented and, unlike many other industries, it is forecast to grow in importance in the coming decades as leisure time increases (Highlights, 2011). Tourism is acknowledged to be very information intensive. Henceforth, information and communication technology (ICT) has become a universal feature of the tourism industry. Its tools allow information to be managed more efficiently and communicated worldwide almost instantly like radio and television waves because it has become digitized and enables packets of data to move over long distances.

Despite the remarkable social impact and business offerings made possible by ICTs in reshaping the basic structure of tourism and hotel in its daily operations (Chen and Schwartz, 2006), limited research exists regarding the influence of ICT on tourism especially in the context of developing countries. It is against this background; this study is undertaken to explore the impact of ICT on tourism from the customers' perspective, employee productivity and services offered by hotels in a developing country using the following hypotheses:

1. Ho The intensity of ICT use does not have a significant positive relationship with both customer satisfaction and operational productivity,
2. Ho ICT incidence of use does not significantly have an impact on tourism or hotel productivity

Specifically, the study will cover hotels in Yenegoa, a capital city of Bayelsa state in Nigeria and chose managers, employees and customers. Hotels under study were selected based on the availability of ICT artefacts such as Computers, internet access, websites and cell phones usage.

2.0 Related Studies

Available literature is replete with how ICT adoption enhances hotel performance. For instance, in a study carried out to investigate the influence of information and communications technology (ICT) adoption on hotel performance, findings revealed that ICT adoption had a significant positive relationship (Highlights, 2011).

Other studies examine the impact of ICT in hotel administration. In particular, the functions of ICT in the daily operations and the provision of services to hotel guests and expectations in ICT were studied. The finding reveals ICT incidence of use had a significant positive relationship with hotel performance and that it influences productivity and customer satisfaction (Ali, 2011).

Additional related works include ICT and sustainable tourism in developing world (Ali, Cullen and Toland, 2015; Ali and Frew, 2014), effect of ICT on tourism (Karimidizboni, 2013; Gorica and Sevrani, 2012; Sevrani and Elmazi, 2008) and ICTs adoption in tourism sector (Sirirak, Islam and Ba Khang, 2011; Ma, Buhalis and Song, 2003). Some studies examine the ICT and competitive advantage in tourism industries (Mihalic and Buhalis, 2013).

The review above suggests ICTs is an essential element for efficiency, business maximisation and growth. Yet, the literature is not specific on the strategic role of ICTs in the context of developing countries. Our research address this concern of the vital role of ICTs in Developing countries.

3.0 Methodology

Two types of research designs were used in this study: Correlational survey design and experimental design. The correlational survey design was used to take account of the fact that impact cannot be directly counted but needs to be described and illustrated with examples (Warren, 2002). While, the experimental design was used to gather, analyze and present information from statistically sampled experimental and control groups of managers, employees and customers in the hotels. Data was collected through the use of questionnaires and interviews from experimental and control groups.

3.1 Case Description

The geographical location of the study is Yenagoa Local Government Area of Bayelsa State. It has about 96 hotels. All managers, employees and customers of the hotels in the area of study made up the population under study. The respondents - managers, staff and guests had an average age between 18 and 50 years. They are from different ethnic groups, families and socio-economic backgrounds (Ashikodi, 2012).

3.2 Population of the Study

The population of the study is 28,896. It is made up of all managers, all employees and all guests in the hotels in the area of study from October 1 to November 30, 2012.

The samples and their sizes from the total number of hotel managers, employees, and quests from the ten hotels selected are shown in Table 1 below

Sampled no. Of Hotels	No. Of contact employee	Sampled no of manager	No. Of employee	Samples no. Of employee	No of customer	Sampled no. Of customer	Control group	Environmental group	Total
2	2	2	22	2	414	148	74	74	150
2	2	2	27	2	418	148	74	74	150
2	2	2	74	2	452	148	74	74	150
2	2	2	41	2	480	148	74	74	150
2	2	2	40	2	306	148	74	74	150

Table 1 Sampled No. of managers, employees 'and guests

Samples of 10 managers, ten employees, and 740 customers were selected from 10 of the 96 hotels in the area of study. The customers formed the control and experimental groups, each group having seventy-four customers.

The sampling techniques used were purposive sampling and random sampling techniques. Purposive sampling technique was used in selecting the managers. This is because the managers who were selected for the interviews and structured survey questionnaires, had best broad overviews of how their hotels are changing in response to ICTs (Alkhafaji, 2003). Most importantly they are usually responsible for the strategic development of the hotels, including the alignment of ICTs with hotel business strategy (Huang and Hu, 2007). The role of the managers in providing oversight and direction is crucial to realizing the potential benefits of ICTs (Kearns and Lederer, 2003). The managers are, generally, the ones who make decisions about ICTs and ICT use and monitor ICT's contribution to realizing the strategic aims of the hotels (Tai and Phelps, 2000).

The instruments used for data collection in this study were; structured survey questionnaires, five – point Likert scale questionnaires and fixed format interviews. The three instruments were validated to determine which items in them could elicit information from respondents and to review the issues. This was to make sure the instruments measured what they were supposed to measure.

Reliability of the tools was determined by their ability to measure consistently what they were meant to measure. This was done by using test re-test technique. The test re-test was carried out with experimental and control groups of hotels, hotel employees, managers and customers. Productivity, intensity of ICT use, the incidence of ICT use and customer satisfaction values were obtained and used in evaluating the reliability of the instruments. The reliability of the instruments in this study is the calculated Pearson product moment correlation coefficient values of 0.764, 0.9024, 0.9046 and 0.706 for operational productivity, the intensity of ICT use, the incidence of ICT use, and ICT availability respectively obtained and used. However, Spearman rho rank correlation coefficient was obtained and used to measure customer satisfaction. A reliability of 0.994 was obtained with Spearman rho rank correlation coefficient for Seven Hundred and Forty customers.

3.3 Method of Data Analysis

The statistical tools used in analyzing data in the study are Pearson product moment correlation coefficient (Pearson r) and Spearman rho rank correlation coefficient. They were used in analyzing experimental and control groups of data from the hotels, managers, employees and customers and in testing the hypotheses and formulating the alternative hypotheses. Inferential statistics was used in analyzing the random samples to gain knowledge about the population.

4.0 Discussion and Result

In respect of the incidence of use about customer satisfaction and hotel operational productivity, the correlation was found to be 0.8464, while its correlation with hotel operational productivity, using Table 25, was found to be 0.968. Thus, ICT incidence of use correlated more with hotel operational productivity than with customer satisfaction in this study.

Measured variable	Correlation of ICT incidence of use in relation to variable (PPMC r)
Customer satisfaction	0.8464
hotel operational productivity	0.9680

Table 2 Correlation of ICT incidence of use in relation to customer satisfaction and hotel operational productivity

Hypotheses Testing

Testing Null Hypothesis: Ho There is no significant positive impact on ICT availability and integration on operational productivity

The data gathered from managers and contact/reservation/booking staff of the sampled hotels after hosting websites on the internet were arranged in descending order and presented in Table 33

The Pearson product moment correlation coefficient r used in testing hypothesis is 0.706. The calculated Pearson r value, r – calc, 0.706 is greater than the critical (table) value of 0.632, at a significance level of 0.05 and degree of freedom df = 8. Therefore, null hypothesis (1): There is no significant positive impact of ICT availability and integration on operational productivity was rejected. Hence, the alternative hypothesis: ICT availability and integration has a significant positive impact on hotel operational productivity in the area of study was accepted.

Testing Null hypothesis (ii): Ho ICT adoption or incidence of use does not have a significant positive relationship with productivity."

The Pearson product moment correlation coefficient r was used in the calculating correlation of ICT incidence of use about hotel operational productivity in this study. The Pearson r used was 0.968. The critical (table) value of r at a significance level of 0.05 was 0.632 at a degree of freedom df = N – 2 = 10 – 2 = 8.The calculated Pearson r value, r – calc, 0.968 is greater than the critical value of 0.632 at a significance level of 0.05 and degree of freedom df = 8. Therefore, null hypothesis ii: ICT adoption or incidence of use does not significantly have an impact on tourism or hotel productivity was rejected.

Hence; the alternative hypothesis: ICT adoption or incidence of use significantly has an impact on tourism or hotel productivity" was accepted.

5.0 Findings

By combining both qualitative and quantitative study outcomes, the following deduction were made:

The study showed that Yenagoa is a tourist destination which has a plethora of hotels, about 96, most of which were established almost within the same period, judging from their ages (3-5years).

The available data (correlation of 0.706) indicates that ICT availability and adoption influenced to a significant positive extent operational productivity. It further showed that incidence of ICT use was improved and had a great positive impact on hotel productivity. Additionally, the findings also indicate (correlation of 0.9046) ICT adoption increased in hotels covered in the study and had a significant positive relationship with both customer satisfaction and productivity.

Equally important, the study showed that more investment in ICTs improved customer satisfaction and operational productivity to a large extent (correlation of 0.994). It revealed that the intensity of ICT use was enhanced and correlated with hotel productivity more than with customer satisfaction.

Available data obtained from the study revealed that infrastructural cost, skills, power outages, security, privacy and hacking concerns are the main barriers to ICT adoption.

This study showed that ICT adoption had a significant positive relationship with hotel performance, which was measured with operational productivity and customer satisfaction. It revealed that ICT incidence of use significantly influenced operational productivity and customer satisfaction. A correlation of 0.9046 for ICT adoption or incidence was obtained about both customer satisfaction and business productivity. ICT incidence of use benefited the hotel industry by providing critical information to management in deciding on the areas in which ICT was adopted, such as room division or foods and beverages division, as well as in deciding on specific technologies that would improve hotel performance. The study showed that ICT incidence of use had a significant positive influence on operational productivity. It showed that ICT adoption or ICT incidence of use was associated with significantly higher sales per employee. Sales per employee were the measure of hotel productivity in the study. A correlation of 0.968 was obtained for ICT incidence of use about hotel operational productivity. The use of web sites, internet access, and cell phones was the key factor in explaining higher productivity in the hotels covered in the study. Results showed that about 46.6% improvement in sales was calculated for hotels with Internet access and websites. Websites helped.

This study revealed that ICT intensity of use had a significant positive relationship with both customer satisfaction and operational productivity. A correlation of 0.924 was obtained about ICT intensity of use and both customer satisfaction and operational productivity. The study showed that empowering hotels with ICTs to take customers' complaints seriously, quickly handle complaints, solve problems, answer further questions, give feedback, etc. was important in satisfying customers and reinforcing their attitude towards their relationship with the hotels (Kano, 2001).

The study showed that about 58.18% of complaining customers were dissatisfied with hotels' direct (face-to-face) complaints handling efforts within one week of guests' use of websites and about 44.52% were dissatisfied within two months of use of hotel websites in dealing with customers' complaints. The study revealed that use of ICTs helped in dealing with customers' complaints better and in solving the following problems: (i) customer switching to competitor hotels (Dean, 2005) and (ii) negative word-of-mouth problem (Blodgett, Wakefield and Barnes, 1995). Both problems lead to high costs of acquiring (winning) new customers (Hart, Heskett and Sasser, 1990). Dissatisfied customers switch to other tourism service providers/hotels, because there are alternative service providers/hotels available, switching barriers do not exist, and customers do not feel loyal towards a hotel (Smith and Colgate, 2007). By contrast, a positive approach to dealing with customer complaints through the use of ICTs in handling complaints helped maintain customer relationships and generated positive communications/interactions with the hotels (Boshoff and Allen, 2000). Importantly, repeat purchases (loyalty) by established customers required less marketing expenditure than do purchases by first-time hotel customers that used websites (Dhar and Glazer, 2003).

The study showed that improvement in ICT intensity of use increased both customer satisfaction and operational productivity. It showed that more investments on ICTs improved the quality of delivery services, management of products/services, employees and customers and that ICTs improved customer satisfaction. This was because online bookings and online room reservations were improved. More investment in ICTs improved, also, managers, employees and guest's access to ICTs and use of ICTs. About 48% increase in expenditure on ICTs (websites) brought about 42.78% improvement in hotel sales resulting from more quests using online booking facility (website).

The research showed that ICT incidence of use had a significant positive relationship with hotel promotion. A correlation of 0.764 was derived for ICT incidence of use about hotel promotion. The study showed that an improvement of about 42.78% in hotels' daily sales was calculated for the use of websites in promoting hotel business. This was based on figures obtained from confirmed website bookings. It, also, revealed the issue of competition, because of the fact that Yenagoa Local Government Area is a tourist destination and that there is a plethora of hotels in it, making information on room availability, room type, room price and information on cutting down room prices on the internet (websites) necessary. Customers were found in the study to have compared hotel products, services and prices and made appropriate choices with use of hotel websites provided online by the hotels (O'Connor, 2003).

The research showed that ICT availability and integration had a significant positive impact on operational productivity. A correlation of 0.706 was obtained for ICT availability and integration about operational productivity. It revealed that an increase of about 83.33% in ICT availability and integration improved operational productivity by about 19.995%. ICT availability was measured with the quantity of ICTs available for use by hotel managers, employees, and guests. About 100% of the hotels used cell phones in inquiry and communications/interactions with guests. About 50% had computers and internet access and about 50% had websites. However, less than half of the hotels used computers and websites in their daily operations. Hotels which acquired websites within the period of study used the websites for hotel booking and contacts/inquiries. There were significantly higher sales per employee calculated from the use of hotel websites in booking in the study.

ICT availability and integration were found to have a significant influence on tourism and operational productivity. ICT incidence of use (proportion of employees who use ICTs in daily hotel operations) and ICT intensity of use was found to significantly affect positively both customer satisfaction and hotel operational productivity. The incidence of ICT uses influenced significantly hotel promotion from the study.

6.0 Conclusions and Recommendations:

The conclusions drawn from the study show that ICTs have a strong positive effect on Tourism/hotels in the area of research. Also, Hotel productivity is strongly promoted through the use of ICTs in daily hotel operations. Investment on ICTs and increase in proportion of staff who use ICTs increased hotel productivity, in contrast, hotels that failed to invest on ICTs ran the risk of being strategically exposed and ill-equipped to compete with their more technologically literate (ICT) competitors (Cline and Warner, 1999).

In contrast, the study showed that ICT improved customer satisfaction and that hotel productivity had a strong positive relationship with customer satisfaction, hospitality still requires guest-staff interaction to drive guest satisfaction.

In line with the above conclusion, we recommend that hotels should plow back into hotel business some of the hotels' profits to acquire, use and improve the quality of hotel business and productivity. Again, training and re-training of hotel employees to use ICTs in daily hotel operations and in handling guest-staff interactions should be carried out to improve, on customer satisfaction and employee productivity.

Further research is required in the area of ICTs measurable impact on service quality and innovation not covered in this study. Likewise, research is required, also on the effect of offering room discounts for guests of hotels who use websites for booking/ reservations online. Similarly, Hotels should receive support from stakeholders and government regarding facilitating their access to ICTs and regarding information companies on how ICTs can help increase productivity, improve quality service and performance of hotels.

7.0 Implications of the Study

Our findings revealed that effective complaint handling with ICTs is a crucial area for tourism/hotels managers and academics alike to focus upon, especially in the success of tourism/hotel business's relationships with customers and the management of employees. Hotels/tourism enterprises should regard customer complaints as a valuable source of important market intelligence to improve their service more generally (Vos, Huitema and de Lange-Ros, 2008).

Findings from the study would help managers of hotels find out which frontline (contact/booking) staff attributes were essential factors that their customers take for granted and excitement factors that can truly delight their customers. Hotels can decide which qualities and behavior of contact employees they should design effective training programs for to improve employee performance

Furthermore, the study provides critical information to management in deciding on the areas which ICT should be adopted, such as room division - bookings and reservations of rooms, foods and beverages division, as well as deciding on specific technologies that would improve hotel performance and productivity. Also, the study will provide valuable information to ICT marketing personnel on the types of ICTs hotels require improving their productivity and performance.

Acknowledgment

The authors wish to thank anonymous reviewers for their constructive feedback.

References

Ali, Y. (2011) 'The Impact of ICT in the Eyes of Hotel Managers (Cyprus)', .

Ali, A. and Frew, A.J. (2014) 'ICT for sustainable tourism: a challenging relationship?', Information Technology and Tourism, 14(4), pp. 261-264.

Ali, V., Cullen, R. and Toland, J. (2015) 'ICTs and Tourism in Small Island Developing States: The Case of the Maldives', Journal of Global Information Technology Management, 18(4), pp. 250-270.

Alkhafaji, A.F. (2003) Strategic management: formulation, implementation, and control in a dynamic environment. Psychology Press.

Ashikodi, T.I.J. (2012) 'Tourism development in the coastal region of Nigeria: Economics of Tourism development a shift from oil dependence.', .

Blodgett, J.G., Wakefield, K.L. and Barnes, J.H. (1995) 'The effects of customer service on consumer complaining behavior', Journal of services Marketing, 9(4), pp. 31-42.

Boshoff, C. and Allen, J. (2000) 'The influence of selected antecedents on frontline staff's perceptions of service recovery performance', International Journal of Service Industry Management, 11(1), pp. 63-90.

Chen, C. and Schwartz, Z. (2006) 'The Importance of Information Asymmetry in Customers' Booking Decisions A Cautionary Tale from the Internet', Cornell Hotel and Restaurant Administration Quarterly, 47(3), pp. 272-285.

Cline, R.S. and Warner, M. (1999) 'Hospitality 2000: the technology', BOTTOMLINE-AUSTIN-, 14, pp. 13-20.

Dean, C. (2005) The inspired retail space: attract customers, build branding, increase volume. Rockport Pub.

Dhar, R. and Glazer, R. (2003) 'Hedging customers', Harvard business review, 81(5), pp. 86-92.

Gorica, K. and Sevrani, K. (2012) 'IMPACT OF ICT IN AN TOURISM EMERGE MARKET: SOME IMPLICATION FROM THE CASE OF ALBANIA', Hilo: Institute for Business & Finance Research, 444.

Hart, C.W., Heskett, J.L. and Sasser, W.E.,Jr (1990) 'The profitable art of service recovery', Harvard business review, 68(4), pp. 148-156.

Highlights, U.T. (2011) 'Edition.(2011) UNWTO', available on: http://mkt.unwto.org/sites/all/files/docpdf/unwtohighlights11enhr_1.pdf, accessed on, 19(2011), pp. 2.

Huang, C.D. and Hu, Q. (2007) 'Achieving IT-business strategic alignment via enterprise-wide implementation of balanced scorecards', Information Systems Management, 24(2), pp. 173-184.

Kano, N. (2001) 'Life cycle and creation of attractive quality', 4th QMOD Conference, Linköping, Sweden. , 18-36.

Karimidizboni, R. (2013) 'The Impact of ICT on Tourism Industry in Iran', Interdisciplinary Journal of

Contemporary Research In Business, 4(11), pp. 680.
Kearns, G.S. and Lederer, A.L. (2003) 'A resource ‐ based view of strategic IT alignment: how knowledge sharing creates competitive advantage', Decision Sciences, 34(1), pp. 1-29.
Ma, J.X., Buhalis, D. and Song, H. (2003) 'ICTs and Internet adoption in China's tourism industry', International Journal of Information Management, 23(6), pp. 451-467.
Mihalic, T. and Buhalis, D. (2013) 'ICT AS A NEW COMPETITIVE ADVANTAGE FACTOR - CASE OF SMALL TRANSITIONAL HOTEL SECTOR', Economic and Business Review for Central and South - Eastern Europe, 15(1), pp. 33-56.
O'Connor, P. (2003) 'On-line pricing: An analysis of hotel-company practices', Cornell Hospitality Quarterly, 44(1), pp. 88.
Sevrani, K. and Elmazi, L. (2008) 'ICT AND THE CHANGING LANDSCAPE OF TOURISM DISTRIBUTION- A NEW DIMENSION OF TOURISM IN THE GLOBAL CONDITIONS', Revista de Turism: Studii si Cercetari in Turism, (6), pp. 22-29.
Sirirak, S., Islam, N. and Ba Khang, D. (2011) 'Does ICT adoption enhance hotel performance?', Journal of Hospitality and Tourism Technology, 2(1), pp. 34-49.
Smith, J.B. and Colgate, M. (2007) 'Customer value creation: a practical framework', Journal of marketing Theory and Practice, 15(1), pp. 7-23.
Tai, L. and Phelps, R. (2000) 'CEO and CIO perceptions of information systems strategy: evidence from Hong Kong', European Journal of Information Systems, 9(3), pp. 163-172.
Vos, J., Huitema, G. and de Lange-Ros, E. (2008) 'How organisations can learn from complaints', The TQM Journal, 20(1), pp. 8-17.
Warren, C.A. (2002) 'Qualitative interviewing', Handbook of interview research: Context and method, 839101.